



Published in final edited form as:

*AIDS Care*. 2016 ; 28(2): 234–241. doi:10.1080/09540121.2015.1080790.

## Does marital status matter in an HIV hyperendemic country? Findings from the 2012 South African National HIV Prevalence, Incidence and Behaviour Survey

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### Abstract

Recently, South Africa has experienced declining marriage rates and the increasing practice of cohabitation without marriage. This study aims to improve the understanding of the relationship between marital status and HIV in South Africa, an HIV hyperendemic country, through an analysis of findings from the 2012 South African National HIV Prevalence, Incidence and Behaviour Survey. The nationally representative population-based cross-sectional survey collected data on HIV and socio-demographic and behavioural determinants in South Africa. This analysis considered respondents aged 16 years and older who consented to participate in the survey and provided dried blood spot specimens for HIV testing (N=17,356). After controlling for age, race, having multiple sexual partners, condom use at last sex, urban/rural dwelling and level of household income, those who were married living with their spouse had significantly reduced odds of being HIV positive compared to all other marital status groups. HIV incidence was 0.27%

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### Disclosure statement:

No conflicts of interest were declared by the authors.

among respondents who were married living with their spouses; the highest HIV incidence was found in the cohabiting group (2.91%). Later marriage (after age 24) was associated with increased odds of HIV prevalence. Our analysis suggests an association between marital status and HIV prevalence and incidence in contemporary South Africa, where odds of being HIV positive were found to be lower among married individuals who lived with their spouse compared to all other marital status groups. HIV prevention messages therefore need to be targeted to unmarried populations, especially cohabitating populations. As low socioeconomic status, low social cohesion and the resulting destabilization of sexual relationships may explain the increased risk of HIV among unmarried populations, it is necessary to address structural issues including poverty that create an environment unfavourable to stable sexual relationships.

### Keywords

HIV risk; HIV prevalence; HIV incidence; marital status; South Africa

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### Introduction

Marriage in South Africa has been changing dramatically in the past few decades. Marriage rates among black African women aged 15-59 years have declined from 38.7% in 1995 to 31.4 % by 2004 (Kumchulesi, 2009). Posel and Rudwick (2012) concluded that by 2010 the rate of black African women aged 20 years and older who have ever been married was 40% less than that of white women of the same age. They also suggested that as marriage rates decline, cohabitation rates increase. Low marriage rates among black Africans should be considered within a historical and social context, particularly in relation to the disruption of family and relationship structures.

Colonial and apartheid laws created migratory labour systems that forced black African men to work in urban centres designated white areas, while black African women were relegated to rural areas (“Bantustans”). Forced migration and long periods of separation undermined enduring relationships and reduced possibilities of marriage (Preston-Whyte, 1981; Hunter 2006; Posel & Rudwick 2013), creating opportunities for multiple sexual partners (MSPs), particularly for migrant men working in urban areas (Lurie et al., 2003).

Marriage among black Africans was delegitimized during apartheid through the Marriage Act (Act 25 of 1961), which did not recognise customary marriages.<sup>1</sup> In the post-apartheid period, the passage of the Recognition of Customary Marriages Act (Act 120 of 1998) recognised customary marriages and extended social benefits such as pensions, medical aid, inheritance, ownership of assets and liabilities, as well as maintenance in the case of divorce (Budlender, Chobokoane, & Simelane, 2004). In a gendered economy where men earned more than women, the change in the marriage law benefitted black African women more than men and could have deterred black African men from marrying.

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<sup>1</sup>Customary marriages in this paper refer to relationships formalised according to indigenous African rites. Although customary marriage in South Africa can in some instances include polygyny, it is no longer widespread (South African Law Commission, 1999) and thus not included in this analysis of national-level data.

High rates of unemployment among black African men could be a barrier to paying the customary dowry (*lobola*) to the bride's family (Hunter, 2006; Hunter, 2007; Posel & Rudwick, 2013) as well as the costs of hosting marriage ceremonies, which can include both customary and civil religious ceremonies (Hosegood et al., 2009). In the past such expenses would be shared by the man's family, however today the burden is on the bridegroom alone (Posel & Rudwick, 2013). High unemployment rates have also made it difficult for black African women to find marriageable men (Posel & Rudwick 2013), with the probability of marriage having been found to be positively related to growth in black African men's earnings (Casale & Posel, 2010).

The changing patterns of marriage in South Africa and its impact on HIV is not well characterized. In a national South African population-based survey of HIV, HIV prevalence was found lower among married people at 10.5%, in contrast to 24.3% among those going steady and living together, and 14.3% among single people (Shisana et al., 2014). The same report showed that the practice of having MSPs increased in recent years. Having MSPs increase susceptibility to sexually transmitted infections, including HIV, when compared to monogamy (Clark et al., 2006; Leclerc-Madlala, 2004; Shisana et al., 2014). MSPs may be more common among single individuals than among married individuals as there is typically an assumed long-term sexual exclusivity in marriage, suggesting that marriage would be associated with lower risk of HIV (Hattori & Dadoo, 2006; Gumbo, 2010).

Research on the relationship between marital status and HIV in other hyperendemic settings have found similar results. In Uganda, a large cohort study found low incidence of HIV in married or cohabitating persons compared to unmarried persons and that having MSPs increased HIV risk (Nalugoda et al., 2014). Low HIV prevalence was also found among married individuals in Cameroon (Reither & Mumah, 2009).

However, some HIV risk factors are reportedly increased for women in marriage. In South Africa, married individuals have been found less likely to use condoms compared to unmarried individuals (Shisana et al., 2014; Maharaj & Cleland, 2005). Another cross-sectional study in South Africa found married women were less likely to discuss HIV with their partner and less likely to suggest condom use than unmarried women (Jewkes et al., 2003). High rates of male infidelity in marriage have been found in Southern Africa, which can lead to high levels of sero-discordancy (Shandera, 2007; Chemaitelly et al., 2012; Dunkle et al., 2008; De Walque, 2007). Kimani and colleagues (2013) found that HIV prevalence was higher for married respondents than unmarried respondents in urban informal settlements in Kenya. Furthermore, HIV prevalence has been found higher for young married women compared to young unmarried women (Glynn et al., 2001; Kelly et al., 2003), which suggests that HIV could have been contracted during marriage.

Further research is needed on marriage and HIV in hyperendemic settings such as South Africa (Shisana et al., 2004; Setswe & Zuma, 2013). This study aims to improve the understanding of the relationship between marital status and HIV in the South African population given the declining marital rates and increasing practice of cohabitation without marriage.

## Methods

The 2012 South African national population-based HIV household survey was conducted using multistage stratified cluster sampling. A systematic probability sample of 15 households was drawn from each of 1000 randomly selected enumeration areas (EAs) using the 2007 master sample. Consenting participants completed demographic and behavioural questionnaires and were anonymously tested for HIV. The detection of recent infections (used to estimate HIV incidence) was performed on confirmed HIV-positive samples applying a recent infection testing algorithm that used the Limiting-Antigen Avidity Assay (LAG-Avidity EIA, Maxim Biomedical Inc., Rockville, MD, USA) in combination with additional information on antiretroviral treatment exposure and HIV-1 RNA viral load. HIV incidence was calculated as an annual instantaneous rate. Further details are described in the report (Shisana et al., 2014). The study was approved by the Human Science Research Council's Research Ethics Committee and by the Associate Director of Science of the National Centre for HIV and AIDS, Viral Hepatitis, STD and TB Prevention at the U.S. Centers for Disease Control and Prevention.

Data were double captured and verified using CPro (US Census Bureau, 2010). The current analysis was conducted in STATA 12.0 (Stata Corp., College Station, Texas, U.S.) Being married living together was considered distinct from being married living apart because it was hypothesized that these groups had different risk profiles. Being single, divorced or widowed was combined into one analytic group mainly because these individuals were not married and had similar HIV prevalence levels. Tabulations of demographics and sexual behaviour (stratified by sex) are presented by marital status. Based on Chi-squared tests of significance, potential confounders were selected for examining the relationship between marital status and HIV. Simple and multiple logistic regression analyses were conducted to examine the relationship between HIV prevalence and marital status, and the relationship between HIV prevalence and age at first marriage and living together. Simple logistic regression analyses were conducted to examine the relationship between HIV incidence and marital status.

## Results

Of 17,356 respondents aged 16 years or older who provided specimens for HIV testing, 5930 (34.2%) were married living together, 589 (3.4%) were married living separately, 1743 (10.0%) were cohabitating with their partner, 3958 (22.8%) were in a steady relationship but not living with their partner, and 5136 (29.6%) were single, divorced, widowed or other.

As shown in table 1, a greater proportion of male respondents (37.5%) were married living together than female respondents (31.9%). A very low proportion (4.6%) of young participants (aged 16-24) reported being married living together. The rate of being married living together was higher in whites, Indians and other race groups (64.9%) compared to coloureds (38.5%) and black Africans (22.9%). More participants living in formal areas reported being married living together compared to informal areas. A much higher proportion of individuals living in households with incomes above R2500 per month

reported being married living together (46.0%) than did those in households earning less (22.3%).

As shown in table 2, the majority of those single, widowed, divorced, or other reported condom use at last sex and consistent condom use (84.3% and 81.5% for males; 89.6% and 88.0% for females), whereas only a minority of those who were married living together reported condom use at last sex and consistent condom use (23.7% and 21.6% for males; 23.2% and 21.2% for females). More men than women reported MSPs in the past year regardless of marital status ( $p<0.001$ ). Individuals who were in a steady relationship but not cohabitating had the highest proportion reporting MSPs (25.5% for males and 6.4% for females). More women than men were first married before age 24 ( $p<0.001$ ), and more of those married living together were first married before age 24 than those who were married not living together (34.6% and 29.1% for men; 62.5% and 54.0% for women).

HIV prevalence was found highest among males who were married living separately who reported one sexual partner in the past year (22.4%,  $n/N=32/143$ ). The HIV prevalence among males who were cohabitating or going steady with one partner in the past year was also found to be high (17.4%,  $n/N=317/1,826$ ) with a larger absolute number of cases. HIV prevalence was highest among women cohabitating or going steady and who had two or more sexual partners in the past year (32.5%,  $n/N=53/163$ ), while the greatest absolute number of cases and second highest prevalence was found among females who cohabitated or were in a steady relationship and reported only one partner in the past year (28.2%,  $n/N=759/2,689$ ).

Individuals who were married living together had significantly reduced adjusted odds of being HIV positive compared to all other marital status groups, with 0.35, 0.62, 0.42, and 0.61 times the odds of being HIV positive when compared to individuals cohabitating, married living separately, going steady, and being single/divorced/widowed/other, respectively (table 3). Respondents who were older had greater odds of being HIV positive ( $aOR=4.07$  and  $1.20$  for ages 25-49 and 50+, respectively) compared to younger respondents aged 16-24. Non-black African individuals had reduced odds of being HIV positive (0.24 and 0.08 for coloured and other races, respectively) compared to black African individuals. Individuals with household monthly income above R2500 were less likely to be HIV positive ( $aOR=0.83$ ) than individuals with lower income.

Among married respondents, age at first marriage of 25 or older was associated with increased odds of being HIV positive ( $aOR=1.57$ ) compared to individuals married at age 24 or younger, after controlling for current age (table 4). Being married living apart was associated with significantly increased odds of being HIV positive ( $aOR=3.05$ ) compared to being married living together.

An analysis of the relationship between marital status and HIV incidence show that HIV incidence for respondents married living together was lowest at 0.27% compared to all other marital status groups (table 5). The HIV incidence rate for those who were in a relationship and going steady with their sexual partners was 6.6 times greater than the HIV incidence rate for those married living together. Similarly, the HIV incidence rate for those who were

single, widowed or divorced was 7.5 times greater than the HIV incidence rate for those married living together. The highest HIV incidence rate was found in the cohabiting group, which was 10.8 times higher than that of those married living together.

The analysis was repeated using sampling weights, controlling for sex, and removing those previously married from the sample. The findings remained consistent in these additional analyses (data not shown).

## Discussion

The results corroborated previous findings that rates of marriage and living with a spouse were lowest among black Africans followed by coloureds, with the highest rates observed among whites, Indians and other race groups. A correlation between marital status and HIV prevalence was also observed. Individuals who were married and living with their spouses had statistically significantly reduced odds of being HIV positive; this association remained consistent after controlling for age, race, condom use at last sex, having MSPs, urban/rural dwelling and household income in multiple logistic regression.

In South Africa, HIV prevalence is highest among black Africans living in informal settlements (Shisana et al., 2014; Hattori & Doodoo, 2006; Gumbo, 2010; Shisana & Simbayi, 2002) where poverty is widespread and social cohesion is lacking due to the destabilised and temporal character of these settlements. The current study showed that marriage was less common among those living in informal settlements, as well as among individuals with household incomes less than R2500 per month. Low socioeconomic status combined with poor conditions in informal areas may explain the increased risk of HIV among unmarried populations. Buot and colleagues (2014) suggest that being unmarried with a single income may lock individuals in a cycle of poverty and increase HIV risk. Barnett and Whiteside (2006) argue that “income inequality decreases ‘social cohesion,’ the fabric of society that stabilizes sexual relationships” (as cited in Buot et al., 2014, p. 13). Poverty and unemployment reduce the attractiveness of marriage or long-term monogamous relationships (Posel & Rudwick, 2012; Buot et al., 2014; Adimora & Schoenbach, 2002), may encourage cohabitation (Hunter, 2007; 2010), transactional sex and concurrent MSPs as a means of accessing income for both basic and other needs (Dunkle et al., 2004; Leclerc-Madlala, 2008; Fox, 2012; Zembe et al., 2013). Income inequality has been cited for the increasing tendency to delay marriage in the hope that one will find a partner with the means to provide economic stability (Buot et al., 2014; Newmann et al., 2000). Income inequalities, coupled with a history of segregation and ongoing racism, have been identified as contributors to general societal destabilization, decreased marriage levels and high rates of HIV among black African communities (Buot et al., 2014).

This analysis found that although married people tended not to use condoms, they were less likely to have MSPs, a major risk factor for HIV. Being married was found to be less protective when spouses lived separately. This could be explained by the higher rates of MSPs that were found especially for men married living separately. Living apart increased HIV risk as it may facilitate the practice of MSPs, as suggested by previous studies among spouses living apart conducted in Tanzania (Vissers et al., 2008), Zimbabwe (Mbizvo et al.,

1996), and South Africa (Lurie et al., 2003), as well as reflected by a study that found an increased risk of HIV among males who migrated without their families in South Africa (Zungu-Dirwayi et al., 2010) and mobile males in Cameroon (Lydié et al., 2004).

The observation that MSPs were more common among cohabiting individuals, particularly males, than those married living together is a concern, especially since females who cohabitated or were going steady with their partners had the highest HIV prevalence. Cohabiting has become common among the poor as an alternative to marriage, especially among black Africans and coloureds (Posel & Rudwick, 2012); this has been attributed to uncertainty caused by poverty, high levels of unemployment and meagre salaries making marriage unaffordable (i.e., cost of *lobola* and wedding ceremonies) and therefore a less feasible prospect (Hunter, 2007). Cohabitation may arise out of financial need without the same level of relationship commitment as married couples. High levels of MSPs reported by cohabiting individuals may be a reflection of “economic forces” that push poor unmarried cohabiting couples to seek additional transactional partners to boost their incomes (Buot et al., 2014; Newmann et al., 2000; Glynn et al., 2003; Clark, 2004).

Low rates of consistent condom use found among cohabiting individuals and those married living apart is concerning given the high rates of MSPs found in these groups and the increased frequency of sexual intercourse as a result of cohabitation. Condom use is often discontinued after partners develop relational commitment and trust (Metts & Fitzpatrick, 1992; Chimbiri, 2007; Muhwavam 2003). Individuals in relationships can be reluctant to suggest condom use for fear it may signify lack of trust and act as an admission or accusation of infidelity (Allen, Emmers-Sommer & Crowell, 2002).

In this study HIV prevalence was lower among those who married earlier (before age 25), which could be a result of individuals who marry later being more likely to have had an increased number of lifetime partners. However, this finding contradicts other studies that found early marriage exposes young women to HIV (Clarks, 2004; Bruce & Clark, 2004). Therefore the relationship between early marriage and HIV requires further investigation.

Although the evidence presented in this study suggests that marriage and monogamy may reduce odds of being HIV positive, promoting marriage as a HIV prevention strategy is not advisable, especially in low income countries that have a high HIV prevalence such as South Africa. According to Buot and colleagues (2014) “the protective benefits of marriage come from underlying economic securities, not isolated idealization of the institution.” Therefore, it is important to address structural issues that contribute to the decline in marriage rates and lead to an increase in vulnerability particularly among black Africans, and especially black African women. These include socioeconomic factors and income inequality which are directly associated with a decline in marriages not only in South Africa but also in the U.S. and European countries (Buot et al., 2014). Income inequality discourages monogamous relationships and encourages MSPs and transactional sex as a means of survival (Hunter, 2010; Dunkle et al., 2004; Leclerc-Madlala, 2008; Fox, 2012).

With declining marriage rates and poor economic conditions, messages on prevention should be targeted for unmarried and cohabiting people and communicate that living together

unmarried carries the highest risk among all marital statuses in South Africa. HIV prevention efforts should educate about the protective aspects of committed monogamy especially for men, emphasize the importance of consistent condom use, promote HIV status disclosure, and encourage regular couples-based HIV counselling and testing especially for couples who wish to have unprotected sex. Married couples living apart may need targeted HIV prevention education to reduce the likelihood of either partner being a ‘bridge’ for HIV infection. Finally, there is a need to address structural issues that increase income inequality and vulnerability that drive low marriage rates and high rates of MSPs and transactional relationships through economic policies that empower poor people; for example, through poverty eradication programmes that offer income generation schemes.

## Acknowledgments

This study is an original in-depth analysis of findings related to marital status and HIV prevalence first presented in the overall study report (Shisana et al., 2014. *South African National HIV Prevalence, Incidence and Behaviour Survey, 2012*. HSRC Press: Cape Town.) The authors would like to acknowledge the contributors to the study report, as well as the study participants.

### Funding:

This work was supported by the President’s Emergency Plan for AIDS Relief (PEPFAR) through the Centers for Disease Control and Prevention (CDC) under the terms of Cooperative Agreement Numbers <5UGPS000570-05>, <3U2GGH00357-02> and <U2GPS001328>. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC. This work was also supported by the Johns Hopkins University Center for AIDS Research under grant <1P30AI094189>; and the National Institutes of Health under grant <T32AI102623>.

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**Table 1**

Demographic factors of South Africans aged 16 and older by marital status, 2012.

|                             | Married, Living Together (n=5,930) |      | Married, Living Separate (n=589) |     | Cohabiting (n=1,743) |      | Going Steady (n=3,958) |      | Single, Divorced, Widowed, other (n=5,136) |      | Chi-squared P-value |
|-----------------------------|------------------------------------|------|----------------------------------|-----|----------------------|------|------------------------|------|--|------|---------------------|
|                             | n                                  | %    | n                                | %   | N                    | %    | n                      | %    | n  | %    |                     |
| <b>(N=17,356)</b>           |                                    |      |                                  |     |                      |      |                        |      |  |      |                     |
| <b>Sex</b>                  |                                    |      |                                  |     |                      |      |                        |      |  |      | <0.001              |
| Male                        | 2669                               | 37.5 | 221                              | 3.1 | 743                  | 10.4 | 1797                   | 25.2 | 1692                                       | 23.8 |                     |
| Female                      | 3261                               | 31.9 | 368                              | 3.6 | 1000                 | 9.8  | 2161                   | 21.1 | 3444                                       | 33.7 |                     |
| <b>Age categories</b>       |                                    |      |                                  |     |                      |      |                        |      |  |      | <0.001              |
| 16-24                       | 154                                | 4.6  | 16                               | 0.5 | 307                  | 9.2  | 1880                   | 56.6 | 963  | 29   |                     |
| 25-49                       | 3050                               | 36.4 | 348                              | 4.2 | 1158                 | 13.8 | 1970                   | 23.5 | 1843                                       | 22   |                     |
| 50 or older                 | 2725                               | 48.1 | 225                              | 4   | 278                  | 4.9  | 107                    | 1.9  | 2328                                       | 41.1 |                     |
| <b>Race</b>                 |                                    |      |                                  |     |                      |      |                        |      |  |      | <0.001              |
| Black African               | 2388                               | 22.9 | 474                              | 4.5 | 1155                 | 11.1 | 3163                   | 30.3 | 3255                                       | 31.2 |                     |
| Coloured                    | 1382                               | 38.5 | 59                               | 1.6 | 451                  | 12.6 | 549                    | 15.3 | 1144                                       | 31.9 |                     |
| Other (White/Indian/ Other) | 2156                               | 64.9 | 56                               | 1.7 | 137                  | 4.1  | 244                    | 7.3  | 730  | 22   |                     |
| <b>Locality</b>             |                                    |      |                                  |     |                      |      |                        |      |  |      | <0.001              |
| Urban Formal                | 3941                               | 41   | 237                              | 2.5 | 775                  | 8.1  | 1742                   | 18.1 | 2910                                       | 30.3 |                     |
| Urban Informal              | 419                                | 21.6 | 75                               | 3.9 | 289                  | 14.9 | 611                    | 31.4 | 550  | 28.3 |                     |
| Rural Informal              | 878                                | 22.5 | 213                              | 5.5 | 265                  | 6.8  | 1240                   | 31.8 | 1306                                       | 33.5 |                     |
| Rural Formal                | 692                                | 36.3 | 64                               | 3.4 | 414                  | 21.7 | 365                    | 19.2 | 370  | 19.4 |                     |
| <b>Household Income</b>     |                                    |      |                                  |     |                      |      |                        |      |  |      | <0.001              |
| Under 2500 rand             | 1955                               | 22.3 | 345                              | 3.9 | 1106                 | 12.6 | 2397                   | 27.4 | 2950                                       | 33.7 |                     |
| Above 2500 rand             | 3547                               | 46   | 219                              | 2.8 | 575                  | 7.5  | 1436                   | 18.6 | 1937                                       | 25.1 |                     |

**Table 2**

Sexual behaviour of South African males and females aged 16 and older by marital status, 2012.

| <b>Males</b>                       |      |                           |      |            |      |                                |      |  |      |   |   | Chi-square P-value |
|------------------------------------|------|---------------------------|------|------------|------|--------------------------------|------|--|------|---|---|--------------------|
| Married - Living Together          |      | Married - Living Separate |      | Cohabiting |      | Going Steady - Living Separate |      | Other - Single, Divorced, Widowed, other |      | N | % |                    |
| N                                  | %    | N                         | %    | N          | %    | N                              | %    | N  | %    |   |   |                    |
| 606                                | 23.7 | 88                        | 41.3 | 198        | 27.5 | 1067                           | 61.3 | 1379                                     | 84.3 |   |   | <0.001             |
| 557                                | 21.6 | 84                        | 38.7 | 167        | 22.9 | 967                            | 54.8 | 1348                                     | 81.5 |   |   | <0.001             |
| Multiple Partners - past 12 months |      |                           |      |            |      |                                |      |  |      |   |   | <0.001             |
| 397                                | 15.3 | 45                        | 20.7 | 36         | 4.9  | 145                            | 8.2  | 892                                      | 53.8 |   |   |                    |
| 2121                               | 81.5 | 143                       | 65.9 | 648        | 88.4 | 1178                           | 66.3 | 523                                      | 31.5 |   |   |                    |
| 84                                 | 3.2  | 29                        | 13.4 | 49         | 6.7  | 454                            | 25.5 | 243                                      | 14.7 |   |   |                    |
| Age at first marriage              |      |                           |      |            |      |                                |      |  |      |   |   | 0.166              |
| 883                                | 34.6 | 58                        | 29.1 | -          | -    | -                              | -    | -  | -    |   |   |                    |
| 1667                               | 65.4 | 141                       | 70.9 | -          | -    | -                              | -    | -  | -    |   |   |                    |
| <b>Females</b>                     |      |                           |      |            |      |                                |      |  |      |   |   | Chi-square P-value |
| Married - Living Together          |      | Married - Living Separate |      | Cohabiting |      | Going Steady - Living Separate |      | Other - Single, Divorced, Widowed, other |      | N | % |                    |
| N                                  | %    | N                         | %    | N          | %    | N                              | %    | N  | %    |   |   |                    |
| 730                                | 23.2 | 165                       | 46.6 | 282        | 28.9 | 1162                           | 55.2 | 3005                                     | 89.6 |   |   | <0.001             |
| 670                                | 21.2 | 151                       | 42.2 | 222        | 22.6 | 981                            | 46.1 | 2959                                     | 88.0 |   |   | <0.001             |
| Multiple Partners - past 12 months |      |                           |      |            |      |                                |      |  |      |   |   | <0.001             |
| 484                                | 15.2 | 123                       | 34.1 | 67         | 6.7  | 203                            | 9.5  | 2648                                     | 78.5 |   |   |                    |
| 2678                               | 84.1 | 233                       | 64.5 | 901        | 90.6 | 1788                           | 84   | 652                                      | 19.3 |   |   |                    |
| 22                                 | 0.7  | 5                         | 1.4  | 26         | 2.6  | 137                            | 6.4  | 73                                       | 2.2  |   |   |                    |
| Age at first marriage              |      |                           |      |            |      |                                |      |  |      |   |   | <0.001             |
| 1957                               | 62.5 | 182                       | 54.0 | -          | -    | -                              | -    | -  | -    |   |   |                    |
| 1174                               | 37.5 | 155                       | 46.0 | -          | -    | -                              | -    | -  | -    |   |   |                    |

**Table 3**

Associations with HIV prevalence among South Africans aged 16 and older, 2012.

| VARIABLES  | N=17,455  |                 | N=15,882  |                |
|--|-----------|-----------------|-----------|----------------|
|  | OR        | 95% CI          | aOR       | 95% CI         |
| <b>Marital/Relationship Status</b>                       |           |                 |           |                |
| Married Living Together vs Married Living Separate       | 0.289***  | 0.228-0.365     | 0.621***  | 0.478-0.805    |
| Married Living Together vs Cohabiting                    | 0.199***  | 0.170-0.231     | 0.348***  | 0.292-0.413    |
| Married Living Together vs Going Steady                  | 0.226***  | 0.198-0.257     | 0.417***  | 0.357-0.489    |
| Married Living Together vs Single/Divorced/Widowed/Other | 0.388***  | 0.340-0.443     | 0.609***  | 0.519-0.714    |
| <b>Age</b>   |           |                 |           |                |
| 15-24  | REF       | REF             | REF       | REF            |
| 25-49  | 2.423***  | 2.140 - 2.743   | 4.074***  | 3.546 - 4.681  |
| 50+  | 0.637***  | 0.546 - 0.742   | 1.201**   | 1.004 - 1.436  |
| <b>Multiple Partnerships in past year</b>                | 1.245***  | 1.059 - 1.463   | 0.902     | 0.751 - 1.082  |
| <b>Condom use at last sex</b>                            | 1.769***  | 1.618 - 1.933   | 1.742***  | 1.559 - 1.946  |
| <b>Race</b>  |           |                 |           |                |
| Black African  | REF       | REF             | REF       | REF            |
| Coloured   | 0.186***  | 0.159 - 0.217   | 0.236***  | 0.198 - 0.282  |
| Other (White, Indian, other)                             | 0.0435*** | 0.0317 - 0.0596 | 0.0795*** | 0.0563 - 0.112 |
| <b>Geotype</b>   |           |                 |           |                |
| Urban Formal   | REF       | REF             | REF       | REF            |
| Urban Informal   | 3.513***  | 3.106 - 3.974   | 1.411***  | 1.224 - 1.627  |
| Rural Informal   | 2.666***  | 2.403 - 2.958   | 1.165**   | 1.030 - 1.318  |
| Rural Formal   | 2.071***  | 1.803 - 2.378   | 1.369***  | 1.167 - 1.608  |
| <b>Household Income over 2500 rand per month</b>         | 0.436***  | 0.398 - 0.478   | 0.831***  | 0.747 - 0.925  |

**Table 4**

Associations with HIV prevalence among married South Africans aged 16 and older, 2012.

| VARIABLES                    | N=6,519  |               | N=6,217  |               |
|------------------------------|----------|---------------|----------|---------------|
|                              | OR       | 95% CI        | aOR      | 95% CI        |
| <b>Age at first marriage</b> |          |               |          |               |
| Married at 24 or younger     | REF      | REF           | REF      | REF           |
| Married at 25 or older       | 1.587*** | 1.296 - 1.943 | 1.569*** | 1.273 - 1.935 |
| <b>Cohabitation</b>          |          |               |          |               |
| Married - Living Together    | REF      | REF           | REF      | REF           |
| Married - Living Separately  | 3.465*** | 2.739 - 4.384 | 3.053*** | 2.362 - 3.946 |
| <b>Age</b>                   |          |               |          |               |
| 16-24                        | REF      | REF           | REF      | REF           |
| 25-49                        | 1.497    | 0.824 - 2.721 | 1.05     | 0.568 - 1.941 |
| 50+                          | 0.486**  | 0.262 - 0.902 | 0.350*** | 0.185 - 0.663 |

**Table 5**

Bivariate associations with HIV incidence among South Africans aged 16 and older, 2012.

|                                      | <b>HIV Incidence (95% CI)</b> |
|--------------------------------------|-------------------------------|
| <b>16 years and older</b>            |                               |
| Married (living with their partners) | 0.27 (0.24 - 0.30)            |
| Cohabiting                           | 2.91 (2.07 – 3.76)            |
| Going steady                         | 1.79 (1.25 - 2.32)            |
| Other (single, divorced, widowed)    | 2.02 (1.42 - 2.62)            |

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