Factors Associated With HIV Discordance Among Couples in Kenya: Results From a Population Survey

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Background: The majority of HIV-1 infections in Africa occur among individuals in stable partnerships. Improving our understanding on the correlates of discordance will provide information on the dynamics and risk factors of couple transmission that can assist in the development of interventions to reduce transmission within couple relationships.

Methodology: The Kenya AIDS Indicator Survey (KAIS) 2012 was a population-based survey among persons aged 18 months to 64 years that collected interview data on demographics and behaviour; and a blood sample from participants for HIV testing. We analyzed data from married/cohabitating couples where HIV test results were available for both partners. We used logistic regression to identify factors associated with HIV discordance. Variables that were statistically significant at 0.10 p-value level in bivariate analyses were selected for the final multivariable model. Analyses were weighted to account for the sampling design and adjusted for non-response. Population estimates of HIV discordant couples were computed using un-normalized survey weights.

Results: There were 4,226 married or cohabiting couples of whom, 2,032 (48.1%) completed interviews and had HIV test results. Of all couples tested, 92.0% (95% CI 90.3-93.7; n=1,870) were HIV- concordant, 3.2% (95% CI 2.2-4.1; n=65) were HIV+ concordant and 4.8% (95% CI 3.6-6.1; n=97) were HIV discordant; translating to 260,000 discordant couples. Testing rates among discordant couples were high; 97.4% (95% CI 94.7-100.0) of women and 80.0% (95% CI 70.4-89.6) of men whose partners were HIV+ reported ever having been tested. Among all discordant couples 24.2% (95% CI 13.4-35.0) of the HIV+ partners were on antiretroviral therapy (ART). Of the individuals within a discordant couple who knew they were HIV+, 64.1% (95% CI 59.9-68.2; N=36) were on ART. In the final model, factors associated with HIV-discordance were an increasing number of lifetime sexual partners in women (adjusted odds ratio [AOR] 1.3, 95% CI 1.1-1.5; p=0.0001); and for men, lack of male circumcision (AOR 4.4, 95% CI 2.4-7.9; p<0.001) and reporting sexual partners outside of the relationship in the past 12 months (AOR 2.1, 95% CI 1.2-3.7; p=0.0063).

Conclusions: These findings underscore the importance of couple-based prevention strategies that focus on reducing sexual transmission of HIV among couples including voluntary medical male circumcision, reduction of number of sexual partners, routine couples HIV counselling and testing and knowledge and disclosure of partner status. Furthermore, given the effect of antiretroviral therapy on viral load suppression, interventions that increase access and adherence to treatment can contribute to reduction in HIV transmission among discordant couples.