

## **Predictors of contraceptive attitudes and use among HIV-positive and HIV-negative Rwandan women.**

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*Presented at the Population Association of America Annual Meeting, Washington DC, March 3- April 2, 2011*

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*Word count: 1129*

## **Extended Abstract**

### **Background**

Sub-Saharan Africa has the highest population growth rate and the greatest burden of HIV-infection in the world. Barrier and hormonal contraceptive methods can mitigate the impact of the dual burden of high fertility and high HIV prevalence in the region. Although, contraceptive use among women in sub-Saharan African (SSA) has increased in the past decade, disparities remain and use is still below 20% in many countries due to several barriers including poor access to and affordability of family planning methods, inadequate health infrastructure, and high value on fertility [WHO, 2010; Culwell, et. al., 2010; Grabbe et al. 2009).

Rwanda is among the most densely population countries in the world with an estimated 11million people and an annual growth rate of 2.8% (CIA Fact Book, 2010). In addition to high population growth, the country also has a high prevalence of HIV, estimated at 2.8% among women of childbearing age (UNAIDS Global AIDS Report, 2009). High population density and growth rate as well as prevalence of HIV among reproductive age women calls attention to the critical issue of access to and use of safe effective contraception among Rwandan women to prevent both unintended pregnancies among HIV positive women and perinatal transmission of HIV to their children. This paper describes the characteristics of and factors associated with contraceptive practice of HIV positive women and compare these with their HIV negative counterparts to highlight the determinants of contraceptive use that can inform effective interventions in meeting the contraceptive needs of women in Rwanda.

### **Methods**

The Rwanda Women's Interassociation Study and Assessment (RWISA) is a prospective observational cohort study of HIV-infected and uninfected Rwandan women. In 2005, 710 HIV-infected and 226 uninfected women enrolled in RWISA, recruited through grassroots women's associations and HIV clinics in Kigali. Eligibility criteria included living in Rwanda and aged >15 years during the 1994 genocide, agreeing to be tested for HIV and willingness to travel to the study site to participate in follow-up visits. By design, half of the study sample were HIV-positive and had experienced rape during the 2004 genocide. Participants provided demographic, medical, psychosocial and behavioral information regarding clinical status, disease progression, HIV-1 exposure risks, quality of life, symptoms of depression and post traumatic stress syndrome (PTSD), contraceptive prevalence and practice, and trauma experience during the 1994 genocide.

Participants were asked about their HIV/CD4 status, whether partners were aware of their status and if they had used any modern contraceptive methods at least once in the previous six months. We compared HIV-positive and HIV-negative women by categorical or categorized characteristics using exact tests for statistical significance. Univariate and multivariate logistic regression models were fit to determine associations with the probability of practicing at least one contraceptive method in the following categories: abstinence, hormonal, condoms, no contraception (no contraceptive method at all). Multivariate models were fit using stepwise selection with a P-value for entry of 0.05 and a P-value for removal of > 0.1.

### **Results**

Demographic and clinical characteristics of 471 participants included in the analysis show nearly a third of HIV positive women had CD4 cell count of less than 200 cells/ $\mu$ l. Slightly less than half (47%) of all respondents were married or currently living with a partner and more than two-thirds had at least one child at the time of the interview. Most of the women were unemployed and a monthly income of less than 10,000 Rwandan Franc (FRW)(~US\$17.40). Sixty percent of HIV-negative and 58% of HIV-positive women respectively reported that partners were aware of their HIV serostatus.

Univariate associations of demographic and clinical characteristics show that 42% of HIV-negative women and 38% of HIV-positive women reported using any contraceptive method in the prior 6 months. Condom use was the most frequently used method and differed by HIV status with 58% of HIV-positive and 18% of HIV-negative women reporting use. There were significant associations between condom use and HIV status, number of living children, partner's knowledge of HIV status, age and income. Use of abstinence was reported by 40% of both HIV-positive and HIV-negative women and was

significantly associated with partners' knowledge of HIV status, marital status, income and ever had sex for cash. Less than 10% of HIV-positive and 20% of HIV-negative women reported using hormonal methods, which has significant associations with HIV/CD4 status, partners' knowledge of HIV status, marital status and income that is above 35000 FRW. Very few women (6% of HIV-negative and 7% of HIV-positive) reported using no contraceptive method during the previous 6 months.

In multivariate analysis, demographic and clinical factors that were significantly independently associated with condom included marital status, age, currently employed, partners' knowledge of HIV status and history of sex for cash. Adjusted odds ratios show that abstinence was significantly independently associated with marital status, HIV status/partners' knowledge and ever had sex for cash. Hormonal contraceptive use was independently more common in women who were married or living with a partner and in HIV-negative women regardless of partner's knowledge of their status compared to HIV-positive women whose partners knew their status. Age and marital status had significant independent associations among those reporting *no contraceptive use* in the prior 6 months.

### **Discussion**

Our study shows that among Rwandan women who did not want to get pregnant, condoms and abstinence were the most practiced methods. The strongest predictors of contraceptive practice were marital/partner status, partner's knowledge of a woman's HIV status, and age. HIV status alone and CD4 count were less important than HIV status combined with partner knowledge of status suggesting that disclosure of a positive HIV status to a partner may be an important contributor to pregnancy prevention in addition to partner protection from HIV. The strong association between condom use and HIV status, number of living children, partners' knowledge of HIV status, age and socioeconomic status also suggest that disease prevention not pregnancy prevention may be the primary reason for condom use. Few Rwandan women, regardless of HIV status use hormonal methods. While this may be due to concerns about the side effects of hormonal methods especially for those who are HIV positive, it highlights the need to further explore and address the reasons for low use of hormonal methods, which are among the most effective contraceptive methods available. That less than 10% of our study population did not report use of any contraception may indicate that a proportion of Rwandan women may still be experiencing barriers to access and use, therefore further studies should explore the characteristics of these women and why they are not using modern contraceptive methods.

### **Conclusion**

Although, many Rwandan women, regardless of HIV status practice contraception, important differences exist between those who are HIV-positive and those who are HIV-negative with regard to contraceptive use. These differences should be highlighted addressed in interventions that seek to improve contraceptive prevalence in this population

### **References**

Culwell Kelly R, Mercel Vekemans, Upeka de Silva, Manuelle Hurwitz, Barbara B. Crane. 2010. Critical gaps in universal access to reproductive health: contraception and prevention of unsafe abortion. *Int J Gynaecol Obstet*. 110 Suppl: Pages S13-6.

Grabbe Kristina, Rob Stephenson, Bellington Vwalika, Yusuf Ahmen, Cheswa Vwalika, Elwyn Chomba, Etienne Karita, Kayetisi Kayitenkore, Amanda Tichacek Susan Allen. 2009. Knowledge, use, and concerns about contraceptive methods among sero-discordant couples in Rwanda and Zambia. *J Womens Health (Larchmt)* 18(9): Page 1449-56.

The Central Intelligence Agency World FactBook. [https://www.cia.gov/library/publications/the-world-factbook`](https://www.cia.gov/library/publications/the-world-factbook)

United Nations AIDS Program (UNAIDS) 2009. Global Report on the AIDS Epidemic. Geneva, Switzerland.

WHO 2010 Guidelines on the use of Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants. <http://www.who.int/hiv/topics/mctct/en/index.html>