

## ORIGINAL RESEARCH ARTICLE

# Determinants of Condom Use among Selected Migrant Commercial Farm Workers in South Africa

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## Abstract

Previous studies have shown that HIV prevalence rates are relatively high while condom use is low in migrant communities in South Africa. Using data from the Integrated Biological and Behavioural Surveillance Survey implemented by the International Organisation for Migration in 2010 among farm workers, this study seeks to investigate factors associated with condom use among migrant men and women in selected commercial farms in two provinces of South Africa. The study analysed 943 sexually active non-South Africans working in selected farms. Data analysis was undertaken at univariate, bivariate and multivariate levels using logistic regression producing odds ratios to examine the associations at 5% level of significance. The results showed that access to free condoms, financial stability and staying away from spouse increased the odds of condom use among migrant farm workers in Limpopo and Mpumalanga. Amongst men being financially stable and having access to free condoms significantly increased the odds of using condoms. Amongst women being married reduced the odds of using condoms while access to free condoms and living away from spouse significantly increased condom use. Determinants of condom use vary between male and female migrants. HIV prevention policies and programmes targeting migrant farm workers should be gender sensitive. (*Afr J Reprod Health* 2016; 20[2]: 13-26).

**Keywords:** HIV prevention, migrant labour, risky behaviour, vulnerabilities.

## Résumé

Des études antérieures ont montré que les taux de prévalence du VIH sont relativement élevés alors que l'utilisation du préservatif est faible dans les communautés des immigrés en Afrique du Sud. En utilisant les données de l'Enquête sur la surveillance biologique et comportementale intégrée mis en œuvre par l'Organisation internationale pour la migration en 2010 au sein des travailleurs agricoles, cette étude vise à étudier les facteurs associés à l'utilisation du préservatif chez les hommes et les femmes immigrés dans les exploitations commerciales sélectionnées dans deux provinces d'Afrique du Sud. L'étude a analysé 943 non Sud-Africains sexuellement actifs travaillant dans des fermes sélectionnées. L'analyse des données a été réalisée aux niveaux univariés, bivariés et multivariés en utilisant la régression logistique produisant des rapports de cotes pour examiner les associations au niveau de signification de 5%. Les résultats ont montré que l'accès à des préservatifs gratuits, la stabilité financière et de rester loin du conjoint ont augmenté les chances de l'utilisation du préservatif parmi les travailleurs agricoles immigrés au Limpopo et Mpumalanga. Chez les hommes étant financièrement stable et ayant accès à des préservatifs gratuits ont augmenté de manière significative les chances de l'utilisation des préservatifs. Chez les femmes, le fait d'être mariées a réduit les chances d'utiliser des préservatifs alors que l'accès aux préservatifs gratuits et d'habiter loin du conjoint a augmenté de manière significative l'utilisation du préservatif. Les déterminants de l'utilisation du préservatif varient entre les hommes et les femmes immigrées. Les politiques et les programmes de prévention du VIH ciblant les travailleurs agricoles immigrés devraient être sensibles au genre. (*Afr J Reprod Health* 2016; 20[2]: 13-26).

**Mots-clés:** prévention du VIH, travail des immigrés, comportements à risque, vulnérabilités

## Introduction

South Africa continues to be one of the countries worst affected by the HIV and AIDS pandemic. As of midyear 2014, an estimated 5.51 million people were living with HIV and AIDS in South Africa<sup>1</sup>. Prevalence was estimated at 17% among

those aged 15 to 49, with younger adults being particularly affected. In Zambia, the HIV prevalence among young women aged 15–24 is more than twice that of men in the same age category<sup>2</sup>. A number of factors resulting from gender inequity contribute to this difference in prevalence. Previous studies have identified

migration as one of the major drivers of HIV and AIDS especially in the developing world<sup>3</sup>. Over the years South Africa has received vast numbers of immigrants from all over the continent, as well as abroad. Since the apartheid era, South Africa has made use of migrant labour especially on commercial farms and mines<sup>4,5</sup>. Since the apartheid era, South Africa has made use of migrant labour especially on commercial farms and mines<sup>4,5</sup>. Migrants have been identified in the South Africa National Strategic Plan (2012-2016) as one of the key populations at risk of HIV infection and should be targeted with specific prevention, care and treatment interventions specific to them. Studies worldwide have discovered higher rates of HIV infection among migrant and mobile populations when compared to the general population<sup>5-7</sup>. A factor common in many settings is the low condom use among migrants. A study by Campbell, among 42 mine workers in South Africa established that migrants exhibited high risk sexual behavior such as having multiple concurrent partners and non-use of condoms<sup>8</sup>. Commercial farms have been identified as high risk communities where migrants live and work<sup>8</sup>. Several studies have reported high rates of sexual violence as well as high risky sexual behavior on commercial farms<sup>4,9</sup>. According to the Human Rights Watch (2012), sexual violence and harassment in the agricultural workplace are fostered by a severe imbalance of power between employers and supervisors and their low-wage employees.

During acts of sexual violence condom use is extremely low. This is exacerbated when employees are immigrants<sup>10</sup>. Thus being a migrant farm worker can be equated with double jeopardy, more so when one is a woman<sup>11</sup>. This can be attributed to the limited exposure to health education information, access and utilisation of health services, cultural, linguistic, educational and geographic barriers which place migrant farm workers at increased risk for HIV, as well as a host of other communicable diseases<sup>12</sup>. The use of condoms is one of the major strategies for combating sexually transmitted infections including HIV. In Southern Africa, as in many parts of the world, the use of condoms has been met with resistance especially from the traditionalists, cultural and religion moralists<sup>13,14</sup>.

Whilst both men and women have negative attitudes towards condom use, women are in a weaker position to negotiate condom use because of their economic and social dependence on men. This is further exacerbated if the women are migrants<sup>15</sup>. Several socio-economic, cultural and religious factors have been identified as barriers to condom use, and these vary in influence between men and women<sup>16</sup>.

In South Africa, and worldwide, various studies on condom use have concentrated more on sex workers, drug users and Men who have Sex with Men (MSM) and their vulnerability<sup>16-18</sup>. In migration literature there are few studies of gender differences in sexual behaviors, although it is argued that levels of female migration are increasing<sup>8</sup>. The current study addresses two gaps in the literature. It focuses on the migrant farm workers, which to date have not been extensively studied, while acknowledging the diverse forms of migration and how they impact on health outcomes differently. Equally important is that this study analyses men and women separately, as gender is a significant differential in the process of migration and in condom use. The research question addressed the factors associated with condom use among male and female migrants working in commercial farms in Mpumalanga and Limpopo. The main objective was to determine factors associated with condom use among migrant farm workers, and how they differ between men and women.

### Theoretical framework

In analysing the factors associated with condom use, this study borrows from the Resource Theory of Power as it is applied by Parrado *et al* and the Conceptual Model of Temporary Migration and HIV risk behaviour by Yang<sup>19,20</sup>. The former theory alludes to the power dynamics in relationships, while the latter conceptualises the connection between post-migration socio-economic environments and HIV risk behaviours. Condom use between couples relies mainly on power dynamics between the partners. Placing migration into the equation, the power imbalances can either be facilitated or minimised by the post-migration socio-economic environments. Parrado

*et al* integrates migration into the resource theory of relationship power. Their study draws on original data collected in the USA and four sending communities in Mexico to examine differences in women's relationship power that are associated with migration and residence in the United States. They analyse the personal, relationship, and social resources that condition the association between migration and women's power. Echoing Xu and Lai, Parrado *et al* posit that personal resources such as education, employment and age are direct determinants of women's power. Relationships characteristics that can either increase or decrease women's (negotiating) power include marital status, having children, length of the relationship and differences in resources between partners. Social resources include social networks, social support and living arrangements<sup>19</sup>. On the other hand, Yang presents an integrated framework conceptualising the connection between temporary migration and migrants' HIV risk behaviours<sup>20</sup>. The study draws attention to the post-migration social and economic environments in which most migrants live and work in places of destination in understanding their heightened HIV risk behaviours. Yang's proposed framework has been tested empirically with data from a population-based survey conducted in 2003 in southwestern China. Yang argues that migration, particularly when it is temporary, is more than a transporter of HIV; it breeds broader behavioural changes that make migrants vulnerable to risky behaviors. This emphasizes the importance of post-migration socio-economic milieus in understanding migrants' HIV risk behaviors<sup>20</sup>.

Combining these two theories, this paper thus sought to identify the post-migration socio-economic factors that can influence power imbalances in intimate relationships. These factors are assumed to either increase or decrease the negotiating power of using condoms in both male and female migrant farm workers. One example of the assumptions proposed in this paper is that female migration can increase the economic standing of women and thereby increase their negotiating power to use condoms.

It is evident that literature discussed here explores the different facets of migration and

health. Although HIV infection rates are dropping in most parts of the world, there are still key populations that are lagging behind. Vulnerable migrants such as migrant farm workers are at higher risk of HIV infection. The risk is increased by many factors such as physical barriers to information and health services, language barriers, as well as risky behavioral factors such as engaging in unsafe sex and having concurrent partners. Various socio-cultural and socio-economic factors have been identified as barriers or facilitators of condom use.

## Methods

### *Study design and data source*

This is a cross sectional study that made use of secondary data from the Integrated Biological and Behavioural Surveillance Survey (IBBSS) conducted by International Organisation of Migration (IOM) from March to May 2010 on 23 commercial farms in the Malelane, Musina and Tzaneen areas, involving 2,810 farm workers. The farms that participated in the survey were part of the Ripfumelo Programme established by IOM in partnership with USAID in 2009. This programme is an HIV prevention and care initiative that reaches out to 20,000 commercial farm workers in South Africa's Limpopo and Mpumalanga provinces. The project addresses individual and contextual factors that increase HIV vulnerability among farm workers. These include the mobility and migratory factors associated with their work, such as limited access to services, gender dynamics and lack of healthier recreational activities. The main purpose of this survey was to obtain information on the prevalence of HIV among farm workers and to document their behaviours, perceptions and attitudes regarding HIV related issues<sup>21</sup>.

### *Study Population*

The population for this study comprised of sexually active male and female migrants in Malelane, Tzaneen and Musina who were employed on selected farms, either on a permanent or seasonal basis.

The migration status was determined by an individual's citizenship. In this population the migrants originated mainly from Zimbabwe, Mozambique, Swaziland and Lesotho. However, since migrants from Lesotho and other countries were less than 1%, they were removed from this study. Sexual activity therefore referred to engagement in sexual intercourse in the last 12 months preceding the interview. Those who reported being sexually inactive in the last year were removed from this study. The initial study comprised 1,119 migrants. However, after removing those who were sexually inactive and those from Lesotho and other countries, the total study population was reduced to 943 male and female migrant farm workers.

### **Sampling method**

According to the IBBSS report, the sample size was based on the HIV prevalence estimate among permanent and non-permanent employees on commercial farms in the three sites in two provinces Mpumalanga and Limpopo. The terms of reference for the IBBSS study ensured that the sample size was sufficient to ensure power to calculate statistically significant findings at 95% confidence interval on selected key indicators, one of which was condom use at last sexual encounter. Based on the previous HIV prevalence rate of 28.5% (IOM 2009), the research team assumed that the HIV prevalence among the current study population was 30% and that there was roughly a 50% split in the study population between men and women and that a similar level of accuracy around the HIV prevalence was required for both sexes. Assuming random sampling, a sample size of 1,191 men and 1,191 women (a total sample of 2,382) was drawn up. This was approximately 41% of all employees. However, the study targeted more workers than 2,382, approximately 3,000, because it was assumed that not everyone targeted would participate and that some samples may get damaged<sup>21</sup>.

In regards to selecting the sample, all farms that were part of the Ripfumelo Project participated in this survey. The ideal sampling methodology would have been to obtain a list of all farm employees and to randomly select

individuals to participate. However, this approach was not feasible in the farm setting because of logistical and production concerns. Such an approach was also likely to result in concerns about confidentiality if employees were called by name. Instead, a cluster sampling approach was used. For each participating farm a list was obtained of all employees on the farm along with their site of work (e.g. packing, picking and laboratory). The research team then attempted to sample a proportionate number of employees from each site in order to make up the predetermined sample size for that farm<sup>24</sup>. The selected participants were called in and had the study explained to them. They were then given the liberty to join in or walk away. In the end 2,810 farmworkers were interviewed and gave DBS specimens. Of these 1,119 were migrants.

### **Breakdown of study population for IBBSS**

The population size was based on the size of the workforce in farms participating in the Ripfumelo project. Participation in the IBBSS was measured by the proportion of those employees who after attending the introductory talk then completed questionnaires:

1. Tzaneen area in Limpopo: 10 farms were participating with approximately 1,000 employees. The sample size for the IBBSS was 500; 460 attended the talk and 455 completed the questionnaire.
2. Malelane area in Mpumalanga: eight farms were participating with approximately 3,220 employees. The sample size for the IBBSS was 1,440; 1,586 attended the talk and 1,586 completed the questionnaire.
3. Musina area in Limpopo: five farms were participating with approximately 1,600 employees. The sample size for the IBBSS was 700; 787 attended the talk and 774 completed the questionnaire.

### **Questionnaires development and administration**

Questionnaires comprised of two sections. Section one obtained demographic and socio-economic

data and section two obtained data on levels of knowledge, attitudes, practices and behaviour. The questionnaires were administered by trained facilitators, due to the low levels of literacy among the participants. A one-day training workshop was held at each site with the facilitators. The workshop covered questionnaire administration techniques and the importance of maintaining a non-judgmental attitude. In addition to the workshop, formal debriefing sessions were held at the end of each day to discuss challenges and identify problems<sup>21</sup>.

### **Variable definition and measurement**

The outcome variable was condom use and the question asked was ‘Did you use a condom the last time you had sex?’ and the response was either ‘Yes-1 or No-0’, making it a dichotomous variable and the basis for using binary logistic regression. The category of interest was ‘Yes’. Sex was the main explanatory variable in this study. Demographic factors included age and marital status. Other explanatory variables included transactional sex denoted by the question ‘I sometimes give/receive money or gifts in exchange for sex’. Financial stability in this study was denoted by the following statement; ‘I always have sufficient money to buy food for myself’. The responses were; ‘Agree strongly, Agree, Unsure/ No response, Disagree and Disagree strongly’. For easy analysis all the variables with such responses were dichotomised into two categories: ‘agree’ comprising ‘strongly agree’ and ‘agree’, and ‘disagree’ constituting ‘disagree’ and ‘strongly disagree’. Those who answered ‘unsure’ or ‘no response’ were removed from the sample. For having sex while drunk, the following question was asked, ‘In the past month, have you had sex while you were drunk?’ with ‘Yes or No’ as the responses. Sexual abuse in this study was represented by the question, ‘In the past 12 months, have you been forced to have sex against your will?’, of which the responses were either ‘Yes or No’ Participants were asked if they had obtained free condoms at their workplace in the past 12 months and they had to answer ‘Yes or No’. They were also asked whether they had attended a meeting or function about HIV/AIDS at

their workplace in the past 12 months with either ‘Yes or No’ as the responses. A question was asked about where one’s family/ spouse live when they work. Responses to the question included; ‘We live together’, ‘My family lives in my country of origin’, ‘My family lives at our rural home’ or ‘farm’ and ‘Other’. For easy analyses in this study, the variable was dichotomised into categories ‘living together’ and ‘living away’, the latter comprising those who left their spouses in the country of origin or in the rural area or any other area.

### **Data analyses**

Data was analysed using Stata version 12 at three levels: univariate, bivariate and multivariate. At univariate level, cross tabulations were done to come up with frequency tables. These were used to describe the population under study. To measure the association of each independent variable and the outcome at bivariate analyses, binary logistic regression was used. Statistical significance was determined by the p-values at 95% level of significance. Lastly, binary logistic regression was employed at multivariate analysis. The model is expressed as follows;

$$\text{Logit}(p) = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + \dots + b_{10} X_{10}$$

Where p = dependent variable (condom use);  
 $b_0, b_1, \dots, b_{10}$  = log odds;  $X_1, X_2, \dots, X_{10}$  = explanatory variables<sup>23</sup>. Odds ratios and confidence intervals were used in the interpretation of results.

### **Model building**

Following the descriptive statistics, the bivariate analyses were conducted in order to shortlist variables for multivariate analysis. Variables that did not show significant association with the outcome on their own were excluded from further analysis. For multivariate analysis, stepwise backward elimination was used starting with a complex model with all the variables that were significant at bivariate level. To come up with the final model, variables were removed sequentially until a further deletion led to a significantly poorer fit. To assess if the model fits well, the Pearson  $\chi^2$  goodness-of-fit test was conducted and the

**Table1:** Profile of the Study Population from IOM's IBBSS Study in Mpumalanga and Limpopo

| <b>Characteristic</b>                    | <b>Combined Population (n) (%)</b> |       | <b>Male Population (n) (%)</b> |       | <b>Female Population (n) (%)</b> |       |
|--|------------------------------------|-------|--------------------------------|-------|----------------------------------|-------|
| <b>Sexual activity in last 12 months</b> |                                    |       |                                |       |                                  |       |
| Yes                                      | 935                                | 100   | 573                            | 61.28 | 362                              | 38.72 |
| <b>Condom use in last sexual act</b>     |                                    |       |                                |       |                                  |       |
| Yes                                      | 381                                | 41.1  | 260                            | 46.02 | 121                              | 33.33 |
| No                                       | 546                                | 58.9  | 305                            | 53.98 | 242                              | 66.67 |
| Total                                    | 927                                | 100   | 565                            | 100   | 363                              | 100   |
| <b>Citizenship</b>                       |                                    |       |                                |       |                                  |       |
| Swaziland                                | 190                                | 20.65 | 96                             | 17.08 | 94                               | 26.26 |
| Mozambique                               | 333                                | 36.2  | 236                            | 41.99 | 97                               | 27.09 |
| Zimbabwe                                 | 397                                | 43.15 | 230                            | 40.93 | 167                              | 46.65 |
| Total                                    | 920                                | 100   | 562                            | 100   | 358                              | 100   |
| <b>Province</b>                          |                                    |       |                                |       |                                  |       |
| Mpumalanga (Malelane)                    | 559                                | 56.6  | 356                            | 63.7  | 203                              | 36.3  |
| Limpopo (Tzaneen and Musina)             | 428                                | 43.4  | 247                            | 59.1  | 181                              | 41.0  |
| <b>Age</b>                               |                                    |       |                                |       |                                  |       |
| 15-24                                    | 183                                | 19.41 | 101                            | 17.53 | 83                               | 22.55 |
| 25-34                                    | 370                                | 39.24 | 220                            | 38.19 | 150                              | 40.76 |
| 35-44                                    | 243                                | 25.77 | 143                            | 24.83 | 100                              | 27.17 |
| 45+                                      | 147                                | 15.59 | 112                            | 19.44 | 35                               | 9.51  |
| Total                                    | 943                                | 100   | 576                            | 100   | 368                              | 100   |
| <b>Marital status</b>                    |                                    |       |                                |       |                                  |       |
| Single                                   | 229                                | 24.52 | 138                            | 24.17 | 92                               | 25.27 |
| Married                                  | 667                                | 71.41 | 425                            | 74.43 | 242                              | 66.48 |
| Previously married                       | 38                                 | 4.07  | 8                              | 1.4   | 30                               | 8.24  |
| Total                                    | 934                                | 100   | 571                            | 100   | 364                              | 100   |
| <b>Sex for money</b>                     |                                    |       |                                |       |                                  |       |
| Agree                                    | 122                                | 13.03 | 71                             | 12.39 | 51                               | 14.05 |
| Disagree                                 | 814                                | 86.97 | 502                            | 87.61 | 312                              | 85.95 |
| Total                                    | 936                                | 100   | 573                            | 100   | 363                              | 100   |
| <b>Sex for job</b>                       |                                    |       |                                |       |                                  |       |
| Agree                                    | 85                                 | 9.01  | 46                             | 7.99  | 39                               | 10.6  |
| Disagree                                 | 858                                | 90.99 | 530                            | 92.01 | 329                              | 89.4  |
| Total                                    | 943                                | 100   | 576                            | 100   | 368                              | 100   |
| <b>Financial stability</b>               |                                    |       |                                |       |                                  |       |
| Agree                                    | 527                                | 57.34 | 337                            | 59.75 | 191                              | 53.65 |
| Disagree                                 | 392                                | 42.66 | 227                            | 40.25 | 165                              | 46.35 |
| Total                                    | 919                                | 100   | 564                            | 100   | 356                              | 100   |
| <b>Attended HIV function</b>             |                                    |       |                                |       |                                  |       |
| Yes                                      | 623                                | 67.86 | 383                            | 68.15 | 240                              | 67.23 |
| No                                       | 295                                | 32.14 | 179                            | 31.85 | 117                              | 32.77 |
| Total                                    | 918                                | 100   | 562                            | 100   | 357                              | 100   |
| <b>Forced Sex</b>                        |                                    |       |                                |       |                                  |       |
| Yes                                      | 134                                | 14.32 | 70                             | 12.24 | 65                               | 17.81 |
| No                                       | 802                                | 85.68 | 502                            | 87.76 | 300                              | 82.19 |
| Total                                    | 936                                | 100   | 572                            | 100   | 365                              | 100   |
| <b>Sex while drunk</b>                   |                                    |       |                                |       |                                  |       |
| Yes                                      | 162                                | 17.29 | 123                            | 21.43 | 40                               | 10.99 |
| No                                       | 775                                | 82.71 | 451                            | 78.57 | 324                              | 89.01 |
| Total                                    | 937                                | 100   | 574                            | 100   | 364                              | 100   |
| <b>Free access to condoms</b>            |                                    |       |                                |       |                                  |       |
| Yes                                      | 848                                | 90.31 | 522                            | 91.26 | 326                              | 88.59 |
| No                                       | 91                                 | 9.69  | 50                             | 8.74  | 42                               | 11.41 |
| Total                                    | 939                                | 100   | 572                            | 100   | 368                              | 100   |
| <b>Living with family</b>                |                                    |       |                                |       |                                  |       |
| Together                                 | 505                                | 54.89 | 278                            | 49.64 | 228                              | 63.16 |
| Away                                     | 415                                | 45.11 | 382                            | 50.36 | 133                              | 36.84 |
| Total                                    | 920                                | 100   | 660                            | 100   | 361                              | 100   |

\*The totals are inconsistent due to missing values

**Table 2:** Unadjusted Odds Ratio (and Confidence Interval) from Logistic Regression Identifying Socio-economic, Behavioral and Demographic Factors Associated with Migrant's Condom Use, IBBSS 2010

| <b>Risk factors</b>                           | <b>Migrant farm workers OR (CI)</b> | <b>Male migrant farm workers OR (CI)</b> | <b>Female migrant farm workers OR (CI)</b> |
|---|-------------------------------------|--|--|
| <b>Age</b>                                    |                                     |  |  |
| 15-24   | RC                                  | RC                                       | RC   |
| 25-34   | 0.87 (0.61-1.25)                    | 0.84 (0.52-1.34)                         | 0.87(0.49-1.56)                            |
| 35-44   | 0.95 (0.64-1.40)                    | 0.81 (0.48-1.36)                         | 1.15 (0.63-2.14)                           |
| 45+   | 0.89 (0.57-1.38)                    | 0.73(0.42-1.26)                          | 0.94 (0.40-2.20)                           |
| <b>Marital Status</b>                         |                                     |  |  |
| Single  | RC                                  | RC                                       | RC   |
| Married                                       | 0.66 (0.49-0.89)*                   | 0.78(0.53-1.16)                          | 0.46(0.28-0.77)*                           |
| Previously married                            | 1.26 (0.63-2.54)                    | 2.30 (0.58-15.4)                         | 1.13 (0.49-2.63)                           |
| <b>Sex for money</b>                          |                                     |  |  |
| Disagree                                      | RC                                  | RC                                       | RC   |
| Agree   | 1.41 (0.96-2.07)                    | 1.20 (0.72-2.00)                         | 1.90* (1.04-3.50)                          |
| <b>Sex for job</b>                            |                                     |  |  |
| Disagree                                      | RC                                  | RC                                       | RC   |
| Agree   | 0.91 (0.57-1.45)                    | 0.68 (0.36-1.28)                         | 1.45 (0.74-2.86)                           |
| <b>Financial stability</b>                    |                                     |  |  |
| Disagree                                      | RC                                  | RC                                       | RC   |
| Agree   | 1.49 (1.13-1.95) *                  | 1.44* (1.02-2.03)                        | 1.46 (0.92-2.29)                           |
| <b>Attended HIV function</b>                  |                                     |  |  |
| No  | RC                                  | RC                                       | RC   |
| Yes   | 1.37 (1.02-1.82)*                   | 1.08 (0.76-1.55)                         | 2.21(1.28-3.55)*                           |
| <b>Forced sex</b>                             |                                     |  |  |
| No  | RC                                  | RC                                       | RC   |
| Yes   | 1.50 (1.03-2.17)*                   | 1.42 (0.85-2.37)                         | 1.80 (1.04-3.12)*                          |
| <b>Sex while drunk</b>                        |                                     |  |  |
| No  | RC                                  | RC                                       | RC   |
| Yes   | 1.60 (1.13-2.25)*                   | 1.20 (0.80-1.80)                         | 2.47(1.27-4.79)*                           |
| <b>Free access to condoms</b>                 |                                     |  |  |
| No  | RC                                  | RC                                       | RC   |
| Yes   | 1.98 (1.22-3.23)*                   | 1.80 (0.96-3.36)                         | 2.23 (0.99-4.99)                           |
| <b>Time worked on the farm</b>                |                                     |  |  |
| Less than 1 year                              | RC                                  | RC                                       | RC   |
| 1-3years                                      | 1.01 (0.72-1.42)                    | 1.12 (0.73-1.74)                         | 0.75 (0.41-1.34)                           |
| 4-10years                                     | 1.01 (0.71-1.43)                    | 1.21 (0.77-1.92)                         | 0.72 (0.41-1.28)                           |
| 10+ years                                     | 0.99 (0.68-1.46)                    | 1.11 (0.70-1.77)                         | 0.62 (0.30-1.30)                           |
| <b>Living arrangements with spouse/family</b> |                                     |  |  |
| Together                                      | RC                                  | RC                                       | RC   |
| Away  | 1.46 (1.12-1.91)*                   | 1.26 (0.90-1.76)                         | 1.64(1.04-2.57)*                           |

\* p&lt;0.05 RC=Reference Category

Statistics were insignificant ( $p > 0.005$ ) implying a good fit. To assess multi-collinearity the researchers used a program called Collin. The two measures employed were the tolerance (an indicator of how much collinearity a regression analysis can tolerate) and VIF (Variance Inflation Factor-an indicator of how much of the inflation of the standard error could be caused by collinearity)<sup>24</sup>. The findings proved that all of the

variables were uncorrelated to each other as both the tolerance and VIF were equal to 1. The researchers also constructed correlation matrix. Based on the guidelines provided by Cohen on coefficient values and strength of association all the coefficients in the matrix exhibited small correlations ( $0.1 < |r| < .3$ ) where  $|r|$  means the absolute value. Thus no multi-collinearity was detected in the model<sup>25</sup>.

**Table 3:** Adjusted Odds Ratio (and Confidence Intervals) from Logistic Regression Identifying Socio-economic, Behavioral and Demographic Factors Associated with Migrant's Condom Use, IBBSS 2010

| Determinants                 | Migrant farm workers OR (CI) | Male migrant farm workers OR (CI) | Female migrant farm workers OR (CI) |
|------------------------------|------------------------------|-----------------------------------|-------------------------------------|
| <b>Marital Status</b>        |                              |                                   |                                     |
| Single                       | RC                           | RC                                | RC                                  |
| Married                      | 0.70 (0.50-0.98)*            | 0.85 (0.56-1.30)                  | 0.51 (0.29-0.89)*                   |
| Previously married           | 1.58 (0.74-3.35)             | 3.00 (0.55-16.51)                 | 1.44 (0.56-3.69)                    |
| <b>Sex while drunk</b>       |                              |                                   |                                     |
| No                           | RC                           | RC                                | RC                                  |
| Yes                          | 1.44 (0.99-2.10)             | 1.15 (0.74-1.78)                  | 1.86 (0.84-4.06)*                   |
| <b>Access to condoms</b>     |                              |                                   |                                     |
| No                           | RC                           | RC                                | RC                                  |
| Yes                          | 2.31(1.32-4.04)*             | 2.01 (1.01-3.97)*                 | 3.17 (1.11-9.06)*                   |
| <b>Living arrangements</b>   |                              |                                   |                                     |
| Together                     | RC                           | RC                                | RC                                  |
| Away                         | 1.55 (1.16-2.08) *           | 1.26 (0.88-1.80)                  | 1.90 (1.11-3.27)*                   |
| <b>Attended HIV function</b> |                              |                                   |                                     |
| No                           | RC                           | RC                                | RC                                  |
| Yes                          | 1.16 (0.84-1.61)             | 1.02 (0.68-1.52)                  | 1.47 (0.82-2.63)                    |
| <b>Had sex for money</b>     |                              |                                   |                                     |
| Disagree                     | RC                           | RC                                | RC                                  |
| Agree                        | 1.05 (0.68-1.64)             | 0.99 (0.56-1.74)                  | 1.32 (0.79-2.25)                    |
| <b>Forced sex</b>            |                              |                                   |                                     |
| No                           | RC                           | RC                                | RC                                  |
| Yes                          | 1.45 (0.96-2.20)             | 1.35 (0.77-2.37)                  | 1.77 (0.91-3.45)                    |
| <b>Financial stability</b>   |                              |                                   |                                     |
| Disagree                     | RC                           | RC                                | RC                                  |
| Agree                        | 1.50 (1.11-2.01)*            | 1.50 (1.03-2.17)*                 | 1.3 (0.78-2.25)                     |

\* p<0.05 RC=Reference Category NS=Not significant at bivariate level and excluded

### Ethical considerations

Ethical approval to conduct the IBBSS was obtained from the University of the Witwatersrand. Permission to use data was obtained from IOM and a Memorandum of Understanding was signed in which the researchers agreed to treat the IOM data with strict confidentiality and security and to limit the use of the data to this particular study. Since this present study made use of secondary data, there was no risk of breaking interviewee confidentiality or any other associated ethical issues. Participation in the IBBSS was voluntary and the survey was conducted anonymously. Therefore, no identifying information such as individual identity numbers or employee numbers was obtained from the data.

## Results

### Profile of respondents and characteristics of study population

Table 1 show that there were more men (61%)

than women (39%) in this population. Although sexual activity in the past 12 months was more or less similar between men and women, more women (67%) compared to men (54%) reported not using condoms during last sexual intercourse. Overall, less than half of the population made use of condoms in last sexual intercourse, despite sexual activity reaching around 90%. The majority of migrants were from Zimbabwe, followed by Mozambique and then Swaziland. The ages of the participants ranged from 15 to 64 years with almost 60% being 34 years and under. Seventy-one percent were currently married while 4% were previously married and 25% were single. It appears that in this population more men (74%) than women (66%) were married. In terms of transactional sex 13% of the population had sex in exchange for money in the reported attendance to a function on HIV prevention in the past 12 months. Seventeen percent of the participants had sex while they were drunk; more men (21%) than women (11%) reported having sex while drunk.



Almost everyone had access to free condoms on the farm. Only 10% reported they did not have access to condoms. This could be due to the newly initiated HIV prevention and care projects which provide free condoms on these farms<sup>21</sup>.

Half of the men stayed together with their families, and the other half had left them either in their country of origin or rural home. On the other hand, it appeared that more than half of all women (63%) were residing with their families. Eighteen percent (18%) of women compared to 12% of men had been forced to have sex at some point in their lives. Though not substantial, it can be assumed that women are more vulnerable than their male counterparts. This can be augmented by the transactional sex results where 14% of women and 12% of men transacted sex for money and 11% of women compared to 8% of men had sex in exchange for a job.

### ***Bivariate analyses***

Tests for association between each independent variable and the outcome variable (condom use) were carried out using bivariate logistic regression at a 5% level of significance. Analysis was done to investigate the individual relationship of each demographic, socio-economic, behavioural and structural factor with condom use. The results are shown in Table 2.

The bivariate analyses showed that marital status, free access to condoms, attending an HIV function, having sex while drunk, forced sex, financial stability and living arrangements with one's spouse were significantly associated with condom use among migrant farm workers ( $p < 0.05$ ). On the other hand the variables age, time worked on the farm and having sex in exchange for a job were not statistically significant. A multivariate analysis using binary logistic regression was run including all the relevant variables as supported by existing literature.

### ***Multivariate analyses***

The multivariate analyses showed that amongst migrant men and women working in the farms, access to free condoms, living arrangements with spouse, marital status and financial stability were

significantly associated with condom use ( $p < 0.05$ ). A multivariate model controlling for sex showed that among men, access to free condoms and financial stability were significantly associated with condom use, while among females living arrangements with spouse, marital status and access to free condoms were significantly associated with condom use. The odds ratio for marital status showed that being married halved the odds of using condoms in the female population. Access to free condoms doubled the likelihood of using condoms (OR 2.3) in the general population and in the male population (OR 2.0); in the female population the likelihood of condom use was 3.2. In regards to living arrangements it appeared living apart increased the odds (OR 1.9) of using condoms among female migrants. Financial stability increased the odds of using condoms among the male population only (OR 1.5).

## **Discussion**

The objective of this study was to establish if there are any differences in condom use between migrant men and women, as well as the determinants of condom use and how they vary in association between the sexes. Several studies have established that condom use levels differ between men and women<sup>15</sup>. Research has shown that there are diverse socio-economic and socio-cultural factors contributing to these differences. This study tested the hypothesis of difference between men and women, not only in the differences between levels but how the same factors vary in influence between the two sexes. According to the results from cross tabulations, sexual activity in the last year was similarly high between male and female migrants.

However, condom use at last sexual intercourse was generally low in the migrant population; it was even lower in the female population (33%) compared to their male counterparts (46%). This is consistent with several studies that compared condom usage between men and women<sup>14,21,26</sup>. One of the major factors that could contribute to this finding is the fact that majority of the participants were married, and research has shown low condom usage in

marriages. In addition to the socio-cultural factors influencing the use of condoms among populations, there are other factors such as scarcity of female condoms. This is mainly because production of female condoms is reported to be more expensive than male condoms<sup>27</sup>. This could possibly explain why men use condoms more often than women do. This is exacerbated by socio-cultural factors such as the patriarchal social system where men usually make important decisions such as condom use between couples<sup>14,22</sup>.

Another contributing factor to the difference in condom use between men and women, as noted by the study by O'Neal and others, is the experience of forced sex or rape<sup>28</sup>. During coerced sex it is usually difficult for a woman to negotiate safe sex. In this study 18% of women and 12% of men experienced forced sex in the previous year. Despite the fact that forced sex was insignificant in determining condom use in this study, the aforementioned findings show that the experience is still high and unacceptable, especially amongst women. Studies elsewhere have shown that forced sex increases the risk of contracting HIV since in most of these scenarios; no condoms are used<sup>14,8,29</sup>.

This study also set out to determine the association between post-migration environments and power imbalances between men and women which, according to Parrado *et al.* determine condom use<sup>19</sup>. One of the major propositions was that labour migration tends to increase women's financial stability which in turn increases women's negotiating power. Amongst women, financial stability in this study was insignificant in determining condom use. Of all the insignificant variables, this has been a big deviation from the existing literature, particularly among women. In their study on relationship power, condom use and HIV risk among women in America, Pulerwitz and colleagues<sup>22</sup> established that financial security is a significant factor in determining condom use by increasing the negotiating power of women in a sexual relationship. This concurs with Parrado's study on power relations in Mexico<sup>19</sup>. Noteworthy in this study are the results providing evidence that women are less financially stable than men, although the factor is insignificant in the latter.

Parrado *et al.*, however, have questioned the direct connection between employment and increase in women's power, noting that even though work opportunities are usually relatively more plentiful in the destination country, quite often migrant women are concentrated in low-skilled, poorly paid, and unstable occupations that do not constitute careers<sup>19</sup>. Such jobs are unlikely to increase women's power in relationships. The same can be said about the migrant female workers in this study. The findings in this study warn against equating women's employment with increase in power. This indicates that, as much as migration brings about more opportunities for employment and consequently financial stability in both men and women, this does not equate to shifts in existing power imbalances. Thus the assertion that migration increases financial stability and consequently condom use failed to apply to the migrant farm workers in this study.

Another explanation for the importance of financial stability in influencing condom use in migrant populations is the finding that usually, after migrating, migrants find themselves financially vulnerable. This may lead to transactional sex for money, food or accommodation. In such situations it is difficult to use condoms. In this study, transactional sex came out as insignificant. Numerous studies have established that transactional sex is rife among marginalised communities such as migrants<sup>30</sup>. In this study as expected, more women reported having sex for money, compared to men pointing to women's heightened vulnerability. The multivariate results show that financial stability is a significant determinant of condom use in men but not in women. Thus, for female migrants in this study, it can be concluded that whether they are financially stable or not, that will not affect their usage of condoms. As such, it can be argued that condom use among migrants goes beyond socio-economic factors, as put forward by many scholars including Yang and Xia and Choy and Holroyd who argue that several factors come into play<sup>30,31</sup>. Another proposition found in literature is that migration brings about high risk sexual behaviour that maybe triggered by factors such as breakdown of social or family structures. An

example is having sex while drunk. In this study this was an insignificant factor in determining condom use in the last sexual encounter.

Many studies have cited lack of information and resources as one component contributing to the migrants' high risk of HIV infection<sup>14</sup>. On average around 90% of the migrant farm workers report having access to free condoms on the farm. Equally important is education on HIV prevention which has been identified as another effective strategy to minimise the infection rates<sup>32</sup>. In this study, more than half of the population both men and women had attended at least one educational function on HIV. This can be attributed to the HIV prevention projects started in the farm areas such as the Ripfumelo Programme which target farm workers with HIV prevention interventions in Mpumalanga and Limpopo<sup>21</sup>. However, having attended an HIV session was insignificantly associated with condom use ( $p > 0.05$ ). This finding serves to show that high levels of knowledge on HIV prevention or availability of condoms does not translate to use. This is supported by Campbell's 1997 study which established that even though migrant miners in South Africa had relatively high levels of knowledge about HIV/AIDS they often indulged in high risk sexual behaviours<sup>5</sup>. Thus information alone proved insufficient to bring about consistent changes in behavior. On the other hand, access to free condoms was significantly associated with condom use in both populations.

As people migrate they may either leave or go with their spouses. This living arrangement can determine sexual behaviour. In the female population as well as the population as a whole, staying away from spouse or family tended to increase condom use. This finding is contrary to a number of previous studies which assert that separation from the family structures tend to increase promiscuous behaviour as well as non-condom use<sup>20</sup>. According to studies carried out by Gupta and Singh, prolonged separation from family, spouse and socio-cultural norms, together with isolation and loneliness can lead to social and sexual practices, such as unsafe sex, which make migrant and mobile workers more susceptible to exposure to HIV infection<sup>33</sup>. A study by Halli and

others emphasised that it is usually men who tend to engage in such high risk sexual behavior<sup>34</sup>. This study showed that staying away from one's spouse increases the odds of using condoms among migrant women. On the basis of these results, it can be argued that staying away from a partner makes women more responsible and cautious of HIV, at least in this particular community. However, caution should be taken to conclude such given the limitation of the study design and the outcome variable. Condom use in the last sexual intercourse does not reflect consistence and in this case it is not clear if the intercourse was with one's spouse or not.

Another finding, linked to living arrangements with spouse, is marital status. Although only significant in women, the OR in both the female and male populations show that being married tends to decrease the use of condoms. This echoes the findings of Chimhiri in rural Malawi where being married reduced the odds of using condoms<sup>26</sup>. Marriage comes with trust particularly in women<sup>14</sup>. Apart from the trust issue, marriage also comes with other cultural complexities such as the paying of bride prices. In such scenarios, some men tend to treat their women as possessions and women cannot make decisions for themselves. Some women would feel obliged to give in to whatever their husband's demand, even where they know it may be dangerous<sup>19</sup>. In marriages condom use can also be disrupted by desire to conceive.

## Conclusion

The purpose of this study was to determine the levels and determinants of condom use among migrant farm workers and how these vary between men and women. Condom use was very low in both men and women. The fact that the question asked on the last act of sexual intercourse does not clarify if the sex was with a regular or irregular partner could explain why condom use was that low. Since majority of the migrants are married and more than half of them stay with their partners it can arguably be assumed that the last sexual intercourse was with regular partners and thus had no motivation to use condoms. It would be interesting to run the same analyses among the

unmarried to see if they exhibit the same behavior in condom use.

There is a widespread assumption in the literature that financial stability, transactional sex and forced sex are rife in migrant communities and tend to influence condom use. However, the current results do not support this contention. The vulnerabilities of migrants and consequent risk of HIV infection differ with place and communities and it can be dangerous to generalise migrants' vulnerabilities and experience. This is why a location specific study is always necessary in analysing 'key populations' at risk of HIV. It would be interesting to know if migrants in urban areas have the same experience.

The results also support the hypothesis that determinants of condom use in migrant communities vary between men and women. In this study it seems access to free condoms was the only common factor between men and women. Among the male migrants, financial stability was also significantly associated to condom use. On the other hand, in the female population, marital status, living arrangements with spouse and access to free condoms seem to be the significant determinants of condom use. With regard to the objectives of the study, it can be concluded that financial stability, access to free condoms, marital status and living arrangements with spouse were the determinants of condom use in the last sexual encounter in commercial farms in Mpumalanga and Limpopo.

### ***Recommendations from this study***

The link between financial security and condom use in migrant communities is quite robust and well established<sup>19,22</sup>. Therefore, failure by this study to observe the effect is most likely idiosyncratic to this particular population. The same can be said about age which is widely known to influence condom use. Therefore, further research is recommended, specifically in a different setting. Further research is needed to establish the efficacy of programmes that educate farm workers on HIV prevention as this seemed not to influence condom use among migrant farmworkers when controlling for sex. Overall, a

cohort study is empirical in determining the true association between migration status and the use of condoms in commercial farms.

With regard to programmatic recommendations, based on the results from the overall population, free condoms should be made available on farms as this tends to increase the odds of using them. Also, education on HIV prevention and particularly sensitising women on the use of condoms should be considered on farms. This could also point to the scarcity of female condoms; if accessibility to female condoms is increased, condom use among women may rise.

### ***Limitations of the study***

The study shares the certain methodological weaknesses associated with cross sectional designs. It is not possible to discern causal relationships. It is difficult to conclude that it is the migration status that influences condom use. Hence, there is need for a more nuanced understanding of the association. Condom use is a complex issue, especially when analysing it in women. In Africa the male condom is more common than the female. In addition, it is difficult to measure condom use in females because it is difficult to know for sure if the male partner used a condom or not. Also the question asked for condom use 'Did you use a condom the last time you had sex?' does not imply consistent condom use. A person might have used a condom in the last sexual encounter but does not usually use a condom. The question also does not clarify if condom use was with a regular or irregular partner.

The IBBSS data is a secondary source of data; hence the researchers did not have complete control of the data. There are other factors not included during the IBBSS that could confound the association between condom use and migration status. For example, contraceptive use and the level of education could be important factors to be included in the questionnaire. Another important factor may be that self-reports of condom use are inaccurate because of the sensitive nature of the topic and because respondents may wish to

provide responses that they believe are desired<sup>35</sup>.

Since no random sampling was done, the results cannot be generalised because one cannot assume that the participants in this study were any different from non-participants. Also related to this is the issue of self-selection by participants, which can introduce volunteer bias, thus, making it difficult to generalise the results.

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## Contribution of authors

This work is an extract from a Masters Research report on *Condom use among migrant commercial farm workers in two South African provinces*, held by the University of the Witwatersrand, Johannesburg. Both authors designed the study and secured the data for analysis. The first author analysed the data and prepared the manuscript. The second author edited the manuscript and supervised the second author.

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