

Abstract

BACKGROUND: In order to inform prevention programming, we analyzed HIV discordance and concordance within couples in the Kenya AIDS Indicator Survey (KAIS) 2007. **METHODS:** KAIS was a nationally representative population-based sero-survey that examined demographic and behavioral indicators and serologic testing for HIV, HSV-2, syphilis, and CD4 cell counts in 15,853 consenting adults aged 15-64 years. We analyzed interview and blood testing data at the sexual partnership level from married or cohabitating couples. Multivariable regression models were used to identify factors independently associated with HIV discordant and concordant status. **RESULTS:** Of 3256 couples identified in the survey, 2748 (84.4%) had interview and blood testing data. Overall, 3.8% of couples were concordantly infected with HIV, and in 5.8% one partner was infected, translating to 338,000 discordant couples in Kenya. In 83.6% of HIV-infected Kenyans living in married or cohabitating couples neither partner knew their HIV status. Factors independently associated with HIV-discordance included young age in women (AOR 1.5, 95% CI: 1.2-1.8; $p < 0.0001$), increasing number of lifetime sexual partners in women (AOR 1.5, 95% CI: 1.3-1.8; $p < 0.0001$), HSV-2 infection in either or both partners (AOR 4.1, 95% CI: 2.3-7.2; $p < 0.0001$), and lack of male circumcision (AOR 1.6, 95% CI: 1.0-2.5; $p = 0.032$). Independent factors for HIV-concordance included HSV-2 infection in both partners (AOR 6.5, 95% CI: 2.3-18.7; $p = 0.001$) and lack of male circumcision (AOR 1.8, 95% CI: 1.0-3.3; $p = 0.043$). **CONCLUSIONS:** Couple prevention interventions should begin early in relationships and include mutual knowledge of HIV status, reduction of outside sexual partners, and promotion of male circumcision among HIV-uninfected men. Mechanisms for effective prevention or suppression of HSV-2 infection are also needed.