

Partner Reduction and Partner Faithfulness Reduce Risk of HIV Infection in Sub-Saharan Africa: Evidence from Cameroon, Rwanda, Uganda, and Zimbabwe

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LONG ABSTRACT

Background

Fewer sexual partners, decline in casual sex, and delayed sexual debut are believed to have played a major role in reducing HIV prevalence rates in several countries in sub-Saharan Africa (for example, in Uganda, Zambia, Zimbabwe, and Kenya), but empirical evidence linking these behaviors to actual HIV risk is limited. We examine patterns of multiple sexual partnerships and lifetime and recent faithfulness among men, women, and cohabiting couples, and assess the association between these behaviors and risk of HIV infection.

Methods

Data are from nationally-representative surveys in Cameroon, Rwanda, Uganda, and Zimbabwe that included HIV testing of adult men and women, conducted during 2004-2006 using blood specimens analyzed with standard laboratory and quality control procedures. Men and women in a marital/cohabiting union who reported never having had sex with any person other than their partner(s) in current union are defined as lifetime faithful. Those who ever had sex with a person other than their partner(s) in current union but not in the last 12 months are defined as recently faithful. Lifetime and recent mutual faithfulness among cohabiting couples are similarly defined. Data are analyzed using binary and multinomial logistic regression after adjusting for potential confounders.

Preliminary Results

Preliminary results from Cameroon, Rwanda, and Uganda indicate that multiple sexual partnerships remain common in sub-Saharan Africa, with men having more lifetime partners and being less faithful to their spouse. In each country, the adjusted odds of being HIV-infected increase monotonically with number of lifetime sexual partners and with decreased level of faithfulness with one's spousal partner(s), suggesting a "dose-response" relationship between number of lifetime sexual partners, partner faithfulness, and risk of HIV infection. For example, in Uganda, the adjusted odds of being HIV-infected are 1.94 (95% CI: 1.54-2.43) for two partners and 2.99 (95% CI: 2.40-3.73) for three or more partners (see Table 1). Those not faithful to their spousal partner(s) are several-fold more likely (for example, 3.63-times in Uganda) to be HIV-infected than those who are lifetime faithful. Similarly, couples where both partners are not mutually faithful are much more likely to have either or both partners HIV-infected than those who are lifetime mutually faithful. Not faithful men and women who use condoms with their non-spousal partners are less likely to be HIV-infected than those who do not.

Conclusions

Fewer lifetime sexual partners and being faithful to spousal partner(s) are strongly associated with reduced risk of HIV infection. Findings suggest the need to reinforce programs to promote lifetime partner faithfulness by encouraging youth to not have sex until they get married and then limit their sexual activity to their spouse. The prevention programs need to especially target men who have higher numbers of lifetime sexual partners and who are less likely to be faithful to their spouses than women. Also, programs to promote consistent condom use with non-spousal partners need to be strengthened.

Table 1. Odds ratio estimates of effects of multiple lifetime sex partners and partner faithfulness (lifetime and recent) among men and women aged 15-59 on the likelihood of being HIV-positive, Uganda 2004-2005

	Number of lifetime sex partners			
	HIV prevalence	OR	Model 1 (95% CI; <i>p</i> -value)	Model 2 (95% CI; <i>p</i> -value)
Male				
One [†]	0.9	1.00		1.00
Two	3.2	2.81	(1.30, 6.10; 0.009)	2.73 (1.22, 6.13; 0.015)
Three or more	7.7	5.74	(2.96, 11.14; 0.000)	5.22 (2.60, 10.47; 0.000)
Number ever had sex	6,666		6,666	6,485
Female				
One [†]	3.9	1.00		1.00
Two	8.3	2.14	(1.70, 2.69; 0.000)	1.97 (1.53, 2.54; 0.000)
Three or more	13.6	3.73	(2.98, 4.66; 0.000)	2.78 (2.13, 3.61; 0.000)
Number ever had sex	8,835		8,835	8,416
Total				
One [†]	3.3	1.00		1.00
Two	6.7	1.99	(1.59, 2.49; 0.000)	1.94 (1.54, 2.43; 0.000)
Three or more	9.9	2.87	(2.37, 3.48; 0.000)	2.99 (2.40, 3.73; 0.000)
Number ever had sex	15,501		15,501	14,901
	Partner faithfulness			
	HIV prevalence	OR	Model 1 (95% CI; <i>p</i> -value)	Model 2 (95% CI; <i>p</i> -value)
Male				
Lifetime faithful [†]	1.5	1.00		1.00
Recent faithful	6.4	4.24	(2.10, 8.55; 0.000)	2.90 (1.42, 5.91; 0.003)
Not faithful	9.6	6.77	(3.21, 14.29; 0.000)	5.03 (2.35, 10.77; 0.000)
Used condom*	8.0	5.66	(2.52, 12.70; 0.000)	3.92 (1.73, 8.89; 0.001)
Did not use condom	11.4	7.94	(3.57, 17.64; 0.000)	6.17 (2.74, 13.90; 0.000)
Number in union	4,552		4,552	4,461
Female				
Lifetime faithful [†]	3.0	1.00		1.00
Recent faithful	7.8	2.81	(2.19, 3.61; 0.000)	2.71 (2.00, 3.69; 0.000)
Not faithful	8.7	3.11	(1.64, 5.88; 0.001)	2.40 (1.20, 4.82; 0.014)
Used condom*	8.4	2.94	(1.22, 7.10; 0.016)	1.70 (0.64, 4.54; 0.289)
Did not use condom	9.1	3.27	(1.53, 7.01; 0.002)	3.30 (1.45, 7.47; 0.004)
Number in union	6,448		6,448	6,185
Total				
Lifetime faithful [†]	2.7	1.00		1.00
Recent faithful	7.1	2.78	(2.22, 3.50; 0.000)	2.61 (2.02, 3.37; 0.000)
Not faithful	9.4	3.68	(2.62, 5.16; 0.000)	3.63 (2.45, 5.36; 0.000)
Used condom*	8.0	3.04	(1.95, 3.51; 0.000)	2.73 (1.71, 4.35; 0.000)
Did not use condom	10.9	4.41	(2.88, 6.75; 0.000)	4.65 (2.93, 7.40; 0.000)
Number in union	11,000		11,000	10,646

†Reference category

*Used condom with last non-marital, non-cohabiting partner in last 12 months

Notes: There are two sets of models in this table, two each for number of lifetime sex partners and partner faithfulness. In each set, Model 1 adjusts for age. Model 2 additionally adjusts for education, marital union, regular media exposure, alcohol use at sex in last 12 months, knowledge of HIV status, household wealth status, occupation, ethnicity, religion, urban/rural residence, years in current place of residence, and region. Model 2 for men and women combined (total) additionally includes sex. For faithfulness models, the odds ratios for condom use with all non-marital, non-cohabiting partners among "not faithful" men and women were derived by separately running the models after dividing the "not faithful" group into "used condom" and "did not use condom" categories.