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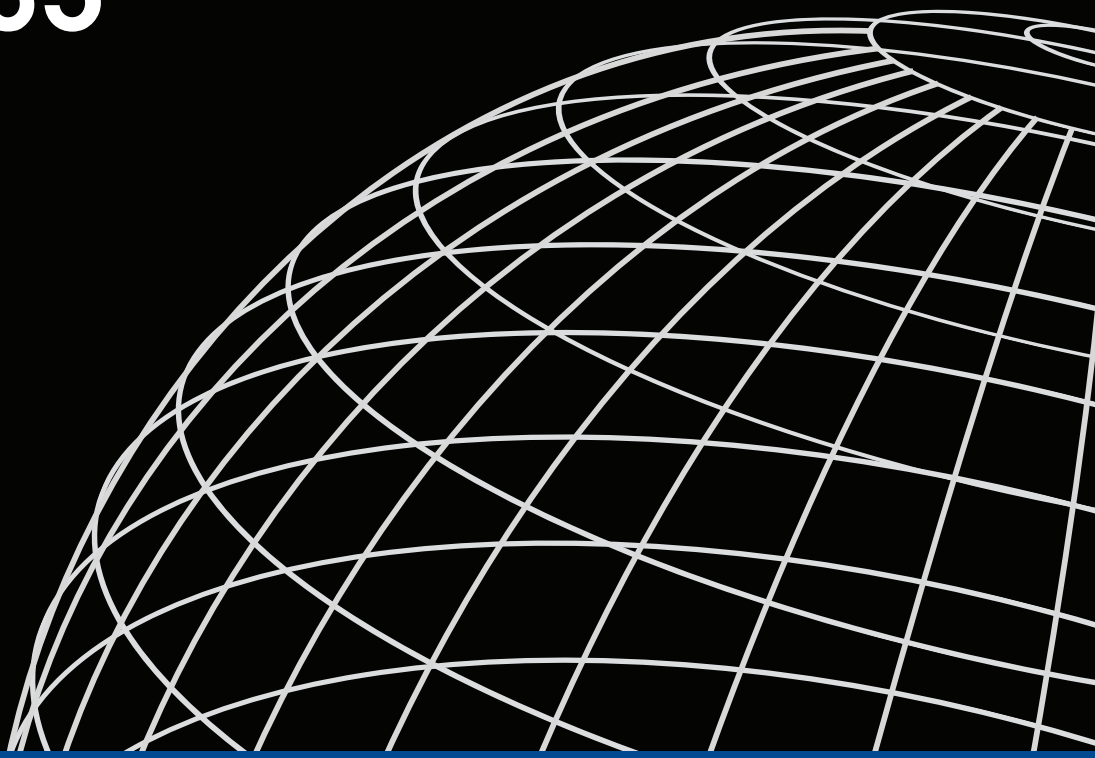
HIV STATUS AND COHABITATION IN SUB-SAHARAN AFRICA

DHS ANALYTICAL STUDIES 35



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HIV Status and Cohabitation in Sub-Saharan Africa

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Preface

One of the most significant contributions of The DHS Program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries.

The *DHS Comparative Reports* series examines these data across countries in a comparative framework. The *DHS Analytical Studies* series focuses on analysis of specific topics. The principal objectives of both series are to provide information for policy formulation at the international level and to examine individual country results in an international context.

While *Comparative Reports* are primarily descriptive, *Analytical Studies* provide in-depth, focused studies on a variety of substantive topics. The studies are based on a varying number of data sets, depending on the topic being examined. These studies employ a range of methodologies, including multivariate statistical techniques.

DHS Program staff, in conjunction with the U.S. Agency for International Development (USAID), selects the topics covered in *Analytical Studies.*

It is anticipated that the *DHS Analytical Studies* will enhance the understanding of analysts and policymakers regarding significant issues in the fields of international population and health.

Sunita Kishor

Director, The DHS Program

Executive Summary

The purpose of this analytical study is to advance our understanding of the role of HIV discordance in HIV epidemics, particularly as it relates to discordance within the subpopulation of cohabiting partners. HIV discordance between partners could be defined for a broader population of sexual partners, but our definition is the only one for which DHS data can be used.

Data for the analysis come from DHS surveys in 10 countries in sub-Saharan Africa: Cameroon, Kenya, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. The countries were selected because their HIV prevalence exceeds 4%. Their most recent surveys were conducted between 2006 and 2012.

Before focusing on pairs of cohabiting men and women, the study looks at patterns of HIV prevalence and cohabitation among men and women as individuals. In the general population represented by these 10 surveys, HIV prevalence is higher among women than among men—typically at least 50% higher. Much of this excess infection can be traced to women under age 35. In a simple pooling of data, the age distribution of HIV prevalence peaks about five years earlier for women than for men, but otherwise the patterns are similar across ages 15-49.

Living with a partner or spouse, in a cohabiting partner relationship, is more common for men than for women. Only in Cameroon are women significantly more likely than men to have a cohabiting partner. This difference is important because having a cohabiting partner is associated with HIV prevalence, but differently for men and women. Typically, men with a cohabiting partner have higher levels of HIV prevalence than men without a cohabiting partner. In contrast, women with a cohabiting partner have lower levels of HIV prevalence than women without a cohabiting partner.

For men and women who do not have a cohabiting partner, the higher levels of HIV among women than men are of particular concern because of the magnitude of the difference. HIV prevalence is typically two to three times higher among women without a cohabiting partner than among men without a cohabiting partner. By contrast, for men and women who have a cohabiting partner, the difference in HIV prevalence is usually small and not statistically significant. This pattern of HIV prevalence does not necessarily mean that having a cohabiting partner is protective for women and risky for men, although that is a superficial implication. Such inferences are seriously constrained by the cross-sectional nature of the data and various kinds of selectivity, most importantly from the higher mortality of persons with HIV/AIDS.

Within the subpopulation of men and women who have cohabiting partners we next match the associated partners into pairs (couples) and use the couple as the unit of analysis. There are four possible combinations of HIV status: negative concordant, positive concordant, and two types of discordance. The observed distribution across these four combinations can be compared with a hypothetical distribution derived from an assumption of independence of the partners' HIV statuses. Under independence, the probabilities of the four combinations can be determined from the HIV prevalence of men and women in the subpopulation of cohabiting couples. The null hypothesis of independence provides a baseline for assessing the correspondence between the HIV status of the man and the HIV status of the woman.

The observed data always show a statistically significant excess of concordant couples and a deficit of both types of discordant couples. The excess number of concordant couples could have resulted from indirect selection in which HIV-negative men and women tend to select one another, and HIV-positive men and women tend to select one another. The pattern is referred to as indirect selection because it is probably not explicitly based on HIV status when the cohabitation began. Most people in the survey countries did not know their initial HIV status or that of their partner; partner selection is typically based

on factors such as similarity of residence (urban-rural), level of education, wealth, etc., but these factors are associated with HIV prevalence. Stratification in the tables has reduced the role of selection but probably not eliminated it.

Another possible source of departure from the assumption of independence of the partners' HIV statuses may be HIV seroconversion, through which the HIV-negative partner in a discordant pair becomes HIV-positive and the pair transitions to positive concordance. Each such infection will simultaneously reduce the number of discordant couples by one and increase the number of positive concordant couples by one. Alternatively, the relative excess of concordant couples could also arise because discordant pairs are more likely than concordant pairs to separate and return to the population of men and women without a cohabiting partner. With DHS data we are unable to distinguish between seroconversion and separation, but we will assume that there has been substantial seroconversion, consistent with the usual interpretation that the HIV-negative partner has an elevated risk of HIV infection.

We measure the difference between the observed distribution and the expected distribution in two ways. The first measure is the arithmetic difference between the observed percentage of positive concordant pairs and the expected percentage. The amount of this excess is found to have a nearly perfect correlation with HIV prevalence: higher overall prevalence implies a higher level of concordance. The second measure is Cohen's kappa, which could range from zero, if the partners' HIV statuses were indeed independent, to a maximum of 100 if there were complete concordance. The observed kappa is almost always in a range from 30 to 70, with a median near 50. That is, the data are generally about halfway between the two extremes of independence and perfect concordance. Two measures derived from kappa indicate the relative deficit in each of the two discordant cells, in terms of men and women, respectively.

Among the 10 urban and 10 rural subgroups analyzed, only three showed that men and women in cohabiting couples differ significantly in their HIV prevalence. In urban Kenya, women in cohabiting couples 1) tend to have higher HIV prevalence than men, 2) are less likely than men to be in a discordant partnership, and 3) appear to have seroconverted through discordance at a higher rate than men. The opposite pattern was seen in rural Zambia and rural Zimbabwe. These three sectors are the main exceptions to the finding that discordance is generally very symmetric with respect to men and women.

The report also presents measures of the risk of future HIV infection as a result of discordance. Our preferred indicator of the collective risk compares HIV-negative men and women in discordant couples with the total population of HIV-negative men and women. By that measure, the percentage of HIV-negative individuals who have elevated risk of seroconversion because of discordance with a cohabiting partner ranges from 1% to 4%. The risks are similar for men and women. This type of risk is highest for men and women in urban Mozambique (4%), for men in urban Swaziland (4%), and for women in urban Zambia (4%).

1 Introduction

In a generalized HIV epidemic it is well known that HIV transmission occurs primarily as the result of unprotected sexual activity between men and women. Much of the effort to reduce sexual transmission of the disease is directed at counseling and testing of couples, with a particular focus on serodiscordant couples, that is, couples in which one partner is HIV-positive and the other is HIV-negative (UNAIDS, 2012; WHO, 2012).

The literature indicates that many countries with HIV epidemics have marriage customs that show a pattern of later age at first marriage associated with a longer period of premarital sexual activity (Bongaarts, 2007). These findings are of concern to researchers because multiple sexual partners before, during, or after marriage increases the risk of HIV transmission. At the same time, there may be some amount of reverse causation taking place. Young people in countries with HIV epidemics may, to some extent, be avoiding marriage. Women in particular may perceive themselves to be at greater risk of contracting HIV within marriage than outside of marriage. Recent studies of female-discordant partnerships (i.e., the woman is HIV-positive and the man is HIV-negative) indicate that marriage is a risky institution for both partners. A study carried out in urban areas of Rwanda and Zambia estimated that 60% to 94% of recent HIV infections occurred among cohabiting couples (Dunkle et al., 2008). Data from DHS surveys indicate that among the sub-Saharan countries for which data are available, a median of less than one in four adults has ever been tested for HIV and received the test results[1] (Staveteig et al., 2013). This low level of testing makes it unlikely that many HIV discordant couples are aware of their HIV status, much less take measures to avoid seroconversion (i.e., transmission of HIV from the HIV-positive partner to the HIV-negative partner). Learning more about the nature of couple discordance in higher-prevalence countries, even on a bivariate basis, is useful in the design of programmatic interventions that target persons most at risk of HIV infection.

This report examines the association between *HIV status* (i.e., whether the respondent is HIV-positive or negative) and *cohabiting partner status* (i.e., whether the respondent is living (cohabiting) with a partner or spouse). The study uses data from 10 national sample surveys carried out in sub-Saharan Africa between 2006 and 2012 by the Demographic and Health Surveys (DHS) project. Basic information on HIV status and cohabiting partner status is collected at the time of the survey; however, the data do not include important information such as how long the cohabiting partner relationship has applied or which came first (the cohabiting partner relationship or seroconversion of one of the partners). For that reason we have limited the analysis to describing the association between HIV status and cohabiting partner status. The analytical strategy is described in detail in the report; however, because it utilizes two distinct perspectives it will be helpful to give an overview here.

The first perspective treats individual men and women as the units of analysis and examines the association between HIV status and a simple binary version of cohabiting partner status, namely, whether or not the respondent has a cohabiting partner. The question here is whether a person who *has* a cohabiting partner is more likely or less likely to be HIV-positive, compared with a person who *does not have* a cohabiting partner.

The second perspective focuses on cohabiting couples as the units of analysis and examines the association between HIV status of the man and HIV status of the woman. It deals exclusively with respondents who have a cohabiting partner and combines the man and the woman into a pair (couple). In

[1] *Ever been tested for HIV* refers to the respondent's report of HIV testing received prior to the DHS interview. This testing is separate from the HIV test done as part of the DHS survey, which is the basis of the HIV status (HIV-negative or HIV-positive) analyzed in this report.

DHS and AIS surveys (i.e., standard Demographic and Health surveys and AIDS Indicator Surveys) it is possible to link men and women who are cohabiting partners, both of whom have been tested, and to classify these couples according to the HIV status of the partners. Using this information, it is possible to estimate the probability of each of four possible combinations of HIV status occurring in cohabiting couples—two types of concordance (HIV-negative/HIV-negative; HIV-positive/HIV-positive) and two types of discordance (HIV-negative/HIV-positive; HIV-positive/HIV-negative). The findings presented are based primarily on interpretation of the differences between the observed and expected distributions of these four combinations of HIV status in cohabiting couples.

This report is closely related to four other DHS reports. Joy Fishel et al. (2011) looks at HIV status and serodiscordance in the 2009 Mozambique AIS survey, one of the ten surveys included here. That study, which was funded by CDC as well as USAID, focuses on whether the respondents were aware of their HIV status, and goes into greater detail than is feasible here. That report also includes an excellent overview of the literature on discordance. Staveteig et al. (2013) examines levels and trends in HIV testing in 29 countries in sub-Saharan Africa, including all of the countries and surveys discussed in this report. Gopalappa et al. (2013) describes the age and sex patterns of HIV prevalence in sub-Saharan Africa. MacQuarrie et al. (2013) looks at the linkage between HIV status and domestic violence in five countries in sub-Saharan Africa. It includes four surveys in the present report that used the domestic violence module.

HIV serodiscordance is widespread among couples in sub-Saharan Africa, putting millions of uninfected partners at high risk of HIV infection (Grabbe and Bunnell, 2010; Malamba et al., 2005). HIV discordance is an inherently unstable condition. Without prevention efforts, the HIV-negative partner in a sexually active couple is continually at risk of becoming HIV-positive. Some individuals remain HIV-negative in spite of repeated exposure to HIV, but many do not. From a biological perspective, whether an individual remains uninfected after being exposed to HIV may depend on factors such as the route of exposure, the viral load, phenotype of virus, and genetic factors (Bienzle et al., 2000).

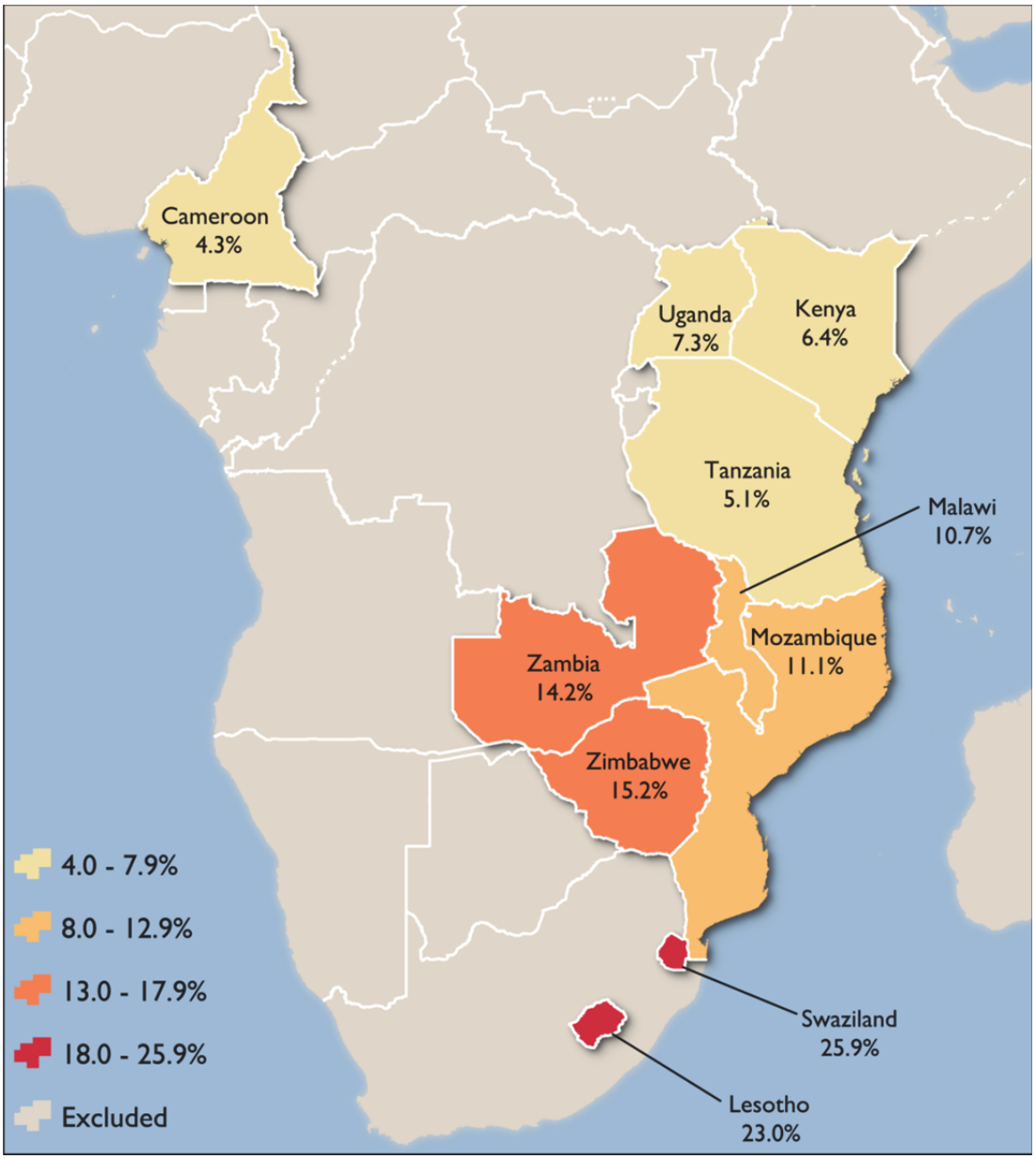
Several socio-demographic, behavioral, and biomedical factors have been reported to be associated with HIV discordance or concordance. The presence of other sexually transmitted infections (STIs) and lack of awareness of antiretroviral therapies (ARTs) indicate greater risk for HIV concordance (Guthrie et al., 2007; Ruzagira et al., 2011). Uncircumcised men are at increased risk for HIV concordance because male circumcision is partially protective against female-to-male transmission (Auvert et al., 2005; Babalola, 2011; Bailey et al., 2007; Gray et al., 2007). Behavioral risk factors for concordance include higher use of alcohol and lower use of condoms (Guthrie et al., 2007). Employment, education, and wealth have also been associated with HIV concordance (Allen et al., 2003; Kamali et al., 2003).

The finding that HIV-discordant couples in sub-Saharan Africa tend to be female positive as often, or more often, than male positive (de Walque, 2007; Eyawo et al., 2010) has been met with surprise. The finding appears to contradict conventional ideas about early marriage and monogamy among women in sub-Saharan Africa and about men's propensity for premarital and extra-marital sexual activity. Yet, statistically speaking, a high proportion of female-positive couples would not be surprising because HIV prevalence is higher for women of reproductive age (15-49) than men in all 10 countries surveyed. If couples formed at random, more would be female positive than male positive. Similarly, the finding that a larger proportion of couples in countries with higher HIV prevalence are HIV-positive concordant (Chemaitelly et al., 2012) is statistically predictable: the joint probability of being HIV-positive concordant increases in proportion to increases in HIV prevalence among men and women. Both of these findings will be addressed and modified in this report,

We address the inherent predictability of observed patterns in HIV discordance and concordance by introducing new metrics that account for expected HIV status among couples. Using data from recent

Demographic and Health Surveys (DHS) and AIDS Indicator Surveys (AIS) in 10 DHS surveys in sub-Saharan Africa, 2006-2012 with most recent adult HIV prevalence above 4%—Cameroon, Kenya, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe—we examine factors associated with differences between observed and expected HIV status of cohabiting partners. The national prevalence for men and women combined in these 10 countries is shown in Map 1.1.

Map 1.1 HIV prevalence among adults age 15-49 in 10 sub-Saharan countries, 2006-2012



In this report, the couple's HIV status is represented by four possible combinations of the man's HIV status and the woman's HIV status, as follows: (Type 1) man negative/woman negative, (Type 2) man negative/woman positive, (Type 3) man positive/woman negative, and (Type 4) man positive/woman positive. Type 1 and Type 4 couples, in which both partners are negative or both are positive, are

described as *concordant* (negative concordant and positive concordant, respectively). Type 2 and Type 3 couples, in which one partner is positive and the other is negative, are described as *discordant*, and are of particular interest to HIV programs. The HIV-negative partner in a discordant cohabiting couple is especially vulnerable to infection. Interventions may be directed at identifying such couples and modifying behavior in order to reduce the probability that the negative partner will be infected by the positive partner.

If couples could be followed over time, some transitions would be observed from Type 1 to Type 2 or Type 3 and some transitions would also be observed from Type 2 or Type 3 to Type 4. Because our data are only a snapshot in time, the history of such transitions is not known. When only one partner is seropositive, then we can be sure that the infection must have come from outside the union. When both partners are seropositive, it is possible that the second partner to become seropositive was infected by the first partner—although we do not know who was first and who was second—but it is also possible that both infections were from outside the union. The duration of the HIV statuses and the duration of the union are not known.

There is potential selectivity in the couples that are observed. With longitudinal data, some couples would be lost to observation because the couple separates. New couples may form and can be of any of the four possible types at the time of formation. Couples may dissolve because of the death of one or both partners, which is more likely for partners who are HIV-positive. They may also dissolve because of separation/divorce. Longitudinal research by Porter et al. (2004) found that separation is more common among discordant couples, particularly Type 2 (man negative/woman positive), than among other couples. Because the data are cross-sectional, with no information about the source of infection, the duration of infection, the duration of the partnership, or the degree of selectivity, our analysis can only be descriptive.

This report is, in large part, about the association among three characteristics of the survey respondents: HIV status, whether they have a cohabiting partner or spouse, and whether the respondent is male or female. The analysis is driven by three related sets of questions. For each set of questions, variation across countries and covariates are described. All inferences from these cross-sectional data should be considered tentative.

Questions about individuals are the subject of Chapter 3: For individual men and women, what is the association between having a cohabiting partner and being HIV-positive? That is, are individuals who have a cohabiting partner more likely to be HIV-positive? Equally, because the sequencing is not known, are individuals who are HIV-positive more likely to have a cohabiting partner? Is the association between HIV status and cohabiting partner status the same for men and women?

Questions about couples are the subject of Chapter 4: For men and women who are paired cohabiting partners (couples), do the HIV statuses of the partners tend to be the same (concordant) or different (discordant)? How does the degree of discordance compare with what would be expected under a model of independence?

Questions about the risk of HIV transmission are also included in Chapter 4: What is the aggregate level of risk of HIV infection that is due specifically to HIV discordance in cohabiting partners—that is, the risk that an HIV-negative partner will seroconvert to HIV-positive status because of cohabiting with an HIV-positive partner? What is the difference between men and women in the level of risk?

Chapters 3 and 4 include descriptions of the methodology used in the analysis and a summary of the findings. Residence (urban-rural) is the only covariate presented explicitly in the main tables, although similar tables for age, education, and wealth are included in the Appendix.

2 Data

The study is based on nationally-representative samples of cohabiting couples from 10 recent Demographic and Health Surveys and AIDS Indicator Surveys in sub-Saharan Africa. These surveys, conducted during the period 2006-2012, collected socio-demographic and behavioral data from individuals and households and are representative of the population living in households.

Except for HIV status and cohabiting partner status, which are the key outcomes, all of the variables used here come from the household surveys. This information includes residence (urban or rural), age (five-year intervals beginning with age 15, or wider intervals), education (none, primary, secondary and higher), and wealth status (quintiles: lowest, second, middle, fourth, highest). Residence is a cluster-level variable while wealth is a household-level variable; both of these variables are the same for all members of the same household. The four variables (residence, age, education, and wealth) are the only covariates in the analysis except, in the case of couples, where we include the difference between the man and the woman in age and education.

The information needed to establish cohabiting partner status comes from interviews with men and women, rather than from the household survey itself. In all surveys, all women age 15-49 were interviewed. (The Uganda survey included women up to age 59, but we only include women 15-49 in the analysis.) The interview included questions about whether the woman had a male partner and, if so, whether he resided in the same household and, if so, to identify him.[2] In most of the surveys, all men within a specified age range were also interviewed. The interview included questions about whether the man had a female partner and, if so, whether she resided in the same household and, if so, to identify her. All men and women who could be matched were then put into a "couples" file in which the units were cohabiting pairs. To be accepted as a match, there had to be agreement between the woman's identification of her partner and the man's identification of his partner.

It should be emphasized that in this report the phrase, "has a cohabiting partner," means that a cohabiting partner has been identified and matched. A respondent may have a regular partner, perhaps even a spouse who resides *de jure* in the same household, but if that person is not a *de facto* cohabiting partner at the time of the survey—perhaps because of temporary work-related migration—then the respondent is classified as "has no cohabiting partner." If the partner is absent, then we know virtually nothing about his or her characteristics.

The degree to which cohabiting couples are representative of all couples—including couples who are sexual partners but are not actually cohabiting—is not explored here. However, a recent DHS study of serodiscordant couples in Mozambique found that married individuals who were cohabiting with their partner were not significantly different from married individuals who were not cohabiting with their partner, in terms of HIV prevalence, age, education, wealth, residence, region, and province (Fishel et al., 2011).

The original age range for men is not the same in all surveys. The age range for men was 15-49 for the surveys of Mozambique, Swaziland, and Tanzania; 15-54 for Kenya, Malawi, and Zimbabwe; and 15-59 for Cameroon, Lesotho, Uganda, and Zambia. Variation in age ranges could have some effect on the matching of partners. If the upper limit for men is lower, somewhat fewer women can be matched with their male partners. For example, if a woman is age 48 and her partner is age 52, they would be included as a couple in seven of the countries but not in Mozambique, Swaziland, or Tanzania. For better

[2] During data processing, the respondent's identification (by name) is converted into a line number that can be matched.

correspondence between the samples of men and women, and better comparability across countries, in this report the ages of men are limited to 15-49. Thus, in surveys of men for which eligibility went up to 54 or 59, men over age 49 have been dropped. This modification corresponds to the UNAIDS age range for HIV prevalence estimates. It should be noted that any differences between estimates of men's HIV prevalence in this report and the main DHS survey report are largely because the interval used in the survey report was wider than 15-49.[3]

In four of the ten surveys, a subsample of men was interviewed. In the Cameroon sample, for example, the number of men is about half the number of women. Such subsampling was done at the level of the household. A variable in the household survey, hv027, was coded 1 for everyone in the household if all the adult men in the household were eligible to be interviewed. Otherwise, the variable was coded 0 for everyone in the household. In addition to Cameroon, men were subsampled in Kenya, Lesotho, and Malawi.

In households with hv027=0, because no adult men were interviewed, it is impossible to identify couples. In those households, the woman could identify a cohabiting male partner (with a line number in the household roster), but this identification could not be corroborated by the man and the man's covariates would be missing. This is important for comparing cohabiting partner status across countries because if only a subset of men were interviewed, it could appear that fewer women had partners. To adjust for this effect, we only use cohabiting partner data for women who were in households with hv027=1.

Adults in sampled households and in the eligible age range were tested for HIV with dried blood spot (DBS) samples collected on a special filter paper using capillary blood from a finger prick. Participation in HIV testing was voluntary, and each selected participant was asked to provide informed consent before blood samples were collected. Informed consent for the interview itself was obtained separately. In each country, HIV testing was conducted in a central laboratory following a standard testing algorithm, designed to maximize the sensitivity and specificity of HIV test results, and an approved quality assurance and quality control plan. All HIV testing procedures were reviewed by the ethical review boards of ICF and the host country. In order to ensure confidentiality, the HIV test results were anonymously linked to individual and household questionnaire information through bar codes, after scrambling the household and cluster identifiers.

More than 20 countries in sub-Saharan Africa have had recent surveys covering the same information that is analyzed here, including couples who can be classified as HIV concordant or discordant. This study focuses on surveys in 10 of the 11 countries with most recent adult HIV prevalence levels of 4% or greater, with datasets released prior to July 2013. The cutoff of 4% was used because surveys with lower prevalence levels include too few couples (particularly discordant couples) to permit useful findings.

Throughout most of the analysis, countries are described separately, rather than being pooled, and men and women are described separately, rather than being pooled. As described below, in Chapter 3, there is

[3] DHS data may include up to three reports of age for adults. In the household survey, the household respondent gives the age of every household member. This is saved as hv105 and is a basis for eligibility for the survey of women or the survey of men. If the man is eligible for the men's interview, because hv105 is in the range 15-59, say, then he is asked about his age, under the assumption that he will tend to be more accurate than the household respondent. If he says he is older than 59, then the interview will not continue. If he is retained, then his report is saved as mv012 in the men's survey. For women, the corresponding variable in the women's survey is v012. There is not a correction of hv105. Men and women are also asked their age on the day of HIV testing, and the response is coded as hb1 (for men) or ha1 (for women). Following general practice for DHS reports, the age variable used in this report is mv012 (for men) or v012 (for women).

some multivariate analysis which includes all 10 countries and both men and women, but that analysis includes coefficients (fixed effects) for the countries.

The following is a list of the 10 surveys discussed in this report, including the years of fieldwork, the type of survey, the specific version of the data files that was used in the analysis, and the reference for the final report:

- Cameroon 2011 DHS, CM60-61 (INS and ICF International, 2012)
- Kenya 2008-09 DHS, KE51-52 (KNBS and ICF Macro, 2010)
- Lesotho 2009 DHS, LS60 (MOHSW and ICF Macro, 2010)
- Malawi 2010 DHS, MW61 (NSO and ICF Macro, 2011)
- Mozambique 2009 AIS, MZ51 (INS, INE and ICF Macro, 2010)
- Swaziland 2006-07 DHS, SZ51-52 (CSO and Macro International, 2008)
- Tanzania 2011-12 AIS, TZ6A (TACAIDS et al., 2013)
- Uganda 2011 AIS, UG6A (MOH and ICF International, 2012)
- Zambia 2007 DHS, ZM51 (CSO and Macro International, 2009)
- Zimbabwe 2010-11 DHS, ZW62 (ZIMSTAT and ICF International, 2012)

Final reports for all of these surveys are available on the DHS website (www.dhsprogram.com). The reports provide information about sample design, numbers of cases, response rates, data quality, and main findings, which need not be repeated here. The analysis required some merging of the data files (the PR, IR, MR, CR, and AR files) for each country. In the Tanzania and Mozambique surveys, a few men reported more than one cohabiting partner. Following standard DHS practice, those men appear in the couples file two or more times, once with each partner named. The repetition of those men causes a slight over-representation of men in polygynous unions (in the couples file but not in the file of men). The only plausible alternative would be to include each man only once, perhaps with the partner listed first. That option would lead to under-representation of women in polygynous unions (in the couples file but not in the file of women) and some discarding of data, which is always undesirable.

DHS uses a two-stage cluster design that requires complex weights (hv005 in the household data) to adjust for differential probabilities of selection and nonresponse rates. Slightly different weights (hiv05) are required when using HIV data to account for higher nonresponse among subgroups, including men, urban residents, and more educated persons. Following DHS practice, the male partner's weight (hiv05) was used during analysis of the couples' data because of the typically higher nonresponse levels for men. We adjusted for the complex sample design and weights in the DHS and AIS data.

The report contains a number of estimates of HIV prevalence that may differ slightly from one another as well as from estimates that appear in DHS final reports. Usually these differences will be very small, and well within the range of sampling error, but it may be useful to give two general reasons why even small discrepancies are occasionally observed. The first reason is that most of our estimates are conditioned on the presence of other specific variables (that is, those other variables must not be missing) and often on a specific value of another variable. To measure the association between HIV status and cohabiting partner status, both of those variables must be non-missing in the data. For example, estimated HIV prevalence may be slightly different for: 1) women who were tested, 2) women who were tested and for whom

cohabiting partner status is non-missing, 3) women who were tested and have a cohabiting partner, and 4) women who were tested and have a cohabiting partner whose HIV status is known.

Another reason for occasional minor discrepancies in HIV prevalence estimates is that a number of essentially arbitrary decisions must be made during data processing. DHS general practice and our practice here are not always identical—although we have made every effort to be internally consistent and explicit. For example, as mentioned previously, it is general practice to repeat, in the DHS couples file, the men who have multiple cohabiting partners. We have consistently followed that practice. However, we are aware of at least one table in a DHS report on couples in which the man appears in only one couple, with the first woman listed. This restriction was not noted in that table or the text, leading us to differ slightly from that report's estimate of the number of cohabiting partners. It is also normal DHS practice to include, in the denominator of an HIV prevalence estimate, any cases in which the test result was indeterminate, and to count them as HIV-negative. There are never more than a handful of such cases, but we found at least one survey in which this rule was not followed. In this report we have chosen to treat indeterminate cases as missing rather than HIV-negative, leading to potential minor differences from DHS reports.

Similarly, there may be minor variations in the numbers of cases, the percentages of respondents with a cohabiting partner, and the levels of concordance and discordance that can be traced to the same kinds of sources and that have no material effect on the conclusions.

3 HIV Prevalence and Cohabiting Partner Status

In this chapter, the individual respondents in the surveys of men and women are treated as the units of analysis and are described in terms of their HIV status and their cohabiting partner status. The goal is to position the men and women whose HIV status is known and who have matched cohabiting partners within the larger context of all men and women. HIV concordance and discordance are characteristics of cohabiting couples which, as units of analysis, are described in Chapter 4. The discussion of the tables emphasizes general patterns of association among respondents living with a cohabiting partner, HIV status, and the sex of respondents. There are substantial variations in HIV prevalence and cohabiting partner status within the surveys; these topics have been described elsewhere in detail, particularly in the main reports, and so are not discussed here.

It is important to avoid any statement that HIV status is a consequence of having a cohabiting partner, or that having a cohabiting partner is a consequence of HIV status. The data do not allow us to infer causation. We will establish in this report that there is typically a strong *association* between HIV status and cohabiting partner status, but the association is usually different for men and for women.

A woman age 15-49 has a cohabiting partner if she is in a union with a man age 15-49 who lives in the same household and was also interviewed. Such a woman will appear in the couples subsample and is assigned a cohabiting partner status code of CP=1. If she does not have a cohabiting partner, or if her partner is older than 49, or is absent, or did not consent to HIV testing, then CP=0. A woman can have a missing code for CP. If she was in one of the randomly selected households in which men were not interviewed, then we do not know whether she had a cohabiting partner. For men, CP is never missing. If a respondent is in a union but their partner is not a de facto member of the same household or is outside the age range, then they will be coded as not having a cohabiting partner. As a result, there is probably a bias in the direction of underestimating the percentage of individuals with a cohabiting partner.

3.1 Association between HIV Status and Cohabiting Partner Status

Methods

In this chapter to repeat, the units of analysis are individual men and women, and the interest is in the association among three binary characteristics: sex of the respondent; whether the respondent is HIV-positive or HIV-negative; and whether the respondent does or does not have a cohabiting partner. Detailed results for each of the 10 surveys are presented in Tables 3.1-3.4, according to urban-rural residence; additional tables for age, education, and wealth are presented in the Appendix. The association is described with conditional probabilities and odds ratios. Statistical tests are provided. The methodology used in this chapter will be familiar to most readers.

The analysis compares the propensity of men and women to be in a union, although such comparison must be done carefully. Say, for example, in a DHS survey there are M men and W women, subsets of whom have been matched in C couples. We could calculate the propensity of men to be in a couple as C/M, and the propensity of women to be in a couple as C/W. The relative propensity, for men versus women, say, would then be (C/M)/(C/W) = W/M, a ratio that does not actually depend at all on the value of C, and is therefore useless. (The difference between the two propensities would not have this defect, and the ratios given in this chapter do not have this defect.) There are subtle relationships among M, W, and C, and their pattern of proportionality has been debated by demographers (see, for example, Matthews, 2012 and Schoen, 1981).

Findings

This section focuses on the four main tables (Tables 3.1-3.4), with columns for men and women and rows for the total, urban, and rural populations in each survey. Tables 3.1, 3.2, and 3.3 include corresponding percentages for men and women, and then significance levels for the difference between men and women. To simplify the presentation, labels for significance levels indicate both direction and strength. If, in a pair of percentages, the percentage is higher for men than for women, the label begins with "M." If higher for women, it begins with "W." The p-value is indicated by one, two, or three "+" signs. A single "+" indicates that the area in the tail of the sampling distribution of the test statistics, on the side represented by "M" or "W," is less than .025. A double "++" indicates that the area is less than .005, and a triple "+++" indicates that it is less than .0005. Thus, the labels match with the conventional labels "*", "**", and "***", for .05, .01, and .001 two-tailed tests, respectively. These will be referred to as .05, .01, and .001 tests, but the labels also indicate the direction by beginning with "M" or "W". Table 3.4 shows corresponding direction and strength with the labels "+", "++", "+++", and "-". "--". "---" indicating whether an odds ratio is significantly *greater than* 1.00 or significantly *less than* 1.00. The purpose of these labels is to make it easier to scan large numbers of coefficients rapidly. The tables include weighted Ns, which consist of the total number of cases in the cells that are being compared with a percentage difference or a ratio. All calculations use the sample weights and all test statistics are robust and adjusted for clustering.[4]

Table 3.1 shows the percentages of men and women in the selected surveys who are HIV-positive and the percentages that have a cohabiting partner. The percentages are based on the maximum available number of cases: all persons who received an HIV test and all persons who were in a household that included hv027 (adult men in the household eligible to be interviewed), respectively. The remaining tables in this chapter, however, require information about *both* the HIV test results and the cohabiting partner status, and therefore include fewer cases.

[4] We do not include a survey adjustment for strata when calculating statistical significance. When that adjustment is included test statistics tend to become unstable because of small cell sizes.

Table 3.1 Percentage of respondents who are HIV-positive[a] and percentage of respondents who have cohabiting partners[b] by sex, and significance level for the difference between men and women, according to urban-rural residence, 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	Category	Men	Women	W/M ratio	N	Sig.	Men	Women	W/M ratio	N	Sig.
Cameroon 2011 DHS	All	2.9	5.6	193	13,449	W+++	34.5	40.1	116	13,449	W+++
Cameroon 2011 DHS	Urban	3.0	6.4	212	7,256	W+++	28.0	31.9	114	7,256	W+++
Cameroon 2011 DHS	Rural	2.7	4.7	171	6,194	W+++	42.4	49.4	116	6,194	W+++
Kenya 2008-09 DHS	All	4.3	8.1	189	6,734	W+++	39.0	35.3	90	6,734	M++
Kenya 2008-09 DHS	Urban	3.6	10.6	290	1,617	W+++	44.5	41.5	93	1,617	ns
Kenya 2008-09 DHS	Rural	4.5	7.4	163	5,116	W+++	37.2	33.4	90	5,116	M+
Lesotho 2009 DHS	All	17.9	26.7	149	6,567	W+++	26.2	22.1	84	6,567	M+++
Lesotho 2009 DHS	Urban	21.3	31.1	146	1,940	W+++	31.3	21.6	69	1,940	M+++
Lesotho 2009 DHS	Rural	16.7	24.7	148	4,627	W+++	24.4	22.3	91	4,627	M+
Malawi 2010 DHS	All	8.1	12.8	159	13,528	W+++	50.8	48.7	96	13,528	M+
Malawi 2010 DHS	Urban	12.0	22.7	190	2,711	W+++	38.0	39.2	103	2,711	ns
Malawi 2010 DHS	Rural	7.0	10.5	149	10,817	W+++	54.2	51.0	94	10,817	M++
Mozambique 2009 AIS	All	9.1	13.1	143	9,100	W+++	59.1	53.4	91	9,100	M+++
Mozambique 2009 AIS	Urban	12.8	18.5	144	2,969	W+++	44.5	43.0	97	2,969	ns
Mozambique 2009 AIS	Rural	7.2	10.7	149	6,132	W+++	66.9	58.1	87	6,132	M+++
Swaziland 2006-07 DHS	All	19.5	31.0	159	8,210	W+++	18.9	15.7	83	8,210	M+++
Swaziland 2006-07 DHS	Urban	25.5	36.8	144	2,072	W+++	22.3	19.3	87	2,072	M+
Swaziland 2006-07 DHS	Rural	17.4	29.1	167	6,138	W+++	17.6	14.5	82	6,138	M+++
Tanzania 2011-12 AIS	All	3.8	6.2	162	17,711	W+++	46.6	36.9	79	17,711	M+++
Tanzania 2011-12 AIS	Urban	5.2	9.0	173	4,561	W++	37.5	28.1	75	4,561	M+++
Tanzania 2011-12 AIS	Rural	3.4	5.1	153	13,149	W+++	49.6	40.1	81	13,149	M+++
Uganda 2011 AIS	All	6.1	8.3	137	19,562	W+++	47.6	41.6	87	19,562	M+++
Uganda 2011 AIS	Urban	6.1	10.6	174	4,013	W+++	34.4	27.6	80	4,013	M+++
Uganda 2011 AIS	Rural	6.1	7.7	127	15,549	W+++	50.9	45.4	89	15,549	M+++
Zambia 2007 DHS	All	12.2	15.9	131	10,337	W+++	47.3	45.6	96	10,337	ns

(Continued...)

Table 3.1. – *Continued*

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**W/M ratio**	**N**	**Sig.**	**Men**	**Women**	**W/M ratio**	**N**	**Sig.**
Zambia 2007 DHS	Urban	16.0	23.0	144	4,258	W+++	35.5	36.4	103	4,258	ns
Zambia 2007 DHS	Rural	9.5	11.0	116	6,079	ns	55.6	52.0	94	6,079	M++
Zimbabwe 2010-11 DHS	All	12.2	17.7	145	13,669	W+++	40.5	34.4	85	13,669	M+++
Zimbabwe 2010-11 DHS	Urban	12.9	19.5	151	4,667	W+++	37.6	28.4	76	4,667	M+++
Zimbabwe 2010-11 DHS	Rural	11.9	16.8	141	9,002	W+++	42.2	38.2	91	9,002	M+++

Note: All calculations use the sample weights and all test statistics are robust and adjusted for clustering.

a: restricted to respondents who were tested

b: restricted to respondents in households in which both men and women were interviewed

Ratios are calculated as 100*(% for men)/(% for women)

n is weighted

Significance refers to a test of the null hypothesis that men and women have the same HIV prevalence or the same cohabiting partnership rates

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Inferences about HIV prevalence that can be drawn from Table 3.1 are well known but will be restated here to provide context. Looking at the panel on the left side of the table, and the lines for each country (All) and for urban and rural areas, HIV prevalence is always higher for women than for men and almost always higher in urban areas than in rural areas. The percentage of women who are HIV-positive is as high as one and a half times the percentage of men who are HIV-positive. The greatest imbalance is in urban Kenya, where HIV prevalence among women (11%) is more than twice that among men (4%). With just two exceptions, the excess for women is significant at the .001 level in all countries. The exceptions are urban Tanzania, significant at the .01 level, and rural Zambia, where the excess is not significant. In every survey, for both men and women—except for men in Kenya—HIV prevalence is higher in urban areas than in rural areas. With the exception of Swaziland, the ratio of female to male HIV prevalence is always somewhat higher in urban areas than in rural areas.

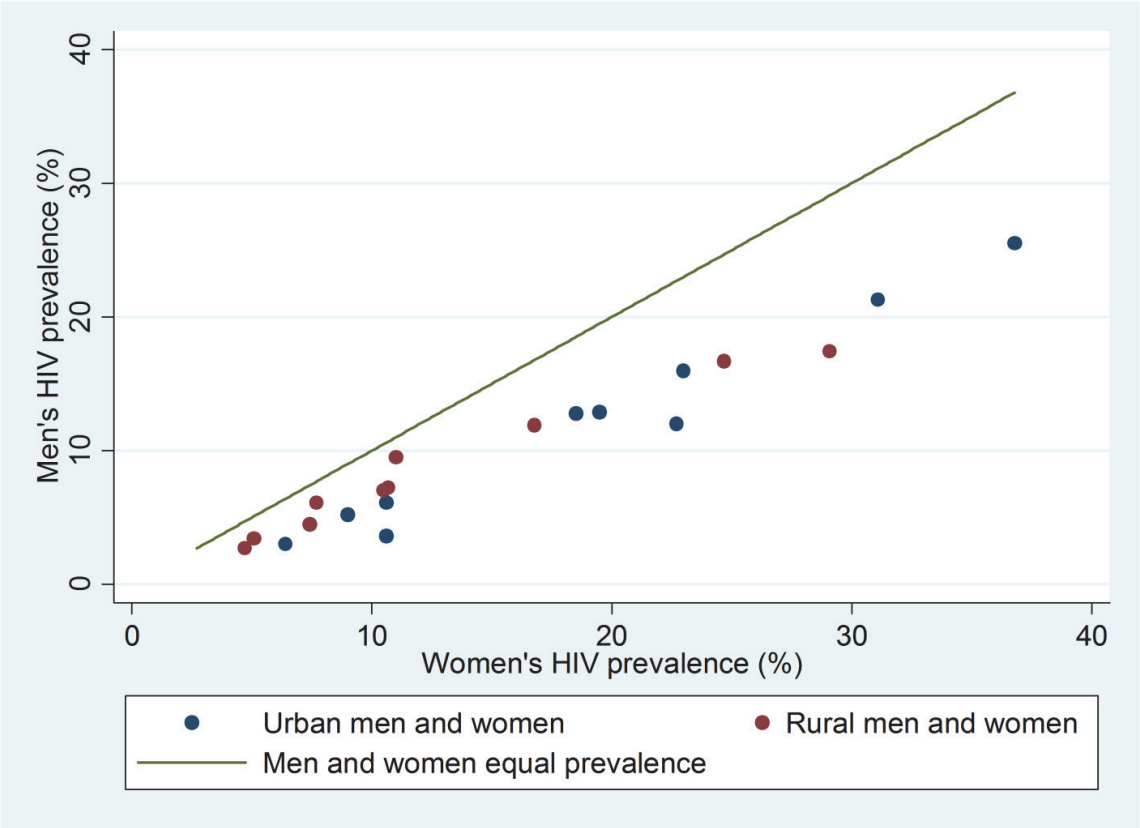
Patterns of HIV prevalence by background characteristics (age, education, and wealth) are shown in the Appendix (Tables A1.1, A2.1 and A3.1, respectively). In general, the patterns observed in Table 3.1 are repeated for the categories of education and wealth, except that HIV prevalence is low for men and women with no education and the pattern is more pronounced for the higher wealth quintiles. The pattern by age is more nuanced. Table A1.1 shows that the age pattern is similar for men and women, both for people who have a cohabiting partner *and* for people who do not have a cohabiting partner. However, there is one important difference: comparing men and women, the age distribution of HIV prevalence shifts to the right for men. That is, prevalence tends to peak about five years later for men than for women. This same pattern is seen for men and women *with* cohabiting partners and men and women *without* cohabiting partners. Indeed, even the magnitude of HIV prevalence is similar for men and women who have a cohabiting partner and for those who do not. The principal difference between men and women who have the same cohabiting partner status is the five-year age shift. The shift of approximately five years is presumably related to the tendency for men to be older than their partners—whether cohabiting or not (cf. Glynn et al., 2001; Gregson et al., 2002; Kelly et al., 2003; Luke and Kurz, 2002). The relationship with age will be described further in section 3.2.

Returning to Table 3.1, the panel on the right side of the table shows the percentages of men and women who have a cohabiting partner. There is considerable variation across surveys but, overall, the medians are 44% for men and 38% for women. Variations in cohabiting partner status are important for assessing the level of risk of HIV infection from a partner. The lowest levels of cohabiting partners are in rural Swaziland, and the highest levels are in rural Mozambique. In most countries, levels of cohabiting partners are somewhat higher in rural areas than in urban areas for both men and women. In Kenya and Swaziland, the pattern is reversed: having a cohabiting partner is less likely in rural areas than in urban areas. In Lesotho, having a cohabiting partner is less likely for men in rural areas but not for women in rural areas. Patterns of cohabiting partner status by age, education, and wealth are shown in the Appendix (Tables A3.1, A3.2 and A3.3, respectively).

The most consistent pattern observed is that having a cohabiting partner is more common among men than among women. Expressed as a ratio of the percentage for women with a cohabiting partner divided by the percentage of men with a cohabiting partner—or, the relative risk of having a cohabiting partner—the disparity between men and women is greatest in urban Lesotho where the level of cohabiting partners for women is just 70% of the level for men.

To summarize, Table 3.1 shows two strong patterns regarding HIV status and cohabiting partner status for men and women in the data from 10 sub-Saharan countries: 1) women are more likely than men to be HIV-positive, and 2) women are less likely than men to have a cohabiting partner. Figure 3.1 shows HIV prevalence among men and women, by rural-urban residence (blue dots: urban, red dots: rural) for the 10 sub-Saharan countries. The dots are all to the right of the line of equality.

Figure 3.1 HIV prevalence among men and women in urban and rural areas, 10 DHS surveys in sub-Saharan Africa, 2006-2012. Note: The vertical and horizontal axes show the HIV prevalence of men and women, respectively. The diagonal line indicates equal prevalence for men and women.



The remainder of Chapter 3 focuses on men and women for whom information on both HIV status and cohabiting partner status was obtained. Table 3.2 shows HIV status by sex of the respondent and whether the respondent has a cohabiting partner, according to urban-rural residence. (It is an expansion of the left panel of Table 3.1, which did not consider partnership status.) In Table 3.2, the left panel (first four columns) shows men and women who *do not* have a cohabiting partner, while the right panel (next four columns) shows men and women who *do* have a cohabiting partner.

Table 3.2 Percentage HIV-positive among men and women who do not have a cohabiting partner, and percentage HIV-positive among men and women who do have a cohabiting partner, by sex, and significance level for the difference between men and women, according to urban-rural residence, 10 DHS surveys in sub-Saharan Africa, 2006-2012

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	Category	Men	Women	W/M ratio	N	Sig.	Men	Women	W/M ratio	N	Sig.
Cameroon 2011 DHS	All	1.9	6.2	333	8,404	W+++	4.8	4.6	96	5,046	ns
Cameroon 2011 DHS	Urban	1.8	6.3	343	5,074	W+++	6.0	6.5	109	2,182	ns
Cameroon 2011 DHS	Rural	1.9	6.1	318	3,330	W+++	3.8	3.2	83	2,864	ns
Kenya 2008-09 DHS	All	3.4	8.9	260	4,250	W+++	5.7	6.6	117	2,483	ns
Kenya 2008-09 DHS	Urban	3.9	11.8	301	924	W++	3.3	8.9	268	693	W++
Kenya 2008-09 DHS	Rural	3.3	8.2	249	3,326	W+++	6.6	5.8	88	1,790	ns
Lesotho 2009 DHS	All	13.9	27.0	195	5,004	W+++	29.2	25.6	88	1,563	ns
Lesotho 2009 DHS	Urban	15.9	31.9	200	1,450	W+++	33.0	28.4	86	490	ns
Lesotho 2009 DHS	Rural	13.2	24.7	187	3,554	W+++	27.4	24.4	89	1,074	ns
Malawi 2010 DHS	All	5.3	15.3	288	6,806	W+++	10.7	10.2	95	6,722	ns
Malawi 2010 DHS	Urban	8.3	26.3	319	1,665	W+++	18.0	16.9	94	1,046	ns
Malawi 2010 DHS	Rural	4.3	12.1	281	5,141	W+++	9.4	9.0	96	5,676	ns
Mozambique 2009 AIS	All	7.8	17.1	219	4,021	W+++	10.1	9.6	95	5,080	ns
Mozambique 2009 AIS	Urban	11.0	20.7	189	1,672	W+++	15.1	15.6	103	1,296	ns
Mozambique 2009 AIS	Rural	5.0	14.9	298	2,348	W+++	8.2	7.6	92	3,783	ns
Swaziland 2006-07 DHS	All	15.6	29.9	191	6,807	W+++	36.2	36.9	102	1,402	ns
Swaziland 2006-07 DHS	Urban	21.3	35.2	165	1,643	W+++	40.2	43.3	108	429	ns
Swaziland 2006-07 DHS	Rural	13.7	28.3	206	5,164	W+++	34.4	34.1	99	973	ns
Tanzania 2011-12 AIS	All	2.8	7.1	260	10,452	W+++	5.0	4.5	89	7,258	ns
Tanzania 2011-12 AIS	Urban	3.9	10.1	261	3,107	W+++	7.4	6.3	85	1,455	ns
Tanzania 2011-12 AIS	Rural	2.3	5.9	256	7,346	W+++	4.4	4.0	90	5,804	ns
Uganda 2011 AIS	All	5.4	9.7	179	10,908	W+++	6.8	6.4	94	8,654	ns
Uganda 2011 AIS	Urban	4.4	11.7	264	2,793	W+++	9.3	7.9	85	1,220	ns
Uganda 2011 AIS	Rural	5.7	9.0	157	8,115	W+++	6.4	6.2	96	7,434	ns
Zambia 2007 DHS	All	9.2	18.4	201	5,546	W+++	15.5	13.0	84	4,791	M++

(Continued...)

Table 3.2 – *Continued*

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	**Category**	**Men**	**Women**	**W/M ratio**	**N**	**Sig.**	**Men**	**Women**	**W/M ratio**	**N**	**Sig.**
Zambia 2007 DHS	Urban	11.3	22.7	201	2,724	W+++	24.7	23.7	96	1,534	ns
Zambia 2007 DHS	Rural	7.1	14.5	206	2,822	W+++	11.4	7.7	68	3,257	M+++
Zimbabwe 2010-11 DHS	All	8.7	19.3	222	8,535	W+++	17.3	14.8	86	5,134	M++
Zimbabwe 2010-11 DHS	Urban	9.2	20.6	224	3,151	W+++	19.0	16.8	88	1,516	ns
Zimbabwe 2010-11 DHS	Rural	8.4	18.5	220	5,385	W+++	16.6	14.0	85	3,618	M++

Note: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.

Ratios are calculated as 100*(% for men)/(% for women)

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same HIV prevalence, controlling for partnership status (no cohabiting partner or has cohabiting partner)

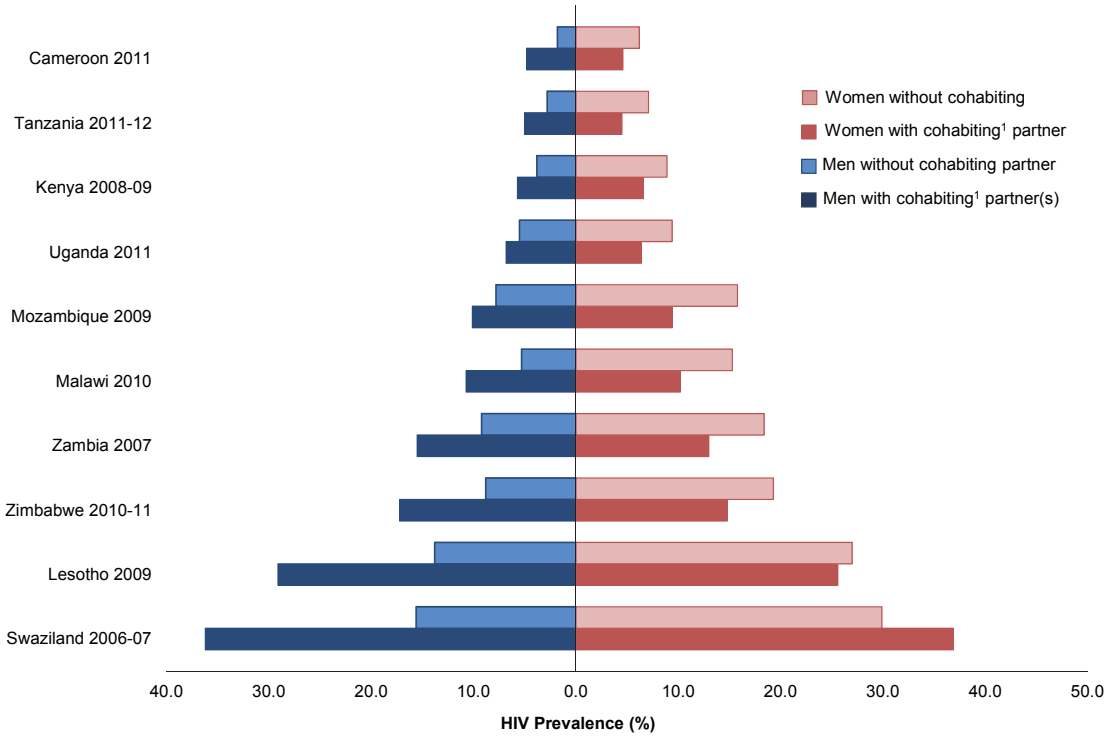
M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Figure 3.2 presents national levels of HIV prevalence for men and women by cohabiting partner status (from Table 3.2). In every country, men are more likely to be HIV-positive if they have a cohabiting partner. Among women, the pattern is the opposite: in every country except Swaziland, women *without* a cohabiting partner are more likely to be HIV-positive than women *with* a cohabiting partner. These findings are correlative rather than causal and may relate to patterns of widowhood, divorce, and remarriage among men and women in these countries (de Walque and Kline, 2012) rather than to any protective effect of marriage.

Figure 3.2 HIV prevalence by sex and cohabiting partner status (with or without cohabiting partner), 10 DHS surveys in sub-Saharan Africa, 2006-2012



1. Respondent identifies someone in the household as a husband/wife/partner, and the partner was also interviewed separately and identified respondent as husband/wife/partner, and both partners consented to an HIV test and had valid results.

Women's HIV prevalence is higher than men's, in the general population and whether or not they have a cohabiting partner. However, as Figure 3.2 illustrates, the disparity in HIV prevalence between women and men is much smaller among women *with* a cohabiting partner than among those *without* a cohabiting partner. Table 3.2 presents the survey results on HIV prevalence for men and women by cohabiting partner status, according to urban-rural residence. The left panel of Table 3.2 shows that among men and women who *do not* have a cohabiting partner, women are much more likely than men to be HIV-positive and the difference is statistically significant at the .001 level. This corresponds with the higher levels of HIV prevalence among women in the general population.

The right panel of Table 3.2 shows that among men and women who *do* have a cohabiting partner there is almost never a significant difference between their levels of HIV prevalence, with three exceptions: rural men in Zambia and Zimbabwe with cohabiting partners have significantly higher HIV prevalence than

rural women with cohabiting partners; and, only in urban Kenya, women have significantly higher HIV prevalence than their male counterparts—by a margin of more than 2:1. Presumably, the overall lack of significant difference between men and women with cohabiting partners reflects some degree of seroconversion and perhaps of homogamy among cohabiting couples, a possibility to be discussed more in the next chapter.

HIV prevalence tends to be slightly *lower* for men with no cohabiting partner than for all men, and slightly *higher* for women with no cohabiting partner than for all women. As a result, the ratio of female to male HIV prevalence among those with no cohabiting partner is *higher* than that in the general population. There are many surveys in which prevalence for women is more than twice that for men (that is, the ratio is >200). All of the ratios (or differences) are statistically significant at the .001 level.

Table 3.3 shows another way to examine the association between HIV status and cohabiting partner status. It looks at the cohabiting partner rate (the percentage of men or women with a cohabiting partner) separately for HIV-negative and HIV-positive men and women. The most consistent pattern of differentials is for men and women who are HIV-positive (Table 3.3, right panel). For them, men have a much higher cohabiting partner rate than women. In urban Kenya, the difference follows the general pattern but is not significant, perhaps only because of the smaller sample size.

Among men and women who are HIV-negative, the percentage of men who have a cohabiting partner is almost always the same as, or larger than, the percentage of women who have a cohabiting partner, but the difference is often less than for HIV-positive men and women, and often the difference is not significant. Urban Malawi, urban Zambia, and urban and rural Cameroon are the only subgroups in which HIV-negative women are significantly more likely than HIV-negative men to have a cohabiting partner. In Appendix Table A2.3 (education) and Table A3.3 (wealth), Cameroon is the principal exception.

There is a general pattern of association among HIV status, cohabiting partner status, and sex of respondents that can be seen in Table 3.2 and Table 3.3; that is, the combination of having a cohabiting partner and being HIV-positive is much more common among men than among women. Conversely, the combination of *not* having a cohabiting partner and being HIV-positive is more common among women than among men. This trend is consistent with observations from analyses of DHS survey data that found: 1) elevated HIV prevalence among formerly married women, and 2) higher proportions of remarriage among formerly married men than among formerly married women (de Walque and Kline, 2012).

Table 3.3 Percentage with a cohabiting partner among men and women who are HIV-negative, and percentage with a cohabiting partner among men and women who are HIV-positive, by sex, and significance level for the difference between men and women, according to urban-rural residence, 10 DHS surveys in sub-Saharan Africa, 2006-2012 (restricted to respondents who were tested and who live in households in which both men and women were interviewed)

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	Category	Men	Women	W/M ratio	N	Sig.	Men	Women	W/M ratio	N	Sig.
Cameroon 2011 DHS	All	33.8	40.5	120	12,868	W+++	57.7	33.2	58	581	M+++
Cameroon 2011 DHS	Urban	27.1	31.9	117	6,909	W+++	56.2	32.8	58	347	M++
Cameroon 2011 DHS	Rural	41.9	50.1	120	5,960	W+++	59.7	33.9	57	234	M+++
Kenya 2008-09 DHS	All	38.5	35.8	93	6,298	ns	51.4	28.8	56	436	M+++
Kenya 2008-09 DHS	Urban	44.6	42.3	95	1,497	ns	40.4	35.0	87	120	ns
Kenya 2008-09 DHS	Rural	36.4	34.0	93	4,801	ns	54.4	26.2	48	316	M+++
Lesotho 2009 DHS	All	22.6	22.4	99	5,058	ns	42.7	21.1	50	1,509	M+++
Lesotho 2009 DHS	Urban	26.6	22.5	84	1,408	ns	48.5	19.7	41	532	M+++
Lesotho 2009 DHS	Rural	21.2	22.4	105	3,650	ns	40.1	22.0	55	978	M+++
Malawi 2010 DHS	All	49.3	50.2	102	12,087	ns	67.4	38.8	58	1,441	M+++
Malawi 2010 DHS	Urban	35.4	42.1	119	2,236	W++	57.2	29.2	51	476	M+++
Malawi 2010 DHS	Rural	52.8	51.9	98	9,852	ns	72.0	43.7	61	965	M+++
Mozambique 2009 AIS	All	58.5	55.6	95	8,061	ns	65.0	39.2	60	1,040	M+++
Mozambique 2009 AIS	Urban	43.3	44.5	103	2,496	ns	52.6	36.2	69	473	M+++
Mozambique 2009 AIS	Rural	66.1	60.1	91	5,565	M++	76.9	41.5	54	566	M+++
Swaziland 2006-07 DHS	All	15.0	14.3	96	6,081	ns	35.0	18.6	53	2,128	M+++
Swaziland 2006-07 DHS	Urban	17.9	17.3	97	1,416	ns	35.2	22.8	65	656	M+++
Swaziland 2006-07 DHS	Rural	14.0	13.5	96	4,665	ns	34.9	17.0	49	1,473	M+++
Tanzania 2011-12 AIS	All	46.0	37.6	82	16,795	M+++	61.4	26.7	44	915	M+++
Tanzania 2011-12 AIS	Urban	36.6	28.9	79	4,221	M+++	53.6	19.6	37	341	M+++
Tanzania 2011-12 AIS	Rural	49.1	40.6	83	12,575	M+++	65.4	31.2	48	575	M+++
Uganda 2011 AIS	All	47.3	42.5	90	18,123	M+++	53.4	32.0	60	1,439	M+++
Uganda 2011 AIS	Urban	33.2	28.4	85	3,662	M++	52.5	20.5	39	351	M+++
Uganda 2011 AIS	Rural	50.7	46.1	91	14,461	M+++	53.7	36.2	67	1,088	M+++

(Continued...)

Table 3.3 – *Continued*

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**W/M ratio**	**N**	**Sig.**	**Men**	**Women**	**W/M ratio**	**N**	**Sig.**
Zambia 2007 DHS	All	45.5	47.2	104	8,866	ns	60.2	37.1	62	1,471	M+++
Zambia 2007 DHS	Urban	31.8	36.2	114	3,412	W++	54.6	37.5	69	846	M+++
Zambia 2007 DHS	Rural	54.4	53.9	99	5,453	ns	66.8	36.4	54	625	M+++
Zimbabwe 2010-11 DHS	All	38.8	36.2	93	11,562	M++	58.2	29.2	50	2,107	M+++
Zimbabwe 2010-11 DHS	Urban	35.3	29.8	85	3,880	M+++	55.8	24.8	45	787	M+++
Zimbabwe 2010-11 DHS	Rural	40.4	39.6	98	7,682	ns	59.4	32.0	54	1,320	M+++

Notes: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.

Ratios are calculated as 100*(% for men)/(% for women)

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same cohabiting partnership rates, controlling for HIV status (negative or positive)

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table 3.4 describes the association between HIV status and cohabiting partner status using *odds ratios*, i.e., the odds ratio of HIV status and cohabiting partner status. The data are shown separately for men (left panel) and for women (right panel). An odds ratio *greater than one* indicates a positive association: people with cohabiting partners tend to be HIV-positive and people without cohabiting partners tend to be HIV-negative. An odds ratio *less than one* indicates that people with cohabiting partners tend to be HIV-negative and people without cohabiting partners tend to be HIV-positive.

For both men and women, there are several areas in which the associations are not significant, in either a positive or a negative direction. In general, the association between HIV status and cohabiting partner status is positive for men and negative or not significant for women. For men, the exceptions are non-significance in Kenya, Mozambique, urban Tanzania, and rural Uganda. For women, the outstanding exception is Swaziland, where there is a strong positive association (although it is only statistically significant when the urban and rural areas are combined). For women, the odds ratios are not significant in urban Cameroon, Kenya, Lesotho, Swaziland, and urban Zambia. Otherwise, except for Swaziland, they are negative.

Table 3.4 describes the association between HIV status and cohabiting partner status, separately for men and women. The association is measured with an odds ratio (OR) that can be interpreted in either of two ways:

$$Odds\ ratio\ = \frac{Odds(\text{being HIV-positive} \mid \text{has a cohabiting partner})}{Odds(\text{being HIV-positive} \mid \text{no cohabiting partner})}$$

or

$$Odds\ ratio\ = \frac{Odds(\text{having cohabiting partner} \mid \text{HIV-positive})}{Odds(\text{having cohabiting partner} \mid \text{HIV-negative})}$$

These two expressions may appear to be different, but algebraically they are the same. The odds ratio can be calculated from either of two logit regressions. Logit regression provides an easy mechanism for adjusting for sample weights and clustering and producing standard errors and test statistics. If HIV status (0/1) is regressed on cohabiting partner status (0/1)—or the other way around—the slope coefficient will be the same, and its exponential will be the odds ratio.

In Table 3.4, the panel on the left is for men and the panel on the right is for women. For men, the odds ratios are almost always very significantly greater than 1. The odds ratio is often greater than 2, as in Lesotho, Malawi, and Zimbabwe, and even greater than 3 in rural Swaziland. That is, of the four possible combinations of HIV status and cohabiting partner status, the dominant combinations for men are: 1) HIV-positive and *does* have a cohabiting partner and 2) HIV-negative and *does not* have a cohabiting partner. The other two combinations are substantially less common.

Among women, the association is generally very different. The only setting in which the odds ratio is positive is in Swaziland, where it was also strongly positive among men. Urban Zambia and urban Cameroon show odds ratios of slightly more than 1, but not significantly greater. Otherwise, the odds ratio is less than 1 (the association is negative) among both urban and rural women, even when it is not significantly less than 1. Thus, for women, the dominant combinations of HIV status and cohabiting partner status are the reverse of those for men: 1) HIV-positive and *does not* have a cohabiting partner and 2) HIV-negative and *does* have a cohabiting partner.

Table 3.4 Odds ratios for HIV status and cohabiting partner status: that men and women are HIV-positive and have a cohabiting partner or HIV-negative and do not have a cohabiting partner, calculated separately for men and women, and significance level for the difference between men and women, according to urban-rural residence, 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Men			Women		
Survey	Category	Odds ratio	N	Sig.	Odds ratio	N	Sig.
Cameroon 2011 DHS	All	2.7	6,226	+++	0.7	7,223	-
Cameroon 2011 DHS	Urban	3.4	3,427	+++	1.0	3,829	ns
Cameroon 2011 DHS	Rural	2.0	2,799	++	0.5	3,394	---
Kenya 2008-09 DHS	All	1.7	2,899	+	0.7	3,835	ns
Kenya 2008-09 DHS	Urban	0.8	737	ns	0.7	880	ns
Kenya 2008-09 DHS	Rural	2.1	2,162	+	0.7	2,955	ns
Lesotho 2009 DHS	All	2.6	2,779	+++	0.9	3,789	ns
Lesotho 2009 DHS	Urban	2.6	732	+++	0.9	1,208	ns
Lesotho 2009 DHS	Rural	2.5	2,047	+++	1.0	2,581	ns
Malawi 2010 DHS	All	2.1	6,206	+++	0.6	7,322	---
Malawi 2010 DHS	Urban	2.4	1,296	+++	0.6	1,415	-
Malawi 2010 DHS	Rural	2.3	4,910	+++	0.7	5,907	--
Mozambique 2009 AIS	All	1.3	3,849	ns	0.5	5,252	---
Mozambique 2009 AIS	Urban	1.5	1,343	ns	0.7	1,626	-
Mozambique 2009 AIS	Rural	1.7	2,506	ns	0.5	3,625	---
Swaziland 2006-07 DHS	All	3.1	3,621	+++	1.4	4,589	++
Swaziland 2006-07 DHS	Urban	2.5	946	+++	1.4	1,126	ns
Swaziland 2006-07 DHS	Rural	3.3	2,675	+++	1.3	3,462	ns
Tanzania 2011-12 AIS	All	1.9	7,438	+++	0.6	10,273	---
Tanzania 2011-12 AIS	Urban	2.0	1,846	ns	0.6	2,715	ns
Tanzania 2011-12 AIS	Rural	2.0	5,592	+++	0.7	7,557	--
Uganda 2011 AIS	All	1.3	8,558	+	0.6	11,004	---
Uganda 2011 AIS	Urban	2.2	1,687	++	0.6	2,326	-
Uganda 2011 AIS	Rural	1.1	6,871	ns	0.7	8,678	---
Zambia 2007 DHS	All	1.8	4,674	+++	0.7	5,663	---
Zambia 2007 DHS	Urban	2.6	1,930	+++	1.1	2,329	ns
Zambia 2007 DHS	Rural	1.7	2,744	+++	0.5	3,335	---
Zimbabwe 2010-11 DHS	All	2.2	5,769	+++	0.7	7,900	---
Zimbabwe 2010-11 DHS	Urban	2.3	1,862	+++	0.8	2,805	-
Zimbabwe 2010-11 DHS	Rural	2.2	3,907	+++	0.7	5,095	---

Note: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.

An odds ratio greater than 1.00 indicates that the combination of being HIV-positive and having a cohabiting partner (or, conversely, being HIV-negative and not having a cohabiting partner) occurs more often than would be expected.

Significance refers to a test of the null hypothesis that HIV status and cohabiting partner status are independent

+, ++, +++: odds ratio is significantly greater than 1.00, at the .05, .01, or .001 level

ns: the odds ratio is not significantly different from 1.00

-, --, ---: odds ratio is significantly less than 1.00, at the .05, .01, or .001 level

The Swaziland survey stands out for having the strongest association between HIV status and cohabiting partner status, and it is positive for both men and women.

Residence (urban-rural) is the only covariate included in the four tables presented in this chapter (Tables 3.1, 3.2, 3.3, and 3.4). Additional tables for the covariates of age, education, and wealth, are presented in the Appendix (A1.1-A1.3, A2.1-A2.3, and A3.1-A3.3).

3.2 General Pattern of Association by Age and Sex

The three-way pattern of association described above is difficult to interpret, even though it appears to be surprisingly consistent across countries and according to urban-rural residence. In an effort to clarify the pattern, we pooled the survey data from the 10 countries.[5] Pooling the data is informative because it highlights a general pattern shared by the surveys, but interpretation of the results is essentially qualitative. The key characteristic that facilitates interpretation is age of the respondent.

Tables 3.1-3.4 showed that HIV status and cohabiting partner status are associated—with a great deal of consistency across countries—but differently for men and women. At the same time, identifying patterns has been difficult. In an effort to identify a general pattern in the association among HIV status, cohabiting partner status, age, and sex, we shift to a different strategy, one that utilizes a series of figures that describe all men and women in the 10 DHS surveys combined. The combined file includes a total of 115,794 men and women for whom: 1) HIV seroprevalence results are known, 2) cohabiting partner status is known, and 3) no other variables in the model are missing.

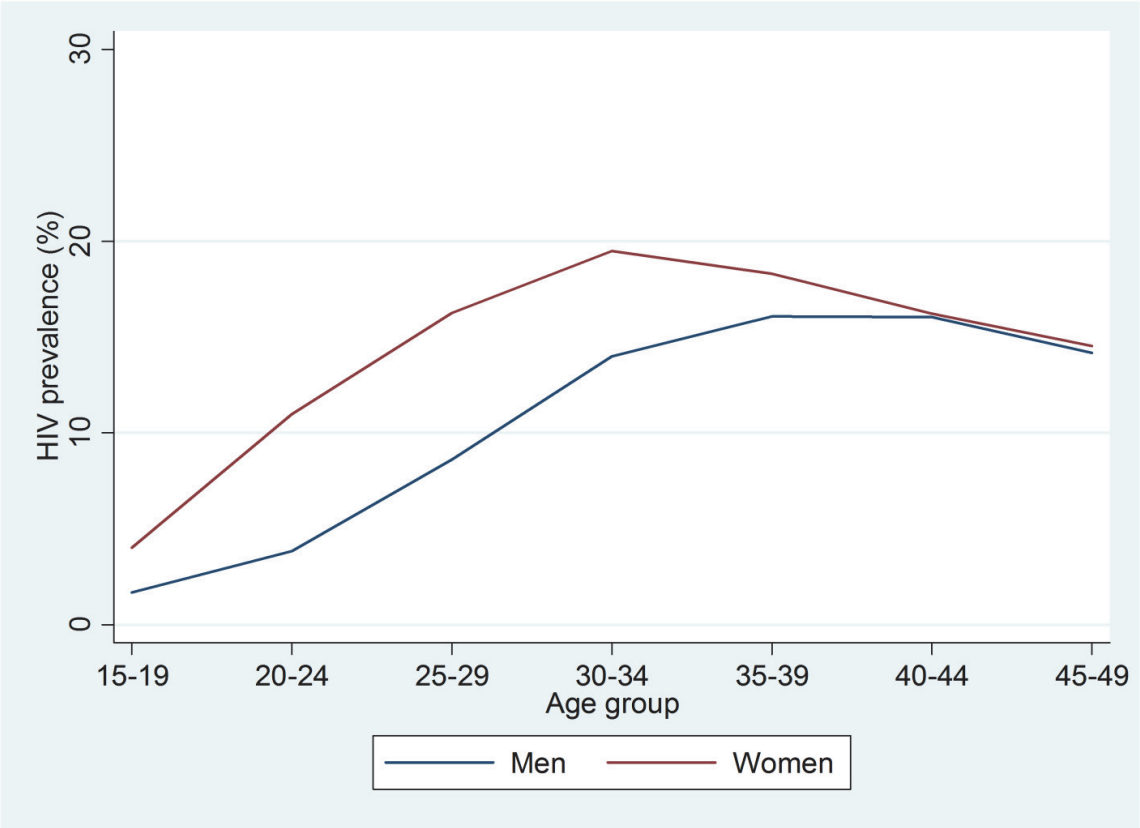
First, in the combined file, the percentage HIV-positive (i.e., HIV prevalence) is calculated for each combination of age and sex, as shown in Table A1.1. This percentage is plotted in two lines in Figure 3.3—one for men and one for women. The line on the left in the figure, which rises more quickly and has a higher and earlier peak, refers to women; the other line refers to men. For men and women in all countries there is a tendency for prevalence to be very low before age 20, then to increase with a peak in the age range 30 to 39, and then to decline. From about age 40 onwards, male and female prevalence levels are nearly identical.

Increases in HIV prevalence from the teens to the thirties are due to the cumulative nature of exposure. All things being equal, within a birth cohort accumulated exposure to risk must increase monotonically with age. The decline after about age 40 is partly due to the higher mortality among infected persons and partly due to the historical trajectory of HIV incidence. The shift of approximately five years to the right in the age distribution for men, relative to women, is presumably due to the tendency for men to be older than their partners—whether a cohabiting partner or not. This pattern was identified earlier in the discussion of Table 3.1.

Note that the pronounced higher HIV prevalence among women, compared with men, is in the younger age groups, which include the majority of respondents. The later ages, at which men and women have approximately the same HIV prevalence, actually include a relatively small proportion of the data.

[5] It is common for multiple surveys to be combined in a single data file, but then they are usually analyzed one at a time as distinct entities. Here the surveys are analyzed together.

Figure 3.3 HIV prevalence by five-year age interval for men and women; pooled data from 10 DHS surveys in sub-Saharan Africa, 2006-2012. Note: The blue line refers to men and the red line refers to women.



A logit regression was carried out to accompany Figure 3.3, using the binary form of HIV status (HIV-negative and HIV-positive are coded 0 and 1, respectively) as the outcome. The model was estimated with additive categorical covariates for residence, education, wealth, and survey, plus age and sex, also included as categorical variables. In this model, the odds ratio for women, compared with men, was 1.55. That is, the odds of being HIV-positive rather than HIV-negative are 55% greater for women than for men, after additive adjustments for age and the other covariates.

Much of this excess prevalence for women is due to the age pattern of HIV. In the interest of simplicity we just assume a lag of five years. (The lag could be treated as a parameter to be optimized.) Figure 3.4 displaces the men five years to the left, so that age 15 on the scale becomes age 20 for men, etc., and men under 20 are dropped. In figure 3.4, the age range for women is 15-49 and for men is 20-49, but translated to 15-44.

Figure 3.4 HIV prevalence by five-year age interval for men and women, with men shifted down by five years of age; pooled data from 10 DHS surveys in sub-Saharan Africa, 2006-2012. Note: the blue line refers to men and the red line refers to women.

The age distributions of prevalence in Figure 3.4 show a remarkably consistent pattern for men and women. After the first age interval, prevalence is consistently higher for women than for men, but if we repeat the logit regression done above in connection with Figure 3.3, the odds ratio falls from 1.55 to 1.16. That is, after the age translation the odds that a woman will be HIV-positive rather than HIV-negative are only about 16% greater than the odds for a man. This finding suggests that much of the excess prevalence among women, compared with men, is due to the difference in the age distributions of prevalence for men and women, and the fact that countries with high prevalence also tend to have a young age distribution.

Thus, most of the difference between the HIV prevalences of men and women in the pooled file can be described as a five-year lag for men, with identical and low prevalence of about 4% in the first age interval (age 15-19 for women and 20-24 for men), after which prevalence rises steadily for about 15 to 20 years and then gradually declines because of lower incidence rates in the later ages and higher mortality among people who are HIV-positive.

A case could be made for analyzing the data further after making the shift, or translation, of men's ages in Figure 3.4, but this will not be done here. Instead, we return to Figure 3.3, with no age shift, to distinguish between whether someone does or does not report a cohabiting partner, the main characteristic of interest in this chapter.

Figures 3.5 and 3.6 describe graphically four groups: 1) men without a cohabiting partner, 2) men with a cohabiting partner, 3) women without a cohabiting partner, and 4) women with a cohabiting partner. Figure 3.5 shows the four groups in terms of the age pattern of HIV prevalence, while Figure 3.6 shows the four groups in terms of the numbers of men and women by five-year age interval.

Figure 3.5 includes four lines with similar shapes, which can be distinguished by whether the peak is early or late, and whether the peak is low or high. The four shapes are associated with the four types of respondents as follows:

- men without a cohabiting partner: peak prevalence is high and late
- men with a cohabiting partner: peak prevalence is low and late
- women without a cohabiting partner: peak prevalence is high and early
- women with a cohabiting partner: peak prevalence is low and early.

Certainly, cohabiting partner status is not permanent. The four lines in Figure 3.5 that represent four types of respondents should not be interpreted as life course trajectories of men and women who fall neatly into two groups—those who have a partner throughout their entire adult lives and those who never have a partner. The lines are simply composite snapshots of combinations of sex, age, HIV status, and cohabiting partner status at the time of the surveys. Even so, the four lines tell a story. First, the displacement of five years (approximately) between men and women, observed in Figure 3.3, carries over to Figure 3.5. That is, the age profile of HIV prevalence for men is delayed by about five years, compared with the profile for women, whether or not there is a cohabiting partner. Second, the peak prevalence is much lower if there is currently a cohabiting partner—whether the respondent is a man or a woman. The peaks are similar for men and women, except that, as a third observation, the peak for women is greater than the peak for men, particularly for women without a partner. The four profiles are basically similar, distinguished mainly by 1) earlier HIV infection among women than among men, 2) lower HIV prevalence among persons with a cohabiting partner than among those without a cohabiting partner, and 3) highest overall HIV prevalence among women without a cohabiting partner. The findings suggest that having a cohabiting partner is protective, particularly for women.

Figure 3.5 HIV prevalence by five-year age interval for men without a cohabiting partner, men with a cohabiting partner, women without a cohabiting partner, and women with a cohabiting partner; pooled data from 10 DHS surveys in sub-Saharan Africa, 2006-2012

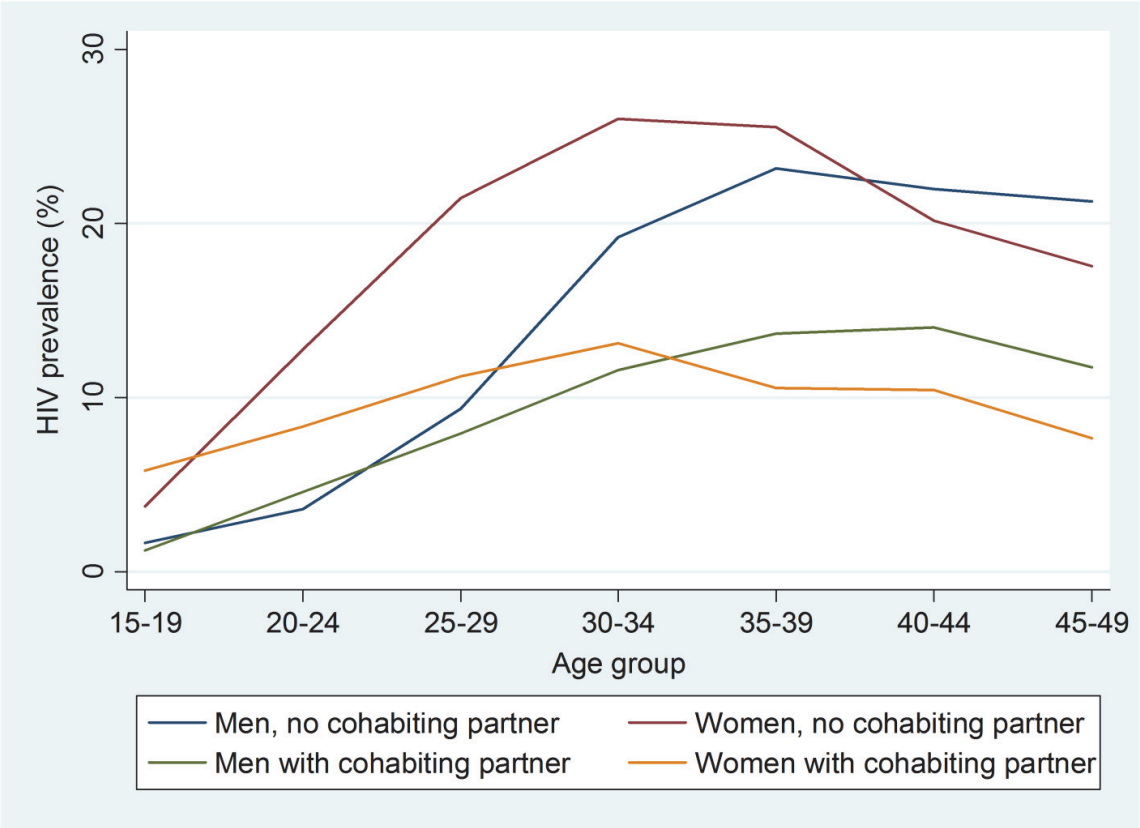
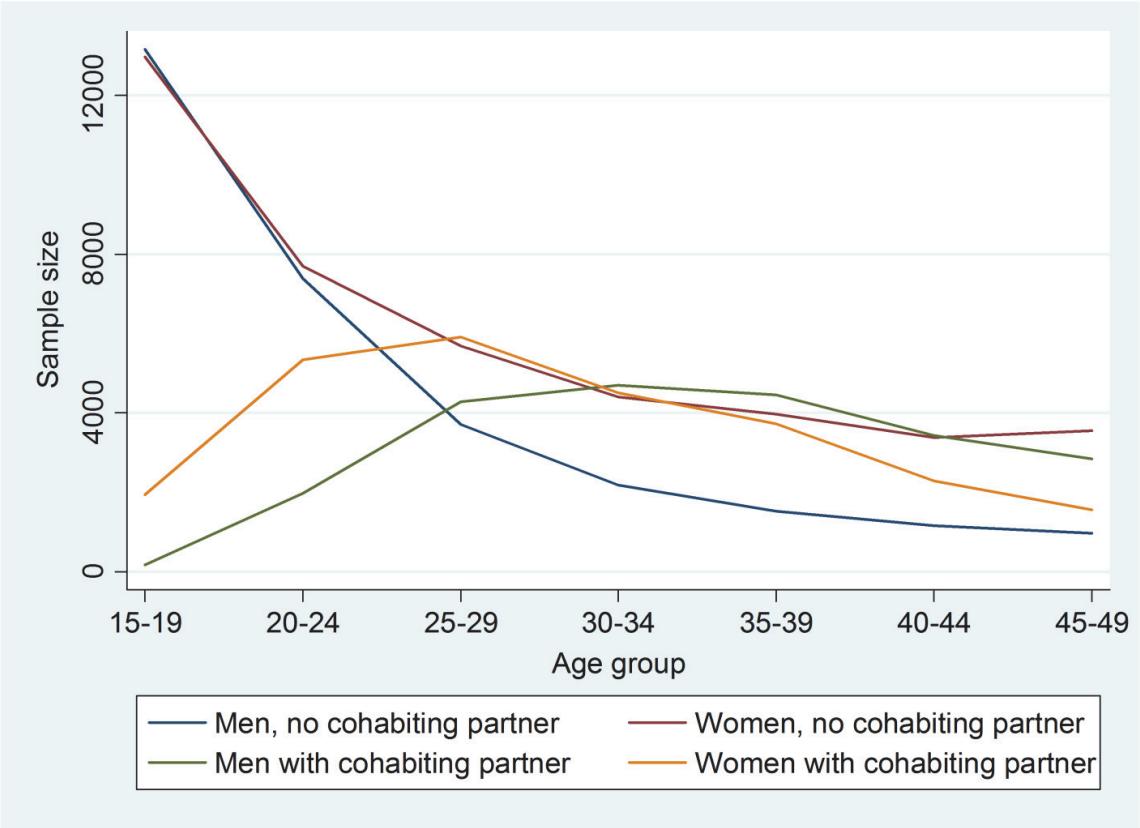


Figure 3.6 plots the age distribution of the four groups, rather than their HIV prevalence. The two lines that start high in the first age group are the numbers of men and women *without* a cohabiting partner. The two lines that start low are the numbers of men and women *with* a cohabiting partner. After age 30 or so, the numbers of people in three of these groups are similar; however, the number of men *without* a cohabiting partner is much lower, corresponding with the higher levels of cohabiting partner status for men than for women that are seen in Table 3.1 and in the Appendix (Tables A1.1, A1.2, and A1.3).

These patterns invite a more elaborate statistical model (for consideration at a later date). Now we move on to Chapter 4 and an analysis of HIV status in cohabiting couples.

Figure 3.6 Number of men without a cohabiting partner, number of men with a cohabiting partner, number of women without a cohabiting partner, and number of women with a cohabiting partner, by five-year age interval; pooled data from 10 DHS surveys in sub-Saharan Africa, 2006-2012



4 HIV Concordance, Discordance, Seroconversion, and Risk

The previous chapter examined the relationship between an individual man's or woman's HIV status and cohabiting partner status in each of the 10 DHS surveys, according to urban-rural residence. Further analysis of the relationship according to age, education, and wealth status is presented in the Appendix tables. The analysis next moves to an examination of the correspondence between the woman's HIV status and the man's HIV status *within a couple*, specifically, matched cohabiting couples with non-missing HIV test results for both the man and the woman. The preceding chapter established a context for the couple-level analysis; now the couples will be the units of analysis. Note that in this framework the number of men, the number of women, and the number of couples are identical. The chapter is divided into three parts— levels of concordance and discordance, selection and seroconversion, and discordance and the risk of future seroconversion—each of which presents methods and findings.

4.1 Levels of Concordance and Discordance

Methods

Rather than focusing just on discordant couples, the analysis compares the *observed distribution* of the couple's HIV status across the four possible combinations or types of serostatus with the *hypothetical distribution* that would be observed if the HIV status of the man and the HIV status of the woman were statistically independent. As described earlier, there are four possible combinations of the man's HIV status and the woman's HIV status, which will be referred to as the couple's HIV status:

Negative concordant (-/-):	both the man and the woman are HIV-negative
Female positive discordant (-/+):	the man is HIV-negative and the woman is HIV-positive
Male positive discordant (+/-):	the man is HIV-positive and the woman is HIV-negative
Positive concordant (+/+):	both the man and the woman are HIV-positive

These combinations represent the cells of a cross-tabulation of the HIV status of the man (two rows) versus the HIV status of the woman (two columns), as shown in Figure 4.1. Algebraically, couple status, *resultc*, is a linear function of the binary (0/1) variables *resultm* and *resultw*, for men and women, respectively, calculated as $= resultw + 2 * resultm$. In Figure 4.1, p_m and p_w are the probabilities that a man or a woman, respectively, is HIV-positive. In order to generate the expected probabilities of each of the four combinations inside the 2x2 table, those marginal probabilities refer specifically to the men and women who make up the tested couples.

A common baseline when working with two variables is to assume that they are statistically independent, or uncorrelated, and then to examine patterns of deviations from that assumption. This assumption of independence is known to be false but it provides a baseline, hypothetical distribution of joint couple status. If the man's and woman's HIV statuses are independent, then the probabilities of each of the four types is calculated by multiplying together the marginal probabilities, as shown in the interior of Figure 4.1. For example, the probability that a couple will be positive concordant is the probability that the man is HIV-positive *multiplied by* the probability that the woman is HIV-positive, and so on.

Figure 4.1 Possible combinations of the man's HIV status and the woman's HIV status, their observed proportions (p), and their expected proportions ($\hat{p}$) if couple formation were independent of HIV status

HIV status	**Woman HIV-negative** $(1-p_w)$	**Woman HIV-positive** p_w
Man HIV-negative $(1-p_m)$	*Negative concordant* (-/-) Couple HIV status *resultc* = 1 $\hat{p}_1 = (1-p_m)(1-p_w)$	*Female positive discordant* (-/+) Couple HIV status *resultc* = 2 $\hat{p}_2 = (1-p_m)p_w$
Man HIV-positive p_m	*Male positive discordant* (+/-) Couple HIV status *resultc* = 3 $\hat{p}_3 = p_m(1-p_w)$	*Positive concordant* (+/+) Couple HIV status *resultc* = 4 $\hat{p}_4 = p_m p_w$

Although Figure 4.1 presents the calculation of probabilities with a simple 2x2 table, the actual calculation is done with logit regression, a method that incorporates sampling weights and other covariates. Using a file of couples in which both the man and the woman have been tested, a logit regression is first done for the male member of the couple, with binary outcome 1 if he is HIV-positive and 0 if he is HIV-negative. Parallel logit regressions are also done for the female member of the couple, with binary outcome 1 if she is HIV-positive and 0 if she is HIV-negative. Such logit regressions are done for all cohabiting couples who were tested for HIV, and then for couples within subgroups defined by residence, age, education, and wealth.

The logit regression for the male member of the couple produces a fitted or estimated probability that the man is HIV-positive, using the covariates included in the model. This probability may vary substantially from one man to another, based on which category of a covariate he is in. For example, within his residential subgroup, HIV prevalence may be 0.10 or 10%, so his individual probability is 0.10. Within his age group, HIV prevalence may be 0.20 or 20%, so his individual probability is 0.20. The label for the fitted probability is p_m. The fitted probability that the man is HIV-negative will be 1-p_m. Similarly, the logit regression for the female member of the couple produces p_w, an estimate of the probability that she is HIV-positive. The fitted probability that she is HIV-negative is 1-p_w.

Findings

The covariates continue to be residence, age, education, and wealth. Residence (urban-rural) and wealth (quintiles: lowest, second, middle, fourth, highest) are household-level variables, and therefore are the same for both partners. By contrast, age and education can be different for the man and the woman. Two new variables are constructed—*agediff* and *eddiff*—to describe the disparity between the partners' ages or their levels of education. Both variables are categorical, with categories to be defined below.

For the total (All) and for urban and rural areas, Table 4.1 shows the observed percentages of cohabiting couples in each of the four combinations/categories of couple HIV serostatus and the expected percentages (under the model of independence). The distribution of cohabiting couples by HIV serostatus from Table 4.1 (excluding couples in which both members are HIV-negative) is shown in Figure 4.2.

Figure 4.2 HIV serostatus of cohabiting couples age 15-49, excluding cohabiting couples that are both HIV-negative, 10 DHS surveys in sub-Saharan Africa, 2006-2012

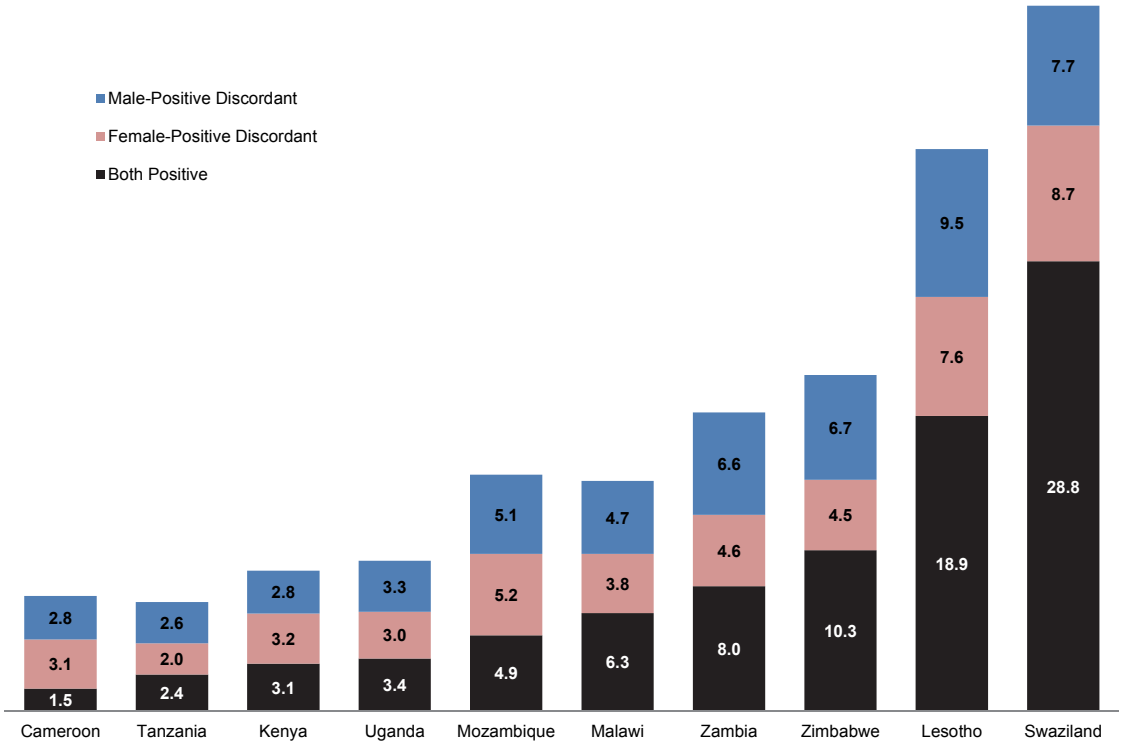


Table 4.1 Among cohabiting couples, the percent distribution of observed and expected couples (M=man, W=woman) by four combinations of couple HIV serostatus (negative concordance, female positive discordance, male positive discordance, and positive concordance), according to urban-rural residence, 10 DHS surveys in sub-Saharan Africa, 2006-2012 (restricted to cohabiting couples in which both the man and the woman were tested for HIV)

		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
Survey	**Category**	**Obs.**	**Exp.**	**Obs.**	**Exp.**	**Obs.**	**Exp.**	**Obs.**	**Exp.**
Cameroon 2011 DHS	All	92.1	90.7	3.3	4.6	3.1	4.4	1.5	0.2
Cameroon 2011 DHS	Urban	89.2	87.8	4.9	6.3	4.1	5.5	1.8	0.4
Cameroon 2011 DHS	Rural	94.2	93.0	2.1	3.3	2.3	3.6	1.4	0.1
Kenya 2008-09 DHS	All	91.2	88.4	3.1	5.9	2.5	5.3	3.2	0.4
Kenya 2008-09 DHS	Urban	91.1	88.7	5.4	7.8	0.8	3.2	2.7	0.3
Kenya 2008-09 DHS	Rural	91.3	88.3	2.2	5.1	3.2	6.2	3.4	0.4
Lesotho 2009 DHS	All	62.7	51.4	7.9	19.2	10.1	21.4	19.3	8.0
Lesotho 2009 DHS	Urban	58.7	44.0	7.1	21.8	8.1	22.8	26.0	11.3
Lesotho 2009 DHS	Rural	64.5	55.0	8.3	17.8	11.1	20.6	16.2	6.7
Malawi 2010 DHS	All	85.5	80.5	3.9	8.9	4.6	9.6	6.0	1.0
Malawi 2010 DHS	Urban	77.5	68.4	4.0	13.1	6.5	15.6	12.1	3.0
Malawi 2010 DHS	Rural	87.0	82.8	3.8	8.0	4.3	8.4	4.9	0.8
Mozambique 2009 AIS	All	85.0	81.3	5.2	8.9	5.1	8.8	4.7	1.0
Mozambique 2009 AIS	Urban	76.9	71.8	8.5	13.5	7.3	12.3	7.4	2.3
Mozambique 2009 AIS	Rural	87.8	84.6	4.1	7.2	4.4	7.5	3.8	0.6
Swaziland 2006-07 DHS	All	54.8	39.7	8.7	23.8	7.7	22.8	28.8	13.7
Swaziland 2006-07 DHS	Urban	47.7	32.7	11.9	26.9	7.2	22.2	33.2	18.3
Swaziland 2006-07 DHS	Rural	58.3	43.3	7.1	22.1	8.0	22.9	26.6	11.7
Tanzania 2011-12 AIS	All	93.0	90.9	2.0	4.2	2.6	4.8	2.3	0.2
Tanzania 2011-12 AIS	Urban	89.2	87.1	3.7	5.8	4.6	6.7	2.6	0.4
Tanzania 2011-12 AIS	Rural	93.9	91.8	1.6	3.7	2.2	4.3	2.3	0.2
Uganda 2011 AIS	All	90.2	87.1	3.0	6.1	3.2	6.3	3.5	0.4
Uganda 2011 AIS	Urban	88.1	83.8	2.6	6.9	4.4	8.6	5.0	0.7
Uganda 2011 AIS	Rural	90.5	87.6	3.1	6.0	3.1	6.0	3.3	0.4
Zambia 2007 DHS	All	80.2	73.9	4.7	11.0	6.8	13.1	8.2	2.0
Zambia 2007 DHS	Urban	66.6	56.9	9.0	18.7	8.7	18.4	15.7	6.0
Zambia 2007 DHS	Rural	86.2	82.1	2.8	6.9	6.0	10.1	4.9	0.9
Zimbabwe 2010-11 DHS	All	78.4	70.7	4.6	12.3	6.8	14.5	10.2	2.5
Zimbabwe 2010-11 DHS	Urban	77.6	67.9	3.6	13.3	6.0	15.7	12.8	3.1
Zimbabwe 2010-11 DHS	Rural	78.6	71.6	4.9	11.9	7.1	14.1	9.4	2.4

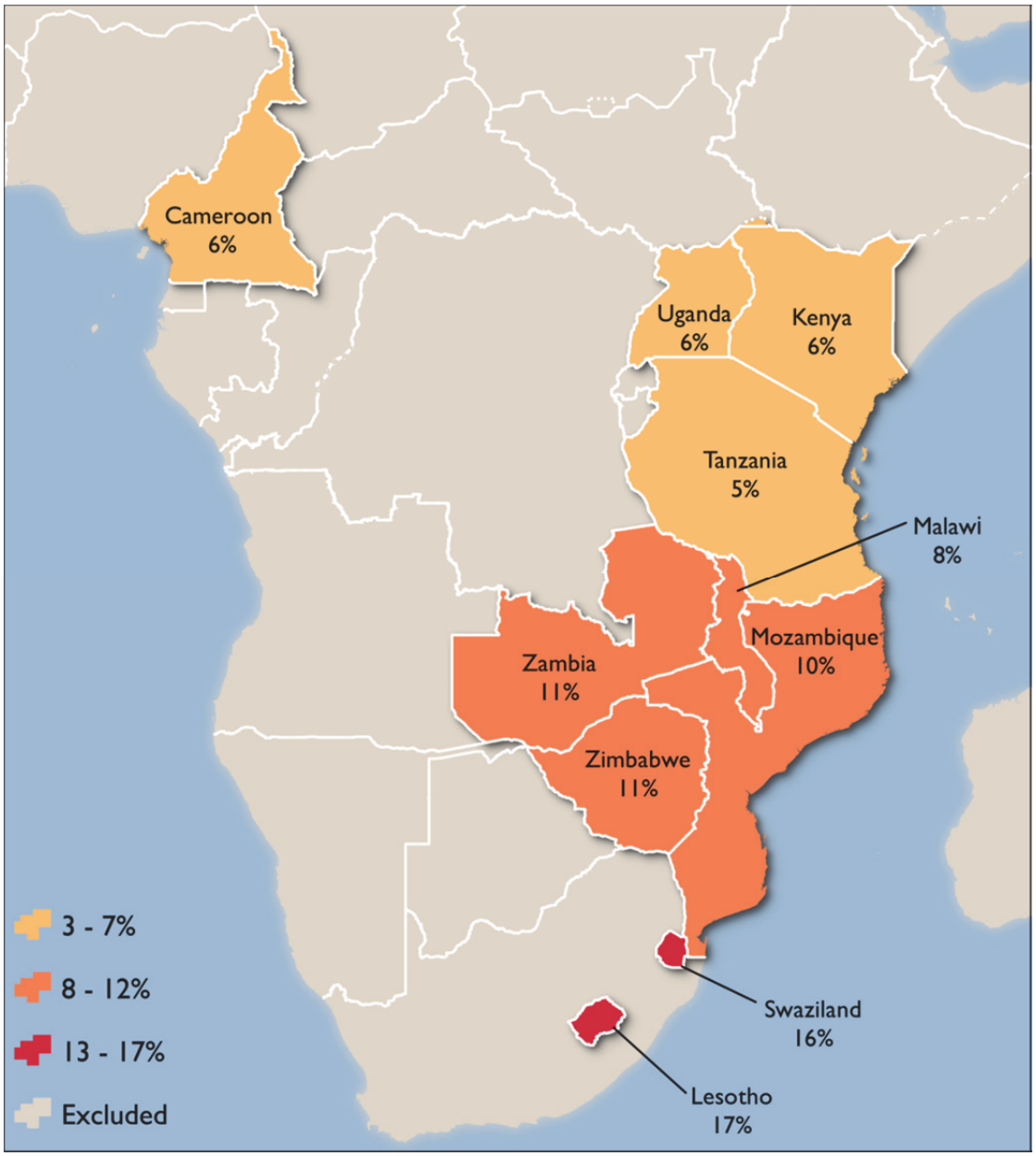
Note: Weighted frequencies for the rows in this table are given in Table 4.2

The great majority of cohabiting couples are negative concordant. In Cameroon, Kenya, Tanzania, and Uganda, fewer than 10% of couples have one or both partners HIV-positive. In three additional surveys (Malawi, Mozambique, and Zambia) 10% to 20% of couples have any HIV infection. However, there are three surveys (Lesotho, Swaziland, and Zimbabwe) in which at least 20% of cohabiting couples have one or both partners HIV-positive. The observed level of positive concordance is generally 10% or less, with the following exceptions: urban, rural, and total in Swaziland (33%, 27%, and 29%, respectively); urban, rural, and total in Lesotho (24%, 17%, and 19%, respectively); and the urban areas of Malawi (13%), Zambia (14%), and Zimbabwe (13%). In each country, more couples are observed to be concordant (both positive concordant and negative concordant) than would be expected under the model of independence.

As a corollary of this observation, fewer couples are observed to be discordant—either female positive discordant or male positive discordant—than would be expected. The observed percentage discordant is typically about half the expected value. In about half of the 20 urban and rural subgroups, fewer than 10% of cohabiting couples are discordant; in the remaining subgroups (more often urban than rural), at least 10% of cohabiting couples are discordant. The maximum observed percentage of discordant cohabiting couples is 19% in rural Lesotho and urban Swaziland. The other urban and rural subgroups in which 10% or more of cohabiting couples are discordant are the urban areas of Zambia (16%), Mozambique (15%), Lesotho (14%), and Malawi and Zimbabwe (10%); and the rural areas of Swaziland (15%) and Zimbabwe (12%). The total percentage of cohabiting couples that are HIV discordant is shown in Map 4.1. As expected, the percent discordant is higher in countries where HIV prevalence is higher.

Three tables in the Appendix (Tables A1.4, A2.4, and A3.4) provide observed and expected percentages of cohabiting couples in the four categories of couple HIV serostatus, according to age, education, and wealth. The patterns are similar to those in Table 4.1, with the same countries standing out because of high levels of discordance and positive concordance.

Map 4.1 Percentage of cohabiting couples age 15-49 that are HIV discordant, 10 DHS surveys in sub-Saharan Africa, 2006-2012



Additional discussion of the HIV prevalence of men and women in the matched couples

We now take a closer look at the HIV prevalences of the men and women who make up the couples described in Table 4.1. Levels and differences between men and women who have a cohabiting partner were discussed in the last chapter, but that discussion will be extended here because the focus has narrowed to the smaller number of men and women who were actually matched with one another as couples. In Chapter 3, "has a cohabiting partner" did not require 1) that the cohabiting partner was included in the data, 2) that the two partners had mutually identified each other, or 3) that both partners had been tested for HIV. For cohabiting couples in this chapter, all of those conditions must be met.

Table 4.2 presents several measures relevant to interpreting the data in Table 4.1. Most of this discussion is reserved for the next section, but the first two columns of Table 4.2—the HIV prevalences of men and women who have a cohabiting partner—are discussed here. These are the marginal percentages (in the 2x2 table) used to calculate the expected percentages given in Table 4.1. These numbers in Table 4.2 and the corresponding numbers in Appendix tables A1.5, A2.5, and A3.5 will be discussed in considerable detail because they are crucial for interpreting the differences between the observed and expected percent distributions shown in Tables 4.1, A1.4, A2.4 and A3.4.

Table 4.2 shows that in the subgroup of cohabiting partners there is considerable similarity in HIV prevalence between men and women, by urban-rural residence. At the same time, the overall range in prevalence is substantial—from a low in rural Cameroon of 4% for men and 3% for women to a high in urban Swaziland of 40% for men and 45% for women. Figure 4.3 illustrates the similarity in HIV prevalence between cohabiting men and women, with blue dots for those living in urban areas and red dots for those living in rural areas. The dots for all 20 subgroups (10 urban and 10 rural) are very close to the 45 degree line that would indicate exactly equal prevalence for men and women.

Although the similarity of HIV prevalence for men and women is the main finding from the first two columns of Table 4.2, prevalence tends to be slightly higher for men than for women. This pattern differs slightly from an earlier finding that HIV-discordant couples in sub-Saharan Africa tend to be female positive as often, or more often, than male positive (de Walque, 2007; Eyawo et al., 2010). In all 10 rural subgroups, and five of the urban subgroups, prevalence is higher for men than for women. The exceptions (the blue dots below the diagonal line in Figure 4.3) are urban areas in Cameroon, Kenya, Mozambique, Swaziland, and Zambia. Urban Kenya and Swaziland are the only residential subgroups in which HIV prevalence for women is more than 1% higher than that for men.

The pattern of HIV prevalence among men and women who have a cohabiting partner is substantially different from the pattern in the general population. The contrast can be seen by comparing Figure 4.3 with the earlier Figure 3.1. The difference in HIV prevalence between men and women in the general population is almost entirely due to differences in HIV prevalence in the non-cohabiting subgroup. Within the cohabiting subgroup—where concordance and discordance are relevant—HIV prevalence is generally similar for men and women. The higher prevalence observed for women compared with men in the general population is largely nullified, or even reversed, in cohabiting partners.

In Table 4.2, the significance column ("Sig.") indicates whether the difference in HIV prevalence between men and women who have a cohabiting partner is statistically significant. Among the 20 urban and rural subgroups, only three show differences that are significant: HIV prevalence is significantly higher for men than for women in rural Zambia and rural Zimbabwe. Because Zambia and Zimbabwe are predominantly rural, the significantly higher prevalence for men than for women in those two countries carries over to the national level (All). Urban Kenya is the only area where HIV prevalence is significantly higher for women (8%) than for men (4%).

Table 4.2 HIV prevalence among men and women who have cohabiting partners, and measures of selection and HIV seroconversion, according to urban-rural residence, 10 DHS surveys in sub-Saharan Africa, 2006-2012

		HIV prevalence		Selection/Seroconversion measures					
Survey	Category	Men	Women	Delta	kap_SC	SCm	SCw	Sig.	N
Cameroon 2011 DHS	All	4.7	4.8	1.3	29.3	28.7	29.9	ns	2,289
Cameroon 2011 DHS	Urban	5.9	6.7	1.4	23.6	22.0	25.3	ns	984
Cameroon 2011 DHS	Rural	3.7	3.4	1.3	36.1	37.7	34.6	ns	1,305
Kenya 2008-09 DHS	All	5.7	6.2	2.8	50.1	47.8	52.7	ns	1,064
Kenya 2008-09 DHS	Urban	3.5	8.1	2.4	43.9	31.0	75.5	W++	305
Kenya 2008-09 DHS	Rural	6.6	5.5	3.0	52.7	58.3	48.2	ns	759
Lesotho 2009 DHS	All	29.4	27.2	11.3	55.6	58.8	52.7	ns	689
Lesotho 2009 DHS	Urban	34.2	33.1	14.7	65.8	67.3	64.4	ns	218
Lesotho 2009 DHS	Rural	27.2	24.4	9.5	49.6	53.5	46.2	ns	471
Malawi 2010 DHS	All	10.6	9.9	5.0	54.1	56.4	52.1	ns	2,987
Malawi 2010 DHS	Urban	18.5	16.1	9.1	63.6	69.6	58.5	ns	460
Malawi 2010 DHS	Rural	9.2	8.8	4.1	50.5	51.8	49.3	ns	2,527
Mozambique 2009 AIS	All	9.8	9.9	3.7	42.0	41.7	42.2	ns	2,322
Mozambique 2009 AIS	Urban	14.6	15.9	5.1	39.1	37.3	41.0	ns	589
Mozambique 2009 AIS	Rural	8.1	7.9	3.1	42.6	43.5	41.8	ns	1,733
Swaziland 2006-07 DHS	All	36.5	37.5	15.1	64.8	63.5	66.2	ns	626
Swaziland 2006-07 DHS	Urban	40.4	45.2	15.0	61.0	55.6	67.5	ns	204
Swaziland 2006-07 DHS	Rural	34.6	33.8	15.0	66.5	67.7	65.3	ns	422
Tanzania 2011-12 AIS	All	5.0	4.4	2.1	47.8	51.4	44.7	ns	3,302
Tanzania 2011-12 AIS	Urban	7.2	6.2	2.1	34.0	36.7	31.7	ns	648
Tanzania 2011-12 AIS	Rural	4.4	3.9	2.1	52.9	56.7	49.6	ns	2,654
Uganda 2011 AIS	All	6.8	6.6	3.1	49.7	50.6	48.8	ns	3,972
Uganda 2011 AIS	Urban	9.3	7.6	4.3	55.1	62.3	49.5	ns	562
Uganda 2011 AIS	Rural	6.4	6.4	2.9	48.5	48.3	48.6	ns	3,410
Zambia 2007 DHS	All	15.1	12.9	6.3	52.1	57.1	47.9	M+	2,007
Zambia 2007 DHS	Urban	24.4	24.7	9.7	52.2	51.7	52.6	ns	612
Zambia 2007 DHS	Rural	11.0	7.8	4.1	48.1	59.1	40.5	M+++	1,395
Zimbabwe 2010-11 DHS	All	17.0	14.8	7.7	57.3	62.5	52.9	M++	2,180
Zimbabwe 2010-11 DHS	Urban	18.7	16.4	9.7	66.9	72.8	61.9	ns	495
Zimbabwe 2010-11 DHS	Rural	16.5	14.3	7.1	54.1	59.1	49.9	M+	1,685

Note: Selection/seroconversion measures are defined in the text

N is weighted

Significance refers to a test of the null hypothesis that selection/seroconversion is the same for men and women

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

The Appendix tables that correspond to Table 4.2 show only a few examples of significant differences in HIV prevalence between men and women who have a cohabiting partner by age, education, and wealth (Tables A1.5, A2.5, and A3.5, respectively). In Table A1.5, some differences in HIV prevalence according to age are nominally significant at the .05 level. However, because the cases are equally divided between higher prevalence for men and higher prevalence for women, and they are seen even less often than expected with a .05 test—5% of comparisons would be significant by chance with a .05 test—we do not attach any importance to them.

Table A2.5 shows one example of a significant difference in HIV prevalence between men and women who have cohabiting partners according to education. In the Malawi survey, men in the highest education category (secondary or higher) have an HIV prevalence of 13%, compared with 9% for women in the same education category. HIV prevalence for men in this category is significantly higher (at the .01 level) than HIV prevalence for women. A difference at the .01 level of significance is unlikely to be a statistical fluke and may merit further investigation.

Figure 4.3 HIV prevalence among men and women with cohabiting partners in urban and rural areas, 10 DHS surveys in sub-Saharan Africa, 2006-2012. Note: The vertical and horizontal axes show the prevalence of men and women, respectively. The diagonal line indicates equal prevalence for men and women. Blue and red dots identify urban and rural areas, respectively.

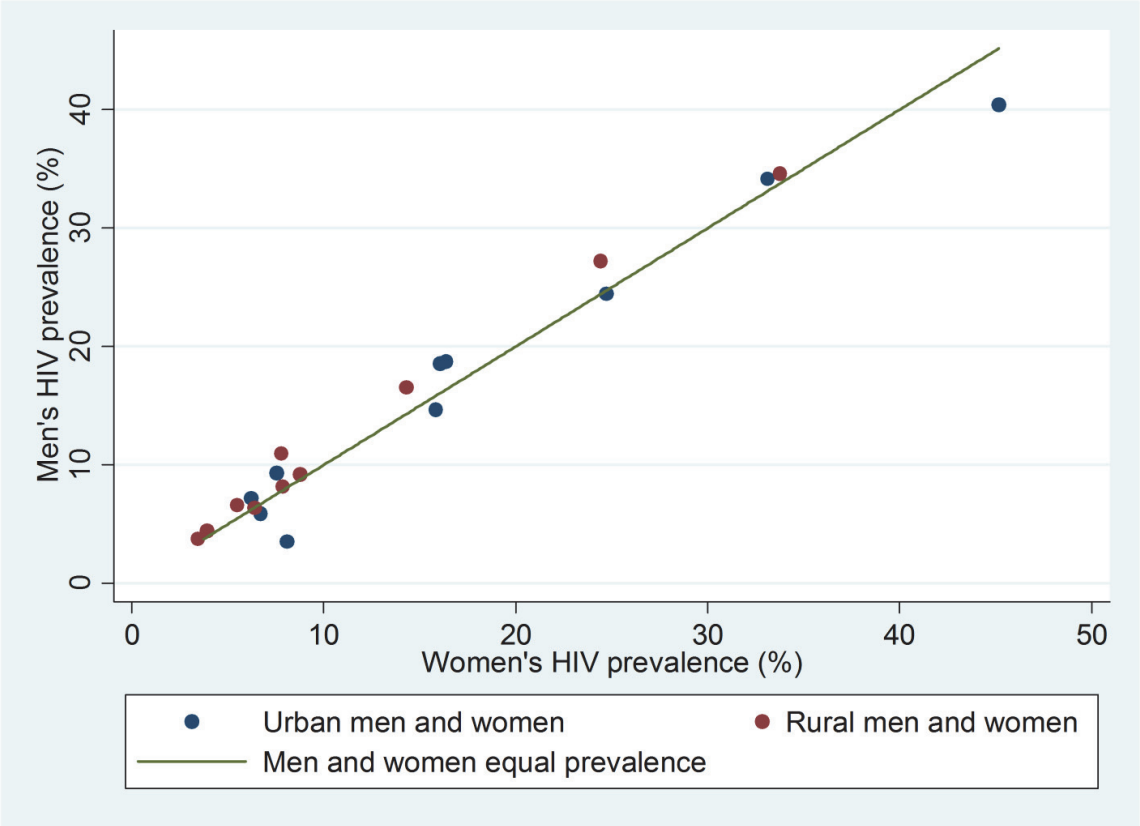


Table A3.5 presents differences in HIV prevalence between men and women who have a cohabiting partner according to wealth status (quintiles). There do not appear to be convincing differences in HIV prevalence between men and women by wealth quintile. Only one difference is significant, and that is at

the .05 level; in 50 comparisons we would have expected 50*.05=2.5 significant differences at this nominal level.

The dominant finding is that in all 10 surveys and for almost all categories of the covariates, differences in HIV prevalence between men and women in the subgroup of cohabiting couples are generally small and not statistically significant.

A coarse categorization of the partners' differences in age and education is included in Appendix tables A1.5 and A2.5, respectively. It could be hypothesized that when men have more education or are older than their partners, there will tend to be an exacerbated power difference that could translate into a preponderance of discordant couples in which the man is HIV-positive and the woman is HIV-negative. The data do not support this hypothesis.

To elaborate, the analysis looks first at the age difference between men and women who are cohabiting partners (Table A1.5), using four categories based on single year of age reported for the man and the woman: 1) the woman is older than the man; 2) the man is 0-4 years older than the woman; 3) the man is 5-9 years older than the woman; and 4) the man is 10 or more years older than the woman. There is only one case in which an age difference is accompanied by a significant difference in HIV prevalence between men and women. In Zimbabwe, when the man is 5-9 years older than the woman, the man is significantly (at the .05 level) more likely than the woman to be HIV-positive. In this subgroup, HIV prevalence is 18% for men and 14% for women, (with more decimal places, the difference is 3.5%). Approximately the same difference is observed in couples in which the man is 10+ years older than the woman, although the difference does not achieve statistical significance. As noted before, Zimbabwe is one of the two surveys in which men with cohabiting partners have significantly higher HIV prevalence than women, and the majority of couples have an age difference of 5-9 or 10+ years. Evidence that an age difference has a systematic effect on the couple's HIV status is weak at best.

The education difference between men and women who are cohabiting partners (Table A2.5) is constructed using three categories: 1) the woman has more education than the man; 2) the man and woman are in the same education category; and 3) the man has more education than the woman. The only support for the education power difference hypothesis stated above comes from the Malawi survey. There, when the man is better educated than the woman, the man is more likely to be HIV-positive, although only at the .05 level of significance (Table A2.5). It is likely that this finding is mainly a manifestation of the difference noted above for Malawi, i.e., that HIV prevalence among men is significantly greater (at the .01 level) than HIV prevalence among women, together with the generally positive association between education and HIV prevalence in Malawi. Simply because of that pattern, couples in which the man is more educated than the woman will tend to combine men with higher HIV prevalence and women with lower HIV prevalence. In Malawi it is found that when the woman has more education than the man, the woman is more likely than the man to be HIV-positive. Among couples of this type, HIV prevalence among female partners is 16% and among male partners it is 10%, a substantial difference. Only about 12% of cohabiting couples in Malawi consist of women with more education than their male partner, but further investigation of the higher HIV prevalence of women in these couples would be useful, because it reverses the role of the man and the woman in the hypothesized pattern.

Again, the dominant finding is that differences in HIV prevalence between men and women in the subgroup of cohabiting couples, according to differences in age and education, are generally small and not statistically significant, with the possible exception of age differences in Zimbabwe and education differences in Malawi.

4.2 Selection and Seroconversion

A positive association is always observed between the HIV statuses of the man and the woman in cohabiting couples. Comparing these results with a random model of paired men and women, why do the data always show more concordant couples than expected?

There are at least two plausible explanations for this finding. The first arises from the general tendency for a man and woman who have formed a couple to be similar at initial couple formation, partly due to preferences and partly due to patterns of social contact. This similarity appears regarding a number of background characteristics such as residence (urban or rural), age—although often the man is a little older than the woman—education, wealth, religion, ethnicity, etc. Similarity of marital partners because of similarity of backgrounds is sometimes described as "homogamy." Matched couples in DHS surveys need not be formally married so the term "selection" is used to describe the process of couple formation; selection here refers to the mutual selection process whereby men and women become partners. There are two possible types of selection: direct and indirect. "Direct" selection describes choices made on the basis of HIV status. "Indirect" selection refers to choices made on the basis of characteristics such as education and place of residence that are associated with HIV status.

HIV testing is increasing rapidly throughout Africa (Staveteig et al., 2013) and some faith-based organizations in a few countries have begun encouraging or mandating premarital testing (cf. Rennie and Mupenda, 2008; Uneke et al., 2007). In theory, increased awareness of HIV status and expanded opportunities for premarital testing increase the opportunity for HIV-negative adults to select HIV-negative partners. So far, however, in sub-Saharan Africa, documentation of 1) the extent to which couple-based testing occurs prior to marriage and 2) the extent to which intentional serosorting (selection) of partners of the same HIV status occurs, is limited. The motivation of an HIV-positive individual to select an HIV-positive partner may be altruistic (so as not to expose an HIV-negative partner to the disease) or may be to guard against the possible negative consequences of disclosure, but, with the exception of Sully (2013), the evidence for serosorting tends to be anecdotal (see Reniers and Helleringer (2011) for a cogent summary).

It is likely that some amount of indirect selection is taking place in the formation of these couples. For example, in most settings, urban and better-educated persons are more likely to be HIV-positive than rural and less-educated persons. The tendency to prefer partners who are similar in terms of background characteristics such as residence (urban or rural) and education, variables that are themselves associated with HIV status, could induce an excess of concordant couples (Type 1 and Type 4) and a deficit of discordant couples (Type 2 and Type 3). Thus, selection could include possible similarity of HIV status at initial couple formation, because of indirect selection according to background characteristics. In the analysis, an attempt is made to adjust for indirect selection, giving results separately for characteristics of both partners (urban-rural residence and wealth quintile), or one partner at a time (age and education). It is likely that this strategy only partially adjusts for indirect selection because we do not adjust for homogamy on religion, ethnicity, language group, etc.

A second plausible explanation for the larger-than-expected proportion of HIV-positive concordant couples is HIV seroconversion. The transition in an interval of time from Type 2 (female discordant) to Type 4 (positive concordant) may occur because a man has been infected by his partner; a transition from Type 3 (male discordant) to Type 4 (positive concordant) may occur because a woman has been infected by her partner. (It should also be noted that some transitions occur because of infections from outside the couple—third party infections.) Such transitions reduce the proportions of Type 2 and Type 3 couples and increase the proportion of Type 4 couples. Transitions in an interval of time from Type 1 to Type 2 or Type 3 can only occur as the result of infection from outside the couple.

If a cohort of, say, 1000 couples could be followed, the number of Type 1 couples (negative concordant) would necessarily decline monotonically over time because of new infections, deaths (from any cause), and dissolutions of unions. Type 2 and Type 3 (discordant) couples are transitional to Type 4 (positive concordant) in specific cases, but the overall numbers of Type 2 and Type 3 couples could remain fairly steady over time because some couples transition in from Type 1 and some transition out to Type 4. Type 4 is the "absorbing" serostatus category; it tends to include increasing numbers of couples over time, except for the countervailing influence of higher mortality.

The excess of positive concordant cases is equivalent to a deficit of discordant cases, and it is possible that the pattern arises in part from a higher dissolution rate for couples that are discordant, through a combination of separation and death, than for couples who are concordant—positive concordant as well as negative concordant. There is indeed some evidence, from Rakai, Uganda (Porter et al., 2004) of higher separation rates for discordant couples than for HIV negative concordant couples. A complete analysis would also include dissolution through the death of one or both partners, which should be most common for HIV positive concordant couples. We will not attempt to measure the roles of separation and death, but to the extent that they play a role, this analysis will over-estimate the importance of selection and seroconversion.

Methods

In the data, it is consistently found that the observed proportion of couples who are positive concordant is always greater than the expected proportion. We define $\Delta = p_4 - \hat{p}_4$ to be the deviation that describes the excess in cell 4 (positive concordant). Because the deviations must add to zero in each row and column of Figure 4.1, this same number will appear as a deficit in cells 2 and 3 (discordant) and an excess in cell 1 (negative concordant).

A familiar measure of the correspondence between two variables—in this case the man's HIV status and the woman's HIV status—is Cohen's kappa, a simple measure of agreement that positions the observed data between a) what would be observed under the null hypothesis of independence and b) what would be observed if there were complete concordance. Kappa is defined as follows:

$$k = \frac{(p_1 + p_4) - (\hat{p}_1 + \hat{p}_4)}{1 - (\hat{p}_1 + \hat{p}_4)}$$

If the observed and expected proportions were equal in all cells, then the numerator would be zero and kappa would be zero. On the other hand, if all cases were on the main diagonal, so that $(p_1 + p_4) = 1$, then kappa would be one. It is mathematically possible for kappa to be negative, but for our data it is always positive, so kappa effectively measures positive association on a scale from 0 to 1. For a 2x2 table, kappa is essentially the same as M.G. Kendall's measure tau-b, to describe the association between two ordinal variables.

As an example, in the Zambia 2007 DHS survey (unweighted) there are $1894 + 181 = 2075$ concordant couples out of a total of 2330 couples, an observed proportion $p = \frac{2075}{2330} = .89$. Under independence, there would be $173.5 + 40.5 = 1794$ concordant couples, a proportion $\hat{p} = \frac{1795}{2330} = .77$. Kappa is $k = \frac{.89 - .77}{1 - .77} = .52$.

Kappa can only reach its theoretical maximum of 1 if the row and column distributions are the same, i.e., if male and female prevalence within the sample of cohabiting couples are the same. The formula for kappa can be adjusted so the theoretical maximum is always 1, but that variant will not be used here.

An alternative expression for kappa is the combined excess of couples in the two concordant cells, relative to the expected number of couples in the two discordant cells:

$$k = \frac{(p_1 + p_4) - (\hat{p}_1 + \hat{p}_4)}{1 - (\hat{p}_1 + \hat{p}_4)} = \frac{(p_1 - \hat{p}_1) + (p_4 - \hat{p}_4)}{(\hat{p}_1 + \hat{p}_2 + \hat{p}_3 + \hat{p}_4) - (\hat{p}_1 + \hat{p}_4)} = \frac{2\Delta}{\hat{p}_2 + \hat{p}_3}$$

If, say, two tables produce the same value of kappa, then it follows that Δ is proportional to the sum of the expected proportion of discordant couples. In this chapter it will be seen that kappa is very similar across subgroups, and this type of proportionality is approximately what is observed.

In a 2x2 table, a test of the significance of kappa is just a test of the significance of a positive association between the man's HIV status and the woman's HV status. Because the region of rejection is all on one side, the p-value of the usual chi-square statistic will be half of the nominal value. For example, if the nominal p-value for a chi-square test is .05, the p-value for kappa would be .025. Tests were carried out but need not be provided in this report because in all cases kappa was significantly different from 0 (and positive) at the .001 level.

We propose that kappa be interpreted in this context as a measure of the two possible sources of association between the HIV statuses of partners: selection and seroconversion. In other words, kappa can be called a "Selection/Conversion Index," or *SC*, with the value 0 if there is no selection or seroconversion, and the value 1 if one mechanism or the other, or both mechanisms working together, produce a perfect positive association. This report will not attempt to distinguish between the two mechanisms, each of which is subject to a number of unobserved sources of variation.[6]

In addition to SC, we propose two sex-specific measures, *SCm* (Selection/Conversion for men) and *SCw* (Selection/Conversion for women), which describe the deficits in Type 2 and Type 3 couples, respectively. Each index can be thought of as the ratio of the excess in Type 4 couples, relative to the *expected* number of Type 2 or Type 3 couples, respectively: $SCm = \frac{\Delta}{\hat{p}_2}$ and $SCw = \frac{\Delta}{\hat{p}_3}$.

SCm is the *deficit* in Type 2 couples (man negative, woman positive), relative to the *expected* number of couples of this type. When multiplied by 100, it is the percent reduction when the observed number of Type 2 discordant couples is compared with the expected number. *SCw* is the analogous measure for Type 3 discordant couples (man positive, woman negative), and describes the shortfall in the number of women observed in the discordant combination that represents risk for women.

Because of the algebraic relationship between *SC* (=kappa) and *SCm* and *SCw*, the value of *SC* will always be intermediate to *SCm* and *SCw*. The ratio does not depend on delta:

$$\frac{SCm}{SCw} = \frac{\hat{p}_3}{\hat{p}_2} = \frac{Pr(M+)*Pr(W-)}{Pr(M-)*\Pr(W+)} = \frac{\Pr(M+)/\Pr(M-)}{\Pr(W+)/\Pr(W-)}.$$

[6] For example, the distribution of union duration within the population. At the point of couple formation, similarity will be due entirely to selection; afterwards there is a monotonic increase in the possibility of similarity through seroconversion.

That is, *SCm/SCw* is just an odds ratio: the odds that a man is HIV-positive divided by the odds that a woman is HIV-positive, in the population of men and women in cohabiting couples, ignoring the HIV status of the actual partner. A test of whether *SCm* and *SCw* are different from each other (in the population of all couples) is equivalent to a test of whether HIV prevalence is different for men in couples compared with women in couples. Details on this test are provided later in the report; the tables include the significance level indicated by the test.

Findings

As anticipated in the discussion of methods, the excess percentage of couples who are HIV concordant (observed minus expected) and the deficit of discordant couples are interpreted as the results of the combined effects of selection and seroconversion. Selection refers to assortative matching of men and women. If prospective partners were aware of each other's serostatus, it is likely that the HIV-negative person would specifically avoid a relationship with someone who was HIV-positive, a preference that would produce a deficit of discordant couples. There is known to be homophily on residence, education, and possibly other background characteristics associated with HIV status, which could indirectly produce some positive association on HIV status.

There is a monotonically increasing risk over time that a couple will convert from HIV discordant to positive concordant. If there are outside partners, then there is also a risk of seroconversion from negative concordant to discordant or from discordant to positive concordant. Couples may be dissolved through separation or the death of either partner, at rates that probably differ across the four possible combinations. We have no information about such transitions.

Returning to Table 4.2, the third column in the table (Delta) provides one way to summarize the deviations from independence of male and female prevalence detailed in Table 4.1. Delta is the *excess* percentage in each of the two concordant cells, that is, the observed percentage minus the percentage that would be expected under the null hypothesis of independence. Delta is also the *deficit* in each of the two discordant cells. A comparison of delta with the prevalences of men and women in the first two columns of Table 4.2 shows a clear association, positive and strong, consistent with a pattern of HIV transmission that moves couples out of discordance and into positive concordance.

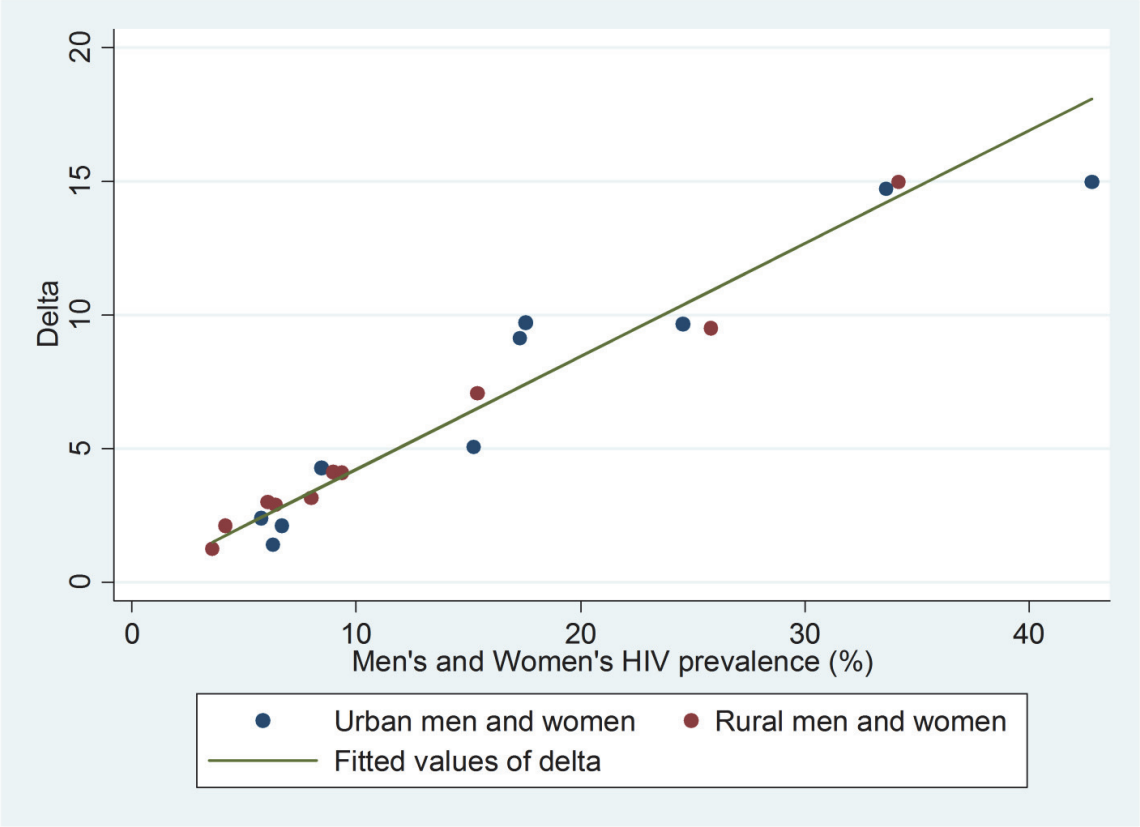
Delta has a very close linear relationship with the prevalence levels of the men and women in the subgroup of cohabiting couples. Figure 4.4 shows the correspondence graphically. In the figure, the vertical axis is delta and the horizontal axis is the average prevalence for men and women. If delta is regressed on this mean HIV prevalence, with the 20 urban and rural areas as units, the slope of the line is b=0.418. The fit is excellent; both the unadjusted R^2 and the adjusted R^2 are 0.98.[7]

This empirical regularity suggests that an epidemiological model incorporating information about rates of couple formation and dissolution, HIV transmission, and mortality could potentially fit the pattern of concordance and discordance across a wide range of HIV prevalence levels. However, it must be noted that DHS data do not include the information necessary to develop such a model.

The next three columns in Table 4.2 (kap_SC, SCm, SCw) attempt to quantify the degree of selection and seroconversion with measures that include "SC" in their labels. All of them were defined earlier, with delta (Δ) in the numerator.

[7] The regression line is forced to go through the origin (0, 0) because delta must be 0 if prevalence is 0. If delta is regressed on both male HIV prevalence and female HIV prevalence, expressed as the mean and the difference to avoid collinearity, the coefficient for the difference is significant but the rounded value of the adjusted R^2 remains 0.98.

Figure 4.4 Observed values of delta and HIV prevalence in urban and rural areas, 10 DHS surveys in sub-Saharan Africa, 2006-2012. Note: The vertical axis shows delta and the horizontal axis shows the average prevalence for men and women. Blue and red dots identify urban and rural areas, respectively. The regression line goes through the origin, with slope 0.418 and R^2=0.98.



Kappa, introduced in Chapter 2 and labeled "kap_SC," is a well-established measure of concordance. It could range from 0—if the man's HIV status and the woman's HIV status were statistically independent—to a maximum of 100 with complete concordance. As shown in Chapter 2, in the present context it can be described verbally as the combined deficit, or shortfall, in the two discordant categories of couple prevalence, divided by the combined expectations in those two categories, under the null hypothesis of independence. With the multiplier of 100, we are able to interpret kap_SC as the percent reduction in discordance, relative to the expected level of discordance, which must be due to a combination of selection and seroconversion. For example, a value of 40 could be interpreted to mean that the observed number of discordant couples—both types combined—is 40% less than expected under the model of independence.

In Table 4.2, the level of kap_SC (or kappa) is substantial. It ranges from 25 in urban Cameroon to 68 in urban Lesotho and 67 in rural Swaziland. The high levels are about two-thirds of the distance from independence to complete concordance.

Table 4.2 includes the two variants of kap_SC, referred to as SCm and SCw. SCm is the relative deficit in the Type 2 female-positive discordant (man negative, woman positive) category, and suggests transmission from the woman to the man. SCw is the relative deficit in the Type 3 male-positive discordant (man positive, woman negative) category and suggests transmission from the man to the

woman. Because of the way they are defined, their values are very close to kap_SC. Table 4.2 shows only three residential (urban-rural) subgroups in which SCm and SCw are significantly different, corresponding to whether there is a significant difference between the number of Type 2 and Type 3 discordant couples. In urban Kenya, SCm=33 and SCw=76. Looking back at this sector in Table 4.1, 5.8% of couples were Type 2 discordant (female-positive), compared with an expected percentage of 8.6%. The deficit, relative to the expected percentage, is (8.6-5.8)/8.6. With more decimals, and multiplied by a factor of 100, this is SCm=33. The number of couples of this type is 33% less than expected. Similarly, 0.9% of couples were Type 3 discordant (male-positive), compared with an expected percentage of 3.8%. The relative deficit is (3.8-0.9)/3.8, the source of SCw=76. Apart from rounding error, the numerators of these measures are the same, delta, but because the expected number of male-positive discordant couples was smaller than the expected number of female-positive discordant couples, SCm and SCw are quite different.

The significance tests for 1) the difference between SCm and SCw in Table 4.2, 2) the difference between the HIV prevalences of men and women in the same table, and 3) the difference between the observed numbers of discordant couples of Type 2 (female-positive) and Type 3 (male-positive) in Table 4.1, are equivalent. The finding in all three is that in 17 of 20 residential (urban-rural) subgroups, there is no difference in HIV prevalence between men and women. Of the three significant differences indicated in Table 4.2, one suggests that women in urban Kenya have higher HIV prevalence than men; have higher rates of seroconversion, from discordance into positive concordance, than men; and remain in fewer discordant relationships than men. The other two significant differences suggest the opposite in rural Zambia and rural Zimbabwe.

Section 4.1 above presented a discussion of significant differences in HIV prevalence between men and women who have cohabiting partners, by age, education, and wealth, from the Appendix tables (A1.5, A2.5, and A3.5, respectively). Differences noted there—and there were only a few—apply also to the balance between Type 2 (female-positive) and Type 3 (male-positive) discordance, and the differences in seroconversion, because the test statistic is the same for all three comparisons.[8]

4.3 Discordance and the Risk of Future Seroconversion

A man or woman who is HIV-negative and has an HIV-positive partner has a risk of HIV infection unless some consistent intervention is in place. This chapter will briefly assess the level of risk, with particular emphasis on how it differs for men and women.

Methods

The indicators of selection and seroconversion in Section 4.2 should be treated cautiously, but in any case they refer to the past. Looking toward the future, indices of the risk of future HIV infection *due specifically to discordance* can be constructed. Three interpretations of risk are examined. For each interpretation we calculate the percentage of men who are at risk; the percentage of women who are at

[8] A test of the null hypothesis that the HIV prevalences of men and women in cohabiting couples are equal is much different from the statistical tests in Chapter 3. In those tests, the men and women were not linked and were treated as independent samples. When the men and women are linked as couples ("matched pairs"), the test is different and more powerful. Both of these tests can be done with chi-square. The test for the independent samples approach is the usual chi-square statistic for a 2x2 table. The test for the matched pairs is known as McNemar's test and is widely documented under that name. The logit format is equivalent to chi-square, but can be applied to couple-level data and can include adjustments for weights. This matched pairs test is appropriate for any hypothesis about a sex difference in concordance/discordance, including a test of whether the two types of discordance are equally likely.

risk; and the ratio of those two numbers, i.e., the relative risk for men and women. The relative risk is expressed as the number of women at risk per 100 men at risk.

First, *of all men who have a cohabiting partner*, the percentage who are HIV-negative with an HIV-positive partner is $100p_2$. Similarly, *of all women who have a cohabiting partner*, the percentage who are HIV-negative with an HIV-positive partner is $100p_3$. These two percentages are referred to as *Rm1* and *Rw1*, respectively. The two add to the percentage of all couples that are HIV discordant. The denominators of *Rm1* and *Rw1* are all men who have a cohabiting partner and all women who have a cohabiting partner, respectively.

Second, *of all men who have a cohabiting partner and are HIV-negative*, the percentage who have an HIV-positive partner and are at risk of infection from that partner is $100p_2/(\,p_1 + p_2)$. Similarly, *of all women who have a cohabiting partner and are HIV-negative*, the percentage who have an HIV-positive partner and are at risk of infection from that partner is $100p_3/(\,p_1 + p_3)$. These percentages are referred to as *Rm2* and *Rw2*, respectively. The numerators of *Rm2* and *Rw2* are the same as the numerators of *Rm1* and *Rw1*, but the denominators of *Rm2* and *Rw2* are limited to HIV-negative men and women, respectively. We consider *Rm2* and *Rw2* to be more descriptive of risk than *Rm1* and *Rw1* because men and women who are already HIV-positive have no risk of infection and, if included, they artificially inflate the denominators.

Third, define C_{-m} and C_{-w} to be the percentages of HIV-negative men and HIV-negative women, respectively, who have a cohabiting partner. (A minus sign is included in the subscripts to convey that cohabiting partner rates are conditional on being HIV-negative.) These are given as percentages in Table 3.3, which describes cohabiting partner status conditional on HIV status. If these percentages are multiplied by the respective percentages in the preceding paragraph (and then divided by 100), we get the estimated percentages of all HIV-negative men or all HIV-negative women who are at risk of infection from this source. To summarize:

- Of all men with a cohabiting partner, the percentage who are HIV-negative and have an HIV-positive partner: $Rm1 = 100p_2$
- Of all women with a cohabiting partner, the percentage who are HIV-negative and have an HIV-positive partner: $Rw1 = 100p_3$
- Of all men who are HIV-negative and have a cohabiting partner, the percentage whose partner is HIV-positive: $Rm2 = 100p_2/(\,p_1 + p_2)$
- Of all women who are HIV-negative and have a cohabiting partner, the percentage whose partner is HIV-positive: $Rw2 = 100p_3/(\,p_1 + p_3)$
- Of all men who are HIV-negative, the percentage who have an HIV-positive cohabiting partner: $Rm3 = C_{-m}p_2/(\,p_1 + p_2)$
- Of all women who are HIV-negative, the percentage who have an HIV-positive cohabiting partner: $Rw3 = C_{-w}p_3/(\,p_1 + p_3)$.

The relative risk of men and women for seroconversion from an HIV-positive cohabiting partner can be calculated in three ways, which differ only in how the denominator of risk is defined.

The first measure of relative risk is limited to the HIV-negative men and HIV-negative women who are in discordant couples, and is defined as $RR1 = 100Rw1/Rm1 = 100p_3/p_2$. It is simply the ratio of the number of Type 3 (male-positive discordant) couples to the number of Type 2 (female-positive discordant) couples, multiplied by 100. This ratio is easy to calculate but is limited to discordant couples.

The second measure of relative risk expands the denominator of men's risk and women's risk to include all HIV-negative men and HIV-negative women who have a cohabiting partner, thus adding couples in which both partners are HIV-negative: $RR2 = 100Rw2/Rm2$.

The third measure of relative risk includes all men and all women who are HIV-negative, not just those who have a cohabiting partner: $RR3 = 100Rw3/Rm3$.

For all three ways to measure the relative risk of HIV for men versus women, a value greater than 100 indicates higher risk for women than for men, and a value less than 100 indicates higher risk for men than for women, from an HIV discordant relationship, and within the subgroups defined by the denominators of the risk measures.

Findings

Table 4.3 gives these measures of the risk of seroconversion due to HIV discordance, for men and for women, and also the ratio of the risk for women to the risk for men, or relative risk (*RR*).[9] For men, the first measure of risk ranges from a low of 2% in rural Tanzania (several other urban/rural areas are also around 2%) to a high of 12% in urban Swaziland. For women, the range is from a low of 1% in urban Kenya to a high of 11% in rural Lesotho. The risk is generally higher for women than for men (*RR1*>100). In all rural areas, the risk of seroconversion from a cohabiting partner is higher for women than for men. The highest relative risk is in rural Zambia, where there are 220 women at risk of HIV infection for every 100 men at risk. The only urban/rural areas in which women have less risk than men are the urban areas of Cameroon, Kenya, Mozambique, Swaziland, and Zambia.

The pattern for the second measure of risk is similar but with higher levels because the individuals who are already HIV-positive are removed from the denominator. The highest level of risk of HIV infection is again for urban men in Swaziland (20%): fully one-fifth of HIV-negative men with a cohabiting partner in urban Swaziland have a partner who is HIV-positive. This level of risk is by far the highest in Table 4.3, although two other countries (Lesotho and Zambia) show risk values for men of about 11%.

The relative risks for men and women are almost the same for the second measure of risk as for the first. Again, women have higher risk than men in the rural areas of all 10 countries and in the urban areas of half of the countries.

[9] The sex ratios given earlier in this report followed the demographic tradition of males in the numerator and females in the denominator. The risk ratios in this part of the report are expressed as women's risk divided by men's risk, simply because there is typically more concert about women's risk.

Table 4.3 Percentage of HIV-negative men and women who are at risk of infection from an HIV-positive cohabiting partner, and relative risk for women compared with men, by three risk categories, according to urban-rural residence, 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Risk category #1			Risk category #2			Risk category #3		
Survey	Category	Men	Women	RR	Men	Women	RR	Men	Women	RR
Cameroon 2011 DHS	All	3.3	3.1	94	3.5	3.3	94	1.2	1.3	113
Cameroon 2011 DHS	Urban	4.9	4.1	83	5.2	4.4	84	1.4	1.4	99
Cameroon 2011 DHS	Rural	2.1	2.4	114	2.1	2.4	114	0.9	1.2	136
Kenya 2008-09 DHS	All	3.1	2.5	82	3.3	2.7	83	1.3	1.0	77
Kenya 2008-09 DHS	Urban	5.4	0.8	15	5.6	0.9	15	2.5	0.4	14
Kenya 2008-09 DHS	Rural	2.1	3.2	150	2.3	3.4	148	0.8	1.2	139
Lesotho 2009 DHS	All	7.9	10.1	128	11.2	13.9	124	2.5	3.1	123
Lesotho 2009 DHS	Urban	7.1	8.1	114	10.8	12.2	112	2.9	2.7	95
Lesotho 2009 DHS	Rural	8.3	11.1	134	11.4	14.6	129	2.4	3.3	136
Malawi 2010 DHS	All	3.9	4.6	119	4.3	5.1	118	2.1	2.6	120
Malawi 2010 DHS	Urban	4.0	6.5	162	4.9	7.7	158	1.7	3.2	187
Malawi 2010 DHS	Rural	3.8	4.3	111	4.2	4.7	110	2.2	2.4	108
Mozambique 2009 AIS	All	5.2	5.1	98	5.8	5.7	98	3.4	3.1	93
Mozambique 2009 AIS	Urban	8.5	7.3	86	9.9	8.6	87	4.3	3.8	89
Mozambique 2009 AIS	Rural	4.1	4.4	107	4.4	4.7	107	2.9	2.8	97
Swaziland 2006-07 DHS	All	8.7	7.7	89	13.7	12.3	90	2.1	1.8	86
Swaziland 2006-07 DHS	Urban	11.9	7.2	60	20.0	13.1	65	3.6	2.3	63
Swaziland 2006-07 DHS	Rural	7.1	8.0	112	10.9	12.0	110	1.5	1.6	106
Tanzania 2011-12 AIS	All	2.0	2.6	131	2.1	2.8	130	1.0	1.0	106
Tanzania 2011-12 AIS	Urban	3.7	4.6	125	3.9	4.9	124	1.4	1.4	98
Tanzania 2011-12 AIS	Rural	1.6	2.2	133	1.7	2.2	133	0.8	0.9	110
Uganda 2011 AIS	All	3.0	3.2	107	3.2	3.5	107	1.5	1.5	96
Uganda 2011 AIS	Urban	2.6	4.4	169	2.9	4.7	165	0.9	1.3	141
Uganda 2011 AIS	Rural	3.1	3.1	99	3.3	3.3	99	1.7	1.5	90
Zambia 2007 DHS	All	4.7	6.8	145	5.6	7.9	141	2.5	3.7	147
Zambia 2007 DHS	Urban	9.0	8.7	97	11.9	11.6	97	3.8	4.2	110
Zambia 2007 DHS	Rural	2.8	6.0	212	3.2	6.5	205	1.7	3.5	203
Zimbabwe 2010-11 DHS	All	4.6	6.8	149	5.5	8.0	145	2.1	2.9	135
Zimbabwe 2010-11 DHS	Urban	3.6	6.0	165	4.5	7.1	160	1.6	2.1	135
Zimbabwe 2010-11 DHS	Rural	4.9	7.1	145	5.8	8.3	141	2.4	3.3	139

Note: Relative risk (RR) is expressed as number of women at risk per 100 men at risk.

The third measure best describes the risk of HIV infection through HIV discordance with a cohabiting partner because it includes all HIV-negative men and women regardless of whether they have a cohabiting partner. It is always lower than the other two measures and shows a somewhat different pattern because of variations in cohabiting partner status across countries, according to urban-rural residence. The percentage of HIV-negative men and women who are at risk of HIV infection under this measure ranges from 1% to 4% for both men and women. In most countries, only 1% or 2% of all HIV-negative men or women are at risk of infection from a cohabiting partner who is HIV-positive. Looking at urban-rural residence, the risks are highest for men and women in urban Mozambique (4%), for men in urban Swaziland (4%), and for women in urban Zambia (4%). In eight of the ten countries, the risk for women in rural areas is greater than the risk for men; the exceptions are rural Mozambique and Uganda. The urban areas are approximately equally divided in terms of whether women or men have more risk. At the national level, the ratio of women at risk to 100 men at risk, the relative risk (RR), is in a range of 100 +/- 20.

By far the lowest HIV risk and relative risk for women is in urban Kenya, where it is one-sixth the level for men (Table 4.3). At the same time, urban Kenya is the only residential subgroup that showed significantly higher seroconversion rates for women than for men (Table 4.2). It may seem contradictory that seroconversion is higher for women than for men, while future risk is lower for women than for men. However, this is not a contradiction. Among cohabiting couples, HIV prevalence is 4% for men and 9%, much higher, for women. The *expected* proportion of couples that are Type 2 (female-positive discordant) (see Figure 4.1) is (1-.04) (.09), or 9%, and the *expected* proportion that are Type 3 (male-positive discordant) is (1-.09) (.04), or 4%. The *observed* percentages in these two types of discordance are 6% and 1%, respectively, because of past seroconversion that occurred disproportionately among women. The remaining percentages of men and women who are at risk of future seroconversion, 6% and 1%, are substantially out of balance; men now have greater risk of contracting HIV from this source than women.

5 Conclusions

The purpose of this analytical study is to advance our understanding of the role of HIV discordance in HIV epidemics, particularly as it relates to discordance in cohabiting partners (couples). Data for the analysis come from DHS surveys in 10 countries in sub-Saharan Africa. Although not the direct focus of the study, information on the relative risk of HIV infection among cohabiting partners by age, education, and wealth is presented in tables in the Appendix. The study assessed discordance only within the subpopulation of cohabiting partners, which, of course, is a subset of the possible pairings of men and women that pose a risk of HIV infection. From this perspective, HIV discordance in cohabiting partners could have a much broader definition than the one obtained using these data.

A number of generalizations have been possible. First, in the general population, HIV prevalence is higher among women than among men—typically at least 50% higher. Much of this excess infection can be traced to women under age 35. In a simple pooling of data from the 10 surveys the age distribution of HIV prevalence peaks about five years earlier for women than for men, but otherwise the patterns are similar.

Second, living together with a partner or spouse (in a cohabiting partner relationship) is more common for men than for women. Only in Cameroon were women significantly more likely than men to have a cohabiting partner. This difference is important because having a cohabiting partner is associated with HIV prevalence, *but differently for men and women*. Typically, men *with* a cohabiting partner have higher levels of HIV prevalence than men *without* a cohabiting partner; in contrast, women *with* a cohabiting partner have lower levels of HIV prevalence than women *without* a cohabiting partner.

In the subpopulation of men and women who *do not have* a cohabiting partner, the higher levels of HIV among women than men are of particular concern because of the magnitude of the difference: HIV prevalence is typically *two to three times higher* among women without a cohabiting partner than among men without a cohabiting partner. Interestingly, in the subpopulation of men and women who *do have* a cohabiting partner, the difference in HIV prevalence is usually small and not significant. It should be noted that this pattern of HIV prevalence does not necessarily mean that having a cohabiting partner is protective for women and risky for men, although that is a superficial implication. Such inferences are seriously constrained by the cross-sectional nature of the data.

The length of the cohabiting partner relationship is another factor to be considered. As units of analysis, cohabiting partners (couples) are less stable than individual men and women and are not as well defined in the data. We do not know, for example, what the HIV status of the man and the woman was prior to their becoming cohabiting partners; we only know their current status. Additionally, after a partner becomes HIV-positive, he or she has a higher probability of dying and, if either partner dies, the couple, by definition, no longer exists.

Infection of either cohabiting partner, whether before or after the other partner, can come from a third person. Sophisticated models of all of the possible routes of transmission have been developed by other researchers, but because we do not have information about when the couple was formed and when or how infection may have occurred, this analysis is largely descriptive.

Within the subpopulation of men and women who have cohabiting partners we matched the associated partners into pairs (couples) and used the couple as the unit of analysis in the study. There are four possible combinations of HIV status: negative concordant, positive concordant, and two types of discordance. The observed distribution across these four types of HIV status was compared with a hypothetical distribution derived from an assumption of independence of the partners' HIV statuses.

Under independence, the probabilities of the four combinations occurring can be determined from the HIV prevalence of men and women in the subpopulation of cohabiting couples. The null hypothesis of independence never fits the data satisfactorily, but it provides a baseline for comparison.

The observed data always show a statistically significant excess of concordant couples and a deficit of both types of discordant couples. The excess number of concordant couples could have resulted from *indirect selection* in which HIV-negative men and women tend to select one another, and HIV-positive men and women tend to select one another. The pattern is referred to as indirect selection because it is probably not explicit. Most people in the survey countries do not know their HIV status or the HIV status of their partner; therefore, partner selection is typically based on factors such as similarity of residence (urban-rural), level of education, wealth status, etc., factors associated with HIV prevalence. Stratification in the tables has reduced the role of selection but probably not eliminated it.

The principal source of significant departure from the assumption of independence of the partners' HIV statuses is thought to be HIV seroconversion, through which the HIV-negative partner in a discordant pair becomes HIV-positive and the pair transitions to positive concordance. Each such infection will simultaneously reduce the number of discordant couples by one and increase the number of positive concordant couples by one.

We measured the difference between the observed distribution and the expected distribution in two ways. The first measure is delta (Δ), the arithmetic difference between the observed proportion of positive concordant pairs and the expected proportion. Because a 2x2 table has only one degree of freedom, delta is also the excess in the negative concordant combination, and the negative of delta is the deficit in each of the discordant combinations. Although the value of delta varies a great deal from one subgroup to another, it was found to have a nearly perfect correlation with HIV prevalence in the urban/rural sector. In general, delta is about 40% of the mean prevalence for men and women. For example, as a rule of thumb, if the mean prevalence for men and women is 20%, then we would expect about 4% (.2*.2=.04) of couples to be positive concordant, but delta would be about 8% (.2*.4=.08), so the observed percentage positive concordant would be about 12% (.04+.08=.12). Each of the negative concordant combinations would include about 4% of couples (.2*.8-.12=.04).

The second measure is Cohen's kappa (with a factor of 100), which could range from zero, if the partners' HIV statuses were indeed independent, to a maximum of 100 (approximately) if there were complete concordance. The observed kappa is almost always in a range from 30 to 70, with a median around 50. That is, the data are generally about halfway between the two extremes of independence and perfect concordance.

It was shown that kappa can be expressed as the total deficit in the two discordant cells, divided by the expected numbers in those two cells. That is, kappa can also be interpreted as the *relative deficit* (observed frequency minus expected frequency, divided by expected frequency) in those two cells. Under this interpretation, approximately 30% to 70% of couples expected to be discordant are positive concordant because of a combination of partner selection and HIV seroconversion. Extending that interpretation, two measures derived from kappa were also presented, SCm and SCw, to indicate the relative deficit in the two discordant cells, in terms of men and women, respectively.

Among the 20 (10 each) urban and rural subgroups analyzed, only three showed significant results indicating that men and women in cohabiting couples differ in terms of their HIV prevalence or their type of discordance or their rates of seroconversion. In urban Kenya, women in cohabiting couples 1) tend to have higher prevalence than men, 2) tend to not be in a discordant partnership, compared with men, and 3) may have seroconverted through discordance at a higher rate than men. The third inference must be tentative. It is based on the relative sizes of the two discordant cells and the positive concordant cell,

which reflect a combination of seroconversion and various kinds of selectivity. The opposite pattern was seen in rural Zambia and rural Zimbabwe. The finding that discordance is generally very symmetric with respect to men and women reinforces earlier findings by Eyawo et al. (2010) and Fishel et al. (2011).

Interpretation of discordance in this study has also examined future risk of HIV seroconversion and how levels of risk differ for men and women. Three alternative measures of risk were calculated, based on different specifications of the population at risk. Our preferred indicator of the collective risk arising from discordance is the third measure, which compares HIV-negative men and women in discordant couples with the total population of HIV-negative men and women. By that measure, the percentage of HIV-negative individuals who have elevated risk of seroconversion because of discordance with a cohabiting partner ranges from 1% to 4%. It is similar for both men and women, although in a majority of the urban and rural subgroups included in this study women have somewhat higher risk of seroconversion than men. This type of risk is highest for men and women in urban Mozambique (4%), for men in urban Swaziland (4%), and for women in urban Zambia (4%). These measures of risk are limited to couples who were cohabiting and were matched, and both the man and the woman agreed to participate in the HIV testing in the respective DHS surveys. The risk of HIV infection because of discordance would be somewhat higher if a more expansive definition of couples were possible with DHS data.

Because of major improvements in HIV testing in recent years (Staveteig et al., 2013), the opportunity to identify individuals at risk of contracting HIV is increasing rapidly. DHS data and the analysis presented here can assist policymakers with assessing the need for interventions designed to avert the transmission of HIV between cohabiting partners and measuring the impact of those interventions after implementation.

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Appendix

Table A1.1 Percentage of men and women who are HIV-positive[a] and percentage of men and women who have cohabiting partners[b], by sex, and significance level for the difference between men and women, according to age, 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Cameroon 2011 DHS	All	2.9	5.6	193	13,449	W+++	34.5	40.1	116	13,449	W+++
Cameroon 2011 DHS	15-19	0.4	2.0	565	3,194	W++	0.7	12.7	1,849	3,194	W+++
Cameroon 2011 DHS	20-24	0.6	3.4	534	2,653	W+++	9.3	36.6	392	2,653	W+++
Cameroon 2011 DHS	25-29	3.0	7.6	254	2,278	W++	35.5	54.1	152	2,278	W+++
Cameroon 2011 DHS	30-34	5.3	7.3	137	1,702	ns	59.6	56.5	95	1,702	ns
Cameroon 2011 DHS	35-39	5.8	9.9	171	1,491	W+	73.0	56.6	78	1,491	M+++
Cameroon 2011 DHS	40-44	4.7	7.1	151	1,158	ns	69.8	48.0	69	1,158	M+++
Cameroon 2011 DHS	45-49	6.3	6.4	101	975	ns	69.8	40.5	58	975	M+++
Kenya 2008-09 DHS	All	4.3	8.1	189	6,734	W+++	39.0	35.3	90	6,734	M++
Kenya 2008-09 DHS	15-19	0.7	2.9	400	1,520	W+	0.1	6.1	4,896	1,520	W+++
Kenya 2008-09 DHS	20-24	1.5	6.5	428	1,321	W+++	13.1	38.6	295	1,321	W+++
Kenya 2008-09 DHS	25-29	6.6	10.6	162	1,102	ns	48.9	53.1	109	1,102	ns
Kenya 2008-09 DHS	30-34	6.9	11.1	160	950	ns	70.4	47.8	68	950	M+++
Kenya 2008-09 DHS	35-39	10.5	9.0	86	653	ns	68.5	43.6	64	653	M+++
Kenya 2008-09 DHS	40-44	5.8	14.3	247	638	W+	71.0	38.8	55	638	M+++
Kenya 2008-09 DHS	45-49	4.3	6.6	154	549	ns	77.0	26.7	35	549	M+++
Lesotho 2009 DHS	All	17.9	26.7	149	6,567	W+++	26.2	22.1	84	6,567	M+++
Lesotho 2009 DHS	15-19	2.8	4.1	146	1,681	ns	0.8	6.4	754	1,681	W+++
Lesotho 2009 DHS	20-24	5.9	24.3	413	1,381	W+++	12.2	24.7	203	1,381	W+++
Lesotho 2009 DHS	25-29	18.4	35.4	192	1,012	W+++	34.7	31.5	91	1,012	ns
Lesotho 2009 DHS	30-34	40.1	40.8	102	843	ns	48.6	27.3	56	843	M+++
Lesotho 2009 DHS	35-39	35.2	42.1	120	662	ns	57.0	22.8	40	662	M+++
Lesotho 2009 DHS	40-44	39.4	36.3	92	498	ns	52.4	27.7	53	498	M+++

(Continued...)

Table A1.1 – *Continued*

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Lesotho 2009 DHS	45-49	32.2	29.6	92	489	ns	48.7	27.4	56	489	M+++
Malawi 2010 DHS	All	8.1	12.8	159	13,528	W+++	50.8	48.7	96	13,528	M+
Malawi 2010 DHS	15-19	1.3	4.1	318	3,226	W++	1.7	17.2	998	3,226	W+++
Malawi 2010 DHS	20-24	2.8	6.4	231	2,566	W++	32.3	58.2	180	2,566	W+++
Malawi 2010 DHS	25-29	6.9	13.4	194	2,443	W+++	70.8	62.6	88	2,443	M+
Malawi 2010 DHS	30-34	10.7	20.9	196	1,811	W+++	83.3	58.8	71	1,811	M+++
Malawi 2010 DHS	35-39	17.9	23.7	133	1,554	W+	84.4	59.7	71	1,554	M+++
Malawi 2010 DHS	40-44	20.5	20.4	99	1,037	ns	82.7	51.5	62	1,037	M+++
Malawi 2010 DHS	45-49	14.8	16.0	108	892	ns	83.7	41.1	49	892	M+++
Mozambique 2009 AIS	All	9.1	13.1	143	9,100	W+++	59.1	53.4	91	9,100	M+++
Mozambique 2009 AIS	15-19	2.7	7.1	261	1,721	W+++	4.6	32.6	706	1,721	W+++
Mozambique 2009 AIS	20-24	4.9	14.4	293	1,688	W+++	48.9	55.5	114	1,688	ns
Mozambique 2009 AIS	25-29	11.6	16.9	145	1,512	W+	74.9	63.0	84	1,512	M+++
Mozambique 2009 AIS	30-34	13.5	15.3	114	1,406	ns	80.6	61.4	76	1,406	M+++
Mozambique 2009 AIS	35-39	13.9	13.3	96	1,182	ns	86.2	58.4	68	1,182	M+++
Mozambique 2009 AIS	40-44	12.4	12.9	103	773	ns	82.8	52.1	63	773	M+++
Mozambique 2009 AIS	45-49	10.7	10.1	94	818	ns	83.9	49.4	59	818	M+++
Swaziland 2006-07 DHS	All	19.5	31.0	159	8,210	W+++	18.9	15.7	83	8,210	M+++
Swaziland 2006-07 DHS	15-19	1.9	10.0	540	2,444	W+++	0.1	4.2	4,261	2,444	W+++
Swaziland 2006-07 DHS	20-24	12.4	38.4	310	1,706	W+++	5.5	16.4	297	1,706	W+++
Swaziland 2006-07 DHS	25-29	27.7	49.1	177	1,192	W+++	23.7	25.3	107	1,192	ns
Swaziland 2006-07 DHS	30-34	43.7	45.0	103	912	ns	39.4	26.3	67	912	M+++
Swaziland 2006-07 DHS	35-39	44.7	37.6	84	763	ns	43.7	22.3	51	763	M+++
Swaziland 2006-07 DHS	40-44	40.9	27.7	68	617	M+++	51.9	17.6	34	617	M+++
Swaziland 2006-07 DHS	45-49	27.9	21.5	77	575	ns	57.9	7.4	13	575	M+++
Tanzania 2011-12 AIS	All	3.8	6.2	162	17,711	W+++	46.6	36.9	79	17,711	M+++
Tanzania 2011-12 AIS	15-19	0.8	1.3	165	4,086	ns	1.4	15.5	1,091	4,086	W+++
Tanzania 2011-12 AIS	20-24	1.7	4.4	255	3,135	W++	24.6	41.4	169	3,135	W+++
Tanzania 2011-12 AIS	25-29	2.5	7.0	275	2,766	W+++	56.6	52.1	92	2,766	ns

(Continued...)

Table A1.1 – *Continued*

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Tanzania 2011-12 AIS	30-34	6.2	9.2	148	2,334	ns	71.0	55.0	78	2,334	M+++
Tanzania 2011-12 AIS	35-39	7.1	8.0	112	2,261	ns	81.2	45.6	56	2,261	M+++
Tanzania 2011-12 AIS	40-44	6.9	9.2	133	1,776	ns	80.1	33.7	42	1,776	M+++
Tanzania 2011-12 AIS	45-49	6.6	10.3	156	1,353	ns	78.4	10.7	14	1,353	M+++
Uganda 2011 AIS	All	6.1	8.3	137	19,562	W+++	47.6	41.6	87	19,562	M+++
Uganda 2011 AIS	15-19	1.7	3.0	176	4,450	W+	1.5	13.5	921	4,450	W+++
Uganda 2011 AIS	20-24	2.8	7.1	255	3,512	W+++	28.2	46.5	165	3,512	W+++
Uganda 2011 AIS	25-29	4.0	9.8	243	3,247	W+++	59.9	54.2	91	3,247	M++
Uganda 2011 AIS	30-34	9.1	11.0	121	2,578	ns	71.8	52.3	73	2,578	M+++
Uganda 2011 AIS	35-39	11.0	12.1	110	2,448	ns	74.5	54.4	73	2,448	M+++
Uganda 2011 AIS	40-44	11.3	10.7	95	1,804	ns	77.7	46.2	60	1,804	M+++
Uganda 2011 AIS	45-49	10.2	10.5	103	1,524	ns	76.8	37.6	49	1,524	M+++
Zambia 2007 DHS	All	12.2	15.9	131	10,337	W+++	47.3	45.6	96	10,337	ns
Zambia 2007 DHS	15-19	3.6	5.7	161	2,326	W+	0.9	14.0	1,479	2,326	W+++
Zambia 2007 DHS	20-24	5.0	11.6	231	1,868	W+++	22.4	49.8	223	1,868	W+++
Zambia 2007 DHS	25-29	11.3	19.7	175	1,839	W+++	58.5	57.3	98	1,839	ns
Zambia 2007 DHS	30-34	17.2	25.7	150	1,593	W++	72.8	57.2	79	1,593	M+++
Zambia 2007 DHS	35-39	22.1	24.6	111	1,183	ns	81.6	60.3	74	1,183	M+++
Zambia 2007 DHS	40-44	23.8	18.0	76	847	ns	81.6	52.0	64	847	M+++
Zambia 2007 DHS	45-49	18.5	12.2	66	681	ns	81.5	45.9	56	681	M+++
Zimbabwe 2010-11 DHS	All	12.2	17.7	145	13,669	W+++	40.5	34.4	85	13,669	M+++
Zimbabwe 2010-11 DHS	15-19	3.4	4.3	129	3,113	ns	0.6	13.5	2,090	3,113	W+++
Zimbabwe 2010-11 DHS	20-24	3.9	10.5	272	2,710	W+++	20.8	39.2	188	2,710	W+++
Zimbabwe 2010-11 DHS	25-29	10.2	20.1	198	2,469	W+++	53.3	45.3	85	2,469	M+++
Zimbabwe 2010-11 DHS	30-34	16.9	29.3	173	1,877	W+++	66.8	45.9	69	1,877	M+++
Zimbabwe 2010-11 DHS	35-39	25.1	29.3	117	1,554	ns	72.7	40.4	56	1,554	M+++
Zimbabwe 2010-11 DHS	40-44	25.7	25.5	99	1,110	ns	70.7	34.5	49	1,110	M+++
Zimbabwe 2010-11 DHS	45-49	30.6	22.9	75	837	M+	68.8	22.5	33	837	M+++

(Continued...)

Table A1.1 – *Continued*

Note: Ratios are calculated as 100*(% for men)/(% for women)
a: restricted to respondents who were tested
b: restricted to respondents in households in which both men and women were interviewed
N is weighted
Significance refers to a test of the null hypothesis that men and women have the same HIV prevalence or the same cohabiting partner rates
M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level
ns: the difference is not statistically significant
W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A1.2 Percentage HIV-positive among men and women who do not have a cohabiting partner, and percentage HIV-positive among men and women who do have a cohabiting partner, by sex, and significance level for the difference between men and women, according to age, 10 DHS surveys in sub-Saharan Africa, 2006-2012

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Cameroon 2011 DHS	All	1.9	6.2	333	8,404	W+++	4.8	4.6	96	5,046	ns
Cameroon 2011 DHS	15-19	0.4	1.8	499	2,974	W++	0.0	3.6		220	ns
Cameroon 2011 DHS	20-24	0.7	3.6	546	2,006	W+++	0.5	3.1	678	646	ns
Cameroon 2011 DHS	25-29	2.8	10.1	360	1,238	W+	3.4	5.5	164	1,040	ns
Cameroon 2011 DHS	30-34	6.4	10.7	165	716	ns	4.6	4.7	103	986	ns
Cameroon 2011 DHS	35-39	5.1	14.8	289	536	W++	6.1	6.2	102	955	ns
Cameroon 2011 DHS	40-44	2.6	9.5	368	483	W+	5.6	4.4	80	675	ns
Cameroon 2011 DHS	45-49	7.7	8.6	112	451	ns	5.7	3.1	54	524	ns
Kenya 2008-09 DHS	All	3.4	8.9	260	4,250	W+++	5.7	6.6	117	2,483	ns
Kenya 2008-09 DHS	15-19	0.7	2.0	275	1,470	ns	0.0	16.5		50	ns
Kenya 2008-09 DHS	20-24	1.5	6.9	462	952	W++	1.8	6.0	338	369	ns
Kenya 2008-09 DHS	25-29	5.4	15.1	280	535	W+	7.8	6.7	86	568	ns
Kenya 2008-09 DHS	30-34	9.6	13.9	144	401	ns	5.8	8.0	138	548	ns
Kenya 2008-09 DHS	35-39	22.2	11.2	51	301	ns	5.0	6.1	120	352	ns
Kenya 2008-09 DHS	40-44	3.2	20.2	636	301	W++	6.9	5.1	75	337	ns
Kenya 2008-09 DHS	45-49	5.8	8.1	139	289	ns	3.8	2.7	70	260	ns
Lesotho 2009 DHS	All	13.9	27.0	195	5,004	W+++	29.2	25.6	88	1,563	ns
Lesotho 2009 DHS	15-19	2.8	3.8	135	1,617	ns	0.0	8.1		63	ns
Lesotho 2009 DHS	20-24	5.9	25.4	427	1,113	W+++	5.5	21.0	382	268	W++
Lesotho 2009 DHS	25-29	18.9	37.8	200	680	W+++	17.5	30.2	173	332	W+
Lesotho 2009 DHS	30-34	38.0	45.5	120	537	ns	42.3	28.3	67	307	M+
Lesotho 2009 DHS	35-39	36.2	46.1	127	421	ns	34.4	28.7	84	241	ns
Lesotho 2009 DHS	40-44	47.9	37.2	78	318	ns	31.6	34.0	108	181	ns
Lesotho 2009 DHS	45-49	31.2	32.5	104	318	ns	33.4	21.8	65	171	ns
Malawi 2010 DHS	All	5.3	15.3	288	6,806	W+++	10.7	10.2	95	6,722	ns
Malawi 2010 DHS	15-19	1.3	3.3	253	2,922	W+	0.0	7.9		303	ns

(Continued...)

Table A1.2 – *Continued*

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Malawi 2010 DHS	20-24	2.1	8.5	406	1,363	W+++	4.2	4.8	117	1,202	ns
Malawi 2010 DHS	25-29	9.8	21.5	219	832	W++	5.8	8.6	150	1,611	ns
Malawi 2010 DHS	30-34	20.0	29.9	149	539	ns	8.8	14.6	166	1,272	W+
Malawi 2010 DHS	35-39	24.4	32.8	135	448	ns	16.7	17.6	105	1,106	ns
Malawi 2010 DHS	40-44	30.3	26.6	88	352	ns	18.5	14.5	78	685	ns
Malawi 2010 DHS	45-49	24.6	22.8	93	350	ns	12.9	6.2	48	542	ns
Mozambique 2009 AIS	All	7.8	17.1	219	4,021	W+++	10.1	9.6	95	5,080	ns
Mozambique 2009 AIS	15-19	2.9	7.1	250	1,396	W++	0.0	7.1		325	ns
Mozambique 2009 AIS	20-24	5.6	17.9	322	792	W+++	4.3	11.6	273	895	W++
Mozambique 2009 AIS	25-29	14.7	25.6	174	487	ns	10.6	11.7	111	1,026	ns
Mozambique 2009 AIS	30-34	21.4	22.9	107	434	ns	11.5	10.5	91	973	ns
Mozambique 2009 AIS	35-39	21.9	19.6	90	352	ns	12.7	8.8	70	830	ns
Mozambique 2009 AIS	40-44	23.5	19.9	85	265	ns	10.1	6.4	63	508	ns
Mozambique 2009 AIS	45-49	12.2	15.1	124	295	ns	10.5	4.9	47	523	M+
Swaziland 2006-07 DHS	All	15.6	29.9	191	6,807	W+++	36.2	36.9	102	1,402	ns
Swaziland 2006-07 DHS	15-19	1.9	8.9	479	2,393	W+++	0.0	35.8		51	ns
Swaziland 2006-07 DHS	20-24	10.9	36.9	338	1,508	W+++	37.4	45.9	123	198	ns
Swaziland 2006-07 DHS	25-29	26.1	50.8	194	899	W+++	32.7	44.3	135	293	W+
Swaziland 2006-07 DHS	30-34	42.5	48.2	113	625	ns	45.6	36.1	79	287	ns
Swaziland 2006-07 DHS	35-39	45.8	40.7	89	528	ns	43.3	26.7	62	235	M+
Swaziland 2006-07 DHS	40-44	45.7	27.8	61	433	M+++	36.4	26.8	74	184	ns
Swaziland 2006-07 DHS	45-49	37.1	22.6	61	422	M+	21.3	8.3	39	153	ns
Tanzania 2011-12 AIS	All	2.8	7.1	260	10,452	W+++	5.0	4.5	89	7,258	ns
Tanzania 2011-12 AIS	15-19	0.8	1.4	174	3,707	ns	0.0	0.8		378	ns
Tanzania 2011-12 AIS	20-24	1.5	5.5	362	2,064	W+++	2.5	3.0	121	1,071	ns
Tanzania 2011-12 AIS	25-29	2.1	9.9	472	1,280	W+++	2.9	4.3	149	1,486	ns
Tanzania 2011-12 AIS	30-34	8.1	12.6	157	899	ns	5.5	6.4	116	1,435	ns
Tanzania 2011-12 AIS	35-39	8.2	10.1	124	900	ns	6.9	5.4	79	1,361	ns

(Continued...)

Table A1.2 – *Continued*

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Tanzania 2011-12 AIS	40-44	10.2	11.2	109	794	ns	6.1	5.3	87	982	ns
Tanzania 2011-12 AIS	45-49	14.0	10.7	76	808	ns	4.5	7.2	158	545	ns
Uganda 2011 AIS	All	5.4	9.7	179	10,908	W+++	6.8	6.4	94	8,654	ns
Uganda 2011 AIS	15-19	1.6	3.0	181	4,093	W+	4.2	2.8	66	356	ns
Uganda 2011 AIS	20-24	2.5	7.8	315	2,132	W+++	3.6	6.3	175	1,380	ns
Uganda 2011 AIS	25-29	5.3	13.4	255	1,411	W+++	3.2	6.7	210	1,836	W++
Uganda 2011 AIS	30-34	13.9	14.0	101	1,012	ns	7.2	8.2	114	1,566	ns
Uganda 2011 AIS	35-39	16.5	18.8	114	892	ns	9.2	6.5	71	1,556	ns
Uganda 2011 AIS	40-44	19.6	14.3	73	695	ns	8.9	6.6	74	1,109	ns
Uganda 2011 AIS	45-49	17.3	14.1	82	673	ns	8.0	4.5	57	851	ns
Zambia 2007 DHS	All	9.2	18.4	201	5,546	W+++	15.5	13.0	84	4,791	M++
Zambia 2007 DHS	15-19	3.4	5.4	159	2,143	ns	17.7	7.7	43	183	ns
Zambia 2007 DHS	20-24	4.4	13.7	311	1,162	W+++	7.3	9.5	132	706	ns
Zambia 2007 DHS	25-29	11.8	26.3	223	777	W+++	10.9	14.9	136	1,062	ns
Zambia 2007 DHS	30-34	23.3	35.9	155	565	W+	14.9	18.1	121	1,028	ns
Zambia 2007 DHS	35-39	30.8	39.3	128	347	ns	20.1	14.9	74	836	ns
Zambia 2007 DHS	40-44	38.2	24.8	65	291	ns	20.5	11.8	57	556	M+
Zambia 2007 DHS	45-49	30.9	18.1	59	262	ns	15.7	5.2	33	419	M++
Zimbabwe 2010-11 DHS	All	8.7	19.3	222	8,535	W+++	17.3	14.8	86	5,134	M++
Zimbabwe 2010-11 DHS	15-19	3.4	4.1	122	2,870	ns	0.0	5.6		243	ns
Zimbabwe 2010-11 DHS	20-24	3.9	11.7	297	1,840	W+++	3.6	8.8	245	870	W+
Zimbabwe 2010-11 DHS	25-29	8.6	24.0	279	1,250	W+++	11.5	15.4	135	1,218	ns
Zimbabwe 2010-11 DHS	30-34	18.0	35.1	195	831	W+++	16.5	22.5	137	1,045	W+
Zimbabwe 2010-11 DHS	35-39	34.5	37.0	107	701	ns	21.7	18.4	85	853	ns
Zimbabwe 2010-11 DHS	40-44	28.1	29.8	106	552	ns	24.8	17.2	69	558	ns
Zimbabwe 2010-11 DHS	45-49	39.1	25.6	66	491	M+	27.5	13.9	51	346	M+

(Continued...)

Table A1.2 – *Continued*

Note: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.

Ratios are calculated as 100*(% for men)/(% for women)

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same HIV prevalence, controlling for cohabiting partner status (no partner or has a partner)

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A1.3 Percentage with a cohabiting partner among men and women who are HIV-negative, and percentage with a cohabiting partner among men and women who are HIV-positive, by sex, and significance level for the difference between men and women, according to age, 10 DHS surveys in sub-Saharan Africa, 2006-2012 (restricted to respondents who were tested and who live in households in which both men and women were interviewed)

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Cameroon 2011 DHS	All	33.8	40.5	120	12,868	W+++	57.7	33.2	58	581	M+++
Cameroon 2011 DHS	15-19	0.7	12.5	1,813	3,155	W+++	0.0	22.5		39	ns
Cameroon 2011 DHS	20-24	9.3	36.7	392	2,595	W+++	6.7	33.1	498	58	ns
Cameroon 2011 DHS	25-29	35.3	55.3	156	2,152	W+++	39.8	39.2	99	126	ns
Cameroon 2011 DHS	30-34	60.0	58.1	97	1,593	ns	50.9	36.4	71	108	ns
Cameroon 2011 DHS	35-39	72.8	58.9	81	1,371	M+++	76.3	35.2	46	120	M+++
Cameroon 2011 DHS	40-44	69.1	49.4	72	1,089	M+++	83.4	30.3	36	69	M+++
Cameroon 2011 DHS	45-49	70.2	41.9	60	913	M+++	63.2	19.7	31	62	M+
Kenya 2008-09 DHS	All	38.5	35.8	93	6,298	ns	51.4	28.8	56	436	M+++
Kenya 2008-09 DHS	15-19	0.1	5.3	4,180	1,492	W+++	0.0	35.3		28	ns
Kenya 2008-09 DHS	20-24	13.1	38.8	297	1,263	W+++	15.2	35.3	233	58	ns
Kenya 2008-09 DHS	25-29	48.3	55.4	115	1,003	ns	58.1	33.5	58	100	ns
Kenya 2008-09 DHS	30-34	71.2	49.4	69	862	M+++	58.7	34.5	59	88	ns
Kenya 2008-09 DHS	35-39	72.6	45.0	62	591	M+++	33.1	29.5	89	63	ns
Kenya 2008-09 DHS	40-44	70.2	43.0	61	570	M+++	84.1	13.9	17	68	M+++
Kenya 2008-09 DHS	45-49	77.4	27.8	36	518	M+++	68.8	10.7	16	31	M+
Lesotho 2009 DHS	All	22.6	22.4	99	5,058	ns	42.7	21.1	50	1,509	M+++
Lesotho 2009 DHS	15-19	0.9	6.1	702	1,622	W+++	0.0	12.6		59	ns
Lesotho 2009 DHS	20-24	12.3	25.8	210	1,153	W+++	11.4	21.4	187	228	ns
Lesotho 2009 DHS	25-29	35.1	34.0	97	727	ns	32.9	26.8	82	285	ns
Lesotho 2009 DHS	30-34	46.9	33.0	70	502	M+	51.3	18.9	37	341	M+++
Lesotho 2009 DHS	35-39	57.6	28.1	49	402	M+++	55.7	15.6	28	261	M+++
Lesotho 2009 DHS	40-44	59.2	28.7	49	312	M+++	42.1	26.0	62	186	M+
Lesotho 2009 DHS	45-49	47.9	30.4	64	340	M++	50.4	20.1	40	149	M+++
Malawi 2010 DHS	All	49.3	50.2	102	12,087	ns	67.4	38.8	58	1,441	M+++

(Continued...)

Table A1.3 – *Continued*

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Malawi 2010 DHS	15-19	1.7	16.5	946	3,139	W+++	0.0	33.1		87	ns
Malawi 2010 DHS	20-24	31.9	59.1	186	2,443	W+++	48.8	44.4	91	123	ns
Malawi 2010 DHS	25-29	71.7	66.1	92	2,180	ns	58.7	40.3	69	264	ns
Malawi 2010 DHS	30-34	85.1	63.5	75	1,519	M+++	68.6	41.1	60	292	M++
Malawi 2010 DHS	35-39	85.6	64.5	75	1,228	M+++	78.7	44.3	56	327	M+++
Malawi 2010 DHS	40-44	84.8	55.3	65	825	M+++	74.4	36.6	49	212	M+++
Malawi 2010 DHS	45-49	85.6	45.9	54	754	M+++	72.9	16.0	22	138	M+++
Mozambique 2009 AIS	All	58.5	55.6	95	8,061	ns	65.0	39.2	60	1,040	M+++
Mozambique 2009 AIS	15-19	4.7	32.6	687	1,635	W+++	0.0	32.4		86	ns
Mozambique 2009 AIS	20-24	49.2	57.4	117	1,504	ns	42.3	44.8	106	183	ns
Mozambique 2009 AIS	25-29	75.8	66.9	88	1,290	M++	68.1	43.7	64	223	M+
Mozambique 2009 AIS	30-34	82.3	64.8	79	1,202	M+++	69.1	42.1	61	205	M++
Mozambique 2009 AIS	35-39	87.5	61.4	70	1,021	M+++	78.3	38.7	49	160	M+++
Mozambique 2009 AIS	40-44	85.0	56.0	66	675	M+++	67.4	25.8	38	98	M+++
Mozambique 2009 AIS	45-49	84.2	52.2	62	733	M+++	81.8	24.1	30	85	M+++
Swaziland 2006-07 DHS	All	15.0	14.3	96	6,081	ns	35.0	18.6	53	2,128	M+++
Swaziland 2006-07 DHS	15-19	0.1	3.0	2,985	2,301	W++	0.0	14.9		144	ns
Swaziland 2006-07 DHS	20-24	3.9	14.4	364	1,247	W+++	16.7	19.6	117	459	ns
Swaziland 2006-07 DHS	25-29	22.0	27.7	126	719	ns	28.0	22.8	82	473	ns
Swaziland 2006-07 DHS	30-34	38.1	30.6	80	506	ns	41.1	21.0	51	406	M+++
Swaziland 2006-07 DHS	35-39	44.8	26.1	58	455	M+++	42.4	15.8	37	308	M+++
Swaziland 2006-07 DHS	40-44	55.8	17.8	32	417	M+++	46.2	17.1	37	200	M+++
Swaziland 2006-07 DHS	45-49	63.3	8.7	14	437	M+++	44.2	2.9	7	138	M+++
Tanzania 2011-12 AIS	All	46.0	37.6	82	16,795	M+++	61.4	26.7	44	915	M+++
Tanzania 2011-12 AIS	15-19	1.4	15.6	1,088	4,042	W+++	0.0	9.6		43	ns
Tanzania 2011-12 AIS	20-24	24.4	42.0	172	3,032	W+++	34.6	27.8	80	103	ns
Tanzania 2011-12 AIS	25-29	56.5	53.6	95	2,617	ns	64.2	32.1	50	149	M+
Tanzania 2011-12 AIS	30-34	71.5	56.7	79	2,148	M+++	62.4	38.1	61	186	M+

(Continued...)

Table A1.3 – *Continued*

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Tanzania 2011-12 AIS	35-39	81.5	46.9	58	2,088	M+++	78.5	31.0	40	173	M+++
Tanzania 2011-12 AIS	40-44	80.8	35.2	44	1,632	M+++	70.5	19.5	28	144	M+++
Tanzania 2011-12 AIS	45-49	80.1	11.1	14	1,236	M+++	54.0	7.4	14	117	M+++
Uganda 2011 AIS	All	47.3	42.5	90	18,123	M+++	53.4	32.0	60	1,439	M+++
Uganda 2011 AIS	15-19	1.4	13.5	947	4,344	W+++	3.7	12.8	347	106	ns
Uganda 2011 AIS	20-24	28.0	46.8	167	3,322	W+++	36.4	41.2	113	189	ns
Uganda 2011 AIS	25-29	60.5	56.1	93	3,006	ns	47.6	37.1	78	241	ns
Uganda 2011 AIS	30-34	73.2	53.8	74	2,316	M+++	56.9	39.0	69	263	M+
Uganda 2011 AIS	35-39	76.2	57.9	76	2,164	M+++	62.0	29.3	47	284	M+++
Uganda 2011 AIS	40-44	79.8	48.4	61	1,606	M+++	61.2	28.5	47	198	M+++
Uganda 2011 AIS	45-49	78.5	40.0	51	1,366	M+++	60.4	16.2	27	158	M+++
Zambia 2007 DHS	All	45.5	47.2	104	8,866	ns	60.2	37.1	62	1,471	M+++
Zambia 2007 DHS	15-19	0.8	13.7	1,698	2,216	W+++	4.7	18.6	396	110	ns
Zambia 2007 DHS	20-24	21.8	51.0	233	1,705	W+++	32.2	40.9	127	163	ns
Zambia 2007 DHS	25-29	58.7	60.8	104	1,539	ns	56.6	43.2	76	299	ns
Zambia 2007 DHS	30-34	74.8	63.1	84	1,248	M+++	63.2	40.2	64	346	M+++
Zambia 2007 DHS	35-39	83.6	68.1	81	907	M+++	74.3	36.5	49	277	M+++
Zambia 2007 DHS	40-44	85.0	56.1	66	672	M+++	70.4	34.1	48	175	M+++
Zambia 2007 DHS	45-49	84.3	49.6	59	579	M+++	69.1	19.6	28	102	M+++
Zimbabwe 2010-11 DHS	All	38.8	36.2	93	11,562	M++	58.2	29.2	50	2,107	M+++
Zimbabwe 2010-11 DHS	15-19	0.8	13.6	1,684	2,992	W+++	0.0	17.9		121	ns
Zimbabwe 2010-11 DHS	20-24	20.6	40.9	198	2,499	W+++	19.2	33.7	175	211	ns
Zimbabwe 2010-11 DHS	25-29	53.6	48.6	91	2,073	ns	61.4	35.3	58	396	M+++
Zimbabwe 2010-11 DHS	30-34	69.3	50.6	73	1,424	M+++	67.0	35.5	53	452	M+++
Zimbabwe 2010-11 DHS	35-39	77.0	47.7	62	1,127	M+++	63.7	25.9	41	428	M+++
Zimbabwe 2010-11 DHS	40-44	72.8	38.0	52	826	M+++	69.3	23.1	33	284	M+++
Zimbabwe 2010-11 DHS	45-49	76.7	25.7	34	622	M+++	66.1	14.0	21	215	M+++

(Continued...)

Table A1.3 – *Continued*

Note: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.
Ratios are calculated as 100*(% for men)/(% for women)
N is weighted
Significance refers to a test of the null hypothesis that men and women have the same cohabiting partner rates, controlling for HIV status (negative or positive)
M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level
ns: the difference is not statistically significant
W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A1.4 Among cohabiting couples, the percent distribution of observed and expected couples (M=man, W=woman) by four combinations of couple HIV serostatus (negative concordance, female positive discordance, male positive discordance, and positive concordance), according to age (age of woman, age of man, and age difference between man and woman), 10 DHS surveys in sub-Saharan Africa, 2006-2012 (restricted to cohabiting couples in which both the man and the woman were tested for HIV)

			M negative W negative		M negative W positive		M positive W negative		M positive W positive	
Survey	**Category**		**Obs.**	**Exp.**	**Obs.**	**Exp.**	**Obs.**	**Exp.**	**Obs.**	**Exp.**
Cameroon 2011 DHS	All	All	92.1	90.7	3.3	4.6	3.1	4.4	1.5	0.2
Cameroon 2011 DHS	Age of woman	15-19	95.3	93.5	0.8	2.5	2.1	3.8	1.9	0.1
Cameroon 2011 DHS	Age of woman	20-24	95.1	94.4	2.0	2.6	2.3	2.9	0.7	0.1
Cameroon 2011 DHS	Age of woman	25-29	90.4	88.6	3.8	5.7	3.6	5.4	2.2	0.3
Cameroon 2011 DHS	Age of woman	30-34	93.0	91.8	3.0	4.3	2.5	3.8	1.4	0.2
Cameroon 2011 DHS	Age of woman	35-39	88.7	87.3	5.8	7.3	3.6	5.0	1.9	0.4
Cameroon 2011 DHS	Age of woman	40-44	87.2	86.0	4.7	5.9	6.3	7.6	1.8	0.5
Cameroon 2011 DHS	Age of woman	45-49	95.4	95.4	2.0	1.9	2.7	2.6	0.0	0.1
Cameroon 2011 DHS	Age of man	15-19								
Cameroon 2011 DHS	Age of man	20-24	96.8	96.4	2.7	3.1	0.0	0.4	0.5	0.0
Cameroon 2011 DHS	Age of man	25-29	94.0	93.5	2.8	3.3	2.7	3.2	0.6	0.1
Cameroon 2011 DHS	Age of man	30-34	92.7	90.7	2.9	4.9	2.1	4.2	2.2	0.2
Cameroon 2011 DHS	Age of man	35-39	90.5	89.3	3.9	5.1	4.1	5.3	1.5	0.3
Cameroon 2011 DHS	Age of man	40-44	90.4	88.4	3.8	5.7	3.5	5.5	2.3	0.4
Cameroon 2011 DHS	Age of man	45-49	91.7	90.7	3.2	4.1	4.0	4.9	1.2	0.2
Cameroon 2011 DHS	Age difference	M<W	88.2	87.7	6.6	7.2	4.3	4.8	0.9	0.4
Cameroon 2011 DHS	Age difference	M-W 0-4	90.9	90.2	4.6	5.4	3.5	4.2	1.0	0.3
Cameroon 2011 DHS	Age difference	M-W 5-9	93.1	91.6	2.8	4.3	2.4	3.9	1.7	0.2
Cameroon 2011 DHS	Age difference	M-W 10+	92.7	90.9	1.9	3.7	3.3	5.2	2.0	0.2
Kenya 2008-09 DHS	All	All	91.2	88.4	3.1	5.9	2.5	5.3	3.2	0.4
Kenya 2008-09 DHS	Age of woman	15-19	82.4	76.7	6.1	11.8	4.3	10.0	7.3	1.5
Kenya 2008-09 DHS	Age of woman	20-24	90.0	87.2	3.3	6.1	3.5	6.3	3.2	0.4
Kenya 2008-09 DHS	Age of woman	25-29	91.9	89.3	3.5	6.1	1.7	4.3	2.9	0.3
Kenya 2008-09 DHS	Age of woman	30-34	91.9	88.9	3.1	6.1	1.7	4.7	3.3	0.3

(Continued...)

Table A1.4 – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Kenya 2008-09 DHS	Age of woman	35-39	92.3	88.7	0.6	4.2	3.1	6.7	3.9	0.3
Kenya 2008-09 DHS	Age of woman	40-44	91.8	91.3	3.9	4.4	3.6	4.1	0.7	0.2
Kenya 2008-09 DHS	Age of woman	45-49								
Kenya 2008-09 DHS	Age of man	15-19								
Kenya 2008-09 DHS	Age of man	20-24	97.7	97.7	0.6	0.6	1.7	1.7	0.0	0.0
Kenya 2008-09 DHS	Age of man	25-29	87.6	83.5	4.5	8.6	3.0	7.2	4.8	0.7
Kenya 2008-09 DHS	Age of man	30-34	90.3	87.2	3.8	6.8	2.5	5.6	3.5	0.4
Kenya 2008-09 DHS	Age of man	35-39	92.3	89.7	2.8	5.4	2.0	4.6	2.9	0.3
Kenya 2008-09 DHS	Age of man	40-44	91.7	88.7	1.6	4.6	3.4	6.4	3.3	0.3
Kenya 2008-09 DHS	Age of man	45-49	92.8	90.8	3.3	5.2	1.8	3.7	2.2	0.2
Kenya 2008-09 DHS	Age difference	M<W	96.8	96.2	1.0	1.5	1.6	2.2	0.6	0.0
Kenya 2008-09 DHS	Age difference	M-W 0-4	90.5	87.4	3.8	6.9	2.2	5.3	3.5	0.4
Kenya 2008-09 DHS	Age difference	M-W 5-9	92.4	89.3	2.0	5.1	2.2	5.3	3.4	0.3
Kenya 2008-09 DHS	Age difference	M-W 10+	87.0	84.3	5.2	7.9	4.4	7.1	3.4	0.7
Lesotho 2009 DHS	All	All	62.7	51.4	7.9	19.2	10.1	21.4	19.3	8.0
Lesotho 2009 DHS	Age of woman	15-19	90.2	88.5	6.0	7.7	1.7	3.5	2.0	0.3
Lesotho 2009 DHS	Age of woman	20-24	70.9	58.8	4.6	16.6	7.1	19.1	17.4	5.4
Lesotho 2009 DHS	Age of woman	25-29	56.7	44.0	8.3	21.1	10.9	23.6	24.1	11.3
Lesotho 2009 DHS	Age of woman	30-34	53.5	46.3	12.4	19.5	16.9	24.0	17.3	10.1
Lesotho 2009 DHS	Age of woman	35-39	57.4	44.7	7.8	20.5	11.2	23.9	23.6	10.9
Lesotho 2009 DHS	Age of woman	40-44	58.4	48.5	12.7	22.6	9.8	19.7	19.1	9.2
Lesotho 2009 DHS	Age of woman	45-49								
Lesotho 2009 DHS	Age of man	15-19								
Lesotho 2009 DHS	Age of man	20-24	91.1	86.1	3.4	8.4	0.0	5.0	5.5	0.5
Lesotho 2009 DHS	Age of man	25-29	76.6	66.7	6.0	15.9	4.2	14.0	13.2	3.3
Lesotho 2009 DHS	Age of man	30-34	52.7	40.2	4.4	17.0	17.6	30.1	25.2	12.7
Lesotho 2009 DHS	Age of man	35-39	55.7	43.4	9.7	22.0	10.7	23.0	23.9	11.6

(Continued...)

Table A1.4 – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Lesotho 2009 DHS	Age of man	40-44	57.8	49.0	10.1	18.8	14.5	23.2	17.7	8.9
Lesotho 2009 DHS	Age of man	45-49	48.9	38.4	17.2	27.7	9.3	19.7	24.6	14.2
Lesotho 2009 DHS	Age difference	M<W	55.3	37.7	2.9	20.5	9.5	27.1	32.3	14.7
Lesotho 2009 DHS	Age difference	M-W 0-4	67.7	57.2	6.2	16.6	9.9	20.3	16.3	5.9
Lesotho 2009 DHS	Age difference	M-W 5-9	63.6	51.9	8.2	19.9	8.8	20.4	19.4	7.8
Lesotho 2009 DHS	Age difference	M-W 10+	46.3	39.0	16.3	23.5	16.1	23.4	21.4	14.1
Malawi 2010 DHS	All	All	85.5	80.5	3.9	8.9	4.6	9.6	6.0	1.0
Malawi 2010 DHS	Age of woman	15-19	89.4	87.6	6.2	8.1	2.1	4.0	2.3	0.4
Malawi 2010 DHS	Age of woman	20-24	91.7	89.4	2.3	4.6	3.4	5.7	2.6	0.3
Malawi 2010 DHS	Age of woman	25-29	87.3	82.7	3.2	7.8	4.1	8.6	5.4	0.8
Malawi 2010 DHS	Age of woman	30-34	80.0	73.6	5.3	11.7	6.3	12.7	8.5	2.0
Malawi 2010 DHS	Age of woman	35-39	77.6	68.5	4.3	13.4	6.1	15.2	12.0	3.0
Malawi 2010 DHS	Age of woman	40-44	80.3	74.0	4.2	10.5	7.3	13.6	8.1	1.9
Malawi 2010 DHS	Age of woman	45-49	85.5	82.1	6.2	9.6	4.1	7.4	4.2	0.9
Malawi 2010 DHS	Age of man	15-19	98.1	98.1	1.9	1.9	0.0	0.0	0.0	0.0
Malawi 2010 DHS	Age of man	20-24	91.3	90.8	4.6	5.1	3.3	3.9	0.8	0.2
Malawi 2010 DHS	Age of man	25-29	91.6	88.3	2.9	6.2	1.9	5.2	3.6	0.4
Malawi 2010 DHS	Age of man	30-34	88.1	83.9	3.0	7.2	4.1	8.2	4.9	0.7
Malawi 2010 DHS	Age of man	35-39	79.3	72.3	4.6	11.6	6.9	13.9	9.2	2.2
Malawi 2010 DHS	Age of man	40-44	77.7	68.7	3.5	12.4	7.0	15.9	11.8	2.9
Malawi 2010 DHS	Age of man	45-49	81.0	75.7	6.1	11.5	5.8	11.2	7.0	1.7
Malawi 2010 DHS	Age difference	M<W	78.3	72.6	6.1	11.8	7.7	13.4	7.9	2.2
Malawi 2010 DHS	Age difference	M-W 0-4	89.1	85.2	3.1	7.0	3.3	7.2	4.5	0.6
Malawi 2010 DHS	Age difference	M-W 5-9	85.0	79.5	4.3	9.8	4.1	9.5	6.7	1.2
Malawi 2010 DHS	Age difference	M-W 10+	77.6	70.9	4.0	10.7	9.3	16.0	9.1	2.4
Mozambique 2009 AIS	All	All	85.0	81.3	5.2	8.9	5.1	8.8	4.7	1.0
Mozambique 2009 AIS	Age of woman	15-19	90.7	88.3	4.2	6.6	2.4	4.8	2.7	0.4

(Continued...)

Table A1.4 – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Mozambique 2009 AIS	Age of woman	20-24	82.4	79.1	7.1	10.4	6.0	9.3	4.5	1.2
Mozambique 2009 AIS	Age of woman	25-29	83.8	79.3	5.0	9.5	5.5	10.0	5.8	1.2
Mozambique 2009 AIS	Age of woman	30-34	82.1	77.8	5.5	9.7	6.8	11.1	5.6	1.4
Mozambique 2009 AIS	Age of woman	35-39	89.1	85.3	3.8	7.6	2.8	6.6	4.4	0.6
Mozambique 2009 AIS	Age of woman	40-44	87.9	85.2	3.6	6.3	5.2	7.9	3.3	0.6
Mozambique 2009 AIS	Age of woman	45-49	87.1	83.6	3.6	7.1	5.1	8.6	4.2	0.7
Mozambique 2009 AIS	Age of man	15-19	86.9	86.9	13.1	13.1	0.0	0.0	0.0	0.0
Mozambique 2009 AIS	Age of man	20-24	88.0	86.7	7.7	9.1	2.5	3.8	1.8	0.4
Mozambique 2009 AIS	Age of man	25-29	84.2	80.2	5.0	8.9	5.9	9.8	5.0	1.1
Mozambique 2009 AIS	Age of man	30-34	82.9	79.2	6.1	9.8	6.0	9.8	5.0	1.2
Mozambique 2009 AIS	Age of man	35-39	84.8	80.5	3.2	7.6	6.6	11.0	5.4	1.0
Mozambique 2009 AIS	Age of man	40-44	85.1	82.4	5.3	8.0	6.1	8.8	3.6	0.9
Mozambique 2009 AIS	Age of man	45-49	86.4	80.0	3.4	9.8	2.7	9.1	7.5	1.1
Mozambique 2009 AIS	Age difference	M<W	81.3	76.8	7.0	11.4	5.8	10.3	5.9	1.5
Mozambique 2009 AIS	Age difference	M-W 0-4	86.2	83.7	5.6	8.1	4.9	7.5	3.3	0.7
Mozambique 2009 AIS	Age difference	M-W 5-9	88.0	85.4	4.6	7.1	4.3	6.9	3.1	0.6
Mozambique 2009 AIS	Age difference	M-W 10+	79.5	71.9	4.2	11.8	6.3	14.0	9.9	2.3
Swaziland 2006-07 DHS	All	All	54.8	39.7	8.7	23.8	7.7	22.8	28.8	13.7
Swaziland 2006-07 DHS	Age of woman	15-19	49.9	40.3	14.9	24.5	12.3	21.9	22.9	13.3
Swaziland 2006-07 DHS	Age of woman	20-24	47.7	31.8	11.9	27.8	5.6	21.5	34.8	18.9
Swaziland 2006-07 DHS	Age of woman	25-29	47.1	30.4	8.9	25.6	7.2	23.9	36.8	20.1
Swaziland 2006-07 DHS	Age of woman	30-34	57.6	42.5	9.2	24.2	6.2	21.2	27.1	12.1
Swaziland 2006-07 DHS	Age of woman	35-39	61.1	50.0	5.8	16.9	13.7	24.8	19.4	8.3
Swaziland 2006-07 DHS	Age of woman	40-44	63.7	48.1	4.0	19.5	7.5	23.0	24.9	9.3
Swaziland 2006-07 DHS	Age of woman	45-49								
Swaziland 2006-07 DHS	Age of man	15-19								
Swaziland 2006-07 DHS	Age of man	20-24	43.2	33.1	19.9	30.0	9.2	19.4	27.7	17.6

(Continued...)

Table A1.4 – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Swaziland 2006-07 DHS	Age of man	25-29	52.9	38.0	14.1	29.0	3.8	18.8	29.2	14.3
Swaziland 2006-07 DHS	Age of man	30-34	44.9	28.3	8.2	24.8	8.4	25.0	38.5	21.9
Swaziland 2006-07 DHS	Age of man	35-39	51.5	33.8	4.7	22.4	8.6	26.4	35.2	17.5
Swaziland 2006-07 DHS	Age of man	40-44	54.7	41.0	9.2	22.9	9.4	23.2	26.7	13.0
Swaziland 2006-07 DHS	Age of man	45-49	75.2	65.9	4.1	13.4	7.8	17.2	12.9	3.5
Swaziland 2006-07 DHS	Age difference	M<W	45.8	28.4	8.1	25.6	6.7	24.2	39.3	21.8
Swaziland 2006-07 DHS	Age difference	M-W 0-4	59.4	44.3	10.4	25.4	4.2	19.2	26.1	11.0
Swaziland 2006-07 DHS	Age difference	M-W 5-9	55.7	40.5	6.3	21.5	9.6	24.8	28.3	13.2
Swaziland 2006-07 DHS	Age difference	M-W 10+	48.6	35.1	10.9	24.4	10.4	23.9	30.1	16.6
Tanzania 2011-12 AIS	All	All	93.0	90.9	2.0	4.2	2.6	4.8	2.3	0.2
Tanzania 2011-12 AIS	Age of woman	15-19	97.9	97.8	0.6	0.8	1.2	1.4	0.2	0.0
Tanzania 2011-12 AIS	Age of woman	20-24	95.0	93.8	1.3	2.5	2.4	3.6	1.3	0.1
Tanzania 2011-12 AIS	Age of woman	25-29	93.7	91.1	1.5	4.1	2.1	4.6	2.8	0.2
Tanzania 2011-12 AIS	Age of woman	30-34	91.2	87.9	2.2	5.5	2.9	6.2	3.7	0.4
Tanzania 2011-12 AIS	Age of woman	35-39	90.4	88.1	2.9	5.2	4.0	6.3	2.7	0.4
Tanzania 2011-12 AIS	Age of woman	40-44	91.5	89.9	3.6	5.2	3.0	4.7	1.9	0.3
Tanzania 2011-12 AIS	Age of woman	45-49	88.4	85.9	5.2	7.7	3.3	5.8	3.0	0.5
Tanzania 2011-12 AIS	Age of man	15-19								
Tanzania 2011-12 AIS	Age of man	20-24	96.8	96.7	0.8	0.9	2.3	2.4	0.1	0.0
Tanzania 2011-12 AIS	Age of man	25-29	96.0	94.2	1.0	2.8	1.1	2.9	1.9	0.1
Tanzania 2011-12 AIS	Age of man	30-34	93.6	92.1	1.3	2.8	3.4	4.9	1.6	0.2
Tanzania 2011-12 AIS	Age of man	35-39	90.7	87.8	2.4	5.3	3.6	6.5	3.3	0.4
Tanzania 2011-12 AIS	Age of man	40-44	90.5	87.3	3.3	6.6	2.5	5.8	3.7	0.4
Tanzania 2011-12 AIS	Age of man	45-49	92.8	91.0	2.8	4.6	2.3	4.2	2.1	0.2
Tanzania 2011-12 AIS	Age difference	M<W	87.9	84.8	4.6	7.8	3.6	6.8	3.8	0.6
Tanzania 2011-12 AIS	Age difference	M-W 0-4	94.1	92.6	1.3	2.9	2.9	4.4	1.7	0.1
Tanzania 2011-12 AIS	Age difference	M-W 5-9	93.9	92.4	2.0	3.5	2.4	3.9	1.7	0.2

(Continued...)

Table A1.4 – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Tanzania 2011-12 AIS	Age difference	M-W 10+	91.5	87.8	2.1	5.8	2.3	6.0	4.1	0.4
Uganda 2011 AIS	All	All	90.2	87.1	3.0	6.1	3.2	6.3	3.5	0.4
Uganda 2011 AIS	Age of woman	15-19	94.2	92.0	0.4	2.7	3.0	5.2	2.4	0.2
Uganda 2011 AIS	Age of woman	20-24	91.3	89.0	3.8	6.0	2.4	4.7	2.6	0.3
Uganda 2011 AIS	Age of woman	25-29	90.4	87.3	3.1	6.2	3.0	6.1	3.5	0.4
Uganda 2011 AIS	Age of woman	30-34	87.6	82.9	3.0	7.6	4.0	8.7	5.4	0.8
Uganda 2011 AIS	Age of woman	35-39	89.9	87.3	2.8	5.5	4.1	6.8	3.1	0.4
Uganda 2011 AIS	Age of woman	40-44	87.8	84.1	3.6	7.3	4.2	7.9	4.4	0.7
Uganda 2011 AIS	Age of woman	45-49	91.6	88.2	3.2	6.6	1.4	4.8	3.8	0.4
Uganda 2011 AIS	Age of man	15-19	95.8	95.8	0.0	0.0	4.2	4.2	0.0	0.0
Uganda 2011 AIS	Age of man	20-24	93.2	91.2	3.2	5.2	1.4	3.4	2.3	0.2
Uganda 2011 AIS	Age of man	25-29	93.6	91.9	3.2	4.9	1.4	3.1	1.9	0.2
Uganda 2011 AIS	Age of man	30-34	90.3	86.8	2.6	6.0	3.3	6.7	3.9	0.5
Uganda 2011 AIS	Age of man	35-39	88.5	84.2	2.4	6.8	4.0	8.4	5.0	0.7
Uganda 2011 AIS	Age of man	40-44	87.3	84.3	3.8	6.8	5.3	8.2	3.6	0.7
Uganda 2011 AIS	Age of man	45-49	88.6	85.0	3.5	7.2	3.6	7.2	4.3	0.6
Uganda 2011 AIS	Age difference	M<W	88.0	82.6	3.3	8.6	2.6	7.9	6.2	0.8
Uganda 2011 AIS	Age difference	M-W 0-4	92.3	89.8	3.0	5.5	2.0	4.5	2.7	0.3
Uganda 2011 AIS	Age difference	M-W 5-9	91.3	89.2	2.7	4.8	3.6	5.7	2.5	0.3
Uganda 2011 AIS	Age difference	M-W 10+	85.5	80.8	3.6	8.3	5.3	9.9	5.6	1.0
Zambia 2007 DHS	All	All	80.2	73.9	4.7	11.0	6.8	13.1	8.2	2.0
Zambia 2007 DHS	Age of woman	15-19	87.0	83.1	3.5	7.4	4.9	8.8	4.7	0.8
Zambia 2007 DHS	Age of woman	20-24	85.9	81.7	3.6	7.8	5.4	9.6	5.1	0.9
Zambia 2007 DHS	Age of woman	25-29	77.8	71.5	4.8	11.2	8.6	15.0	8.7	2.3
Zambia 2007 DHS	Age of woman	30-34	77.4	68.6	5.8	14.7	4.9	13.8	11.8	3.0
Zambia 2007 DHS	Age of woman	35-39	77.3	70.9	4.9	11.3	9.0	15.4	8.8	2.5
Zambia 2007 DHS	Age of woman	40-44	76.6	69.7	6.1	13.0	7.6	14.5	9.6	2.7

(Continued...)

Table A1.4 – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Zambia 2007 DHS	Age of woman	45-49	83.0	78.6	3.3	7.8	7.9	12.4	5.7	1.2
Zambia 2007 DHS	Age of man	15-19								
Zambia 2007 DHS	Age of man	20-24	92.8	89.5	0.6	3.9	3.0	6.3	3.6	0.3
Zambia 2007 DHS	Age of man	25-29	84.5	81.6	4.3	7.2	7.4	10.4	3.8	0.9
Zambia 2007 DHS	Age of man	30-34	81.1	74.4	4.1	10.8	6.3	12.9	8.6	1.9
Zambia 2007 DHS	Age of man	35-39	73.7	65.2	7.0	15.5	7.1	15.6	12.2	3.7
Zambia 2007 DHS	Age of man	40-44	77.2	69.2	4.3	12.3	7.7	15.7	10.8	2.8
Zambia 2007 DHS	Age of man	45-49	78.4	73.2	5.9	11.1	8.4	13.6	7.2	2.1
Zambia 2007 DHS	Age difference	M<W	76.3	69.9	8.5	14.9	6.1	12.5	9.1	2.7
Zambia 2007 DHS	Age difference	M-W 0-4	80.6	74.2	4.0	10.4	7.1	13.5	8.3	1.9
Zambia 2007 DHS	Age difference	M-W 5-9	83.2	77.4	3.8	9.5	5.9	11.6	7.2	1.4
Zambia 2007 DHS	Age difference	M-W 10+	71.2	64.0	7.8	14.9	9.9	17.0	11.1	4.0
Zimbabwe 2010-11 DHS	All	All	78.4	70.7	4.6	12.3	6.8	14.5	10.2	2.5
Zimbabwe 2010-11 DHS	Age of woman	15-19	90.6	88.6	1.6	3.5	5.6	7.5	2.3	0.3
Zimbabwe 2010-11 DHS	Age of woman	20-24	87.0	81.6	1.9	7.3	4.9	10.3	6.3	0.9
Zimbabwe 2010-11 DHS	Age of woman	25-29	77.6	69.3	4.8	13.2	6.4	14.8	11.1	2.8
Zimbabwe 2010-11 DHS	Age of woman	30-34	71.0	61.4	7.6	17.2	7.1	16.7	14.3	4.7
Zimbabwe 2010-11 DHS	Age of woman	35-39	71.1	62.9	5.7	13.9	10.9	19.0	12.4	4.2
Zimbabwe 2010-11 DHS	Age of woman	40-44	72.3	62.6	6.5	16.2	7.1	16.9	14.1	4.4
Zimbabwe 2010-11 DHS	Age of woman	45-49	60.4	50.9	8.7	18.2	13.2	22.8	17.6	8.1
Zimbabwe 2010-11 DHS	Age of man	15-19								
Zimbabwe 2010-11 DHS	Age of man	20-24	93.5	91.5	2.6	4.6	1.7	3.7	2.2	0.2
Zimbabwe 2010-11 DHS	Age of man	25-29	85.8	80.5	3.3	8.6	4.6	9.9	6.4	1.0
Zimbabwe 2010-11 DHS	Age of man	30-34	77.9	71.1	5.6	12.5	7.2	14.0	9.3	2.5
Zimbabwe 2010-11 DHS	Age of man	35-39	75.3	64.2	3.6	14.8	6.0	17.1	15.0	3.9
Zimbabwe 2010-11 DHS	Age of man	40-44	66.3	59.1	8.0	15.1	13.3	20.5	12.4	5.3
Zimbabwe 2010-11 DHS	Age of man	45-49	69.0	57.9	4.8	15.9	9.5	20.6	16.7	5.6

(Continued...)

Table A1.4 – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Zimbabwe 2010-11 DHS	Age difference	M<W	74.6	68.2	9.3	15.6	6.8	13.2	9.4	3.0
Zimbabwe 2010-11 DHS	Age difference	M-W 0-4	82.7	76.2	4.2	10.7	5.0	11.5	8.1	1.6
Zimbabwe 2010-11 DHS	Age difference	M-W 5-9	78.4	70.2	3.7	12.0	7.0	15.3	10.9	2.6
Zimbabwe 2010-11 DHS	Age difference	M-W 10+	69.9	60.5	4.8	14.1	11.2	20.5	14.1	4.8

Note: Weighted frequencies for the rows in this table are given in Table 4.2.

Table A1.5 HIV prevalence among men and women who have cohabiting partners, and measures of selection and HIV seroconversion, according to age (age of woman, age of man, and age difference between man and woman), 10 DHS surveys in sub-Saharan Africa, 2006-2012

			HIV prevalence		Selection/Seroconversion measures					
Survey	Category		Men	Women	Delta	kap_SC	SCm	SCw	Sig.	N
Cameroon 2011 DHS	All	All	4.7	4.8	1.3	29.3	28.7	29.9	ns	2,289
Cameroon 2011 DHS	Age of woman	15-19	4.0	2.6	1.8	55.1	69.9	45.5	ns	201
Cameroon 2011 DHS	Age of woman	20-24	3.0	2.7	0.6	22.9	24.4	21.7	ns	509
Cameroon 2011 DHS	Age of woman	25-29	5.8	6.0	1.8	32.8	32.0	33.5	ns	621
Cameroon 2011 DHS	Age of woman	30-34	3.9	4.4	1.2	30.8	29.0	32.8	ns	441
Cameroon 2011 DHS	Age of woman	35-39	5.4	7.7	1.4	23.4	19.8	28.7	ns	334
Cameroon 2011 DHS	Age of woman	40-44	8.1	6.4	1.2	18.3	20.9	16.3	ns	135
Cameroon 2011 DHS	Age of woman	45-49	2.7	2.0	-0.1	-2.3	-2.7	-2.0	ns	48
Cameroon 2011 DHS	Age of man	15-19							.	11
Cameroon 2011 DHS	Age of man	20-24	0.5	3.2	0.4	24.8	14.1	100.0	ns	109
Cameroon 2011 DHS	Age of man	25-29	3.3	3.4	0.5	15.4	15.1	15.6	ns	381
Cameroon 2011 DHS	Age of man	30-34	4.4	5.2	2.0	44.1	40.6	48.4	ns	493
Cameroon 2011 DHS	Age of man	35-39	5.6	5.4	1.2	23.5	24.0	23.1	ns	547
Cameroon 2011 DHS	Age of man	40-44	5.8	6.1	1.9	34.5	33.7	35.3	ns	412
Cameroon 2011 DHS	Age of man	45-49	5.2	4.3	0.9	21.0	23.2	19.2	ns	337
Cameroon 2011 DHS	Age difference	M<W	5.2	7.5	0.5	8.6	7.2	10.7	ns	185
Cameroon 2011 DHS	Age difference	M-W 0-4	4.5	5.6	0.8	15.9	14.2	18.1	ns	561
Cameroon 2011 DHS	Age difference	M-W 5-9	4.1	4.5	1.5	36.0	34.4	37.7	ns	855
Cameroon 2011 DHS	Age difference	M-W 10+	5.4	4.0	1.8	40.9	48.6	35.3	ns	688
Kenya 2008-09 DHS	All	All	5.7	6.2	2.8	50.1	47.8	52.7	ns	1,064
Kenya 2008-09 DHS	Age of woman	15-19	11.5	13.4	5.8	52.7	48.6	57.5	ns	44
Kenya 2008-09 DHS	Age of woman	20-24	6.7	6.5	2.8	45.1	46.0	44.3	ns	252
Kenya 2008-09 DHS	Age of woman	25-29	4.6	6.4	2.6	50.4	42.8	61.3	ns	299
Kenya 2008-09 DHS	Age of woman	30-34	5.0	6.4	3.0	56.0	49.6	64.4	ns	220
Kenya 2008-09 DHS	Age of woman	35-39	7.0	4.6	3.6	65.7	84.7	53.6	ns	134
Kenya 2008-09 DHS	Age of woman	40-44	4.3	4.6	0.5	11.6	11.1	12.1	ns	94

(Continued...)

Table A1.5 – *Continued*

Survey	Category		HIV prevalence		Selection/Seroconversion measures				Sig.	N
			Men	Women	Delta	kap_SC	SCm	SCw		
Kenya 2008-09 DHS	Age of woman	45-49							.	21
Kenya 2008-09 DHS	Age of man	15-19							.	1
Kenya 2008-09 DHS	Age of man	20-24	1.7	0.6	0.0	-0.9	-1.8	-0.6	ns	69
Kenya 2008-09 DHS	Age of man	25-29	7.9	9.3	4.1	52.0	47.6	57.3	ns	193
Kenya 2008-09 DHS	Age of man	30-34	6.0	7.2	3.0	49.1	44.7	54.5	ns	280
Kenya 2008-09 DHS	Age of man	35-39	4.9	5.7	2.6	52.7	48.6	57.5	ns	169
Kenya 2008-09 DHS	Age of man	40-44	6.8	4.9	3.0	54.2	65.1	46.4	ns	186
Kenya 2008-09 DHS	Age of man	45-49	4.0	5.4	1.9	43.4	37.3	51.9	ns	165
Kenya 2008-09 DHS	Age difference	M<W	2.2	1.6	0.6	29.4	35.5	25.0	ns	104
Kenya 2008-09 DHS	Age difference	M-W 0-4	5.7	7.3	3.1	50.8	44.8	58.7	ns	371
Kenya 2008-09 DHS	Age difference	M-W 5-9	5.6	5.4	3.1	60.0	61.4	58.8	ns	406
Kenya 2008-09 DHS	Age difference	M-W 10+	7.8	8.6	2.7	35.8	34.1	37.8	ns	184
Lesotho 2009 DHS	All	All	29.4	27.2	11.3	55.6	58.8	52.7	ns	689
Lesotho 2009 DHS	Age of woman	15-19	3.8	8.0	1.7	30.9	22.4	49.9	ns	56
Lesotho 2009 DHS	Age of woman	20-24	24.5	22.0	12.0	67.3	72.5	62.9	ns	184
Lesotho 2009 DHS	Age of woman	25-29	35.0	32.4	12.7	57.0	60.4	53.9	ns	167
Lesotho 2009 DHS	Age of woman	30-34	34.2	29.7	7.2	32.9	36.7	29.8	ns	118
Lesotho 2009 DHS	Age of woman	35-39	34.8	31.4	12.6	57.1	61.7	53.0	ns	81
Lesotho 2009 DHS	Age of woman	40-44	28.9	31.8	9.9	46.8	43.8	50.3	ns	62
Lesotho 2009 DHS	Age of woman	45-49							.	21
Lesotho 2009 DHS	Age of man	15-19							.	6
Lesotho 2009 DHS	Age of man	20-24	5.5	8.9	5.0	74.9	59.9	100.0	ns	68
Lesotho 2009 DHS	Age of man	25-29	17.4	19.3	9.9	66.0	62.1	70.4	ns	144
Lesotho 2009 DHS	Age of man	30-34	42.8	29.6	12.5	53.2	73.8	41.6	M++	165
Lesotho 2009 DHS	Age of man	35-39	34.6	33.6	12.2	54.5	55.7	53.3	ns	141
Lesotho 2009 DHS	Age of man	40-44	32.2	27.8	8.8	41.6	46.4	37.7	ns	84
Lesotho 2009 DHS	Age of man	45-49	33.9	41.9	10.4	44.0	37.7	52.9	ns	81
Lesotho 2009 DHS	Age difference	M<W	41.8	35.2	17.6	73.9	85.8	65.0	ns	51

(Continued...)

Table A1.5 – *Continued*

			HIV prevalence		Selection/Seroconversion measures					
Survey	**Category**		**Men**	**Women**	**Delta**	**kap_SC**	**SCm**	**SCw**	**Sig.**	**N**
Lesotho 2009 DHS	Age difference	M-W 0-4	26.2	22.5	10.4	56.5	62.7	51.3	ns	291
Lesotho 2009 DHS	Age difference	M-W 5-9	28.2	27.7	11.6	57.8	58.5	57.1	ns	267
Lesotho 2009 DHS	Age difference	M-W 10+	37.5	37.6	7.3	31.0	30.9	31.1	ns	80
Malawi 2010 DHS	All	All	10.6	9.9	5.0	54.1	56.4	52.1	ns	2,987
Malawi 2010 DHS	Age of woman	15-19	4.4	8.5	1.9	31.6	23.6	47.9	ns	248
Malawi 2010 DHS	Age of woman	20-24	6.0	4.9	2.3	45.1	50.4	40.8	ns	746
Malawi 2010 DHS	Age of woman	25-29	9.5	8.6	4.6	55.7	58.6	53.0	ns	819
Malawi 2010 DHS	Age of woman	30-34	14.7	13.8	6.4	52.7	54.9	50.7	ns	501
Malawi 2010 DHS	Age of woman	35-39	18.1	16.3	9.1	63.7	67.9	59.9	ns	418
Malawi 2010 DHS	Age of woman	40-44	15.5	12.4	6.2	51.8	59.5	45.9	ns	193
Malawi 2010 DHS	Age of woman	45-49	8.3	10.4	3.4	39.5	35.1	45.1	ns	63
Malawi 2010 DHS	Age of man	15-19	0.0	1.9	0.0	0.0	0.0		ns	28
Malawi 2010 DHS	Age of man	20-24	4.1	5.3	0.6	12.2	10.8	14.2	ns	344
Malawi 2010 DHS	Age of man	25-29	5.6	6.5	3.3	57.5	52.9	62.8	ns	665
Malawi 2010 DHS	Age of man	30-34	8.9	7.9	4.2	54.1	58.1	50.6	ns	666
Malawi 2010 DHS	Age of man	35-39	16.1	13.8	7.0	54.7	60.2	50.1	ns	583
Malawi 2010 DHS	Age of man	40-44	18.8	15.3	8.9	62.8	71.7	55.9	ns	387
Malawi 2010 DHS	Age of man	45-49	12.9	13.2	5.3	47.2	46.5	47.9	ns	315
Malawi 2010 DHS	Age difference	M<W	15.6	14.0	5.7	45.2	48.2	42.6	ns	212
Malawi 2010 DHS	Age difference	M-W 0-4	7.8	7.6	3.9	54.8	55.9	53.8	ns	1,335
Malawi 2010 DHS	Age difference	M-W 5-9	10.7	11.0	5.5	56.6	55.8	57.4	ns	1,103
Malawi 2010 DHS	Age difference	M-W 10+	18.4	13.1	6.7	49.9	62.3	41.6	M+	337
Mozambique 2009 AIS	All	All	9.8	9.9	3.7	42.0	41.7	42.2	ns	2,322
Mozambique 2009 AIS	Age of woman	15-19	5.1	6.9	2.4	41.8	36.1	49.7	ns	275
Mozambique 2009 AIS	Age of woman	20-24	10.5	11.6	3.3	33.3	31.5	35.3	ns	550
Mozambique 2009 AIS	Age of woman	25-29	11.2	10.7	4.6	46.6	47.8	45.5	ns	521
Mozambique 2009 AIS	Age of woman	30-34	12.5	11.1	4.2	40.7	43.6	38.2	ns	448
Mozambique 2009 AIS	Age of woman	35-39	7.2	8.2	3.8	53.8	50.2	58.0	ns	312

(Continued...)

Table A1.5 – *Continued*

			HIV prevalence		Selection/Seroconversion measures					
Survey	**Category**		**Men**	**Women**	**Delta**	**kap_SC**	**SCm**	**SCw**	**Sig.**	**N**
Mozambique 2009 AIS	Age of woman	40-44	8.5	6.9	2.7	38.5	43.2	34.7	ns	142
Mozambique 2009 AIS	Age of woman	45-49	9.3	7.8	3.5	44.3	49.0	40.5	ns	74
Mozambique 2009 AIS	Age of man	15-19	0.0	13.1	0.0	0.0	0.0		ns	37
Mozambique 2009 AIS	Age of man	20-24	4.3	9.5	1.4	21.4	15.2	35.8	ns	318
Mozambique 2009 AIS	Age of man	25-29	10.9	10.0	3.9	41.9	43.9	40.0	ns	469
Mozambique 2009 AIS	Age of man	30-34	11.0	11.1	3.8	38.3	38.2	38.4	ns	470
Mozambique 2009 AIS	Age of man	35-39	12.0	8.6	4.4	47.3	57.9	39.9	ns	449
Mozambique 2009 AIS	Age of man	40-44	9.6	8.9	2.7	32.5	34.1	31.1	ns	285
Mozambique 2009 AIS	Age of man	45-49	10.2	10.9	6.4	67.4	64.9	70.1	ns	295
Mozambique 2009 AIS	Age difference	M<W	11.8	12.9	4.4	40.7	38.7	43.0	ns	293
Mozambique 2009 AIS	Age difference	M-W 0-4	8.2	8.9	2.6	32.9	31.7	34.3	ns	930
Mozambique 2009 AIS	Age difference	M-W 5-9	7.5	7.7	2.5	36.5	35.9	37.0	ns	708
Mozambique 2009 AIS	Age difference	M-W 10+	16.3	14.1	7.6	59.1	64.5	54.6	ns	390
Swaziland 2006-07 DHS	All	All	36.5	37.5	15.1	64.8	63.5	66.2	ns	626
Swaziland 2006-07 DHS	Age of woman	15-19	35.2	37.8	9.6	41.3	39.1	43.9	ns	41
Swaziland 2006-07 DHS	Age of woman	20-24	40.4	46.7	15.9	64.6	57.3	74.0	ns	130
Swaziland 2006-07 DHS	Age of woman	25-29	44.0	45.7	16.7	67.5	65.3	69.8	ns	152
Swaziland 2006-07 DHS	Age of woman	30-34	33.2	36.3	15.0	66.2	62.0	70.9	ns	125
Swaziland 2006-07 DHS	Age of woman	35-39	33.1	25.2	11.1	53.2	65.7	44.7	ns	91
Swaziland 2006-07 DHS	Age of woman	40-44	32.4	28.9	15.5	73.1	79.6	67.5	ns	64
Swaziland 2006-07 DHS	Age of woman	45-49							.	23
Swaziland 2006-07 DHS	Age of man	15-19							.	1
Swaziland 2006-07 DHS	Age of man	20-24	36.9	47.5	10.1	41.1	33.8	52.4	ns	38
Swaziland 2006-07 DHS	Age of man	25-29	33.0	43.2	14.9	62.5	51.5	79.5	W+	115
Swaziland 2006-07 DHS	Age of man	30-34	46.9	46.7	16.6	66.7	67.0	66.4	ns	132
Swaziland 2006-07 DHS	Age of man	35-39	43.8	39.8	17.7	72.7	79.1	67.2	ns	123
Swaziland 2006-07 DHS	Age of man	40-44	36.1	35.9	13.7	59.6	59.9	59.2	ns	102
Swaziland 2006-07 DHS	Age of man	45-49	20.7	17.0	9.4	61.1	69.6	54.4	ns	114

(Continued...)

Table A1.5 – *Continued*

Survey	Category		HIV prevalence		Selection/Seroconversion measures				Sig.	N
			Men	Women	Delta	kap_SC	SCm	SCw		
Swaziland 2006-07 DHS	Age difference	M<W	46.0	47.5	17.5	70.2	68.2	72.2	ns	50
Swaziland 2006-07 DHS	Age difference	M-W 0-4	30.3	36.4	15.0	67.4	59.2	78.2	W+	210
Swaziland 2006-07 DHS	Age difference	M-W 5-9	38.0	34.7	15.2	65.5	70.6	61.2	ns	247
Swaziland 2006-07 DHS	Age difference	M-W 10+	40.5	41.0	13.5	55.9	55.3	56.5	ns	118
Tanzania 2011-12 AIS	All	All	5.0	4.4	2.1	47.8	51.4	44.7	ns	3,302
Tanzania 2011-12 AIS	Age of woman	15-19	1.4	0.8	0.2	18.1	24.8	14.2	ns	311
Tanzania 2011-12 AIS	Age of woman	20-24	3.7	2.6	1.2	39.6	48.1	33.6	ns	637
Tanzania 2011-12 AIS	Age of woman	25-29	4.8	4.3	2.6	58.9	62.8	55.4	ns	802
Tanzania 2011-12 AIS	Age of woman	30-34	6.6	5.9	3.3	56.1	59.4	53.2	ns	674
Tanzania 2011-12 AIS	Age of woman	35-39	6.7	5.6	2.3	40.3	44.4	36.9	ns	529
Tanzania 2011-12 AIS	Age of woman	40-44	4.9	5.5	1.6	32.5	30.8	34.5	ns	280
Tanzania 2011-12 AIS	Age of woman	45-49	6.3	8.2	2.5	36.5	32.1	42.4	ns	69
Tanzania 2011-12 AIS	Age of man	15-19							.	24
Tanzania 2011-12 AIS	Age of man	20-24	2.4	0.9	0.1	4.7	8.8	3.2	ns	309
Tanzania 2011-12 AIS	Age of man	25-29	3.0	2.9	1.8	63.0	64.3	61.7	ns	534
Tanzania 2011-12 AIS	Age of man	30-34	5.1	3.0	1.5	38.5	53.0	30.3	ns	622
Tanzania 2011-12 AIS	Age of man	35-39	6.9	5.7	2.9	49.2	54.8	44.6	ns	724
Tanzania 2011-12 AIS	Age of man	40-44	6.2	7.0	3.3	53.3	50.1	56.9	ns	644
Tanzania 2011-12 AIS	Age of man	45-49	4.4	4.8	1.9	42.3	40.2	44.6	ns	445
Tanzania 2011-12 AIS	Age difference	M<W	7.4	8.4	3.2	43.4	40.6	46.6	ns	295
Tanzania 2011-12 AIS	Age difference	M-W 0-4	4.5	3.0	1.5	42.2	53.3	34.9	M+	1,139
Tanzania 2011-12 AIS	Age difference	M-W 5-9	4.1	3.7	1.6	41.7	44.0	39.7	ns	1,226
Tanzania 2011-12 AIS	Age difference	M-W 10+	6.4	6.2	3.7	63.0	64.2	61.9	ns	642
Uganda 2011 AIS	All	All	6.8	6.6	3.1	49.7	50.6	48.8	ns	3,972
Uganda 2011 AIS	Age of woman	15-19	5.3	2.8	2.3	57.3	84.4	43.3	ns	321
Uganda 2011 AIS	Age of woman	20-24	5.0	6.3	2.2	42.0	37.3	48.2	ns	953
Uganda 2011 AIS	Age of woman	25-29	6.5	6.6	3.1	50.0	49.4	50.5	ns	991
Uganda 2011 AIS	Age of woman	30-34	9.5	8.4	4.7	57.1	60.9	53.7	ns	698

(Continued...)

Table A1.5 – *Continued*

Survey	Category		HIV prevalence		Selection/Seroconversion measures				Sig.	N
			Men	Women	Delta	kap_SC	SCm	SCw		
Uganda 2011 AIS	Age of woman	35-39	7.2	5.9	2.7	43.5	48.8	39.3	ns	605
Uganda 2011 AIS	Age of woman	40-44	8.6	8.0	3.8	49.2	51.2	47.4	ns	289
Uganda 2011 AIS	Age of woman	45-49	5.2	7.0	3.4	59.5	51.5	70.6	ns	116
Uganda 2011 AIS	Age of man	15-19	4.2	0.0	0.0	0.0		0.0	ns	29
Uganda 2011 AIS	Age of man	20-24	3.6	5.4	2.1	47.7	39.4	60.5	ns	383
Uganda 2011 AIS	Age of man	25-29	3.2	5.0	1.7	42.9	35.0	55.3	W+	777
Uganda 2011 AIS	Age of man	30-34	7.2	6.4	3.4	54.0	57.3	51.1	ns	793
Uganda 2011 AIS	Age of man	35-39	9.0	7.4	4.3	57.4	64.1	52.0	ns	810
Uganda 2011 AIS	Age of man	40-44	8.9	7.4	3.0	39.6	43.8	36.1	ns	655
Uganda 2011 AIS	Age of man	45-49	7.8	7.8	3.6	50.5	50.8	50.3	ns	526
Uganda 2011 AIS	Age difference	M<W	8.8	9.4	5.3	64.7	62.2	67.5	ns	442
Uganda 2011 AIS	Age difference	M-W 0-4	4.7	5.7	2.5	49.5	45.0	55.1	ns	1,328
Uganda 2011 AIS	Age difference	M-W 5-9	6.0	5.1	2.2	40.7	44.4	37.5	ns	1,478
Uganda 2011 AIS	Age difference	M-W 10+	10.9	9.3	4.6	51.0	56.1	46.8	ns	723
Zambia 2007 DHS	All	All	15.1	12.9	6.3	52.1	57.1	47.9	M+	2,007
Zambia 2007 DHS	Age of woman	15-19	9.5	8.2	3.9	48.1	52.5	44.3	ns	147
Zambia 2007 DHS	Age of woman	20-24	10.5	8.7	4.2	48.2	53.7	43.7	ns	456
Zambia 2007 DHS	Age of woman	25-29	17.3	13.5	6.3	48.5	56.8	42.3	M+	531
Zambia 2007 DHS	Age of woman	30-34	16.7	17.6	8.8	62.1	60.3	64.1	ns	413
Zambia 2007 DHS	Age of woman	35-39	17.9	13.7	6.4	47.9	56.6	41.5	ns	284
Zambia 2007 DHS	Age of woman	40-44	17.2	15.7	6.9	50.1	52.9	47.5	ns	130
Zambia 2007 DHS	Age of woman	45-49	13.6	9.0	4.4	44.0	57.0	35.9	ns	45
Zambia 2007 DHS	Age of man	15-19							.	10
Zambia 2007 DHS	Age of man	20-24	6.6	4.2	3.3	64.9	84.0	52.8	ns	157
Zambia 2007 DHS	Age of man	25-29	11.3	8.1	2.9	33.3	40.7	28.1	ns	398
Zambia 2007 DHS	Age of man	30-34	14.8	12.6	6.7	56.5	62.3	51.8	ns	496
Zambia 2007 DHS	Age of man	35-39	19.3	19.2	8.5	54.5	54.6	54.3	ns	431
Zambia 2007 DHS	Age of man	40-44	18.5	15.1	8.0	57.2	65.1	51.0	ns	287

(Continued...)

Table A1.5 – *Continued*

			HIV prevalence		Selection/Seroconversion measures					
Survey	**Category**		**Men**	**Women**	**Delta**	**kap_SC**	**SCm**	**SCw**	**Sig.**	**N**
Zambia 2007 DHS	Age of man	45-49	15.7	13.2	5.2	41.8	46.5	38.0	ns	228
Zambia 2007 DHS	Age difference	M<W	15.2	17.6	6.4	46.5	42.8	51.0	ns	147
Zambia 2007 DHS	Age difference	M-W 0-4	15.4	12.3	6.4	53.8	61.7	47.7	M+	751
Zambia 2007 DHS	Age difference	M-W 5-9	13.0	10.9	5.7	54.2	60.1	49.4	ns	857
Zambia 2007 DHS	Age difference	M-W 10+	21.0	18.9	7.1	44.6	47.8	41.9	ns	253
Zimbabwe 2010-11 DHS	All	All	17.0	14.8	7.7	57.3	62.5	52.9	M++	2,180
Zimbabwe 2010-11 DHS	Age of woman	15-19	7.8	3.8	2.0	35.5	55.3	26.1	ns	191
Zimbabwe 2010-11 DHS	Age of woman	20-24	11.2	8.2	5.4	61.7	74.4	52.6	M++	549
Zimbabwe 2010-11 DHS	Age of woman	25-29	17.6	16.0	8.3	59.7	63.4	56.5	ns	560
Zimbabwe 2010-11 DHS	Age of woman	30-34	21.4	21.9	9.6	56.5	55.7	57.4	ns	414
Zimbabwe 2010-11 DHS	Age of woman	35-39	23.2	18.1	8.2	49.6	58.8	42.9	M+	304
Zimbabwe 2010-11 DHS	Age of woman	40-44	21.2	20.6	9.8	59.0	60.2	57.9	ns	134
Zimbabwe 2010-11 DHS	Age of woman	45-49	30.9	26.3	9.5	46.5	52.3	41.9	ns	28
Zimbabwe 2010-11 DHS	Age of man	15-19							.	10
Zimbabwe 2010-11 DHS	Age of man	20-24	3.8	4.8	2.0	48.3	43.2	54.7	ns	217
Zimbabwe 2010-11 DHS	Age of man	25-29	11.0	9.6	5.3	57.5	62.0	53.7	ns	504
Zimbabwe 2010-11 DHS	Age of man	30-34	16.5	14.9	6.8	51.6	54.8	48.8	ns	497
Zimbabwe 2010-11 DHS	Age of man	35-39	21.1	18.7	11.1	69.6	75.3	64.8	ns	443
Zimbabwe 2010-11 DHS	Age of man	40-44	25.8	20.4	7.2	40.3	47.5	35.1	ns	301
Zimbabwe 2010-11 DHS	Age of man	45-49	26.2	21.5	11.1	60.6	69.7	53.7	ns	208
Zimbabwe 2010-11 DHS	Age difference	M<W	16.2	18.6	6.4	44.2	40.7	48.3	ns	219
Zimbabwe 2010-11 DHS	Age difference	M-W 0-4	13.1	12.3	6.5	58.6	60.9	56.5	ns	817
Zimbabwe 2010-11 DHS	Age difference	M-W 5-9	17.9	14.6	8.3	60.8	69.1	54.3	M++	828
Zimbabwe 2010-11 DHS	Age difference	M-W 10+	25.3	19.0	9.4	53.9	66.0	45.6	M++	316

Note: Selection/seroconversion measures are defined in the text

N is weighted

Significance refers to a test of the null hypothesis that selection/seroconversion is the same for men and women

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A1.6 Percentage of HIV-negative men and women who are at risk of infection from an HIV-positive cohabiting partner, and relative risk for women compared with men, by three categories of risk, according to age, 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Risk category #1			Risk category #2			Risk category #3		
Survey	Category	Men	Women	RR	Men	Women	RR	Men	Women	RR
Cameroon 2011 DHS	All	3.3	3.1	94	3.5	3.3	94	1.2	1.3	113
Cameroon 2011 DHS	15-19	0.0	2.1		0.0	2.2		0.0	0.3	
Cameroon 2011 DHS	20-24	2.7	2.3	84	2.7	2.3	86	0.3	0.9	340
Cameroon 2011 DHS	25-29	2.8	3.6	130	2.8	3.8	134	1.0	2.1	210
Cameroon 2011 DHS	30-34	2.9	2.5	86	3.1	2.7	86	1.8	1.5	83
Cameroon 2011 DHS	35-39	3.9	3.6	92	4.1	3.9	95	3.0	2.3	76
Cameroon 2011 DHS	40-44	3.8	6.3	167	4.0	6.8	168	2.8	3.4	120
Cameroon 2011 DHS	45-49	3.2	2.7	84	3.3	2.7	81	2.3	1.1	48
Kenya 2008-09 DHS	All	3.1	2.5	82	3.3	2.7	83	1.3	1.0	77
Kenya 2008-09 DHS	15-19	0.0	4.2		0.0	4.9		0.0	0.3	
Kenya 2008-09 DHS	20-24	0.6	3.5	623	0.6	3.8	654	0.1	1.5	1,938
Kenya 2008-09 DHS	25-29	4.5	1.7	37	4.9	1.8	36	2.4	1.0	42
Kenya 2008-09 DHS	30-34	3.8	1.7	44	4.0	1.8	45	2.8	0.9	31
Kenya 2008-09 DHS	35-39	2.8	3.1	111	2.9	3.3	111	2.1	1.5	69
Kenya 2008-09 DHS	40-44	1.6	3.6	224	1.7	3.7	219	1.2	1.6	134
Kenya 2008-09 DHS	45-49	3.3	0.0	0	3.4	0.0	0	2.6	0.0	0
Lesotho 2009 DHS	All	7.9	10.1	128	11.2	13.9	124	2.5	3.1	123
Lesotho 2009 DHS	15-19	0.0	1.7		0.0	1.9		0.0	0.1	
Lesotho 2009 DHS	20-24	3.4	7.1	212	3.6	9.1	256	0.4	2.4	538
Lesotho 2009 DHS	25-29	6.0	10.9	181	7.3	16.1	221	2.6	5.5	214
Lesotho 2009 DHS	30-34	4.4	16.9	380	7.8	24.0	309	3.6	7.9	217
Lesotho 2009 DHS	35-39	9.7	11.2	115	14.9	16.3	110	8.6	4.6	54
Lesotho 2009 DHS	40-44	10.1	9.8	97	14.9	14.4	97	8.8	4.1	47
Lesotho 2009 DHS	45-49	17.2	11.6	67	26.1	18.6	71	12.5	5.7	45
Malawi 2010 DHS	All	3.9	4.6	119	4.3	5.1	118	2.1	2.6	120
Malawi 2010 DHS	15-19	1.9	2.1	108	1.9	2.3	117	0.0	0.4	1,140

(Continued...)

Table A1.6 – *Continued*

		Risk category #1			Risk category #2			Risk category #3		
Survey	**Category**	**Men**	**Women**	**RR**	**Men**	**Women**	**RR**	**Men**	**Women**	**RR**
Malawi 2010 DHS	20-24	4.6	3.4	74	4.8	3.6	75	1.5	2.1	139
Malawi 2010 DHS	25-29	2.9	4.1	140	3.1	4.5	145	2.2	2.9	134
Malawi 2010 DHS	30-34	3.0	6.3	208	3.3	7.3	220	2.8	4.6	164
Malawi 2010 DHS	35-39	4.6	6.1	132	5.5	7.3	132	4.7	4.7	100
Malawi 2010 DHS	40-44	3.5	7.4	209	4.3	8.4	194	3.7	4.6	126
Malawi 2010 DHS	45-49	6.1	4.1	67	7.1	4.6	65	6.0	2.1	35
Mozambique 2009 AIS	All	5.2	5.1	98	5.8	5.7	98	3.4	3.1	93
Mozambique 2009 AIS	15-19	13.1	2.4	18	13.1	2.6	20	0.6	0.8	137
Mozambique 2009 AIS	20-24	7.7	6.0	78	8.0	6.8	84	4.0	3.9	99
Mozambique 2009 AIS	25-29	5.0	5.5	109	5.6	6.1	109	4.2	4.1	96
Mozambique 2009 AIS	30-34	6.1	6.8	112	6.8	7.7	113	5.6	5.0	89
Mozambique 2009 AIS	35-39	3.2	2.8	87	3.6	3.0	83	3.2	1.8	58
Mozambique 2009 AIS	40-44	5.3	5.2	98	5.8	5.5	95	5.0	3.1	62
Mozambique 2009 AIS	45-49	3.4	5.1	148	3.8	5.5	144	3.2	2.9	89
Swaziland 2006-07 DHS	All	8.7	7.7	89	13.7	12.3	90	2.1	1.8	86
Swaziland 2006-07 DHS	15-19	0.0	12.3		0.0	19.8		0.0	0.6	
Swaziland 2006-07 DHS	20-24	19.8	5.6	28	31.5	10.5	33	1.2	1.5	123
Swaziland 2006-07 DHS	25-29	14.0	7.2	51	21.0	13.3	63	4.6	3.7	80
Swaziland 2006-07 DHS	30-34	8.2	6.2	75	15.4	9.7	63	5.9	3.0	50
Swaziland 2006-07 DHS	35-39	4.7	13.7	293	8.3	18.3	220	3.7	4.8	128
Swaziland 2006-07 DHS	40-44	9.2	7.5	81	14.4	10.5	73	8.0	1.9	23
Swaziland 2006-07 DHS	45-49	4.1	0.0	0	5.2	0.0	0	3.3	0.0	0
Tanzania 2011-12 AIS	All	2.0	2.6	131	2.1	2.8	130	1.0	1.0	106
Tanzania 2011-12 AIS	15-19	0.0	1.2		0.0	1.2		0.0	0.2	
Tanzania 2011-12 AIS	20-24	0.8	2.4	303	0.8	2.5	304	0.2	1.0	523
Tanzania 2011-12 AIS	25-29	1.0	2.1	206	1.0	2.2	209	0.6	1.2	198
Tanzania 2011-12 AIS	30-34	1.3	2.9	218	1.4	3.1	220	1.0	1.7	175
Tanzania 2011-12 AIS	35-39	2.4	4.0	167	2.6	4.2	165	2.1	2.0	95

(Continued...)

Table A1.6 – *Continued*

		Risk category #1			Risk category #2			Risk category #3		
Survey	**Category**	**Men**	**Women**	**RR**	**Men**	**Women**	**RR**	**Men**	**Women**	**RR**
Tanzania 2011-12 AIS	40-44	3.3	3.0	93	3.5	3.2	93	2.8	1.1	40
Tanzania 2011-12 AIS	45-49	2.8	3.4	121	2.9	3.7	126	2.3	0.4	17
Uganda 2011 AIS	All	3.0	3.2	107	3.2	3.5	107	1.5	1.5	96
Uganda 2011 AIS	15-19	0.0	2.9		0.0	3.0		0.0	0.4	
Uganda 2011 AIS	20-24	3.2	2.4	76	3.3	2.6	78	0.9	1.2	130
Uganda 2011 AIS	25-29	3.2	3.0	95	3.3	3.2	98	2.0	1.8	91
Uganda 2011 AIS	30-34	2.6	4.0	157	2.8	4.4	159	2.0	2.4	117
Uganda 2011 AIS	35-39	2.4	4.1	170	2.7	4.4	165	2.0	2.5	125
Uganda 2011 AIS	40-44	3.8	4.2	109	4.2	4.5	108	3.3	2.2	66
Uganda 2011 AIS	45-49	3.5	1.4	40	3.8	1.5	40	3.0	0.6	20
Zambia 2007 DHS	All	4.7	6.8	145	5.6	7.9	141	2.5	3.7	147
Zambia 2007 DHS	15-19	4.9	4.9	100	5.9	5.3	90	0.0	0.7	1,539
Zambia 2007 DHS	20-24	0.6	5.4	857	0.7	5.9	878	0.1	3.0	2,053
Zambia 2007 DHS	25-29	4.2	8.6	204	4.8	10.0	209	2.8	6.1	216
Zambia 2007 DHS	30-34	4.1	4.9	122	4.8	6.0	126	3.6	3.8	106
Zambia 2007 DHS	35-39	7.0	9.0	128	8.7	10.4	120	7.3	7.1	98
Zambia 2007 DHS	40-44	4.3	7.6	177	5.3	9.0	171	4.5	5.1	113
Zambia 2007 DHS	45-49	6.0	8.0	134	7.1	8.7	124	6.0	4.3	73
Zimbabwe 2010-11 DHS	All	4.6	6.8	149	5.5	8.0	145	2.1	2.9	135
Zimbabwe 2010-11 DHS	15-19	0.0	5.6		0.0	5.8		0.0	0.8	
Zimbabwe 2010-11 DHS	20-24	2.6	4.9	185	2.7	5.3	193	0.6	2.2	384
Zimbabwe 2010-11 DHS	25-29	3.3	6.4	197	3.7	7.7	209	2.0	3.7	190
Zimbabwe 2010-11 DHS	30-34	5.6	7.1	126	6.7	9.1	135	4.7	4.6	99
Zimbabwe 2010-11 DHS	35-39	3.6	10.9	298	4.6	13.3	287	3.6	6.3	178
Zimbabwe 2010-11 DHS	40-44	8.0	7.1	89	10.7	8.9	83	7.8	3.4	43
Zimbabwe 2010-11 DHS	45-49	4.8	13.2	275	6.5	18.0	275	5.0	4.6	92

Note: Relative risk (RR) is expressed as number of women at risk per 100 men at risk.

Table A2.1 Percentage of men and women who are HIV-positive[a] and percentage of men and women who have cohabiting partners[b], by sex, and significance level for the difference between men and women, according to education (none, primary, secondary or higher), 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Cameroon 2011 DHS	All	2.9	5.6	193	13,449	W+++	34.5	40.1	116	13,449	W+++
Cameroon 2011 DHS	None	1.7	2.8	167	2,014	ns	55.5	58.2	105	2,014	ns
Cameroon 2011 DHS	Primary	3.1	6.7	215	4,422	W+++	42.8	46.7	109	4,422	W+
Cameroon 2011 DHS	Sec+	2.9	6.0	205	7,013	W+++	27.1	27.1	100	7,013	ns
Kenya 2008-09 DHS	All	4.3	8.1	189	6,734	W+++	39.0	35.3	90	6,734	M++
Kenya 2008-09 DHS	None	5.5	6.1	111	420	ns	59.9	32.6	55	420	M+++
Kenya 2008-09 DHS	Primary	4.9	9.1	184	3,715	W+++	37.7	37.6	100	3,715	ns
Kenya 2008-09 DHS	Sec+	3.4	7.0	203	2,598	W++	39.1	32.0	82	2,598	M++
Lesotho 2009 DHS	All	17.9	26.7	149	6,567	W+++	26.2	22.1	84	6,567	M+++
Lesotho 2009 DHS	None	27.4	20.7	76	364	ns	41.8	36.9	88	364	ns
Lesotho 2009 DHS	Primary	17.2	30.1	175	3,171	W+++	26.5	24.8	94	3,171	ns
Lesotho 2009 DHS	Sec+	15.9	23.7	149	3,032	W+++	21.2	19.1	90	3,032	ns
Malawi 2010 DHS	All	8.1	12.8	159	13,528	W+++	50.8	48.7	96	13,528	M+
Malawi 2010 DHS	None	11.0	14.1	129	1,506	ns	70.2	56.8	81	1,506	M++
Malawi 2010 DHS	Primary	7.6	11.5	152	8,610	W+++	52.0	50.5	97	8,610	ns
Malawi 2010 DHS	Sec+	8.4	16.1	191	3,413	W+++	44.7	36.8	82	3,413	M+++
Mozambique 2009 AIS	All	9.1	13.1	143	9,100	W+++	59.1	53.4	91	9,100	M+++
Mozambique 2009 AIS	None	7.1	9.7	136	1,955	ns	76.2	63.5	83	1,955	M+++
Mozambique 2009 AIS	Primary	9.1	14.5	159	5,479	W+++	63.9	53.1	83	5,479	M+++
Mozambique 2009 AIS	Sec+	10.1	14.9	148	1,666	W+	40.5	31.3	77	1,666	M+++
Swaziland 2006-07 DHS	All	19.5	31.0	159	8,210	W+++	18.9	15.7	83	8,210	M+++
Swaziland 2006-07 DHS	None	31.1	39.0	125	656	ns	32.4	24.6	76	656	M+
Swaziland 2006-07 DHS	Primary	17.9	33.6	188	2,853	W+++	16.5	15.0	91	2,853	ns
Swaziland 2006-07 DHS	Sec+	19.0	28.3	149	4,701	W+++	18.6	14.8	80	4,701	M+++
Tanzania 2011-12 AIS	All	3.8	6.2	162	17,711	W+++	46.6	36.9	79	17,711	M+++

(Continued...)

Table A2.1. – *Continued*

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Tanzania 2011-12 AIS	None	3.3	5.4	164	2,479	ns	60.9	44.0	72	2,479	M+++
Tanzania 2011-12 AIS	Primary	4.5	6.7	148	11,697	W+++	53.2	40.4	76	11,697	M+++
Tanzania 2011-12 AIS	Sec+	2.0	5.0	246	3,534	W+++	22.1	16.7	76	3,534	M+++
Uganda 2011 AIS	All	6.1	8.3	137	19,562	W+++	47.6	41.6	87	19,562	M+++
Uganda 2011 AIS	None	8.5	9.5	112	2,004	ns	61.1	50.7	83	2,004	M+++
Uganda 2011 AIS	Primary	6.7	8.9	134	11,398	W+++	52.2	45.5	87	11,398	M+++
Uganda 2011 AIS	Sec+	4.9	6.4	131	6,161	W+	38.7	28.4	73	6,161	M+++
Zambia 2007 DHS	All	12.2	15.9	131	10,337	W+++	47.3	45.6	96	10,337	ns
Zambia 2007 DHS	None	7.6	10.7	141	785	ns	65.3	57.2	88	785	ns
Zambia 2007 DHS	Primary	10.8	15.6	144	5,205	W+++	53.3	51.8	97	5,205	ns
Zambia 2007 DHS	Sec+	13.8	18.0	130	4,347	W+++	40.0	33.1	83	4,347	M+++
Zimbabwe 2010-11 DHS	All	12.2	17.7	145	13,669	W+++	40.5	34.4	85	13,669	M+++
Zimbabwe 2010-11 DHS	None	15.0	15.8	105	221	ns	41.3	34.9	85	221	ns
Zimbabwe 2010-11 DHS	Primary	13.6	20.4	151	3,521	W+++	42.6	40.8	96	3,521	ns
Zimbabwe 2010-11 DHS	Sec+	11.8	16.7	142	9,928	W+++	40.0	31.9	80	9,928	M+++

Note: Ratios are calculated as 100*(% for men)/(% for women)

a: restricted to respondents who were tested

b: restricted to respondents in households in which both men and women were interviewed

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same HIV prevalence or the same cohabiting partner rates

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A2.2 Percentage HIV-positive among men and women who do not have a cohabiting partner, and percentage HIV-positive among men and women who do have a cohabiting partner, by sex, and significance level for the difference between men and women, according to education (none, primary, secondary or higher), 10 DHS surveys in sub-Saharan Africa, 2006-2012

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Cameroon 2011 DHS	All	1.9	6.2	333	8,404	W+++	4.8	4.6	96	5,046	ns
Cameroon 2011 DHS	None	1.6	4.3	263	857	ns	1.7	1.7	100	1,158	ns
Cameroon 2011 DHS	Primary	2.3	8.0	346	2,436	W+++	4.1	5.2	125	1,987	ns
Cameroon 2011 DHS	Sec+	1.7	5.8	341	5,112	W+++	6.3	6.7	107	1,901	ns
Kenya 2008-09 DHS	All	3.4	8.9	260	4,250	W+++	5.7	6.6	117	2,483	ns
Kenya 2008-09 DHS	None	4.2	7.1	169	258	ns	6.3	4.0	63	162	ns
Kenya 2008-09 DHS	Primary	3.7	10.3	276	2,318	W+++	6.9	7.0	101	1,398	ns
Kenya 2008-09 DHS	Sec+	3.0	7.2	239	1,675	W+	4.1	6.6	160	923	ns
Lesotho 2009 DHS	All	13.9	27.0	195	5,004	W+++	29.2	25.6	88	1,563	ns
Lesotho 2009 DHS	None	21.9	25.5	116	214	ns	35.0	12.4	35	150	ns
Lesotho 2009 DHS	Primary	13.8	31.9	231	2,360	W+++	26.6	24.8	93	811	ns
Lesotho 2009 DHS	Sec+	12.2	22.9	188	2,430	W+++	29.9	27.2	91	602	ns
Malawi 2010 DHS	All	5.3	15.3	288	6,806	W+++	10.7	10.2	95	6,722	ns
Malawi 2010 DHS	None	15.5	18.5	119	600	ns	9.0	10.8	120	906	ns
Malawi 2010 DHS	Primary	5.0	13.8	278	4,204	W+++	10.0	9.3	93	4,405	ns
Malawi 2010 DHS	Sec+	4.9	17.6	359	2,002	W+++	12.8	13.4	105	1,411	ns
Mozambique 2009 AIS	All	7.8	17.1	219	4,021	W+++	10.1	9.6	95	5,080	ns
Mozambique 2009 AIS	None	9.5	14.4	151	663	ns	6.4	7.0	110	1,292	ns
Mozambique 2009 AIS	Primary	8.1	19.0	233	2,304	W+++	9.6	10.5	109	3,175	ns
Mozambique 2009 AIS	Sec+	7.1	14.8	209	1,053	W++	14.5	15.1	104	613	ns
Swaziland 2006-07 DHS	All	15.6	29.9	191	6,807	W+++	36.2	36.9	102	1,402	ns
Swaziland 2006-07 DHS	None	26.4	39.6	150	473	W+	40.8	37.1	91	183	ns
Swaziland 2006-07 DHS	Primary	14.2	32.1	227	2,406	W+++	36.7	42.0	115	447	ns
Swaziland 2006-07 DHS	Sec+	15.4	27.4	178	3,929	W+++	34.8	33.8	97	772	ns
Tanzania 2011-12 AIS	All	2.8	7.1	260	10,452	W+++	5.0	4.5	89	7,258	ns

(Continued...)

Table A2.2. – *Continued*

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Tanzania 2011-12 AIS	None	1.4	6.0	423	1,275	W+	4.5	4.6	102	1,205	ns
Tanzania 2011-12 AIS	Primary	3.7	8.1	217	6,329	W+++	5.2	4.5	88	5,369	ns
Tanzania 2011-12 AIS	Sec+	1.3	5.3	407	2,849	W+++	4.6	3.5	77	685	ns
Uganda 2011 AIS	All	5.4	9.7	179	10,908	W+++	6.8	6.4	94	8,654	ns
Uganda 2011 AIS	None	10.8	12.4	115	939	ns	7.0	6.6	94	1,065	ns
Uganda 2011 AIS	Primary	5.9	11.4	193	5,892	W+++	7.4	6.0	82	5,506	ns
Uganda 2011 AIS	Sec+	4.4	6.0	137	4,078	ns	5.7	7.5	132	2,083	ns
Zambia 2007 DHS	All	9.2	18.4	201	5,546	W+++	15.5	13.0	84	4,791	M++
Zambia 2007 DHS	None	8.9	14.8	168	319	ns	6.9	7.6	110	466	ns
Zambia 2007 DHS	Primary	9.6	20.4	213	2,477	W+++	11.9	11.1	93	2,728	ns
Zambia 2007 DHS	Sec+	8.9	17.0	190	2,750	W+++	21.2	20.0	94	1,597	ns
Zimbabwe 2010-11 DHS	All	8.7	19.3	222	8,535	W+++	17.3	14.8	86	5,134	M++
Zimbabwe 2010-11 DHS	None	11.5	18.9	164	141	ns	19.6	9.8	50	80	ns
Zimbabwe 2010-11 DHS	Primary	9.6	24.4	255	2,049	W+++	18.9	14.7	78	1,472	M+
Zimbabwe 2010-11 DHS	Sec+	8.4	17.5	208	6,346	W+++	16.8	15.1	90	3,582	ns

Note: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.

Ratios are calculated as 100*(% for men)/(% for women)

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same HIV prevalence, controlling for cohabiting partner status (no partner or has a partner)

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A2.3 Percentage with a cohabiting partner among men and women who are HIV-negative, and percentage with a cohabiting partner among men and women who are HIV-positive, by sex, and significance level for the difference between men and women, according to education (none, primary, secondary or higher), 10 DHS surveys in sub-Saharan Africa, 2006-2012 (restricted to respondents who were tested and who live in households in which both men and women were interviewed)

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Cameroon 2011 DHS	All	33.8	40.5	120	12,868	W+++	57.7	33.2	58	581	M+++
Cameroon 2011 DHS	None	55.4	58.8	106	1,963	ns	56.7	35.9	63	51	ns
Cameroon 2011 DHS	Primary	42.3	47.5	112	4,200	W++	57.3	36.3	63	223	M++
Cameroon 2011 DHS	Sec+	26.2	26.9	103	6,705	ns	58.0	30.1	52	308	M+++
Kenya 2008-09 DHS	All	38.5	35.8	93	6,298	ns	51.4	28.8	56	436	M+++
Kenya 2008-09 DHS	None	59.3	33.4	56	395	M+++	69.3	21.4	31	25	ns
Kenya 2008-09 DHS	Primary	36.9	38.4	104	3,441	ns	52.9	29.0	55	274	M++
Kenya 2008-09 DHS	Sec+	38.9	32.2	83	2,462	M++	46.7	30.0	64	136	ns
Lesotho 2009 DHS	All	22.6	22.4	99	5,058	ns	42.7	21.1	50	1,509	M+++
Lesotho 2009 DHS	None	37.4	40.7	109	267	ns	53.4	22.1	41	97	ns
Lesotho 2009 DHS	Primary	23.5	26.7	114	2,393	ns	41.0	20.4	50	778	M+++
Lesotho 2009 DHS	Sec+	17.7	18.3	103	2,397	ns	39.7	21.9	55	635	M+++
Malawi 2010 DHS	All	49.3	50.2	102	12,087	ns	67.4	38.8	58	1,441	M+++
Malawi 2010 DHS	None	71.6	59.0	82	1,305	M++	57.7	43.6	76	201	ns
Malawi 2010 DHS	Primary	50.6	51.8	102	7,769	ns	68.6	40.8	60	840	M+++
Malawi 2010 DHS	Sec+	42.6	38.0	89	3,013	M+	67.7	30.8	45	400	M+++
Mozambique 2009 AIS	All	58.5	55.6	95	8,061	ns	65.0	39.2	60	1,040	M+++
Mozambique 2009 AIS	None	76.8	65.4	85	1,776	M++	68.2	45.8	67	179	ns
Mozambique 2009 AIS	Primary	63.5	55.6	88	4,819	M+++	67.7	38.5	57	661	M+++
Mozambique 2009 AIS	Sec+	38.5	31.2	81	1,466	M++	58.2	31.7	55	200	M+++
Swaziland 2006-07 DHS	All	15.0	14.3	96	6,081	ns	35.0	18.6	53	2,128	M+++
Swaziland 2006-07 DHS	None	27.9	25.4	91	422	ns	42.6	23.4	55	234	M++
Swaziland 2006-07 DHS	Primary	12.7	13.1	103	2,100	ns	33.8	18.7	55	753	M+++
Swaziland 2006-07 DHS	Sec+	14.9	13.7	92	3,559	ns	34.0	17.7	52	1,141	M+++

(Continued...)

Table A2.3. – *Continued*

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Tanzania 2011-12 AIS	All	46.0	37.6	82	16,795	M+++	61.4	26.7	44	915	M+++
Tanzania 2011-12 AIS	None	60.2	44.4	74	2,359	M+++	83.1	37.4	45	120	M+++
Tanzania 2011-12 AIS	Primary	52.8	41.3	78	11,026	M+++	61.0	27.4	45	671	M+++
Tanzania 2011-12 AIS	Sec+	21.5	17.0	79	3,410	M++	50.1	11.8	24	124	M++
Uganda 2011 AIS	All	47.3	42.5	90	18,123	M+++	53.4	32.0	60	1,439	M+++
Uganda 2011 AIS	None	62.1	52.3	84	1,819	M++	50.6	35.3	70	185	ns
Uganda 2011 AIS	Primary	51.8	46.9	91	10,488	M+++	57.8	30.7	53	909	M+++
Uganda 2011 AIS	Sec+	38.5	28.0	73	5,816	M+++	45.2	33.3	74	345	ns
Zambia 2007 DHS	All	45.5	47.2	104	8,866	ns	60.2	37.1	62	1,471	M+++
Zambia 2007 DHS	None	65.7	59.2	90	708	ns	59.4	40.6	68	77	ns
Zambia 2007 DHS	Primary	52.6	54.5	104	4,497	ns	58.7	36.9	63	708	M+++
Zambia 2007 DHS	Sec+	36.6	32.3	88	3,661	M++	61.4	36.7	60	686	M+++
Zimbabwe 2010-11 DHS	All	38.8	36.2	93	11,562	M++	58.2	29.2	50	2,107	M+++
Zimbabwe 2010-11 DHS	None	40.1	37.1	93	187	ns	55.6	21.6	39	34	ns
Zimbabwe 2010-11 DHS	Primary	40.1	44.3	111	2,889	ns	59.5	29.7	50	632	M+++
Zimbabwe 2010-11 DHS	Sec+	38.4	33.0	86	8,487	M+++	57.8	29.2	51	1,441	M+++

Note: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.

Ratios are calculated as 100*(% for men)/(% for women)

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same cohabiting partner rates, controlling for HIV status (negative or positive)

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A2.4 Among cohabiting couples, the percent distribution of observed and expected couples (M=man, W=woman) by four combinations of couple HIV serostatus (negative concordance, female positive discordance, male positive discordance, and positive concordance), according to education (none, primary, secondary or higher), 10 DHS surveys in sub-Saharan Africa, 2006-2012 (restricted to cohabiting couples in which both the man and the woman were tested for HIV)

			M negative W negative		M negative W positive		M positive W negative		M positive W positive	
Survey	**Category**		**Obs.**	**Exp.**	**Obs.**	**Exp.**	**Obs.**	**Exp.**	**Obs.**	**Exp.**
Cameroon 2011 DHS	All	All	92.1	90.7	3.3	4.6	3.1	4.4	1.5	0.2
Cameroon 2011 DHS	Age of woman	None	95.8	95.5	1.7	2.0	2.2	2.4	0.3	0.1
Cameroon 2011 DHS	Age of woman	Primary	91.3	90.0	3.7	4.9	3.5	4.8	1.5	0.3
Cameroon 2011 DHS	Age of woman	Sec+	89.9	87.7	4.1	6.3	3.3	5.6	2.7	0.4
Cameroon 2011 DHS	Age of man	None	97.6	96.8	0.8	1.6	0.8	1.6	0.8	0.0
Cameroon 2011 DHS	Age of man	Primary	91.8	90.8	4.0	5.0	3.0	4.0	1.2	0.2
Cameroon 2011 DHS	Age of man	Sec+	90.4	88.7	3.5	5.3	4.0	5.8	2.1	0.3
Cameroon 2011 DHS	Age difference	M<W	92.1	90.7	3.8	5.2	2.5	3.9	1.6	0.2
Cameroon 2011 DHS	Age difference	M=W	92.0	90.3	3.4	5.1	2.6	4.3	2.0	0.3
Cameroon 2011 DHS	Age difference	M>W	92.1	91.5	3.0	3.5	4.2	4.8	0.8	0.2
Kenya 2008-09 DHS	All	All	91.2	88.4	3.1	5.9	2.5	5.3	3.2	0.4
Kenya 2008-09 DHS	Age of woman	None	95.4	93.2	1.7	3.9	0.6	2.8	2.3	0.1
Kenya 2008-09 DHS	Age of woman	Primary	90.5	87.6	3.2	6.2	2.9	5.8	3.4	0.4
Kenya 2008-09 DHS	Age of woman	Sec+	91.6	89.0	3.1	5.8	2.3	5.0	3.0	0.3
Kenya 2008-09 DHS	Age of man	None	90.8	84.2	2.0	8.6	0.0	6.6	7.2	0.7
Kenya 2008-09 DHS	Age of man	Primary	90.4	87.5	2.8	5.7	3.4	6.3	3.3	0.4
Kenya 2008-09 DHS	Age of man	Sec+	92.2	89.9	3.5	5.8	1.8	4.0	2.5	0.3
Kenya 2008-09 DHS	Age difference	M<W	84.5	78.1	3.6	10.0	4.2	10.6	7.8	1.4
Kenya 2008-09 DHS	Age difference	M=W	92.1	89.7	2.7	5.1	2.5	4.9	2.7	0.3
Kenya 2008-09 DHS	Age difference	M>W	91.1	88.5	4.0	6.6	2.0	4.6	3.0	0.3
Lesotho 2009 DHS	All	All	62.7	51.4	7.9	19.2	10.1	21.4	19.3	8.0
Lesotho 2009 DHS	Age of woman	None								
Lesotho 2009 DHS	Age of woman	Primary	63.6	52.2	7.0	18.4	10.3	21.7	19.0	7.7
Lesotho 2009 DHS	Age of woman	Sec+	61.9	50.4	9.0	20.5	9.2	20.7	19.9	8.4

(Continued...)

Table A2.4. – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Lesotho 2009 DHS	Age of man	None	59.3	48.7	6.7	17.3	14.6	25.1	19.5	8.9
Lesotho 2009 DHS	Age of man	Primary	63.6	52.4	9.2	20.5	8.3	19.5	18.9	7.6
Lesotho 2009 DHS	Age of man	Sec+	63.1	51.3	6.6	18.4	10.5	22.4	19.8	8.0
Lesotho 2009 DHS	Age difference	M<W	59.4	47.5	9.0	20.9	10.1	22.0	21.5	9.6
Lesotho 2009 DHS	Age difference	M=W	64.7	54.2	7.9	18.5	9.8	20.4	17.5	6.9
Lesotho 2009 DHS	Age difference	M>W	60.5	46.1	1.8	16.3	13.4	27.8	24.3	9.8
Malawi 2010 DHS	All	All	85.5	80.5	3.9	8.9	4.6	9.6	6.0	1.0
Malawi 2010 DHS	Age of woman	None	80.7	74.6	4.2	10.4	7.1	13.2	8.0	1.8
Malawi 2010 DHS	Age of woman	Primary	87.5	83.1	3.4	7.8	3.9	8.3	5.2	0.8
Malawi 2010 DHS	Age of woman	Sec+	82.2	76.3	5.3	11.3	4.9	10.8	7.6	1.6
Malawi 2010 DHS	Age of man	None	88.4	83.4	3.6	8.5	2.4	7.3	5.7	0.7
Malawi 2010 DHS	Age of man	Primary	85.2	80.4	4.6	9.5	4.2	9.1	5.9	1.1
Malawi 2010 DHS	Age of man	Sec+	85.3	80.0	2.2	7.6	6.1	11.4	6.4	1.1
Malawi 2010 DHS	Age difference	M<W	80.9	75.3	9.3	14.9	2.5	8.2	7.3	1.6
Malawi 2010 DHS	Age difference	M=W	87.0	82.2	3.3	8.1	4.0	8.8	5.7	0.9
Malawi 2010 DHS	Age difference	M>W	83.5	78.4	3.5	8.6	6.6	11.7	6.4	1.3
Mozambique 2009 AIS	All	All	85.0	81.3	5.2	8.9	5.1	8.8	4.7	1.0
Mozambique 2009 AIS	Age of woman	None	88.1	85.1	3.7	6.7	4.7	7.7	3.6	0.6
Mozambique 2009 AIS	Age of woman	Primary	84.1	80.2	5.7	9.6	5.2	9.1	5.0	1.1
Mozambique 2009 AIS	Age of woman	Sec+	78.7	73.4	7.9	13.3	6.0	11.3	7.4	2.0
Mozambique 2009 AIS	Age of man	None	86.8	85.2	7.1	8.6	4.0	5.6	2.1	0.6
Mozambique 2009 AIS	Age of man	Primary	86.0	82.4	4.7	8.3	4.9	8.5	4.4	0.9
Mozambique 2009 AIS	Age of man	Sec+	79.8	74.1	5.9	11.6	6.7	12.4	7.6	1.9
Mozambique 2009 AIS	Age difference	M<W	73.5	68.1	14.2	19.6	4.2	9.5	8.1	2.7
Mozambique 2009 AIS	Age difference	M=W	85.7	82.7	5.4	8.4	5.0	8.0	3.9	0.8
Mozambique 2009 AIS	Age difference	M>W	85.0	80.3	3.8	8.5	5.4	10.1	5.8	1.1
Swaziland 2006-07 DHS	All	All	54.8	39.7	8.7	23.8	7.7	22.8	28.8	13.7

(Continued...)

Table A2.4. – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Swaziland 2006-07 DHS	Age of woman	None	53.1	41.9	16.1	27.3	7.4	18.6	23.4	12.2
Swaziland 2006-07 DHS	Age of woman	Primary	49.6	34.5	9.9	25.1	8.2	23.4	32.2	17.0
Swaziland 2006-07 DHS	Age of woman	Sec+	58.3	42.5	6.2	22.0	7.5	23.4	28.0	12.1
Swaziland 2006-07 DHS	Age of man	None	50.7	38.2	8.9	21.4	13.3	25.8	27.0	14.5
Swaziland 2006-07 DHS	Age of man	Primary	52.7	38.8	10.6	24.5	8.6	22.5	28.1	14.2
Swaziland 2006-07 DHS	Age of man	Sec+	56.9	40.5	7.6	24.0	5.9	22.3	29.6	13.2
Swaziland 2006-07 DHS	Age difference	M<W	49.8	35.6	6.5	20.7	13.4	27.6	30.3	16.0
Swaziland 2006-07 DHS	Age difference	M=W	58.8	43.1	7.4	23.1	6.3	22.0	27.5	11.8
Swaziland 2006-07 DHS	Age difference	M>W	47.5	33.6	14.5	28.4	6.7	20.6	31.3	17.4
Tanzania 2011-12 AIS	All	All	93.0	90.9	2.0	4.2	2.6	4.8	2.3	0.2
Tanzania 2011-12 AIS	Age of woman	None	93.2	90.3	1.6	4.5	2.0	5.0	3.2	0.3
Tanzania 2011-12 AIS	Age of woman	Primary	93.0	91.0	2.2	4.1	2.7	4.6	2.1	0.2
Tanzania 2011-12 AIS	Age of woman	Sec+	92.6	90.8	1.6	3.5	3.7	5.5	2.1	0.2
Tanzania 2011-12 AIS	Age of man	None	93.6	91.3	1.6	4.0	2.1	4.5	2.6	0.2
Tanzania 2011-12 AIS	Age of man	Primary	92.8	90.5	2.0	4.2	2.7	5.0	2.5	0.2
Tanzania 2011-12 AIS	Age of man	Sec+	93.6	92.8	2.9	3.7	2.7	3.5	0.9	0.1
Tanzania 2011-12 AIS	Age difference	M<W	93.5	91.6	1.9	3.8	2.5	4.4	2.1	0.2
Tanzania 2011-12 AIS	Age difference	M=W	92.8	90.6	2.0	4.1	2.9	5.0	2.4	0.2
Tanzania 2011-12 AIS	Age difference	M>W	93.5	91.4	2.2	4.4	1.9	4.0	2.3	0.2
Uganda 2011 AIS	All	All	90.2	87.1	3.0	6.1	3.2	6.3	3.5	0.4
Uganda 2011 AIS	Age of woman	None	88.4	84.8	2.7	6.3	4.7	8.3	4.3	0.6
Uganda 2011 AIS	Age of woman	Primary	90.5	87.3	2.6	5.8	3.2	6.5	3.7	0.4
Uganda 2011 AIS	Age of woman	Sec+	90.4	88.1	4.9	7.1	2.1	4.4	2.6	0.3
Uganda 2011 AIS	Age of man	None	91.6	88.1	2.1	5.6	2.5	5.9	3.8	0.4
Uganda 2011 AIS	Age of man	Primary	89.8	86.4	2.8	6.2	3.5	6.9	3.9	0.5
Uganda 2011 AIS	Age of man	Sec+	90.6	88.3	3.7	6.1	3.0	5.3	2.7	0.4
Uganda 2011 AIS	Age difference	M<W	88.0	84.4	4.5	8.1	3.3	6.8	4.3	0.7

(Continued...)

Table A2.4. – *Continued*

Survey	Category		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
			Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Uganda 2011 AIS	Age difference	M=W	91.4	88.6	2.8	5.7	2.6	5.4	3.2	0.3
Uganda 2011 AIS	Age difference	M>W	88.6	85.1	2.9	6.3	4.5	8.0	4.1	0.6
Zambia 2007 DHS	All	All	80.2	73.9	4.7	11.0	6.8	13.1	8.2	2.0
Zambia 2007 DHS	Age of woman	None	87.8	82.4	2.4	7.8	3.6	9.0	6.2	0.8
Zambia 2007 DHS	Age of woman	Primary	81.7	76.6	4.6	9.7	7.1	12.1	6.6	1.5
Zambia 2007 DHS	Age of woman	Sec+	73.2	64.2	6.0	15.0	7.8	16.8	13.0	3.9
Zambia 2007 DHS	Age of man	None	90.0	86.1	2.3	6.3	3.1	7.1	4.5	0.5
Zambia 2007 DHS	Age of man	Primary	84.9	79.7	3.5	8.7	5.3	10.4	6.3	1.1
Zambia 2007 DHS	Age of man	Sec+	73.1	65.6	6.5	14.0	9.3	16.8	11.1	3.6
Zambia 2007 DHS	Age difference	M<W	84.4	77.6	2.0	8.9	5.3	12.1	8.2	1.4
Zambia 2007 DHS	Age difference	M=W	80.3	74.1	5.1	11.3	6.4	12.7	8.2	1.9
Zambia 2007 DHS	Age difference	M>W	78.7	72.5	4.8	11.0	8.1	14.3	8.3	2.2
Zimbabwe 2010-11 DHS	All	All	78.4	70.7	4.6	12.3	6.8	14.5	10.2	2.5
Zimbabwe 2010-11 DHS	Age of woman	None	79.8	76.6	7.3	10.4	8.2	11.4	4.7	1.5
Zimbabwe 2010-11 DHS	Age of woman	Primary	77.8	70.6	5.3	12.5	7.2	14.4	9.8	2.5
Zimbabwe 2010-11 DHS	Age of woman	Sec+	78.7	70.7	4.2	12.2	6.6	14.6	10.6	2.5
Zimbabwe 2010-11 DHS	Age of man	None								
Zimbabwe 2010-11 DHS	Age of man	Primary	75.8	68.0	5.8	13.6	7.5	15.3	10.9	3.1
Zimbabwe 2010-11 DHS	Age of man	Sec+	79.2	71.6	4.3	11.9	6.6	14.2	10.0	2.3
Zimbabwe 2010-11 DHS	Age difference	M<W	74.7	67.4	6.1	13.3	8.8	16.1	10.4	3.2
Zimbabwe 2010-11 DHS	Age difference	M=W	78.8	70.7	4.1	12.2	6.5	14.6	10.6	2.5
Zimbabwe 2010-11 DHS	Age difference	M>W	78.8	72.4	5.5	11.9	7.2	13.5	8.6	2.2

Note: Weighted frequencies for the rows in this table are provided in Table 4.2

Table A2.5 HIV prevalence among men and women who have cohabiting partners, and measures of selection and HIV seroconversion, according to education (none, primary, secondary or higher), 10 DHS surveys in sub-Saharan Africa, 2006-2012

			HIV prevalence		Selection/Seroconversion measures					
Survey	Category		Men	Women	Delta	kap_SC	SCm	SCw	Sig.	N
Cameroon 2011 DHS	All	All	4.7	4.8	1.3	29.3	28.7	29.9	ns	2,289
Cameroon 2011 DHS	Age of woman	None	2.5	2.0	0.2	10.4	11.7	9.5	ns	632
Cameroon 2011 DHS	Age of woman	Primary	5.1	5.2	1.2	25.3	24.9	25.7	ns	887
Cameroon 2011 DHS	Age of woman	Sec+	6.0	6.8	2.3	37.9	35.6	40.5	ns	770
Cameroon 2011 DHS	Age of man	None	1.6	1.6	0.8	48.2	48.5	48.0	ns	341
Cameroon 2011 DHS	Age of man	Primary	4.2	5.2	1.0	22.4	20.1	25.4	ns	919
Cameroon 2011 DHS	Age of man	Sec+	6.1	5.6	1.8	31.9	33.5	30.5	ns	1,030
Cameroon 2011 DHS	Age difference	M<W	4.1	5.4	1.4	29.9	26.2	34.7	ns	239
Cameroon 2011 DHS	Age difference	M=W	4.6	5.4	1.7	36.7	33.9	40.0	ns	1,335
Cameroon 2011 DHS	Age difference	M>W	5.0	3.7	0.6	13.5	16.0	11.7	ns	715
Kenya 2008-09 DHS	All	All	5.7	6.2	2.8	50.1	47.8	52.7	ns	1,064
Kenya 2008-09 DHS	Age of woman	None	2.9	4.0	2.2	65.3	56.1	78.3	ns	76
Kenya 2008-09 DHS	Age of woman	Primary	6.3	6.6	3.0	49.4	48.0	50.9	ns	635
Kenya 2008-09 DHS	Age of woman	Sec+	5.3	6.1	2.6	49.3	45.9	53.3	ns	354
Kenya 2008-09 DHS	Age of man	None	7.2	9.2	6.6	86.8	76.7	100.0	ns	49
Kenya 2008-09 DHS	Age of man	Primary	6.8	6.2	2.9	48.5	51.1	46.2	ns	543
Kenya 2008-09 DHS	Age of man	Sec+	4.3	6.0	2.3	46.5	39.5	56.5	ns	473
Kenya 2008-09 DHS	Age difference	M<W	11.9	11.4	6.4	62.5	64.4	60.8	ns	93
Kenya 2008-09 DHS	Age difference	M=W	5.2	5.4	2.4	47.7	46.6	48.8	ns	744
Kenya 2008-09 DHS	Age difference	M>W	4.9	7.0	2.6	46.7	39.4	57.2	ns	228
Lesotho 2009 DHS	All	All	29.4	27.2	11.3	55.6	58.8	52.7	ns	689
Lesotho 2009 DHS	Age of woman	None							.	13
Lesotho 2009 DHS	Age of woman	Primary	29.4	26.1	11.4	56.7	61.8	52.4	ns	353
Lesotho 2009 DHS	Age of woman	Sec+	29.1	28.9	11.4	55.6	55.9	55.3	ns	323
Lesotho 2009 DHS	Age of man	None	34.0	26.2	10.6	50.0	61.4	42.1	ns	125
Lesotho 2009 DHS	Age of man	Primary	27.1	28.1	11.2	56.2	54.9	57.6	ns	344

(Continued...)

Table A2.5. – *Continued*

			HIV prevalence		Selection/Seroconversion measures					
Survey	**Category**		**Men**	**Women**	**Delta**	**kap_SC**	**Men**	**Women**	**Sig.**	**N**
Lesotho 2009 DHS	Age of man	Sec+	30.4	26.4	11.8	58.0	64.3	52.9	ns	220
Lesotho 2009 DHS	Age difference	M<W	31.6	30.5	11.9	55.5	56.9	54.1	ns	233
Lesotho 2009 DHS	Age difference	M=W	27.3	25.4	10.6	54.3	57.0	51.8	ns	412
Lesotho 2009 DHS	Age difference	M>W	37.6	26.1	14.4	65.5	88.8	51.9	M+	43
Malawi 2010 DHS	All	All	10.6	9.9	5.0	54.1	56.4	52.1	ns	2,987
Malawi 2010 DHS	Age of woman	None	15.1	12.2	6.1	51.9	59.1	46.3	ns	509
Malawi 2010 DHS	Age of woman	Primary	9.1	8.6	4.4	54.7	56.4	53.1	ns	2,009
Malawi 2010 DHS	Age of woman	Sec+	12.4	12.9	5.9	53.8	52.7	54.9	ns	469
Malawi 2010 DHS	Age of man	None	8.1	9.2	4.9	62.1	57.8	67.1	ns	244
Malawi 2010 DHS	Age of man	Primary	10.1	10.6	4.8	52.2	51.1	53.4	ns	1,901
Malawi 2010 DHS	Age of man	Sec+	12.5	8.6	5.4	56.5	70.9	47.0	M++	842
Malawi 2010 DHS	Age difference	M<W	9.8	16.6	5.6	48.7	37.7	68.9	W++	256
Malawi 2010 DHS	Age difference	M=W	9.7	9.0	4.8	57.0	59.5	54.7	ns	1,891
Malawi 2010 DHS	Age difference	M>W	13.0	9.9	5.2	50.6	59.7	44.0	ns	841
Mozambique 2009 AIS	All	All	9.8	9.9	3.7	42.0	41.7	42.2	ns	2,322
Mozambique 2009 AIS	Age of woman	None	8.3	7.3	3.0	41.7	44.7	39.1	ns	798
Mozambique 2009 AIS	Age of woman	Primary	10.2	10.7	3.9	41.5	40.5	42.5	ns	1,332
Mozambique 2009 AIS	Age of woman	Sec+	13.3	15.3	5.3	43.3	40.1	47.1	ns	193
Mozambique 2009 AIS	Age of man	None	6.1	9.2	1.5	21.6	17.8	27.7	ns	300
Mozambique 2009 AIS	Age of man	Primary	9.3	9.1	3.6	42.8	43.3	42.2	ns	1,612
Mozambique 2009 AIS	Age of man	Sec+	14.3	13.5	5.7	47.6	49.3	46.0	ns	410
Mozambique 2009 AIS	Age difference	M<W	12.3	22.3	5.4	36.9	27.5	56.4	W+	93
Mozambique 2009 AIS	Age difference	M=W	8.9	9.3	3.1	37.1	36.2	38.0	ns	1,445
Mozambique 2009 AIS	Age difference	M>W	11.2	9.6	4.7	50.6	55.5	46.5	ns	784
Swaziland 2006-07 DHS	All	All	36.5	37.5	15.1	64.8	63.5	66.2	ns	626
Swaziland 2006-07 DHS	Age of woman	None	30.8	39.5	11.2	48.9	41.2	60.3	ns	81
Swaziland 2006-07 DHS	Age of woman	Primary	40.4	42.2	15.2	62.6	60.4	64.9	ns	205
Swaziland 2006-07 DHS	Age of woman	Sec+	35.5	34.2	15.9	69.9	72.0	68.0	ns	340

(Continued...)

Table A2.5. – *Continued*

			HIV prevalence		Selection/Seroconversion measures					
Survey	**Category**		**Men**	**Women**	**Delta**	**kap_SC**	**Men**	**Women**	**Sig.**	**N**
Swaziland 2006-07 DHS	Age of man	None	40.3	35.9	12.5	52.9	58.3	48.4	ns	82
Swaziland 2006-07 DHS	Age of man	Primary	36.7	38.7	13.9	59.3	56.9	61.9	ns	196
Swaziland 2006-07 DHS	Age of man	Sec+	35.5	37.2	16.4	70.8	68.3	73.5	ns	348
Swaziland 2006-07 DHS	Age difference	M<W	43.7	36.8	14.2	58.8	68.6	51.5	ns	118
Swaziland 2006-07 DHS	Age difference	M=W	33.8	34.9	15.7	69.6	67.8	71.4	ns	382
Swaziland 2006-07 DHS	Age difference	M>W	38.0	45.8	13.9	56.6	48.9	67.3	ns	126
Tanzania 2011-12 AIS	All	All	5.0	4.4	2.1	47.8	51.4	44.7	ns	3,302
Tanzania 2011-12 AIS	Age of woman	None	5.2	4.7	2.9	62.0	65.3	59.1	ns	674
Tanzania 2011-12 AIS	Age of woman	Primary	4.8	4.3	1.9	44.2	46.8	41.8	ns	2,362
Tanzania 2011-12 AIS	Age of woman	Sec+	5.8	3.7	1.9	41.4	53.5	33.8	ns	266
Tanzania 2011-12 AIS	Age of man	None	4.7	4.2	2.4	55.6	59.0	52.6	ns	385
Tanzania 2011-12 AIS	Age of man	Primary	5.2	4.5	2.3	49.5	53.9	45.8	ns	2,555
Tanzania 2011-12 AIS	Age of man	Sec+	3.6	3.8	0.8	22.3	21.7	23.0	ns	361
Tanzania 2011-12 AIS	Age difference	M<W	4.6	4.0	1.9	46.3	49.8	43.2	ns	308
Tanzania 2011-12 AIS	Age difference	M=W	5.3	4.4	2.2	47.2	52.3	43.0	ns	2,316
Tanzania 2011-12 AIS	Age difference	M>W	4.2	4.6	2.1	50.7	48.8	52.7	ns	678
Uganda 2011 AIS	All	All	6.8	6.6	3.1	49.7	50.6	48.8	ns	3,972
Uganda 2011 AIS	Age of woman	None	8.9	6.9	3.7	49.8	57.7	43.9	ns	601
Uganda 2011 AIS	Age of woman	Primary	6.9	6.2	3.2	52.5	55.5	49.8	ns	2,613
Uganda 2011 AIS	Age of woman	Sec+	4.7	7.5	2.3	39.2	31.7	51.5	W+	758
Uganda 2011 AIS	Age of man	None	6.3	6.0	3.5	60.1	62.0	58.3	ns	279
Uganda 2011 AIS	Age of man	Primary	7.4	6.7	3.4	52.2	55.0	49.6	ns	2,475
Uganda 2011 AIS	Age of man	Sec+	5.7	6.4	2.3	41.4	38.8	44.4	ns	1,218
Uganda 2011 AIS	Age difference	M<W	7.5	8.8	3.6	48.0	44.2	52.4	ns	431
Uganda 2011 AIS	Age difference	M=W	5.8	6.0	2.8	50.9	49.9	51.8	ns	2,394
Uganda 2011 AIS	Age difference	M>W	8.6	6.9	3.5	48.3	54.6	43.3	ns	1,148
Zambia 2007 DHS	All	All	15.1	12.9	6.3	52.1	57.1	47.9	M+	2,007
Zambia 2007 DHS	Age of woman	None	9.8	8.6	5.3	63.8	68.8	59.4	ns	247

(Continued...)

Table A2.5. – *Continued*

			HIV prevalence		Selection/Seroconversion measures					
Survey	**Category**		**Men**	**Women**	**Delta**	**kap_SC**	**Men**	**Women**	**Sig.**	**N**
Zambia 2007 DHS	Age of woman	Primary	13.7	11.3	5.1	46.5	52.3	41.8	M+	1,234
Zambia 2007 DHS	Age of woman	Sec+	20.8	19.0	9.0	56.7	60.1	53.6	ns	526
Zambia 2007 DHS	Age of man	None	7.6	6.8	4.0	59.3	63.0	55.9	ns	120
Zambia 2007 DHS	Age of man	Primary	11.6	9.8	5.2	54.0	59.4	49.6	ns	1,038
Zambia 2007 DHS	Age of man	Sec+	20.4	17.6	7.5	48.7	53.6	44.7	ns	848
Zambia 2007 DHS	Age difference	M<W	13.5	10.3	6.8	64.9	76.9	56.1	ns	181
Zambia 2007 DHS	Age difference	M=W	14.6	13.3	6.2	52.1	55.2	49.3	ns	1,222
Zambia 2007 DHS	Age difference	M>W	16.5	13.2	6.2	48.8	56.1	43.2	M+	604
Zimbabwe 2010-11 DHS	All	All	17.0	14.8	7.7	57.3	62.5	52.9	M++	2,180
Zimbabwe 2010-11 DHS	Age of woman	None	12.9	12.0	3.2	29.1	30.4	28.0	ns	40
Zimbabwe 2010-11 DHS	Age of woman	Primary	16.9	15.1	7.2	53.7	57.7	50.2	ns	750
Zimbabwe 2010-11 DHS	Age of woman	Sec+	17.2	14.7	8.0	59.8	65.9	54.8	M++	1,390
Zimbabwe 2010-11 DHS	Age of man	None							.	19
Zimbabwe 2010-11 DHS	Age of man	Primary	18.4	16.7	7.8	54.1	57.4	51.2	ns	522
Zimbabwe 2010-11 DHS	Age of man	Sec+	16.5	14.2	7.6	58.4	64.1	53.6	M++	1,640
Zimbabwe 2010-11 DHS	Age difference	M<W	19.2	16.5	7.2	49.2	54.3	45.0	ns	206
Zimbabwe 2010-11 DHS	Age difference	M=W	17.1	14.8	8.1	60.5	66.4	55.7	M++	1,507
Zimbabwe 2010-11 DHS	Age difference	M>W	15.7	14.1	6.4	50.1	53.6	47.1	ns	467

Note: Selection/seroconversion measures are defined in the text

N is weighted

Significance refers to a test of the null hypothesis that selection/seroconversion is the same for men and women

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A2.6 Percentage of HIV-negative men and women who are at risk of infection from an HIV-positive cohabiting partner, and relative risk for women compared with men, by three categories of risk, according to education (none, primary, secondary or higher), 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Risk category #1			Risk category #2			Risk category #3		
Survey	Category	Men	Women	RR	Men	Women	RR	Men	Women	RR
Cameroon 2011 DHS	All	3.3	3.1	94	3.5	3.3	94	1.2	1.3	113
Cameroon 2011 DHS	None	0.8	2.2	269	0.8	2.2	270	0.5	1.3	287
Cameroon 2011 DHS	Primary	4.0	3.6	89	4.2	3.7	90	1.8	1.8	101
Cameroon 2011 DHS	Sec+	3.5	3.3	95	3.7	3.6	96	1.0	1.0	98
Kenya 2008-09 DHS	All	3.1	2.5	82	3.3	2.7	83	1.3	1.0	77
Kenya 2008-09 DHS	None	2.0	0.6	30	2.1	0.6	29	1.3	0.2	17
Kenya 2008-09 DHS	Primary	2.8	2.9	102	3.0	3.1	102	1.1	1.2	106
Kenya 2008-09 DHS	Sec+	3.5	2.3	66	3.6	2.5	68	1.4	0.8	56
Lesotho 2009 DHS	All	7.9	10.1	128	11.2	13.9	124	2.5	3.1	123
Lesotho 2009 DHS	None	6.7	26.8	402	10.1	31.7	314	3.8	12.9	341
Lesotho 2009 DHS	Primary	9.2	10.3	112	12.7	14.0	110	3.0	3.7	125
Lesotho 2009 DHS	Sec+	6.6	9.2	141	9.4	13.0	138	1.7	2.4	143
Malawi 2010 DHS	All	3.9	4.6	119	4.3	5.1	118	2.1	2.6	120
Malawi 2010 DHS	None	3.6	7.1	198	3.9	8.1	207	2.8	4.8	171
Malawi 2010 DHS	Primary	4.6	3.9	84	5.2	4.3	83	2.6	2.2	85
Malawi 2010 DHS	Sec+	2.2	4.9	223	2.5	5.6	224	1.1	2.1	200
Mozambique 2009 AIS	All	5.2	5.1	98	5.8	5.7	98	3.4	3.1	93
Mozambique 2009 AIS	None	7.1	4.7	65	7.6	5.0	66	5.8	3.3	56
Mozambique 2009 AIS	Primary	4.7	5.2	112	5.2	5.9	114	3.3	3.3	100
Mozambique 2009 AIS	Sec+	5.9	6.0	102	6.8	7.0	103	2.6	2.2	83
Swaziland 2006-07 DHS	All	8.7	7.7	89	13.7	12.3	90	2.1	1.8	86
Swaziland 2006-07 DHS	None	8.9	7.4	83	15.0	12.2	82	4.2	3.1	74
Swaziland 2006-07 DHS	Primary	10.5	8.2	78	16.7	14.2	85	2.1	1.9	88
Swaziland 2006-07 DHS	Sec+	7.6	7.5	99	11.8	11.4	97	1.8	1.6	89
Tanzania 2011-12 AIS	All	2.0	2.6	131	2.1	2.8	130	1.0	1.0	106
Tanzania 2011-12 AIS	None	1.6	2.0	123	1.7	2.1	123	1.0	0.9	91
Tanzania 2011-12 AIS	Primary	2.0	2.7	138	2.1	2.8	136	1.1	1.2	107
Tanzania 2011-12 AIS	Sec+	2.9	3.7	128	3.0	3.8	128	0.6	0.6	102
Uganda 2011 AIS	All	3.0	3.2	107	3.2	3.5	107	1.5	1.5	96
Uganda 2011 AIS	None	2.1	4.7	220	2.3	5.0	221	1.4	2.6	187
Uganda 2011 AIS	Primary	2.8	3.2	116	3.0	3.5	115	1.6	1.6	104
Uganda 2011 AIS	Sec+	3.7	2.1	57	3.9	2.3	58	1.5	0.6	43
Zambia 2007 DHS	All	4.7	6.8	145	5.6	7.9	141	2.5	3.7	147
Zambia 2007 DHS	None	2.3	3.6	156	2.5	4.0	158	1.7	2.4	142
Zambia 2007 DHS	Primary	3.5	7.1	200	4.0	8.0	199	2.1	4.3	207
Zambia 2007 DHS	Sec+	6.5	7.8	120	8.2	9.6	118	3.0	3.1	104
Zimbabwe 2010-11 DHS	All	4.6	6.8	149	5.5	8.0	145	2.1	2.9	135

(Continued...)

Table A2.6 – *Continued*

		Risk category #1			Risk category #2			Risk category #3		
Survey	**Category**	**Men**	**Women**	**RR**	**Men**	**Women**	**RR**	**Men**	**Women**	**RR**
Zimbabwe 2010-11 DHS	None	0.0	8.2		0.0	9.3		0.0	3.4	
Zimbabwe 2010-11 DHS	Primary	5.8	7.1	123	7.1	8.4	118	2.9	3.7	131
Zimbabwe 2010-11 DHS	Sec+	4.3	6.6	155	5.1	7.8	152	2.0	2.6	131

Note: Relative risk (RR) is expressed as number of women at risk per 100 men at risk.

Table A3.1 Percentage of men and women who are HIV-positive[a] and percentage of men and women who have cohabiting partners[b], by sex, and significance level for the difference between men and women, according to wealth status (quintiles: lowest, second, middle, fourth, highest), 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Cameroon 2011 DHS	All	2.9	5.6	193	13,449	W+++	34.5	40.1	116	13,449	W+++
Cameroon 2011 DHS	Lowest	1.2	2.6	208	2,150	W+	46.7	57.2	123	2,150	W+++
Cameroon 2011 DHS	Second	3.5	4.9	142	2,324	ns	42.4	45.3	107	2,324	ns
Cameroon 2011 DHS	Middle	2.6	5.9	225	2,563	W+++	33.8	37.5	111	2,563	W+
Cameroon 2011 DHS	Fourth	3.1	6.9	227	3,011	W+++	29.3	32.8	112	3,011	W+
Cameroon 2011 DHS	Highest	3.5	6.6	188	3,402	W++	27.6	33.2	120	3,402	W+++
Kenya 2008-09 DHS	All	4.3	8.1	189	6,734	W+++	39.0	35.3	90	6,734	M++
Kenya 2008-09 DHS	Lowest	2.3	6.3	273	1,097	W++	45.7	34.5	76	1,097	M+++
Kenya 2008-09 DHS	Second	4.5	9.0	198	1,191	W++	39.2	35.1	90	1,191	ns
Kenya 2008-09 DHS	Middle	4.5	6.8	150	1,175	ns	34.4	33.3	97	1,175	ns
Kenya 2008-09 DHS	Fourth	5.6	7.5	133	1,527	ns	33.3	29.6	89	1,527	ns
Kenya 2008-09 DHS	Highest	3.9	10.3	267	1,743	W+++	43.4	42.3	97	1,743	ns
Lesotho 2009 DHS	All	17.9	26.7	149	6,567	W+++	26.2	22.1	84	6,567	M+++
Lesotho 2009 DHS	Lowest	16.3	20.3	125	989	ns	33.0	28.3	86	989	M+
Lesotho 2009 DHS	Second	17.5	26.1	149	1,183	W++	27.7	27.3	98	1,183	ns
Lesotho 2009 DHS	Middle	17.7	27.5	156	1,316	W+++	19.3	20.4	106	1,316	ns
Lesotho 2009 DHS	Fourth	17.9	31.5	177	1,520	W+++	26.9	18.3	68	1,520	M+++
Lesotho 2009 DHS	Highest	19.6	25.6	131	1,560	W+	26.6	19.8	75	1,560	M+++
Malawi 2010 DHS	All	8.1	12.8	159	13,528	W+++	50.8	48.7	96	13,528	M+
Malawi 2010 DHS	Lowest	5.6	8.9	158	2,133	W+	55.3	43.7	79	2,133	M+++
Malawi 2010 DHS	Second	6.5	9.3	144	2,643	W+	57.8	55.2	95	2,643	ns
Malawi 2010 DHS	Middle	8.0	10.7	134	2,685	W+	57.1	54.7	96	2,685	ns
Malawi 2010 DHS	Fourth	8.1	13.6	167	2,662	W+++	51.4	52.4	102	2,662	ns
Malawi 2010 DHS	Highest	10.6	19.6	185	3,405	W+++	37.8	39.4	104	3,405	ns
Mozambique 2009 AIS	All	9.1	13.1	143	9,100	W+++	59.1	53.4	91	9,100	M+++

(Continued...)

Table A3.1. – *Continued*

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Mozambique 2009 AIS	Lowest	5.0	6.7	135	1,644	ns	76.0	60.7	80	1,644	M+++
Mozambique 2009 AIS	Second	5.9	8.7	147	1,758	ns	69.7	64.4	92	1,758	ns
Mozambique 2009 AIS	Middle	7.2	9.8	135	1,821	ns	64.9	62.1	96	1,821	ns
Mozambique 2009 AIS	Fourth	12.7	18.5	146	1,798	W+++	55.2	46.4	84	1,798	M+++
Mozambique 2009 AIS	Highest	13.5	20.6	152	2,080	W+++	36.9	36.2	98	2,080	ns
Swaziland 2006-07 DHS	All	19.5	31.0	159	8,210	W+++	18.9	15.7	83	8,210	M+++
Swaziland 2006-07 DHS	Lowest	19.8	31.5	159	1,315	W+++	21.0	16.7	80	1,315	M+++
Swaziland 2006-07 DHS	Second	19.8	31.9	161	1,420	W+++	19.7	14.5	74	1,420	M+++
Swaziland 2006-07 DHS	Middle	16.9	31.3	185	1,681	W+++	13.7	12.6	92	1,681	ns
Swaziland 2006-07 DHS	Fourth	20.8	31.5	151	1,833	W+++	15.9	13.5	85	1,833	M+
Swaziland 2006-07 DHS	Highest	20.2	29.2	145	1,960	W+++	24.2	20.5	85	1,960	M++
Tanzania 2011-12 AIS	All	3.8	6.2	162	17,711	W+++	46.6	36.9	79	17,711	M+++
Tanzania 2011-12 AIS	Lowest	3.1	4.7	153	2,950	ns	54.6	42.1	77	2,950	M+++
Tanzania 2011-12 AIS	Second	2.9	4.7	166	3,222	W++	54.6	43.7	80	3,222	M+++
Tanzania 2011-12 AIS	Middle	4.2	5.5	130	3,299	ns	48.6	41.0	84	3,299	M+++
Tanzania 2011-12 AIS	Fourth	3.5	6.7	192	3,689	W+++	44.0	35.5	81	3,689	M+++
Tanzania 2011-12 AIS	Highest	4.9	8.1	164	4,551	W++	36.1	27.2	75	4,551	M+++
Uganda 2011 AIS	All	6.1	8.3	137	19,562	W+++	47.6	41.6	87	19,562	M+++
Uganda 2011 AIS	Lowest	5.7	6.8	120	3,322	ns	55.3	47.8	87	3,322	M+++
Uganda 2011 AIS	Second	5.1	7.5	148	3,604	W++	56.4	50.6	90	3,604	M+++
Uganda 2011 AIS	Middle	6.5	7.3	113	3,691	ns	51.9	47.2	91	3,691	M+++
Uganda 2011 AIS	Fourth	7.2	9.2	128	3,938	ns	42.8	37.6	88	3,938	M+++
Uganda 2011 AIS	Highest	5.9	9.9	167	5,007	W+++	36.3	30.3	84	5,007	M+++
Zambia 2007 DHS	All	12.2	15.9	131	10,337	W+++	47.3	45.6	96	10,337	ns
Zambia 2007 DHS	Lowest	6.8	8.6	128	1,914	ns	61.7	62.3	101	1,914	ns
Zambia 2007 DHS	Second	9.7	9.8	101	1,721	ns	59.3	47.2	80	1,721	M+++
Zambia 2007 DHS	Middle	10.8	13.2	122	1,869	ns	50.9	49.9	98	1,869	ns
Zambia 2007 DHS	Fourth	17.9	22.8	127	2,264	W++	40.3	41.4	103	2,264	ns

(Continued...)

Table A3.1. – *Continued*

		Percent HIV-positive					Percent with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Zambia 2007 DHS	Highest	13.7	21.6	157	2,569	W+++	32.4	33.0	102	2,569	ns
Zimbabwe 2010-11 DHS	All	12.2	17.7	145	13,669	W+++	40.5	34.4	85	13,669	M+++
Zimbabwe 2010-11 DHS	Lowest	14.6	17.1	117	2,340	ns	53.0	41.3	78	2,340	M+++
Zimbabwe 2010-11 DHS	Second	12.2	16.5	135	2,489	W++	44.8	38.6	86	2,489	M+++
Zimbabwe 2010-11 DHS	Middle	12.1	20.0	165	2,675	W+++	38.5	34.3	89	2,675	M+
Zimbabwe 2010-11 DHS	Fourth	11.6	19.9	171	3,037	W+++	39.6	34.3	87	3,037	M+++
Zimbabwe 2010-11 DHS	Highest	11.2	15.4	138	3,128	W++	32.6	27.0	83	3,128	M+++

Note: Ratios are calculated as 100*(% for men)/(% for women)

a: restricted to respondents who were tested

b: restricted to respondents in households in which both men and women were interviewed

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same HIV prevalence or the same cohabiting partner rates

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A3.2 Percentage HIV-positive among men and women who do not have a cohabiting partner, and percentage HIV-positive among men and women who do have a cohabiting partner, by sex, and significance level for the difference between men and women, according to wealth status (quintiles: lowest, second, middle, fourth, highest), 10 DHS surveys in sub-Saharan Africa, 2006-2012

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Cameroon 2011 DHS	All	1.9	6.2	333	8,404	W+++	4.8	4.6	96	5,046	ns
Cameroon 2011 DHS	Lowest	1.2	3.5	294	1,021	W+	1.3	1.9	146	1,129	ns
Cameroon 2011 DHS	Second	2.7	5.9	216	1,301	W++	4.5	3.7	84	1,023	ns
Cameroon 2011 DHS	Middle	1.9	6.3	331	1,645	W+++	4.0	5.2	130	918	ns
Cameroon 2011 DHS	Fourth	1.9	7.5	396	2,071	W+++	5.9	5.9	99	939	ns
Cameroon 2011 DHS	Highest	1.7	6.4	378	2,366	W++	8.3	7.1	86	1,036	ns
Kenya 2008-09 DHS	All	3.4	8.9	260	4,250	W+++	5.7	6.6	117	2,483	ns
Kenya 2008-09 DHS	Lowest	1.0	7.0	694	673	W++	3.9	5.1	131	424	ns
Kenya 2008-09 DHS	Second	2.7	9.2	340	751	W+	7.4	8.5	116	440	ns
Kenya 2008-09 DHS	Middle	3.5	8.4	236	778	W+	6.4	3.6	57	397	ns
Kenya 2008-09 DHS	Fourth	5.1	8.1	160	1,050	ns	6.8	6.0	89	477	ns
Kenya 2008-09 DHS	Highest	3.4	11.7	343	998	W+++	4.5	8.5	190	746	ns
Lesotho 2009 DHS	All	13.9	27.0	195	5,004	W+++	29.2	25.6	88	1,563	ns
Lesotho 2009 DHS	Lowest	13.6	21.8	160	689	W++	21.6	16.4	76	300	ns
Lesotho 2009 DHS	Second	12.4	27.1	218	858	W+++	31.0	23.4	76	325	ns
Lesotho 2009 DHS	Middle	14.0	27.1	193	1,054	W+++	33.0	29.1	88	261	ns
Lesotho 2009 DHS	Fourth	11.8	30.6	259	1,192	W+++	34.3	35.7	104	327	ns
Lesotho 2009 DHS	Highest	17.2	26.1	152	1,210	W++	26.3	23.7	90	350	ns
Malawi 2010 DHS	All	5.3	15.3	288	6,806	W+++	10.7	10.2	95	6,722	ns
Malawi 2010 DHS	Lowest	3.0	10.4	347	1,098	W++	7.8	6.9	89	1,035	ns
Malawi 2010 DHS	Second	4.6	11.6	253	1,153	W+++	7.8	7.5	96	1,490	ns
Malawi 2010 DHS	Middle	5.9	12.3	209	1,187	W++	9.5	9.3	98	1,498	ns
Malawi 2010 DHS	Fourth	3.8	15.6	405	1,280	W+++	12.2	11.7	96	1,382	ns
Malawi 2010 DHS	Highest	7.2	22.5	310	2,089	W+++	16.2	15.3	94	1,316	ns

(Continued...)

Table A3.2. – *Continued*

Survey		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Mozambique 2009 AIS	All	7.8	17.1	219	4,021	W+++	10.1	9.6	95	5,080	ns
Mozambique 2009 AIS	Lowest	5.1	6.4	127	546	ns	4.9	6.9	140	1,098	ns
Mozambique 2009 AIS	Second	5.0	12.7	251	587	W+	6.3	6.4	103	1,171	ns
Mozambique 2009 AIS	Middle	5.5	13.7	250	667	W++	8.2	7.3	90	1,153	ns
Mozambique 2009 AIS	Fourth	7.4	23.0	309	899	W+++	16.9	13.3	79	898	ns
Mozambique 2009 AIS	Highest	10.9	22.2	204	1,321	W+++	17.9	17.6	98	759	ns
Swaziland 2006-07 DHS	All	15.6	29.9	191	6,807	W+++	36.2	36.9	102	1,402	ns
Swaziland 2006-07 DHS	Lowest	16.8	31.3	187	1,072	W+++	31.2	32.5	104	243	ns
Swaziland 2006-07 DHS	Second	13.6	30.1	221	1,183	W+++	45.1	42.3	94	237	ns
Swaziland 2006-07 DHS	Middle	14.4	30.9	215	1,461	W+++	33.3	34.0	102	219	ns
Swaziland 2006-07 DHS	Fourth	16.4	29.3	178	1,566	W+++	43.7	45.1	103	268	ns
Swaziland 2006-07 DHS	Highest	16.8	28.3	168	1,526	W+++	30.9	32.8	106	435	ns
Tanzania 2011-12 AIS	All	2.8	7.1	260	10,452	W+++	5.0	4.5	89	7,258	ns
Tanzania 2011-12 AIS	Lowest	1.8	5.3	286	1,558	W+	4.1	3.9	95	1,392	ns
Tanzania 2011-12 AIS	Second	1.3	5.0	392	1,665	W++	4.2	4.4	106	1,557	ns
Tanzania 2011-12 AIS	Middle	3.1	6.2	197	1,836	ns	5.4	4.5	84	1,463	ns
Tanzania 2011-12 AIS	Fourth	3.1	8.5	276	2,246	W+++	4.0	3.4	85	1,443	ns
Tanzania 2011-12 AIS	Highest	3.5	8.8	256	3,147	W+++	7.5	6.1	81	1,404	ns
Uganda 2011 AIS	All	5.4	9.7	179	10,908	W+++	6.8	6.4	94	8,654	ns
Uganda 2011 AIS	Lowest	5.6	8.9	160	1,623	W+	5.8	4.5	78	1,700	ns
Uganda 2011 AIS	Second	4.0	9.3	230	1,687	W+++	5.9	5.8	99	1,918	ns
Uganda 2011 AIS	Middle	6.8	8.3	122	1,870	ns	6.2	6.3	101	1,821	ns
Uganda 2011 AIS	Fourth	6.4	10.1	157	2,370	W+	8.4	7.8	94	1,568	ns
Uganda 2011 AIS	Highest	4.6	10.9	237	3,359	W+++	8.3	7.7	93	1,648	ns
Zambia 2007 DHS	All	9.2	18.4	201	5,546	W+++	15.5	13.0	84	4,791	M++
Zambia 2007 DHS	Lowest	5.3	14.8	282	727	W+++	7.7	4.9	64	1,187	M+
Zambia 2007 DHS	Second	7.9	11.6	146	825	ns	10.9	7.8	71	896	ns
Zambia 2007 DHS	Middle	7.4	16.7	225	928	W+++	14.1	9.8	69	941	M+

(Continued...)

Table A3.2. – *Continued*

		No cohabiting partner: % HIV-positive					Has cohabiting partner: % HIV-positive				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Zambia 2007 DHS	Fourth	15.0	24.1	161	1,337	W++	22.3	20.9	94	927	ns
Zambia 2007 DHS	Highest	7.7	20.5	264	1,728	W+++	26.3	23.9	91	841	ns
Zimbabwe 2010-11 DHS	All	8.7	19.3	222	8,535	W+++	17.3	14.8	86	5,134	M++
Zimbabwe 2010-11 DHS	Lowest	12.1	19.3	160	1,251	W++	16.8	13.9	83	1,090	ns
Zimbabwe 2010-11 DHS	Second	7.8	19.1	246	1,469	W+++	17.7	12.2	69	1,020	M++
Zimbabwe 2010-11 DHS	Middle	8.2	21.9	267	1,695	W+++	18.2	16.5	91	980	ns
Zimbabwe 2010-11 DHS	Fourth	8.0	21.1	265	1,916	W+++	17.4	17.5	101	1,121	ns
Zimbabwe 2010-11 DHS	Highest	8.7	16.0	185	2,205	W+++	16.3	13.7	84	923	ns

Note: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.

Ratios are calculated as 100*(% for men)/(% for women)

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same HIV prevalence, controlling for cohabiting partner status (no partner or has a partner)

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A3.3 Percentage with a cohabiting partner among men and women who are HIV-negative, and percentage with a cohabiting partner among men and women who are HIV-positive, by sex, and significance level for the difference between men and women, according to wealth status (quintiles: lowest, second, middle, fourth, highest), 10 DHS surveys in sub-Saharan Africa, 2006-2012 (restricted to respondents who were tested and who live in households in which both men and women were interviewed)

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	Category	Men	Women	Ratio	N	Sig.	Men	Women	Ratio	N	Sig.
Cameroon 2011 DHS	All	33.8	40.5	120	12,868	W+++	57.7	33.2	58	581	M+++
Cameroon 2011 DHS	Lowest	46.7	57.6	124	2,107	W+++	48.2	41.4	86	43	ns
Cameroon 2011 DHS	Second	41.9	45.9	109	2,225	W+	54.7	34.4	63	99	ns
Cameroon 2011 DHS	Middle	33.3	37.8	114	2,450	W+	51.8	33.2	64	113	ns
Cameroon 2011 DHS	Fourth	28.5	33.2	117	2,857	W+++	56.5	27.8	49	154	M++
Cameroon 2011 DHS	Highest	26.3	33.1	126	3,230	W+++	65.1	35.6	55	172	M+
Kenya 2008-09 DHS	All	38.5	35.8	93	6,298	ns	51.4	28.8	56	436	M+++
Kenya 2008-09 DHS	Lowest	45.0	35.0	78	1,044	M++	76.5	27.8	36	53	M++
Kenya 2008-09 DHS	Second	38.0	35.3	93	1,108	ns	63.7	33.5	53	83	ns
Kenya 2008-09 DHS	Middle	33.7	34.4	102	1,106	ns	48.6	17.9	37	68	M++
Kenya 2008-09 DHS	Fourth	32.9	30.1	92	1,425	ns	40.0	23.8	60	102	ns
Kenya 2008-09 DHS	Highest	43.1	43.1	100	1,614	ns	50.2	34.8	69	129	ns
Lesotho 2009 DHS	All	22.6	22.4	99	5,058	ns	42.7	21.1	50	1,509	M+++
Lesotho 2009 DHS	Lowest	30.9	29.7	96	806	ns	43.7	22.8	52	183	M+++
Lesotho 2009 DHS	Second	23.2	28.3	122	921	W+	48.9	24.5	50	262	M+++
Lesotho 2009 DHS	Middle	15.7	20.0	128	1,015	W++	35.9	21.6	60	301	M++
Lesotho 2009 DHS	Fourth	21.5	17.2	80	1,120	ns	51.6	20.7	40	400	M+++
Lesotho 2009 DHS	Highest	24.4	20.3	84	1,197	ns	35.7	18.4	51	363	M+++
Malawi 2010 DHS	All	49.3	50.2	102	12,087	ns	67.4	38.8	58	1,441	M+++
Malawi 2010 DHS	Lowest	54.0	44.6	83	1,972	M+++	76.1	33.9	45	160	M+++
Malawi 2010 DHS	Second	57.0	56.3	99	2,431	ns	70.1	44.4	63	212	M++
Malawi 2010 DHS	Middle	56.1	55.5	99	2,432	ns	68.2	47.6	70	253	M+
Malawi 2010 DHS	Fourth	49.1	53.5	109	2,369	W+	77.0	45.3	59	293	M+++
Malawi 2010 DHS	Highest	35.5	41.5	117	2,883	W+++	57.6	30.7	53	523	M+++

(Continued...)

Table A3.3. – *Continued*

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Mozambique 2009 AIS	All	58.5	55.6	95	8,061	ns	65.0	39.2	60	1,040	M+++
Mozambique 2009 AIS	Lowest	76.0	60.6	80	1,545	M+++	75.5	62.4	83	99	ns
Mozambique 2009 AIS	Second	69.4	65.9	95	1,627	ns	74.0	47.9	65	131	M+
Mozambique 2009 AIS	Middle	64.3	63.8	99	1,663	ns	73.3	46.7	64	158	M+++
Mozambique 2009 AIS	Fourth	52.5	49.3	94	1,508	ns	73.8	33.3	45	290	M+++
Mozambique 2009 AIS	Highest	35.0	37.5	107	1,719	ns	49.0	30.9	63	362	M+++
Swaziland 2006-07 DHS	All	15.0	14.3	96	6,081	ns	35.0	18.6	53	2,128	M+++
Swaziland 2006-07 DHS	Lowest	18.0	16.5	92	966	ns	33.1	17.2	52	349	M+++
Swaziland 2006-07 DHS	Second	13.5	12.3	91	1,040	ns	44.8	19.3	43	380	M+++
Swaziland 2006-07 DHS	Middle	11.0	12.1	110	1,265	ns	26.9	13.6	51	416	M+++
Swaziland 2006-07 DHS	Fourth	11.3	10.8	96	1,343	ns	33.5	19.4	58	490	M+++
Swaziland 2006-07 DHS	Highest	21.0	19.5	93	1,467	ns	37.0	23.0	62	493	M+++
Tanzania 2011-12 AIS	All	46.0	37.6	82	16,795	M+++	61.4	26.7	44	915	M+++
Tanzania 2011-12 AIS	Lowest	54.0	42.4	79	2,832	M+++	72.7	35.0	48	119	M++
Tanzania 2011-12 AIS	Second	53.8	43.8	82	3,095	M+++	79.8	40.8	51	127	M+++
Tanzania 2011-12 AIS	Middle	48.0	41.5	86	3,136	M+++	61.9	33.7	54	163	M++
Tanzania 2011-12 AIS	Fourth	43.8	36.7	84	3,491	M+++	50.6	18.0	36	198	M+++
Tanzania 2011-12 AIS	Highest	35.1	27.8	79	4,242	M+++	55.1	20.4	37	309	M+++
Uganda 2011 AIS	All	47.3	42.5	90	18,123	M+++	53.4	32.0	60	1,439	M+++
Uganda 2011 AIS	Lowest	55.3	49.0	89	3,112	M+++	56.4	31.8	56	211	M+++
Uganda 2011 AIS	Second	55.9	51.6	92	3,373	M++	65.4	39.2	60	231	M+++
Uganda 2011 AIS	Middle	52.1	47.7	92	3,434	M++	49.5	40.4	82	257	ns
Uganda 2011 AIS	Fourth	42.3	38.2	90	3,608	M+	49.4	32.0	65	330	M++
Uganda 2011 AIS	Highest	35.4	31.1	88	4,597	M+++	51.0	23.7	46	410	M+++
Zambia 2007 DHS	All	45.5	47.2	104	8,866	ns	60.2	37.1	62	1,471	M+++
Zambia 2007 DHS	Lowest	61.1	64.8	106	1,766	ns	70.1	35.2	50	148	M+++
Zambia 2007 DHS	Second	58.5	48.2	83	1,553	M+++	66.7	37.5	56	168	M+++
Zambia 2007 DHS	Middle	49.0	51.9	106	1,642	ns	66.4	36.9	56	227	M+++

(Continued...)

Table A3.3. – *Continued*

		HIV-negative: % with a cohabiting partner					HIV-positive: % with a cohabiting partner				
Survey	**Category**	**Men**	**Women**	**Ratio**	**N**	**Sig.**	**Men**	**Women**	**Ratio**	**N**	**Sig.**
Zambia 2007 DHS	Fourth	38.2	42.5	111	1,799	ns	50.1	38.1	76	465	ns
Zambia 2007 DHS	Highest	27.7	32.0	116	2,105	W++	61.9	36.5	59	464	M+++
Zimbabwe 2010-11 DHS	All	38.8	36.2	93	11,562	M++	58.2	29.2	50	2,107	M+++
Zimbabwe 2010-11 DHS	Lowest	52.8	43.1	82	1,963	M+++	62.2	33.8	54	377	M+++
Zimbabwe 2010-11 DHS	Second	41.8	40.3	96	2,124	ns	64.6	28.4	44	364	M+++
Zimbabwe 2010-11 DHS	Middle	36.4	36.2	100	2,232	ns	58.7	28.7	49	443	M+++
Zimbabwe 2010-11 DHS	Fourth	36.5	36.3	100	2,541	ns	58.3	31.2	54	495	M+++
Zimbabwe 2010-11 DHS	Highest	31.1	27.6	89	2,701	M+	48.0	24.1	50	427	M+++

Note: Restricted to respondents who were tested and who lived in households in which both men and women were interviewed.

Ratios are calculated as 100*(% for men)/(% for women)

N is weighted

Significance refers to a test of the null hypothesis that men and women have the same cohabiting partner rates, controlling for HIV status (negative or positive)

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A3.4 Among cohabiting couples, the percent distribution of observed and expected couples (M=man, W=woman) by four combinations of couple HIV serostatus (negative concordance, female positive discordance, male positive discordance, and positive concordance), according to wealth status (quintiles: lowest, second, middle, fourth, highest), 10 DHS surveys in sub-Saharan Africa, 2006-2012 (restricted to cohabiting couples in which both the man and the woman were tested for HIV)

		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
Survey	Category	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.	Obs.	Exp.
Cameroon 2011 DHS	All	92.1	90.7	3.3	4.6	3.1	4.4	1.5	0.2
Cameroon 2011 DHS	Lowest	96.9	96.4	2.0	2.4	0.7	1.1	0.4	0.0
Cameroon 2011 DHS	Second	93.6	92.3	2.3	3.7	2.5	3.9	1.5	0.2
Cameroon 2011 DHS	Middle	91.0	89.8	4.4	5.7	3.0	4.3	1.5	0.3
Cameroon 2011 DHS	Fourth	89.9	89.1	4.4	5.3	4.5	5.4	1.2	0.3
Cameroon 2011 DHS	Highest	88.0	85.5	3.8	6.3	5.1	7.6	3.1	0.6
Kenya 2008-09 DHS	All	91.2	88.4	3.1	5.9	2.5	5.3	3.2	0.4
Kenya 2008-09 DHS	Lowest	93.3	91.6	3.3	5.0	1.6	3.3	1.9	0.2
Kenya 2008-09 DHS	Second	90.6	86.4	2.0	6.1	2.8	6.9	4.7	0.5
Kenya 2008-09 DHS	Middle	92.9	89.7	0.4	3.6	3.2	6.5	3.5	0.3
Kenya 2008-09 DHS	Fourth	91.1	87.8	2.0	5.3	3.2	6.5	3.7	0.4
Kenya 2008-09 DHS	Highest	89.8	87.7	5.7	7.8	2.1	4.2	2.5	0.4
Lesotho 2009 DHS	All	62.7	51.4	7.9	19.2	10.1	21.4	19.3	8.0
Lesotho 2009 DHS	Lowest	74.3	65.1	4.5	13.7	8.3	17.5	12.9	3.7
Lesotho 2009 DHS	Second	62.5	52.3	6.8	17.0	13.0	23.1	17.7	7.5
Lesotho 2009 DHS	Middle	60.6	47.3	6.5	19.7	10.0	23.3	22.9	9.7
Lesotho 2009 DHS	Fourth	56.0	41.3	8.5	23.2	8.0	22.7	27.5	12.8
Lesotho 2009 DHS	Highest	60.7	52.5	12.4	20.5	11.3	19.4	15.7	7.6
Malawi 2010 DHS	All	85.5	80.5	3.9	8.9	4.6	9.6	6.0	1.0
Malawi 2010 DHS	Lowest	88.3	85.0	3.6	6.9	4.1	7.4	3.9	0.6
Malawi 2010 DHS	Second	88.1	85.4	4.0	6.7	4.6	7.3	3.3	0.6
Malawi 2010 DHS	Middle	86.7	82.2	3.7	8.3	4.2	8.7	5.4	0.9
Malawi 2010 DHS	Fourth	84.0	78.2	4.1	9.9	4.8	10.6	7.1	1.3
Malawi 2010 DHS	Highest	80.5	72.3	3.8	12.0	5.3	13.5	10.4	2.2
Mozambique 2009 AIS	All	85.0	81.3	5.2	8.9	5.1	8.8	4.7	1.0
Mozambique 2009 AIS	Lowest	89.7	88.2	5.7	7.2	2.8	4.3	1.9	0.3
Mozambique 2009 AIS	Second	89.3	87.6	4.2	6.0	4.3	6.1	2.2	0.4
Mozambique 2009 AIS	Middle	88.7	85.4	3.0	6.3	4.4	7.7	3.9	0.6
Mozambique 2009 AIS	Fourth	77.6	70.7	5.2	12.0	7.9	14.8	9.3	2.5
Mozambique 2009 AIS	Highest	73.8	68.0	9.6	15.4	7.8	13.6	8.9	3.1
Swaziland 2006-07 DHS	All	54.8	39.7	8.7	23.8	7.7	22.8	28.8	13.7
Swaziland 2006-07 DHS	Lowest	57.6	46.2	10.7	22.1	10.1	21.5	21.6	10.3
Swaziland 2006-07 DHS	Second	45.6	30.8	8.4	23.2	11.4	26.2	34.6	19.8
Swaziland 2006-07 DHS	Middle	58.8	43.4	7.8	23.2	6.3	21.8	27.1	11.6
Swaziland 2006-07 DHS	Fourth	46.3	28.4	8.7	26.7	5.1	23.1	39.8	21.8

(Continued...)

Table A3.4 – *Continued*

		M negative W negative		M negative W positive		M positive W negative		M positive W positive	
Survey	**Category**	**Obs.**	**Exp.**	**Obs.**	**Exp.**	**Obs.**	**Exp.**	**Obs.**	**Exp.**
Swaziland 2006-07 DHS	Highest	61.3	47.2	8.2	22.3	6.7	20.8	23.9	9.8
Tanzania 2011-12 AIS	All	93.0	90.9	2.0	4.2	2.6	4.8	2.3	0.2
Tanzania 2011-12 AIS	Lowest	94.2	92.1	1.7	3.7	2.0	4.0	2.2	0.2
Tanzania 2011-12 AIS	Second	93.7	91.3	1.7	4.2	2.0	4.4	2.7	0.2
Tanzania 2011-12 AIS	Middle	92.4	90.3	2.1	4.3	3.0	5.2	2.4	0.2
Tanzania 2011-12 AIS	Fourth	94.4	92.6	1.5	3.3	2.1	3.9	2.0	0.1
Tanzania 2011-12 AIS	Highest	90.2	88.0	3.1	5.3	4.2	6.4	2.5	0.4
Uganda 2011 AIS	All	90.2	87.1	3.0	6.1	3.2	6.3	3.5	0.4
Uganda 2011 AIS	Lowest	92.8	89.8	1.5	4.5	2.5	5.5	3.3	0.3
Uganda 2011 AIS	Second	91.7	88.6	2.5	5.7	2.3	5.5	3.5	0.3
Uganda 2011 AIS	Middle	90.6	87.7	3.4	6.3	2.7	5.6	3.3	0.4
Uganda 2011 AIS	Fourth	87.4	84.1	4.2	7.5	4.5	7.8	4.0	0.7
Uganda 2011 AIS	Highest	87.8	84.8	3.8	6.9	4.6	7.7	3.7	0.6
Zambia 2007 DHS	All	80.2	73.9	4.7	11.0	6.8	13.1	8.2	2.0
Zambia 2007 DHS	Lowest	90.3	87.4	2.1	4.9	4.4	7.2	3.3	0.4
Zambia 2007 DHS	Second	86.5	83.4	3.3	6.4	6.3	9.4	3.8	0.7
Zambia 2007 DHS	Middle	82.8	77.6	3.7	8.9	6.9	12.1	6.6	1.4
Zambia 2007 DHS	Fourth	70.2	61.3	7.4	16.4	8.7	17.6	13.7	4.7
Zambia 2007 DHS	Highest	66.1	56.0	8.5	18.6	9.0	19.1	16.5	6.3
Zimbabwe 2010-11 DHS	All	78.4	70.7	4.6	12.3	6.8	14.5	10.2	2.5
Zimbabwe 2010-11 DHS	Lowest	80.0	71.6	3.4	11.7	6.0	14.3	10.7	2.3
Zimbabwe 2010-11 DHS	Second	78.2	72.2	4.6	10.5	9.1	15.0	8.1	2.2
Zimbabwe 2010-11 DHS	Middle	75.9	68.2	5.8	13.5	7.6	15.3	10.7	3.0
Zimbabwe 2010-11 DHS	Fourth	79.0	70.4	4.8	13.4	5.0	13.6	11.2	2.6
Zimbabwe 2010-11 DHS	Highest	78.8	71.0	4.7	12.5	6.3	14.1	10.2	2.5

Note: Weighted frequencies for the rows in this table are provided in Table 4.2

Table A3.5 HIV prevalence among men and women who have cohabiting partners, and measures of selection and HIV seroconversion, according to wealth status (quintiles: lowest, second, middle, fourth, highest), 10 DHS surveys in sub-Saharan Africa, 2006-2012

		HIV prevalence		Selection/seroconversion measures					
Survey	Category	Men	Women	Delta	kap_SC	SCm	SCw	Sig.	N
Cameroon 2011 DHS	All	4.7	4.8	1.3	29.3	28.7	29.9	ns	2,289
Cameroon 2011 DHS	Lowest	1.1	2.5	0.4	24.1	17.4	38.8	ns	509
Cameroon 2011 DHS	Second	4.1	3.8	1.4	36.6	38.0	35.3	ns	480
Cameroon 2011 DHS	Middle	4.6	5.9	1.3	25.2	22.2	29.2	ns	402
Cameroon 2011 DHS	Fourth	5.7	5.6	0.9	16.1	16.3	16.0	ns	429
Cameroon 2011 DHS	Highest	8.2	6.9	2.5	36.6	40.3	33.5	ns	469
Kenya 2008-09 DHS	All	5.7	6.2	2.8	50.1	47.8	52.7	ns	1,064
Kenya 2008-09 DHS	Lowest	3.5	5.2	1.7	41.2	34.1	52.0	ns	176
Kenya 2008-09 DHS	Second	7.4	6.6	4.2	63.7	67.9	60.0	ns	191
Kenya 2008-09 DHS	Middle	6.7	3.9	3.2	63.9	88.9	49.8	ns	164
Kenya 2008-09 DHS	Fourth	6.9	5.7	3.3	55.9	62.4	50.7	ns	208
Kenya 2008-09 DHS	Highest	4.6	8.1	2.1	35.4	27.3	50.5	ns	325
Lesotho 2009 DHS	All	29.4	27.2	11.3	55.6	58.8	52.7	ns	689
Lesotho 2009 DHS	Lowest	21.2	17.4	9.2	59.2	67.3	52.8	ns	133
Lesotho 2009 DHS	Second	30.7	24.5	10.2	50.6	59.7	43.9	ns	142
Lesotho 2009 DHS	Middle	33.0	29.4	13.2	61.6	67.1	56.9	ns	115
Lesotho 2009 DHS	Fourth	35.5	36.0	14.8	64.2	63.5	65.0	ns	146
Lesotho 2009 DHS	Highest	26.9	28.1	8.1	40.6	39.5	41.8	ns	153
Malawi 2010 DHS	All	10.6	9.9	5.0	54.1	56.4	52.1	ns	2,987
Malawi 2010 DHS	Lowest	8.0	7.6	3.3	46.2	47.8	44.7	ns	460
Malawi 2010 DHS	Second	7.9	7.3	2.7	38.6	40.2	37.1	ns	662
Malawi 2010 DHS	Middle	9.6	9.1	4.5	53.4	54.9	52.0	ns	675
Malawi 2010 DHS	Fourth	11.9	11.2	5.8	56.7	58.6	55.0	ns	607
Malawi 2010 DHS	Highest	15.7	14.2	8.2	64.4	68.5	60.8	ns	584
Mozambique 2009 AIS	All	9.8	9.9	3.7	42.0	41.7	42.2	ns	2,322
Mozambique 2009 AIS	Lowest	4.6	7.5	1.5	26.2	20.9	35.1	W+	523
Mozambique 2009 AIS	Second	6.5	6.4	1.8	29.7	30.0	29.4	ns	545
Mozambique 2009 AIS	Middle	8.3	6.9	3.4	47.8	53.1	43.4	ns	521
Mozambique 2009 AIS	Fourth	17.3	14.5	6.8	51.0	56.8	46.2	ns	397
Mozambique 2009 AIS	Highest	16.6	18.5	5.8	39.9	37.6	42.6	ns	336
Swaziland 2006-07 DHS	All	36.5	37.5	15.1	64.8	63.5	66.2	ns	626
Swaziland 2006-07 DHS	Lowest	31.7	32.3	11.4	52.3	51.5	53.0	ns	108
Swaziland 2006-07 DHS	Second	46.0	43.0	14.8	59.9	63.8	56.4	ns	104
Swaziland 2006-07 DHS	Middle	33.4	34.9	15.5	68.7	66.6	71.0	ns	97
Swaziland 2006-07 DHS	Fourth	44.9	48.5	18.0	72.2	67.3	77.8	ns	119
Swaziland 2006-07 DHS	Highest	30.5	32.1	14.1	65.4	63.2	67.8	ns	198
Tanzania 2011-12 AIS	All	5.0	4.4	2.1	47.8	51.4	44.7	ns	3,302

(Continued...)

Table A3.5 – *Continued*

		HIV prevalence		Selection/seroconversion measures					
Survey	**Category**	**Men**	**Women**	**Delta**	**kap_SC**	**SCm**	**SCw**	**Sig.**	**N**
Tanzania 2011-12 AIS	Lowest	4.2	3.9	2.0	52.9	55.0	51.0	ns	632
Tanzania 2011-12 AIS	Second	4.6	4.4	2.5	57.2	58.8	55.6	ns	711
Tanzania 2011-12 AIS	Middle	5.4	4.5	2.1	45.0	49.7	41.0	ns	681
Tanzania 2011-12 AIS	Fourth	4.1	3.5	1.8	50.6	54.8	47.0	ns	653
Tanzania 2011-12 AIS	Highest	6.8	5.6	2.1	36.9	40.9	33.7	ns	625
Uganda 2011 AIS	All	6.8	6.6	3.1	49.7	50.6	48.8	ns	3,972
Uganda 2011 AIS	Lowest	5.8	4.8	3.0	60.0	66.6	54.5	ns	787
Uganda 2011 AIS	Second	5.8	6.0	3.2	57.5	56.5	58.5	ns	886
Uganda 2011 AIS	Middle	6.0	6.7	2.9	48.9	46.3	51.9	ns	836
Uganda 2011 AIS	Fourth	8.4	8.2	3.3	42.9	43.8	42.1	ns	699
Uganda 2011 AIS	Highest	8.3	7.5	3.1	42.3	44.7	40.1	ns	764
Zambia 2007 DHS	All	15.1	12.9	6.3	52.1	57.1	47.9	M+	2,007
Zambia 2007 DHS	Lowest	7.6	5.4	2.8	46.6	57.3	39.3	M+	510
Zambia 2007 DHS	Second	10.2	7.2	3.1	39.4	48.6	33.1	ns	381
Zambia 2007 DHS	Middle	13.5	10.3	5.2	49.8	58.9	43.2	ns	402
Zambia 2007 DHS	Fourth	22.4	21.1	8.9	52.6	54.7	50.7	ns	367
Zambia 2007 DHS	Highest	25.5	25.0	10.1	53.6	54.3	52.9	ns	347
Zimbabwe 2010-11 DHS	All	17.0	14.8	7.7	57.3	62.5	52.9	M++	2,180
Zimbabwe 2010-11 DHS	Lowest	16.7	14.1	8.4	64.2	71.2	58.4	ns	513
Zimbabwe 2010-11 DHS	Second	17.2	12.7	5.9	46.5	56.4	39.5	M+	477
Zimbabwe 2010-11 DHS	Middle	18.3	16.5	7.7	53.5	57.1	50.3	ns	437
Zimbabwe 2010-11 DHS	Fourth	16.2	16.0	8.6	63.9	64.5	63.4	ns	430
Zimbabwe 2010-11 DHS	Highest	16.5	14.9	7.8	58.5	62.2	55.1	ns	323

Note: Selection/seroconversion measures are defined in the text

N is weighted

Significance refers to a test of the null hypothesis that selection/seroconversion is the same for men and women

M+, M++, M+++: percentage is significantly greater for men than for women, at the .05, .01, or .001 level

ns: the difference is not statistically significant

W+, W++, W+++: percentage is significantly greater for women than for men, at the .05, .01, or .001 level

Table A3.6 Percentage of HIV-negative men and women who are at risk of infection from an HIV-positive cohabiting partner, and relative risk for women compared with men, by three categories of risk, according to wealth status (quintiles: lowest, second, middle, fourth, highest), 10 DHS surveys in sub-Saharan Africa, 2006-2012

		Risk category #1			Risk category #2			Risk category #3		
Survey	Category	Men	Women	RR	Men	Women	RR	Men	Women	RR
Cameroon 2011 DHS	All	3.3	3.1	94	3.5	3.3	94	1.2	1.3	113
Cameroon 2011 DHS	Lowest	2.0	0.7	33	2.0	0.7	34	1.0	0.4	42
Cameroon 2011 DHS	Second	2.3	2.6	113	2.4	2.7	112	1.0	1.2	123
Cameroon 2011 DHS	Middle	4.4	3.0	69	4.6	3.2	70	1.5	1.2	80
Cameroon 2011 DHS	Fourth	4.4	4.5	102	4.7	4.8	102	1.3	1.6	119
Cameroon 2011 DHS	Highest	3.8	5.1	134	4.1	5.4	132	1.1	1.8	167
Kenya 2008-09 DHS	All	3.1	2.5	82	3.3	2.7	83	1.3	1.0	77
Kenya 2008-09 DHS	Lowest	3.3	1.6	48	3.4	1.7	49	1.5	0.6	38
Kenya 2008-09 DHS	Second	2.0	2.8	141	2.1	3.0	140	0.8	1.1	130
Kenya 2008-09 DHS	Middle	0.4	3.2	810	0.4	3.4	786	0.1	1.2	803
Kenya 2008-09 DHS	Fourth	2.0	3.2	162	2.1	3.4	160	0.7	1.0	146
Kenya 2008-09 DHS	Highest	5.7	2.1	37	5.9	2.3	38	2.6	1.0	38
Lesotho 2009 DHS	All	7.9	10.1	128	11.2	13.9	124	2.5	3.1	123
Lesotho 2009 DHS	Lowest	4.5	8.3	184	5.7	10.0	176	1.8	3.0	169
Lesotho 2009 DHS	Second	6.8	13.0	190	9.9	17.2	174	2.3	4.9	213
Lesotho 2009 DHS	Middle	6.5	10.0	155	9.7	14.2	147	1.5	2.8	187
Lesotho 2009 DHS	Fourth	8.5	8.0	94	13.1	12.4	95	2.8	2.1	76
Lesotho 2009 DHS	Highest	12.4	11.3	91	17.0	15.7	92	4.1	3.2	77
Malawi 2010 DHS	All	3.9	4.6	119	4.3	5.1	118	2.1	2.6	120
Malawi 2010 DHS	Lowest	3.6	4.1	113	3.9	4.4	113	2.1	2.0	93
Malawi 2010 DHS	Second	4.0	4.6	114	4.4	5.0	113	2.5	2.8	112
Malawi 2010 DHS	Middle	3.7	4.2	112	4.1	4.6	112	2.3	2.6	111
Malawi 2010 DHS	Fourth	4.1	4.8	116	4.6	5.4	115	2.3	2.9	125
Malawi 2010 DHS	Highest	3.8	5.3	140	4.5	6.2	138	1.6	2.6	161
Mozambique 2009 AIS	All	5.2	5.1	98	5.8	5.7	98	3.4	3.1	93
Mozambique 2009 AIS	Lowest	5.7	2.8	49	6.0	3.0	50	4.5	1.8	40
Mozambique 2009 AIS	Second	4.2	4.3	103	4.5	4.6	103	3.1	3.0	98
Mozambique 2009 AIS	Middle	3.0	4.4	148	3.2	4.7	145	2.1	3.0	144
Mozambique 2009 AIS	Fourth	5.2	7.9	153	6.3	9.3	148	3.3	4.6	139
Mozambique 2009 AIS	Highest	9.6	7.8	81	11.5	9.5	83	4.0	3.6	89
Swaziland 2006-07 DHS	All	8.7	7.7	89	13.7	12.3	90	2.1	1.8	86
Swaziland 2006-07 DHS	Lowest	10.7	10.1	94	15.7	14.9	95	2.8	2.5	87
Swaziland 2006-07 DHS	Second	8.4	11.4	136	15.6	20.1	129	2.1	2.5	118
Swaziland 2006-07 DHS	Middle	7.7	6.3	82	11.6	9.7	83	1.3	1.2	92
Swaziland 2006-07 DHS	Fourth	8.7	5.1	59	15.8	10.0	63	1.8	1.1	60
Swaziland 2006-07 DHS	Highest	8.2	6.7	81	11.8	9.8	83	2.5	1.9	77
Tanzania 2011-12 AIS	All	2.0	2.6	131	2.1	2.8	130	1.0	1.0	106

(Continued...)

Table A3.6 – *Continued*

		Risk category #1			Risk category #2			Risk category #3		
Survey	**Category**	**Men**	**Women**	**RR**	**Men**	**Women**	**RR**	**Men**	**Women**	**RR**
Tanzania 2011-12 AIS	Lowest	1.7	2.0	117	1.7	2.0	117	0.9	0.9	92
Tanzania 2011-12 AIS	Second	1.7	1.9	114	1.8	2.0	114	1.0	0.9	93
Tanzania 2011-12 AIS	Middle	2.1	3.0	142	2.3	3.2	141	1.1	1.3	122
Tanzania 2011-12 AIS	Fourth	1.5	2.1	137	1.6	2.1	136	0.7	0.8	114
Tanzania 2011-12 AIS	Highest	3.1	4.2	136	3.3	4.5	135	1.2	1.2	107
Uganda 2011 AIS	All	3.0	3.2	107	3.2	3.5	107	1.5	1.5	96
Uganda 2011 AIS	Lowest	1.5	2.5	167	1.6	2.6	165	0.9	1.3	146
Uganda 2011 AIS	Second	2.5	2.3	92	2.6	2.4	92	1.5	1.2	85
Uganda 2011 AIS	Middle	3.4	2.7	80	3.6	2.9	81	1.9	1.4	74
Uganda 2011 AIS	Fourth	4.2	4.5	107	4.6	4.9	107	1.9	1.9	96
Uganda 2011 AIS	Highest	3.8	4.6	121	4.2	5.0	120	1.5	1.6	105
Zambia 2007 DHS	All	4.7	6.8	145	5.6	7.9	141	2.5	3.7	147
Zambia 2007 DHS	Lowest	2.1	4.4	207	2.3	4.6	202	1.4	3.0	215
Zambia 2007 DHS	Second	3.3	6.3	191	3.7	6.8	185	2.2	3.3	153
Zambia 2007 DHS	Middle	3.7	6.9	188	4.2	7.7	181	2.1	4.0	192
Zambia 2007 DHS	Fourth	7.4	8.7	117	9.5	11.0	115	3.6	4.7	128
Zambia 2007 DHS	Highest	8.5	9.0	106	11.4	12.0	105	3.2	3.8	122
Zimbabwe 2010-11 DHS	All	4.6	6.8	149	5.5	8.0	145	2.1	2.9	135
Zimbabwe 2010-11 DHS	Lowest	3.4	6.0	176	4.1	6.9	171	2.1	3.0	140
Zimbabwe 2010-11 DHS	Second	4.6	9.1	198	5.5	10.4	188	2.3	4.2	181
Zimbabwe 2010-11 DHS	Middle	5.8	7.6	131	7.1	9.1	128	2.6	3.3	128
Zimbabwe 2010-11 DHS	Fourth	4.8	5.0	105	5.7	5.9	105	2.1	2.2	104
Zimbabwe 2010-11 DHS	Highest	4.7	6.3	134	5.6	7.4	132	1.8	2.0	117

Note: Relative risk (RR) is expressed as number of women at risk per 100 men at risk.