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The Measurement of Condom Use in Four Countries in East and Southern Africa

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Abstract

Measurement of condom use is important to assess progress in increasing use. Since 2003, the Demographic and Health Surveys (DHS) and AIDS Indicator Surveys (AIS) have included new measures of self-reported condom use. We use data from Namibia, Swaziland, Tanzania, and Zambia to compare measures of condom use accounting for type of sexual partner. Condom use at last sex ranged from 20% in Tanzania to 57% in Namibia for men, and from 12% in Tanzania to 41% in Namibia for women. Reported condom use was lower in response to questions about condom use every time with last partner (from 13% to 47% for men and from 8% to 33% for women). Condom use was highest among people with two or more partners in the last year and lowest with marital partners. Overall, the prevalence of condom use was low, and there was wide variability across the various measures, countries, sexes, and types of partner. Promotion of condom use in all partnerships, but especially in non-marital relationships and among individuals with multiple partners, remains a critical strategy. New condom use questions in the DHS and AIS expand options for measuring and studying condom use.

Keywords

Condoms/utilization; Eastern and Southern Africa; Measurement; Sexual behavior

Introduction

Over 25 years after the disease burst onto the world stage and despite advances in technology and increased international attention, human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) continue to be a major public health threat throughout the world. Sub-Saharan Africa remains the worst-affected region of the world with over 22.4 million people living with the disease, accounting for 67% of cases worldwide (1). In 2008, in sub-Saharan Africa there were 1.9 million people newly infected with HIV; over 5,200 people are infected each day. Within sub-Saharan Africa, eastern and southern Africa have been hit hardest by the disease.

Condom use is considered one of the cornerstones for the prevention of HIV transmission and acquisition. However, despite it being well known that condoms are highly effective at preventing HIV if used consistently and correctly (2–4), condoms are not widely used by people living in high epidemic areas. A population-based study in Uganda found that only

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4.4% of respondents reported consistent condom use (defined as ‘always’ using condoms with each partner [marital or non-marital] in the year prior to the survey) (5). A study among recently diagnosed HIV positive participants in Uganda found that 54% of those who were sexually active had not used a condom during their most recent intercourse (6). Bunnell and colleagues report that among people testing positive for HIV in a population-based study with a nationally representative sample of Ugandans, 67% had never used a condom and two-fifths of them were in HIV-discordant relationships (7). A study by Fylkesnes and colleagues in Zambia found that while condom use at last non-regular sex among urban men was 68%, it was only 15% among rural men (8). Notably, the different measurement approaches to assessing condom use make it difficult to compare across studies.

Consistent condom use is a determinant of HIV infection proximate to the point of transmission that can be influenced by distal or contextual factors (socioeconomic, sociocultural, and demographic) and interventions. Condom use is directly linked to exposure to infection and efficiency of transmission, two of the fundamental biological factors of HIV transmission (9). Other important proximate determinants include the type and number of sexual partners and the frequency of sexual intercourse. Previous research has shown that women and men use condoms differently with varying partner types. For example, studies have consistently found that men and women are less likely to use condoms within marital-type relationships, and they are more likely to use condoms in extra-marital or new relationships. Several studies in sub-Saharan African countries report low levels of condom use with a spouse or cohabiting partner (10–12). A study in Kenya found the level of condom use for unmarried respondents to be more than twice that of married respondents (13). In Uganda, Biraro and colleagues found that unmarried women and men were 11 and seven times more likely, respectively, to use a condom at last sex than married women and men (14). Using nationally representative surveys from 13 sub-Saharan African countries, de Walque and Kline found condom use was lower among married individuals and their spouses than unmarried women and men with their non-marital partners (15). Their analyses also found that condoms were used more often at last sexual intercourse with someone that was not a spouse than the last intercourse with a spouse. Studies of condom use that take into account partner type will yield better data (16).

There are many different measures of condom use, and measures almost exclusively rely on self-reported data, despite the limitations associated with social desirability and recall biases. Unfortunately, there are no other more accurate and feasible methods to gather this information, particularly for men (17). Two major reviews of how condom use has been measured have been conducted (16,18). The majority of the studies reviewed were hypothesis-driven research focused on obtaining correlational data of the association between psychosocial factors and condom use; data were not routine population-based surveys. Few studies were from developing countries. They found that the most common type of measure of condom use were frequency measures (i.e., how often? never, sometimes, always, etc.), followed by dichotomous measures (e.g., did you use a condom at last sex? yes or no), and finally a percent, computed from count data of sexual activity and condom use. While a simple question about condom use at last sex may reduce recall bias, it does not capture the amount of unprotected sex and it may not be representative of a person’s behaviors over the last few months, last few sexual acts, and with their last few sexual partners. Authors recommend frequency measures over dichotomous measures, although they caution about using recall periods of greater than three months (17). Notably, others have found that frequency of condom use was a “best fit” for predicting outcomes compared with other measures (19). Regardless of the measurement challenges, promotion of condom use is an important strategy in the battle against HIV, so we must continue to improve methods to assess changes in use.

Routine population-based surveys need reliable and valid measures of condom use in order to evaluate efforts to improve condom use, track trends over time or across countries, and assess changes in factors associated with condom use. A key source of information about health trends of populations in developing countries is the DHS. Prior to 2003, the DHS relied on the question, “Did you use a condom at last sex?” as the sole indicator of condom use. After 2003, the DHS added frequency measures to its surveys, asking about consistency of condom use (always, sometimes, never) with each of the last three partners in the last year (20). The availability of this information across several countries can help improve comparability of condom use for surveillance and improve understanding of factors associated with condom use that can be useful to programs.

The objective of this study is to better understand the utility of different measures of condom use in population-based surveys, taking into account the type of partner as well as number of different partners. Our research questions are:

1. How do the levels of condom use differ by condom use measure within the same data set?
2. In what type of partnerships are men and women most likely to report any condom use and consistent condom use, and how is use in that partnership modified by marital status?

Answers to these questions are needed to help researchers using the DHS data to understand the usefulness of the new measures of condom use for program design, program evaluation, to track trends over time and across countries, and to develop and interpret indicators. The study will also inform broader efforts to measure condom use, since the DHS often informs measures in other surveys.

Methods

Data Sources

This study uses DHS data from Swaziland, Namibia, and Zambia and AIS data from Tanzania (21–24). These are nationally representative household surveys that collect data on a wide range of health indicators including HIV testing. The surveys employ national probability samples of households and use a two-stage sampling strategy. First, geographic units or enumeration areas are sampled within the country, and then a random sample of households is selected with a known probability. Interviews are conducted with all women ages 15–49 who spent the preceding night in the household. Similarly, men were eligible for interview if they were ages 15–49 and spent the previous night in the household; in Zambia, men ages 15–59 were eligible.

To select these countries we decided *a priori* to focus on sub-Saharan Africa, since this region is where HIV prevalence is highest. We began with all countries in sub-Saharan Africa with DHS or AIS data from MEASURE DHS that had the expanded set of condom use questions that were included in versions 5 and 6 of the standard questionnaires. The specific question of interest was, “Was a condom used every time you had sex?” asked for each of the last three partners in the past 12 months. We then ranked those countries by HIV prevalence (highest to lowest) and number of respondents who used a condom at last higher risk sex — that is, sex with a non-marital and non-cohabiting partner (these were also ranked highest to lowest). The rationale was that it is programmatically most relevant to promote consistent condom use messages in areas where risk of acquiring HIV is high. Also, we needed adequate sample size to conduct meaningful analyses, so we used “condom use at last higher-risk sex” since it approximates some of the condom use indicators and is regularly reported in DHS and AIS reports. The combination of high HIV prevalence and

respondents using condoms at last higher-risk sex yielded the following country surveys for study (in alphabetical order): Namibia DHS, 2006–07 (21), Swaziland DHS 2006–07 (22), Tanzania AIS 2007–08 (23), and Zambia DHS 2007 (24) (see Table 1).

Variables

The primary domains of interest for this analysis were condom use, number of sexual partners, types of sexual partners, and marital status. The DHS and AIS data allowed us to create a variable that has been traditionally used as a dichotomous measure of condom use, “Condom use at last sex.” Starting in 2003, the DHS Phases 5 and 6 and AIS surveys have this question for the last three (or fewer) partners in the last year, as well as the consistency of condom use (always, sometimes, never) with each of those three partners in the last year. These questions allowed us to create six different measures of condom use: 1) condom use at last sex with the last partner (as typically measured), 2) condom use at last sex with any partner, 3) condom use at last sex with all partners, 4) condom always used with last partner, 5) condom always used with any partner, and 6) condom always used with all partners (see Table 2 for a description of the condom use measures and the pros and cons of each measure). The time frame for the answers was the 12 months preceding the survey, and the number of partners ranged from one to three.

Information was available in the DHS and AIS surveys on the type of relationship the respondent had with their sexual partners (in the last 12 months and up to three partners). We created a variable called “relationship to sexual partner” with response categories including married/cohabiting, girl/boyfriend, or “other” (includes casual acquaintances and prostitutes).

We included a marital status variable that measured the respondent’s marital status that she or he reported at the time of the interview. The categories included married, living together, never married, widowed/divorced, and not living together. We assumed marital status was constant over the year prior to the survey; in contrast, the variable “relationship to sexual partner” could be different for each of the respondent’s last three sexual partners in the last year.

Finally, from data on the number of sexual partners in the last 12 months, we created three categories: zero, one, and two or more. We combined people with two or more partners in the last 12 months into one category because there were very few observations with three or more partners.

Analyses

We began with descriptive analyses of measures of condom use among male and female respondents by type of sexual partner, number of sexual partners, and relationship to sexual partner. All analyses were stratified by country and sex of the respondent. The denominators varied depending on the analysis, but the main ones were: “All women/men who have had sex in the last year” and “Women/men who had two or more sexual partners in the last 12 months before the survey”.

Our analyses were conducted in STATA version 10.1 (College Station, TX) using the *svy* command for complex survey data. We present our findings with weighted percentages and weighted sample sizes.

Results

Across the four countries in the 12 months preceding the survey, most respondents had had sex. Among men, between 46% (Swaziland) and 60% (Zambia) had sex with only one

partner (see Table 3), whereas among women this percentage was higher (65% to 75%). There was little difference between the percentage of men and women who had sex in the last 12 months, but men were more likely than women to have had two or more partners in the last 12 months. The proportion of women and men aged 15–49 (aged 15–59 for men in Zambia) who had sex with two or more partners in the last 12 months ranged from 1% in Zambia to 3% in Tanzania for women and from 11% in Namibia to 18% in Tanzania for men. This is the global indicator for “higher risk sex” (proportion of women or men 15–49 who had sex with two or more partners in the last 12 months) (25). Overall, among men in the four countries, between 26% and 42% had sex with a non-marital or non-cohabiting partner in the last 12 months. Among women, the percentages were lower and between 13% and 33%. Notably, the prevalence of non-marital sex is correlated with the percentage of women and men in the sample that are never married.

The majority of men and women in Tanzania (53% of men and 64% of women) and Zambia (56% and 67%) were married or living with their partner (see Table 3). The majority of these analyses focus on sexually active respondents, that is, men and women who report having had sex in the last 12 months. Among sexually active respondents, the majority of men and women in Tanzania (65% and 82%, respectively) and Zambia (70% and 84%, respectively) had sex with only one married/cohabiting partner (see Table 3). In Swaziland and Namibia, a greater percentage of men and women were never married (66% and 50% in Swaziland, and 65% and 58% in Namibia) (Table 3), and thus the majority of men had sex with one or more non-marital/non-cohabiting partners (58% and 60%, respectively) (Table 3). Women in Swaziland and Namibia who had sex in the last 12 months were more equally divided between married/cohabiting and non-marital/non-cohabiting partners in the last 12 months.

Levels of “condom use at *last sex* with last partner” ranged from 20% in Tanzania to 57% in Namibia for men, and between 12% in Tanzania and Zambia to 41% in Namibia for women (see Table 4). Reports of condom use decreased when different measures were used. When asked about condom use *every time* with their last partner, condom use among respondents who had sex in the last 12 months ranged from 13% in Zambia to 47% in Namibia for men, and from 8% in Zambia to 33% in Namibia for women.

The percentage of women and men aged 15–49 (15–59 for men in Zambia) who had more than one partner in the past 12 months who used a condom during their *last sexual intercourse* ranged from 21% in Tanzania to two-thirds (66%) in Namibia for women, and from one-fifth (22%) in Tanzania to three-quarters (74%) in Namibia for men (see Table 4). This is how the global indicator of “condom use during higher risk sex” is measured (26). The percent of respondents with two or more partners who used a condom *every time* with their last partner ranged from 16% in Tanzania to 48% in Namibia for women, and 14% in Zambia to 58% in Namibia for men.

Condom use when the last partner was non-marital (girlfriend/boyfriend or other non-marital) was two to 16 times more likely for men and two to 18 times more likely for women as compared to use with a marital partner (Table 4). Tanzania had the greatest difference in use between marital and non-marital partner types due to low single digit condom use among marital partners.

To examine condom use behavior in more depth, we assessed condom use among respondents who had had two or more sexual partners in the last 12 months (see Table 5). The key finding among these respondents was that condom use at last sex or every time with the last partner was lower when that partner was a marital/cohabiting partner compared with other partner types, despite the fact that they had had two or more partners in the last year

(see Figure 1). Except in Namibia, a minority used condoms *every time* with non-marital partners. Across all measures, condom use was highest in Namibia for both men and women who had two or more partners, followed by Swaziland. In Tanzania and Zambia among respondents who had two or more sexual partners in the last 12 months, condom use rarely exceeded 50% for any measure.

From the measurement perspective, for respondents who had two or more sexual partners in the last 12 months, condom use was highest when asked about condom use at last sex with the last partner (see Table 5). For men this ranged from 22% in Tanzania to 74% in Namibia, and for women (with low sample sizes), 21% in Tanzania to 66% in Namibia. The proportion of respondents who had two or more sexual partners in the last 12 months reporting condom use decreases when asked about condom use at last sex with all partners (up to 3 partners) and condom use every time with all partners (up to 3 partners). Condom use every time with all partners ranged from 8% in Tanzania and Zambia to 51% in Namibia for men and from 9% in Tanzania to 38% in Namibia for women. Condom use at last sex or every time is highest for any partner, but this measure is the least useful in understanding condom use because it measures condom use at least once with one partner or condom use every time with one partner.

To examine in more detail the influence of men's marital status on condom use, we stratified the measures of condom use by marital status among male respondents with two or more partners (see Table 6) (female results not shown due to small cell sizes). Condom use at last sex with last partner and condom use every time with last partner was lower for married/cohabiting men who had had two or more partners. This was not necessarily surprising since one of their sexual partners was likely their wife.

Discussion

Condom Use Frequency

This study demonstrates the wide variability in the prevalence of condom use by country, by sex, by the type of sexual partner, by the number of sexual partners, and by the measure of condom use. Condom use, regardless of the measure, was higher among men and women in Namibia and Swaziland compared with Tanzania and Zambia. Across countries, condom use was higher among men than women, and it was higher among men and women who had two or more partners in the last year (compared with those with one partner). Condom use was higher among men and women with a non-marital/non-cohabiting sexual partner compared with men and women with a marital/cohabiting partner.

The study results echo what is known about condom use behavior, that it is more common in riskier situations (e.g., sex with multiple partners or with non-marital partners). However, levels of condom use found in this study will undermine the condom's ability to prevent HIV and other STIs. Even in Namibia and Swaziland, where condom use was relatively high, between one-quarter and one-third of men reported non-use of condoms at last sex with non-marital partners. In Tanzania and Zambia, only about one-half of men used a condom at last sex with non-marital partners.

Among men and women with two or more partners in the last year, the findings still suggest significant risks for HIV transmission. Standard measurement (using the common indicator of condom use at last sex) shows that among men and women with two or more partners, there is wide variability in condom use at last sex. In Swaziland and Namibia, the prevalence of condom use with any partner at last sex was high (79% of men in Swaziland with two or more partners report condom use with any partner at last sex and 91% of men in Namibia report the same). However, among those men with two or more partners in the last year,

condom use declined when the partner was a marital/cohabiting partner, when the measure was *all partners*, and when the measure was condom use *every time*. For men and women with two or more partners, the risk of HIV transmission in general and to unprotected marital partners was still important because of relatively low use of condom use *every time* with non-marital partners.

Condom Use Measurement

This study also identifies that there are gaps in the standard approaches to measuring condom use consistency. In particular, the approach that is often used is to ask whether a condom was used at last sex. The percentage reporting affirmatively to this question will vary depending on whether the last partner was a marital or non-marital partner, because condom use is lower with marital partners. Moreover, among married individuals, the last sexual partner is likely to be a marital partner, thus using the measure of “condom use at last sex” fails to shed light on condom use among non-marital sexual relationships or whether people with multiple partners are more likely to use condoms, at least in their non-marital relationships (see Table 2).

While continuing to present the indicator of “condom use at last sex” is useful to be able to examine trends, especially when examined among women and men with two or more sexual partners as done in the global HIV indicator, more informative measures of condom use are needed to better inform programs. In particular, our analysis demonstrates that while there is greater use among non-marital partners, the addition of measuring condom use *every time* underscores that there are still major gaps in use. Programs should continue to emphasize the importance of using condoms with all partners, especially among persons who have multiple partners (marital and/or non-marital). Furthermore, our analysis demonstrates that non-marital sexual relationships are common among women (from 13% to 30%) and among men (from 26% to 42%) in the countries studied. While women and men are more likely to use condoms within these types of partnerships, to make condom use an effective prevention approach it needs to be used 100% of the time. Our data show that this is not the case; use of condoms *every time* when the last partner was non-marital ranged from 33% to 71% for men and from 32% to 56% for women.

As found in other literature, this study demonstrates that condom use varies by other proximate determinants of HIV — where respondents live, their number of partners, and their last partner type (10). With this multi-country analysis it is difficult to go into more depth on any specific country to understand the other contextual and proximate determinants of condom use; this is better done with a single country analysis. An interesting analysis might be one that explores in more depth two countries with similar HIV prevalence but differences in condom use reports (such as Namibia and Zambia) to understand the socioeconomic, sociocultural, and demographic factors that influence condom use, as well as programmatic activities.

This study has a few limitations that are worth noting before concluding. First, the study was limited by the sample size, especially among women. In particular, multiple partnerships were less common among women in the countries studied, and thus the sample size was small for the analyses of women with two or more partners. A second factor limits all analyses on condom use, that is that condom use is based on self-reports (17). Women and men may under report condom use if it is considered to be a stigmatized behavior. Conversely, women and men may over report condom use if it is considered to be the expected behavior. Third, experts caution that recall periods of more than three months may be problematic (16); therefore, more research is needed about the accuracy of recall periods up to 12 months. Finally, information available in a DHS is about a woman’s or a man’s sexual behaviors and condom use; this may understate the risks of HIV. In particular, a

woman may report only one sexual partner (her spouse) and thus not be classified as having risky sex; however, if her husband has other partners, then she is at risk and would benefit from condom use. Future surveys could capture information from women (and possibly from men) on whether the woman thinks her sexual partner has other sexual partners. This could be asked for the same three partners that are asked the other sexual behavior questions. This type of information, while based on perceptions, would increase our ability to assess risk for all persons, not just those who report multiple partners.

Conclusion

To conclude, the examination of condom use behaviors in population-based surveys is important for understanding progress in preventing new HIV infections in a country and to provide information to programs about what behaviors to target for change and factors associated with those behaviors. How condom use is measured can affect interpretation of results. The standard approach that looks at condom use at last sex among persons with two or more partners can continue to be used for assessments of trends in condom use for high risk populations. That said, as a measure of consistency of condom use and for making programmatic recommendations, it is advisable to dig deeper to understand where the gaps in use are. By using newer measures that capture condom use at last sex with up to three partners, the consistency of this use, and the type of partner, our analysis indicates, as expected, that condom use is more common with non-marital partners and among women and men with multiple partners; however, there are still a significant number of women and men at risk of HIV. Programs to prevent HIV need to continue to promote condom use with a particular emphasis on non-marital partnerships and for women and men with multiple partners. The goal of these programs should be to increase consistent condom use, measured in the varying ways presented here. As we better measure condom use we will be able to better assess the risk of HIV to women and men in a population or identify specific target groups; these strategies can support efforts to prevent new HIV infections in sub-Saharan Africa.

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Figure 1.
Percent *always* using condoms with last sexual partner, of participants with two or more sexual partners in the last year, by type of sexual partner, country, and sex

Table 1

Country, survey type, year, and HIV prevalence and sample sizes by sex

Country	Survey type	Year	HIV prevalence		Sample size of individuals ages 15–49 ^a		Sample sizes of individuals ages 15–49 ^a who had sex in the last 12 months	
			Men	Women	Men	Women	Men	Women
Namibia	DHS	2006–07	15.3 ^b	15.3 ^b	3875	9685	2710	6499
Swaziland	DHS	2006–07	20	31	4138	4985	2474	3443
Tanzania	AIS	2007–08	4.6	6.6	6959	9325	5014	7207
Zambia	DHS	2007	12.3	16.1	6481	7141	4820	5305

^aZambia included men ages 15–59

^bOverall

Table 2

Condom use variables, variable definitions, and pros and cons of how and when to use the measures

Condom Use Variable	Definition	Pros	Cons
At last sex, last partner	Respondent reported using a condom at last sex with his/her last sexual partner in the last 12 months	<ul style="list-style-type: none"> • Useful for tracking trends over time within a country. • Global indicator for “condom use during higher risk sex” (23) when the denominator is women or men 15–49 who had sex with two or more partners in the last 12 months. • Limiting the question to “at last sex” should limit recall bias. 	<ul style="list-style-type: none"> • Overestimates consistent condom use, since only asked about last sex. • Underestimates condom use in higher risk relationships when type of sexual partner or number of partners is unaccounted for. • Limited usefulness in cross-national comparisons since proportions of married respondents varies across countries and condom use within marriage is low.
At last sex, any partner	Respondent reported using a condom at last sex with any one of his/her last three sexual partners in the last 12 months	May be useful in cross-national comparisons since interpretation is not dependent on marital status.	Limited usefulness for other purposes without more information about sexual partners.
At last sex, all partners	Respondent reported using a condom at last sex with all of his/her last sexual partners (up to three) in the last 12 months	<ul style="list-style-type: none"> • Measures consistent condom use in the ideal setting where condoms are used with all partners. • Most useful for an unmarried sample of women or men. 	Limited usefulness without more information about sexual partners since condoms are less likely to be used within marital unions.
Every time, last partner	Respondent reported <i>always</i> using a condom with his/her last sexual partner (in the last 12 months)	<ul style="list-style-type: none"> • A better, more conservative measure of the concept of consistent condom use. • Provides richer information about condom use when presented with “condom use at last sex, last partner.” 	<ul style="list-style-type: none"> • Underestimates condom use in higher risk relationships, type of sexual partner or number of partners is unaccounted for. • Limited usefulness in cross national comparisons since proportions of married respondents varies across countries and condom use within marriage is low.
Every time, any partner	Respondent reported <i>always</i> using a condom with any one of his/her three sexual partners (in the last 12 months)	Maybe useful in cross-national comparisons since interpretation is not dependent on marital status.	Limited usefulness for other purposes without more information about sexual partners. More in-depth analyses to understand why respondents use condoms ‘every time’ with some types of partners but not all, may have implications for programming.
Every time, all partners	Respondent reported <i>always</i> using a condom with all three of his/her sexual partners (in the last 12 months)	<ul style="list-style-type: none"> • Measures consistent condom use in the ideal setting, where use is with all partners <i>and</i> all sexual acts. • Most useful for program information with complex analyses taking into account partner types • Most useful for analyses of unmarried women and/or men 	<ul style="list-style-type: none"> • Severely underestimates condom use in higher risk relationships when type of sexual partner or number of partners is unaccounted for. • Limited usefulness in cross national comparisons since proportions of married respondents varies across countries and condom use within marriage is low.

Table 3

Sexual activity, number of partners, type of partner and marital status for all respondents ages 15–49 (15–59 for Zambia) by country and by sex

	Men				Women			
	Tanzania AIS 2007–08	Swaziland DHS 2006–07	Namibia DHS 2006–07	Zambia DHS 2007	Tanzania AIS 2007–08	Swaziland DHS 2006–07	Namibia DHS 2006–07	Zambia DHS 2007
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)
Number of all respondents								
Number sexual partners								
0	28 (1945)	40 (1665)	30 (1164)	26 (1660)	23 (2118)	31 (1541)	33 (3186)	26 (1836)
1	54 (3766)	46 (1906)	59 (2273)	60 (3902)	75 (6961)	67 (3363)	65 (6336)	73 (5219)
2+	18 (1247)	14 (567)	11 (438)	14 (919)	3 (246)	2 (80)	2 (163)	1 (86)
Had sex with a non-marital/non-cohabiting partner in the last 12 months								
	29 (2045)	35 (1440)	42 (1633)	26 (1688)	16 (1487)	30 (1516)	33 (3209)	13 (899)
Marital status								
Married	47 (3263)	23 (958)	18 (696)	55 (3578)	54 (5058)	32 (1587)	20 (1911)	61 (4349)
Living together	6 (425)	6 (247)	13 (488)	1 (34)	10 (911)	9 (474)	15 (1478)	7 (52)
Never married	42 (2930)	66 (2730)	65 (2529)	39 (2550)	24 (2211)	50 (2486)	58 (5631)	26 (1854)
Widowed/divorced	1 (91)	2 (88)	1 (30)	3 (233)	7 (680)	6 (298)	4 (351)	10 (741)
Not living together	4 (250)	3 (115)	3 (130)	1 (86)	5 (464)	3 (140)	3 (311)	2 (145)
Had sex in the last 12 months								
	72 (5014)	60 (2474)	70 (2710)	74 (4820)	77 (7207)	69 (3443)	67 (6499)	74 (5305)
Of respondents who had sex in the last 12 months								
Number married/cohabiting sexual partners								
0	28 (1416)	51 (1259)	57 (1541)	25 (1207)	18 (1315)	44 (1503)	49 (3176)	16 (868)
1	65 (3239)	47 (1175)	43 (1156)	70 (3397)	82 (5887)	56 (1939)	51 (3323)	84 (4435)
2+	7 (358)	2 (40)	0 (13)	5 (216)	0 (6)	0 (1)		0 (2)
Number of non-marital/non-cohabiting sexual partners								
0	59 (2969)	42 (1034)	40 (1077)	65 (3133)	79 (5720)	56 (1927)	51 (3290)	83 (4406)
1	34 (1685)	44 (1084)	47 (1281)	29 (1392)	20 (1412)	42 (1449)	47 (3078)	16 (845)
2+	7 (360)	14 (356)	13 (352)	6 (295)	1 (75)	2 (67)	2 (131)	1 (54)

Table 4
Condom use of participants who had sex in the last 12 months, by country and by sex

	Men				Women			
	Tanzania AIS 2007-08	Swaziland DHS 2006-07	Namibia DHS 2006-07	Zambia DHS 2007	Tanzania AIS 2007-08	Swaziland DHS 2006-07	Namibia DHS 2006-07	Zambia DHS 2007
Number of respondents who had sex in the last 12 months	5014	2474	2704	4820	7204^a	3441^b	6472^c	5304
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)
Condom use at last sex with the last partner (all participants)	20 (1011)	49 (1194) ^d	57 (1539)	22 (1061)	12 (866)	37 (1282)	41 (2647)	12 (631)
Number of partners								
Only one partner	19 (732)	47 (878)	53 (1213)	21 (812)	12 (815)	37 (1236)	40 (2540)	12 (603)
Two or more partners	22 (279)	56 (316)	74 (326)	27 (249)	21 (51)	57 (45)	66 (107)	33 (28)
Relationship to last partner								
Marital/cohabiting partner	6 (221)	29 (343)	28 (327)	13 (449)	5 (289)	24 (465)	21 (682)	7 (303)
Girlfriend/boyfriend	55 (611)	67 (744)	78 (931)	47 (530)	43 (524)	54 (793)	62 (1932)	38 (311)
Other non-marital/cohabiting partner	42 (179)	66 (105)	79 (281)	50 (82)	45 (53)	53 (24)	62 (32)	29 (17)
Condom use every time with last partner (all participants)	16 (800)	34 (848)	47 (1262)	13 (617)	9 (636)	23 (790)	33 (2107)	8 (422)
Number of partners								
Only one partner	16 (592)	34 (649)	45 (1008)	13 (489)	9 (598)	23 (759)	32 (2028)	8 (398)
Two or more partners	17 (208)	35 (199)	58 (254)	14 (128)	16 (38)	39 (31)	48 (79)	29 (24)
Relationship to last partner								
Marital/cohabiting partner	3 (104)	19 (222)	20 (235)	5 (175)	2 (147)	14 (262)	15 (496)	4 (173)
Girlfriend/boyfriend	49 (543)	49 (545)	66 (786)	35 (386)	37 (445)	35 (514)	51 (1583)	29 (233)
Other non-marital/cohabiting partner	36 (153)	48 (78)	69 (241)	34 (56)	38 (43)	30 (14)	52 (26)	27 (16)

^aThree participants lost due to missing data on partner type

^bTwo participants lost due to missing data on condom use

^cTwenty-seven participants lost due to missing data on condom use

^dDoes not include 23 respondents who reported using the female condom

Table 5
Condom use of participants who had two or more sexual partners in the last 12 months, by country and by sex

	Men			Women				
	Tanzania AIS 2007–08	Swaziland DHS 2006–07	Namibia DHS 2006–07	Zambia DHS 2007	Tanzania AIS 2007–08	Swaziland DHS 2006–07	Namibia DHS 2006–07	Zambia DHS 2007
Number respondents who had two or more sexual partners in the last 12 months	1247	567	438	919	246	80	163	86
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)
Condom use at last sex								
Last partner	22 (279)	56 (316)	74 (326)	27 (250)	21 (51)	57 (45)	66 (107)	33 (28)
Relationship to last partner								
Marital/cohabiting partner	8 (64)	32 (64)	40 (34)	14 (83)	4 (6)	32 (4)	26 (7)	10 (2)
Girlfriend/boyfriend	51 (138)	71 (226)	82 (201)	50 (131)	42 (37)	63 (40)	75 (97)	44 (23)
Other non-marital/non-cohabiting partner	52 (77)	54 (26)	85 (91)	65 (35)	58 (8)	33 (1)	44 (3)	37 (3)
Any partner	49 (610)	79 (448)	91 (401)	54 (493)	48 (117)		81 (131)	54 (46)
All partners	14 (174)	47 (266)	64 (278)	16 (144)	11 (28)	43 (34)	55 (89)	17 (14)
Condom use every time								
Last partner	17 (209)	35 (199)	58 (254)	14 (128)	16 (38)	39 (31)	48 (79)	29 (24)
Relationship to last partner								
Marital/cohabiting partner	3 (25)	19 (37)	24 (20)	4 (22)	0 (1)	23 (3)	14 (4)	7 (2)
Girlfriend/boyfriend	43 (117)	46 (145)	65 (159)	33 (85)	39 (32)	45 (28)	56 (73)	39 (19)
Other non-marital/non-cohabiting partner	45 (67)	33 (16)	71 (75)	38 (21)	32 (5)	0	36 (2)	37 (3)
Any partner	41 (489)	59 (336)	79 (339)	39 (348)	41 (97)	71 (57)	73 (118)	50 (42)
All partners	8 (105)	31 (175)	51 (224)	8 (77)	9 (21)	33 (26)	38 (62)	12 (10)

Table 6
Condom use among men who had two or more sexual partners in the last 12 months, by country and by marital status

	Tanzania AIS 2007–08		Swaziland DHS 2006–07		Namibia DHS 2006–07		Zambia DHS 2007	
	Married/ cohabiting	Not married/not cohabiting	Married/ cohabiting	Not married/not cohabiting	Married/ cohabiting	Not married/not cohabiting	Married/ cohabiting	Not married/not cohabiting
Number of respondents who had two or more sexual partners in the last 12 months	938	309	214^b	351^b	94	344	662^c	256^c
	% (N)		% (N)		% (N)		% (N)	
Condom use at last sex								
Last partner	14 (127)	49 (152)	34 (72)	70 (245)	41 (39)	83 (287)	18 (119)	51 (131)
Relationship to last partner								
Marital/cohabiting partner	8 (64)	--	31 (60)	-- ^a	35 (25)	-- ^a	14 (83)	--
Girlfriend	53 (46)	50 (92)	57 (10)	72 (216)	59 (7)	83 (194)	50 (26)	50 (105)
Other non-marital/non-cohabiting partner	51 (17)	52 (60)	35 (1)	56 (24)	71 (6)	87 (84)	86 (10)	60 (25)
All partners	7 (69)	34 (104)	27 (57)	60 (208)	27 (26)	73 (253)	10 (66)	31 (78)
Condom use every time last partner	9 (81)	42 (128)	19 (40)	45 (159)	25 (23)	67 (231)	7 (47)	32 (80)
Relationship to last partner								
Marital/cohabiting partner	3 (25)	--	18 (34)	-- ^a	18 (13)	-- ^a	4 (21)	--
Girlfriend	47 (41)	42 (76)	30 (5)	47 (140)	59 (7)	65 (152)	36 (19)	32 (67)
Other non-marital/non-cohabiting partner	46 (15)	45 (51)	18 (1)	34 (15)	34 (3)	75 (72)	62 (7)	32 (13)
All partners	3 (32)	24 (72)	15 (33)	40 (143)	15 (14)	61 (210)	3 (20)	22 (56)

^aIn Swaziland and Namibia there were seven and 12 men, respectively, whose marital status at the time of the study was “not married/non-cohabiting” but reported their last partner was a marital/cohabiting partner (this is either due to poor internal reporting consistency or because the respondent had divorced since his last sexual partner); we have removed this information from the table to improve readability

^bTwo participants lost due to missing data on marital status

^cOne participant lost due to missing data on marital status