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Migration, sexual behaviour, and human immunodeficiency virus infection in rural South Africa

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CHAPTER 1: INTRODUCTION.

1.1- Background Information.

1.1.1- Global burden of HIV/AIDS.

Homosexual men in North America made the news in 1981 when they were depicted among the first cases of AIDS (1) (2). Although the first report of AIDS cases from sub-Saharan Africans was described soon after in 1983 (3) (4), the causative agent of AIDS, which was identified later and called the Human Immunodeficiency Virus (HIV), seemed to be present in the population long before (5) (6) (7) (8).

AIDS has been reported throughout the world. The estimated total number of people living with HIV/AIDS by the end of 2006 was 39.5 million (34.1 – 47.1 million), of whom 37.2 million (32.1 – 44.5 million) were adults, 17.7 million (15.1 – 20.9 million) were women and 2.3 million (1.7 – 3.5 million) were children under 15 years (9). The estimated total number of people newly infected with HIV in 2006 were 4.3 million (3.6 - 6.6 million), of whom 3.8 million (3.2 - 5.7 million) were adults and 530 000 (410 000 - 660 000) were children under 15 years (9). The total number of deaths due to AIDS in 2006 was 2.9 million (2.5 - 3.5 million), of whom 2.6 million (2.2 – 3.0 million) were adults and 380 000 (290 000 - 500 000) were children under

15 years (9). Sub-Saharan Africa together with South and South East Asia represent more than 70% of the global estimate.

In sub-Saharan Africa, the number of adults and children living with HIV is estimated to be 24.7 million (21.8 – 27.7 million), the number of adults and children newly infected with HIV is 2.8 million (2.4 - 3.2 million). The number of adults and children deaths attributed to AIDS in 2006 was 2.1 million (1.8 - 2.4 million) (9).

1.1.2- Risk factors for HIV in sub-Saharan Africa.

Many risk factors seem to explain why sub-Saharan Africa is more severely hit by the epidemic. The first factor is sexual behaviour. Heterosexual transmission is responsible for more than 90% of infections in adults in sub-Saharan Africa (10). Multiple sexual partners and low condom use are the most important sexual behaviours that play an important part in the spread of the epidemic. HIV is spread by men who have unprotected sex with sex workers and then have sexual intercourse with their female partners, who in turn have sex with other male partners (11).

The second factor is the role played by gender. Women in African cultures are faced with the dilemma of the control over sexual matters, whether it is

their own sex lives or the sex lives of their husbands outside marriage (12) (13). The inability of women to control their partners' sexual lives is a danger to themselves because of the unprotected nature of the extramarital sexual relationships. Women are unable to control their sexual relationships when they fail to insist on condom use. Most of the time women get married or have sexual partners who are older men (14) (15) and the marriage is monogamous for the woman but polygamous for the man. This condition puts young women at higher risk of HIV infection (14). Women financially depend on their male partners and the poor economic condition of women makes negotiation of safe sex difficult. Women have been underprivileged by having limited access to education (11). This also has made them vulnerable to HIV. It is known that women are the ones that take care of the children while the husband is away looking for a job, divorced or dead. Sometimes the burden becomes unbearable and forces them to exchange sex for money so that they can provide for the kids, increasing their risk of acquiring STDs and HIV infection (11). In Kisumu and Ndola, 40% of unmarried women reported that they had sexual relationships in exchange for money or gift compared to 6% in Cotonou and 4% in Yaoundé (11).

The third factor that makes women vulnerable is gender based violence through three mechanisms (16). Forced or coercive sexual intercourse with an infected partner which happen most of the time without the use of condoms and can lead to injuries and bleeding that can directly result in HIV

transmission. Also, violence renders women powerless to negotiate safer sex. In violent and abusive relationships, women are deprived of the power to choose and it is difficult for them to use condoms because it brings an element of suspicion (16) and women who are from an abused and violent environment are associated with high-risk behaviour such as multiple sexual partners (16).

The fourth factor is poverty. Poverty heightens susceptibility to HIV-1 and other sexually transmitted infections (17). Poverty limits individual's power of decision and in the battle for survival, he may engage in high risk sexual behaviour. Poverty, particularly when it affects women, is considered one of the threats to the health of women in a sense that it increases the risky sexual behaviour that leads to the risk of HIV infection (18).

The fifth factor is urbanization and modernization. Rapid urbanization has been linked to growing urban poverty (19) and modernization has led to a high level of mobility. Urbanization has produced the formation of slums around cities due to migration from rural areas resulting in an increase in population size and an increase in urban birth rates (11). Poor economic conditions characterize the residents of these slums, which affect their sexual exposure and behaviour such as sexual debut and multiple sexual partners (20). With modernization and urbanization, people tend to trade their conservative culture and traditional village customs for a permissive

city life with regard to sexual behaviour and norms (20). Modernization and urbanization, together with economic conditions have been the causes of movement of people from rural areas to urban slums that result in social disruption, laxity and an increase of high-risk behaviours.

The sixth factor is wars and conflicts which have plunged countries in poverty and have resulted in million of people being displaced, creating promiscuity and abuse of human rights such as rapes and sexual assaults that put women at increased risk of HIV infection (11). In time of displacement, people may also move from a region of lower HIV prevalence to a region of higher HIV prevalence and increase their risk of HIV infection (20).

The seventh factor is the role played by the sexually transmitted diseases (STDs). It has been established that STDs enhance HIV transmission. A study found an association between syphilis in men and in women in Ndola. It also found a strong association between HSV-2 infection and HIV infection in both sexes in Cotonou, Yaoundé, Kisumu and Ndola (21)

The eighth factor is male circumcision. Studies have revealed that men who were not circumcised were susceptible to STDs and HIV while circumcision was associated with a reduced risk of HIV infection among men at high risk of HIV (21) (22).

All these factors increase the vulnerability of people by creating an environment that is conducive to the spread of HIV infection.

1.1.3- Epidemiology of HIV/AIDS in South Africa.

South Africa, with its 5.5 million (4.9 million – 6.1 million) of people living with HIV, has shown that its HIV/AIDS epidemics are indeed growing. HIV/AIDS has shown a swift increase since 1991, which is noticeable in the age group 20 – 24 years (23). HIV prevalence among pregnant women attending antenatal clinics in the country increased from 0.76% in 1990 to 27.9% in 2003. Kwazulu-Natal province had the highest antenatal prevalence of 37.5%. The highest prevalence rate in the country by age group was observed in the age group 25 to 29 years (35.4%) (24). HIV in South Africa is not confined to urban areas and the main mode of transmission is heterosexual intercourse.

With 11% of its population being HIV positive in total, South Africa is home to 244 000 HIV positive children (<14 years) and a total of 656 000 AIDS orphans (25). The prevalence amongst adults of working age (18 to 64 years) is 18.1% and the female youth prevalence (15 to 24 years) is 16.4%. The percentage of deaths due to HIV/AIDS in adults (15 – 49 years) is 70%

and in children (<15 years) is 42%. Deaths due to HIV/AIDS account for 44% of all deaths (25).

Fassin and Schneider have identified three social factors that place South Africa at a higher risk of HIV (26). The first factor is social inequalities. They expose people to risky sexual behaviours that lead to HIV infection. A low income employment exposes people to risky sexual relations and sexually transmitted infections that act as predictors of HIV infection. The second factor is mobility. The movement of people has been associated with the spread of HIV infection. Circular labor migration and mass resettlements of people were characteristic of the Apartheid system. The crossing of refugees from other counties into South Africa adds also to the movement. The third factor is sexual violence. It increases women's risk to HIV infection because they are not able to negotiate safe sex. These three factors are the legacy of the apartheid system (26).

Migration is among the social factors that have been associated with HIV infection.

Migration can be defined as the movement of people in space and in time, accompanied by a change in the usual place of residence (27). It is internal when the movement of people occurs within the national boundaries and international when that movement is across political boundaries. Migration can be temporary or definitive. Permanent or definitive migration takes

place when there is little indication of return visit (27).

Labour migration happen within and into South Africa. Millions of workers migrate periodically between rural and urban areas (28).Cross-border migration occurs principally from the four bordering countries sources: Mozambique, Lesotho, Namibia and Zimbabwe (29). Migrant labor was conceived by the apartheid regime to create cheap black labor in white areas surrounded by mines, industries and farms but they were not allowed to settle permanently there, obliging them to return home from time to time.

This pattern of migration in which people work in urban areas leaving their spouses or partners and return periodically home is called circular migration. If they become infected while they are away from home, they infect their spouses or partners when they return. This circular migration, which is a legacy of apartheid, has been incriminated in the spread of HIV in South Africa.

1.2- Literature review.

A number of studies carried out in South Africa have estimated the prevalence of HIV in different population groups (30) (31) (32).

The association between HIV and migration of people has been described in many studies (33) (34) (35) (36) (37). In these studies, they argue

migration is a risk factor for HIV based on the assumption that migrants compared to non-migrants are more likely to have additional sexual partners and then become infected while away from home. As they return home, they bring along the infection to their rural partners.

A study performed in Uganda on HIV and migration demonstrated that migration is a risk factor for HIV (38). The lowest rates of HIV were found in people whose place of residence was more permanent. People who had moved within the last five years were three times more likely to be infected with HIV than those who did not move the past ten years. Another relevant finding of this study was that people who migrate have more sexual partners than non-migrants (38).

In rural Senegal, a study that looked at seasonal migration and HIV reported that HIV was transmitted initially to adult men through sexual contacts with infected women met during their seasonal migration and thereafter to their wives or regular partners once they are back home (39). This study is interesting since the migration patterns in Senegal are similar to the circular migration found in South Africa.

In a study aimed at estimating HIV seroprevalence in rural KwaZulu-Natal, South Africa, people who had changed their place of residence were more likely to be HIV-infected compared to those who had a permanent residence

(40).

Various studies have shown that during migration people tend to have high-risk sexual behaviour. In Ghana, it was shown that sexual networking happens during migration (41). In South Africa, migration promoted prostitution in mining towns where migrants worked (42).

A study completed in Kenya found that among urban-rural migrants, women were 47% more likely, and men 38% more likely, to engage in high-risk sexual behaviour compared to non-migrants. In addition, men who migrated between urban areas were more likely to engage in high-risk sexual activity compared to non-migrant, odds ratio of 2.18 (43).

Zuma et al (44) investigating the risk factors for HIV infection among women in Carletonville, South Africa, found that migration increases the risk of HIV infection and HIV prevalence was 37.1% with higher prevalence among migrant women (46%) than non-migrant women (34.7%), (OR = 1.61, 95% CI: 1.11 – 2.31). The use of condoms was significantly higher among non-migrant women than among migrant women (OR = 1.88, 95% CI: 1.02 – 3.45) and migrant women were significantly more likely to have two or more lifetime partners compared to non-migrant women (OR = 4.18, 95%CI: 2.25 – 7.76, p = 0.001).

A study that aimed to understand the extent to which the epidemic in rural KwaZulu-Natal has been driven by urban migrants returning to their rural homes arrived at these findings: the overall prevalence of HIV was 20.1%. The prevalence of HIV among migrants and their partners was significantly higher than among non-migrants and their partners (24.0% versus 15.0%). Migrant men were significantly more likely than non-migrant men to have at least one current casual partner. Non-migrant men were more likely than migrant men to have used condoms in regular relationships (10.9% versus 23.7%) (45)

In contrast, Costa observed in his study carried out in Tanzania that unmarried rural men (non-migrants) reported having more sex partners than rural-urban men (migrants) and the giving of gifts/money was very rare, as was condom use, in both locations (46)

1.3- Statement of the problem/ Justification.

The prevalence of HIV in South Africa has reached a very high level and places the country among countries where HIV epidemics have grown rapidly. The country has not reached the plateau prevalence yet and the infection rate continues to increase. The plateau prevalence means that there is an equilibrium in which the number of new cases is

counterbalanced by the number of deaths.

Many factors have been incriminated in the search for the causes of HIV/AIDS in South Africa, and migration is one of them. Mobility, migration and widespread displacement have been identified as risk factors for HIV. Migrants are at risk as they move from a region or a country with low HIV/AIDS prevalence to one with higher prevalence or the other way around. They are also at risk when they move from a rural area leaving behind their families, all the social support and their customs that may decrease risky behaviours to an urban one with permissive traditions. When moving from a region of low population concentration to a highly crowded urban area, migrants increase their risk as well. When they are exposed to a new social and economic environment, they become vulnerable. Migrants are known to be risk-takers (43). Economic marginalization, social isolation, lax social control, and absence of behavioural influence of family and peers make migrants vulnerable to risky behaviours. One of the HIV risky behaviours is risky sexual behavior. A risky sexual behavior is a change in sexual behavior. Changes in sexual behaviours are believed to elucidate the patterns of STDs, including HIV infections.

South Africa is characterized by its high rates both of HIV and migration. The need to better understand the problem justifies this study in Limpopo where there is limited data. The findings of this study will stimulate

interventions such as increasing the awareness campaign to the public and in schools.

1.4- Research questions/ Hypotheses.

Principal research question:

Does migration lead to an increase risk of HIV infection among migrant workers from Limpopo Province?

Secondary research questions:

- Is the reported age at first sex the same between migrants and non-migrants?
- Is the proportion of people who report sexual experience the same between migrants and non-migrants?
- Is the proportion of people who used condom the last time they had sexual intercourse the same between migrants and non-migrants?
- Is the proportion of people having sexual intercourse with more than one non-spousal partner the same between migrants and non-migrants?

1.5- Study Objectives.

The objectives of the study were:

- To estimate and compare the HIV prevalence between migrants and non-migrants in Sekhukhuneland, 2001, amongst the age group 14 - 35 years.
- To assess differences in sexual behaviour between migrants and non-migrants in the study population.
- To make recommendations.

This study used data from the Intervention with Microfinance for AIDS and Gender Equity (IMAGE) study of Rural AIDS & Development Action Research (RADAR) program that had been carried out in 8 villages of Sekhukhune (South Africa/ Limpopo province) during a 3-year period of follow-up and in which multiple levels of data collection were ongoing.

CHAPTER 2: MATERIALS AND METHODS.

This project is a secondary data analysis using a subset of data from the Rural AIDS & Development Action Research (RADAR) program larger dataset. The dataset is from the baseline survey Young Person Questionnaire of the IMAGE study. Clinical and social interventions that RADAR pursues are specifically applied to an African rural setting. Its research activities are aimed at understanding primarily social factors that drive HIV/AIDS such as poverty, migration, gender inequality and their interventions and secondly the role played by an intervention program in terms of changing behaviour and preventing HIV (47).

2.1- Study population.

In September 2001 young people of both sexes aged between 14 and 35 years living in the Sekhukhuneland from 8 villages having over 50000 people were recruited in the study. Sekhukhuneland is a rural district in the Limpopo Province, where predominantly South Africans and some Mozambican refugees live freely (47).

2.2- Study sample.

The sample size was based on the original study using the measures of effect for primary outcome variables. The 8 villages were pair-matched so that one village from every pair receives randomly the intervention which was a loan. Randomization was performed and one village from each pair was drawn randomly for the intervention. All the people who were interviewed (74% of the total) were taken as the figure of the sample size for our project that is 2860 participants (47).

2.3- Study design.

This project is a cross-sectional study design that used data from the Intervention with Microfinance for AIDS and Gender Equity (IMAGE) baseline survey which was conducted to gather data from young men and women between the ages of 14 and 35 years.

2.4- Questionnaire and biological tests.

A detailed and pre-piloted questionnaire had been administered in English with a translation in Sotho to participants in order to collect information on background and sexual behavioural characteristics in the baseline survey. The same questionnaire was used to extract questions in order to create

variables for the secondary analysis (See appendix B).

HIV test was carried out on samples of oral fluid collected using the Orasure Specimen Collection Device (UCB group, Hoeilaart, Belgium) that increases the flow of mucosal transudate across the mucosal surfaces onto an absorptive cotton pad. Samples were tested for the presence of antibodies to HIV-1 and HIV-2 using the Vironostika HIV Uni-Form II oral fluid (bioMerieux, Lyon, France) which is an enzyme-linked immunosorbent assay (ELISA) (47). These methods were validated. However, some samples of oral fluid were not processed within 21 days of collection as recommended by the manufacturer and this may have lead to some inaccuracy in the analysis.

2.5- Ethics clearance.

The ethics committee of the University of the Witwatersrand issued ethics approval for this project. The protocol number is M050926. Throughout the project, data security and confidentiality was maintained. A two-stage witnessed oral consent process was applied in the original study. The first consent was obtained for the questionnaire and the second one for those who accepted to take the HIV test. The leaders of the community provided the go ahead for the study on condition they give feed back to the community liaison board and the intervention is dispensed at the end of the

study (47).

2.6- Data management.

The data had been previously entered in a database (Microsoft Access) in the primary study. Data were converted firstly to SAS then to Stata version 7.0 to perform the statistical analyses for this study. We combine data sets and checked for missing values and consistency of data. For this study, we started by transforming all string variables into numerical variables. A string variable contains identifying information and is usually enclosed in double quotes such as “male” or “female”. Stata uses two commands for mapping string variables into numeric codes and back again: encode and decode.

New variables were generated and recorded: a new categorical variable for age called age group was generated and was recorded as follows

Age group 1: 14 – 18 years
Age group 2: 19 – 24 years
Age group 2: 25 – 29 years
Age group 3: 30 – 35 years

The age variable was categorized because age groups represent different risk profiles and also in order to correspond with other studies and the national data.

A new variable for migration was generated and recorded as follows

Migrants: 0 – 6 months of stay and Non-migrants: 7 months of stay and over. The cut off of 7 months was chosen consistent with the IMAGE study, and used in a migration study in another area of Limpopo province

Migrants were defined as people who had less than 7 months of stay in the last year and non-migrants were those who had more than 7months of stay in the past year, regardless if the stay was interrupted or not..

2.7- Variables measured

The variables measured are grouped in the appendix A.

HIV was the main outcome variable and the explanatory variables were migration, age at first sexual intercourse, sexual experience, condom use and multiple sexual partners.

Sexual behaviours became also the main outcome variables and the explanatory variable was migration.

Confounders included age and sex.

2.8- Data analysis.

We performed descriptive analysis using means and standard deviation for continuous variables such as age and median for age at first sexual

intercourse. For all the categorical variables, we used percentages and conducted Chi square tests to assess significant differences.

We used tabulations and cross-tabulations to obtain different proportions and the HIV sero-prevalence by gender, by category of migrancy, by age group and for the entire sample. We analyzed separately males and females as well as migrants and non-migrants since we expected the pattern of association with HIV would differ between males and females, and also between migrants and non-migrants.

Logistic regression was used to assess the association between migrancy and HIV (main outcome variable), while controlling for other risk factors. We obtained the crude and adjusted odds ratios (OR) presented with 95% confidence intervals. We then used logistic regression to assess the association between migration (explanatory variable) and the sexual behaviours (main outcomes). The crude and adjusted odds ratios (OR) were also presented with 95% confidence intervals. Logistic regression was also used to control for the confounders: age and sex.

CHAPTER 3: RESULTS.

3.1 Description of sample.

3.1.1 Socio-demographic characteristics.

A total of 2860 individuals were recruited in the study. The minimum age was 14 years, the maximum age was 35 years and the median age was 21 years.
The individuals were divided in four age categories as shown in table 2 and they were comprised of 1614 females (56.43%) and 1246 males (43.57%).
The sample consisted of 314 (11.1%) migrants and 2537 (88%) non-migrants. Migrants could also be divided in 177 (56.37%) men and 137 (43.63%) women. In the non-migrants' category, 1064 (41.94%) were men and 1473 (58.06%) women.
In the migrants' category the minimum age was 15 years, the maximum age was 35 years, the mean age was 26 years and the standard deviation was 5.31 years. In the non-migrants' category the minimum age was 14 years, the maximum age was 35 years, the mean age was 22 years and the standard deviation was 5.78 years.

Age distribution by gender and migration status is presented in Tables 1 and 2 and indicates that for both men and women, migrants were statistically older than non-migrants($p < 0.0001$), with the majority of migrants between the ages of 19 – 29 years for men and women.

Table 1. Age categories of the sample by gender. (N=2859)

Age category	Males (%) n = 1246*	Females (%) n = 1614
14 – 18 years	520 (41.77%)	547 (37.32%)
19 –24 years	388 (31.16%)	526 (31.97%)
25 – 29 years	196 (15.74%)	286 (16.86%)
30 – 36 years	141 (11.33%)	255 (13.85%)

*1 missing value

Table 2. Migration characteristics by age and gender. (N= 2850)*

Men	14 - 18 years		19 - 24 years		25 - 29 years		30 - 35 years	
	N	%	N	%	N	%	N	%
Migrants	17	9.6	55	31.07	60	33.9	45	25.42
Non-migrants	502	47.22	331	31.14	136	12.79	94	8.84
Women	14 – 18 years		19 - 24 years		25 – 29 years		30 - 35 years	
Migrants	19	13.87	47	34.31	38	27.74	33	24.09
Non-migrants	526	35.71	478	32.45	247	16.77	222	15.07

* 10 missing values

3.1.2 HIV status characteristics.

The number of people who took part in the blood test was 2379 out of 2860 total participants in the study, which gives a participation rate of 83.18%. The results of the testing reveal that 2121 (89.16%) were negative whereas 258 (10.84%) were positive and the overall prevalence was 10.84% with 7.19% of men and 13.56% of women infected ($p< 0.0001$). The prevalence of HIV among migrants was 10.04% and among non-migrants 10.97% ($p = 0.662$).

Age specific HIV prevalence stratified by migration status and gender is presented in Table 3 and indicates that the HIV prevalence is higher for both migrants and non-migrants in the ages 25 – 29 for women and it is also higher for both migrants and non-migrants in the ages 30 – 35 years for men.

Table 3. Age specific HIV prevalence by migration status and gender. (n = 2379)

Men (n = 1012)*	14 -18 years	19 - 24 years	25 - 29 years	30 - 35 years
	%	%	%	%
Non-migrants (n = 877)	2.72	10.57	11.00	16.9
Migrants (n =135)	6.25	4.65	8.7	10.1
Total men	2.84	9.71	10.27	14.71
Women (n = 1360)*	14 –18 years	19 - 24 years	25 – 29 years	30- 35 years
Non-migrants (n =1256)	7.38	17.19	21.95	12.2
Migrants (n = 104)	0.00	19.35	21.43	7.69
Total women	7.07	17.3	21.79	11.58
Total (M + N-migrants)	5.04	14.19	17.37	12.67

*Men missing values = 3

*Women missing values = 4

3.1.3 Sexual behaviour.

Sexual behaviour of males and females by migration status is summarized in Table 4.

Age at first intercourse.

The minimum age at first intercourse was 10 years and the maximum age at first intercourse was 29 years. The median age at first intercourse was 16 years.
In the migrants' category the minimum age at first intercourse was 11 years, the maximum was 26 years and the median age was 17 years. In the non-migrants' category the minimum age at first intercourse was 10 years, the maximum was 29 years and the median age was 16 years.

Sexual experience.

91.37% migrants compared to 75.11% non-migrants reported they have ever had sexual intercourse ($p < 0.0001$). This was expected because of the age distribution of migrants compared to non-migrants. Ninety percent HIV positive infected respondents compared to 74.14% HIV negative infected reported they have ever had sexual intercourse ($p < 0.0001$).

Had sex in the last 12 months.

There was no difference in reporting having sex in the last 12 months neither

between migrants and non-migrants (94.06% versus 91.25) (p = 0.111) nor between HIV positive and HIV negative infected individuals (90.99% versus 91.64%)(p = 0.738).

Number of partners in the last 12 months.

Migration was associated with multiple partners. The results show that 18.53% migrants compared to 12.72% non-migrants reported having more than one partner in the last 12 months (p = 0.007). We can also see that 9.83% HIV positive infected reported having more than one partner in the last 12 months compared to 14.2% HIV negative (p = 0.069).

Use of a condom the last time had sex.

Neither migration nor HIV status appeared to influence condom use. The results show that 31.60% of migrants reported using condom compared to 29.68% of non-migrants (p = 0.569) and 28.57% of HIV positive infected reported using condom compared to 29.28% of HIV negative (p = 0.848).

Table 4. Sexual behaviour of males and females according to migration characteristics.

	Men					Women				
	Migrants		Non-migrants		p-value	Migrants		Non-migrants		p-value
Number of partners in the last 12 months	N	%	N	%		N	%	N	%	
1 or none	112	70.9	549	75.5	0.225	121	94.5	1105	94.61	0.972
> 1	46	29.1	178	24.5		7	5.47	63	5.39	
Have ever had sex										
Yes	158	89.8	731	68.8	<0.0001	128	93.4	1173	79.69	<0.0001
No	18	10.2	332	31.2		9	6.57	299	20.31	
Used a condom the last time had sex										
Yes	45	36.3	195	31.5	0.298	22	25	225	28.27	0.517
No	79	63.7	424	68.5		66	75	571	71.73	

3.2 Relationship between migration and HIV.

Table 5 shows the risk factors for HIV seroprevalence as quantified by univariate and multivariate analysis. The crude OR of migration variable is 1.10 and the OR adjusted is 1.19. There seems to be a slight association between migration and HIV but it is not significant. However, the adjusted OR of age at first sexual intercourse and never had sexual intercourse confirm that these two have a protective effect on HIV infection.

Age and sex appear to be risk factors for HIV infection. The individuals of the age group 25 – 35 were 6 times more likely to be infected compared to the participants of the age group 14 – 18.

The analysis of migrants according to their patterns of returning home revealed that 5.94 % of migrants returned home mainly weekends and their HIV prevalence was 6.67%. Those who returned home mainly month ends represented 34.32% of migrants and they had an HIV prevalence of 12.35%. The migrants who made occasional extended trips home represented the larger proportion (37.95%) and had the HIV prevalence of 5.95%.

Analyses to see any association between HIV infection and migration for each pattern of returning home of the migrants were performed and no associations were found.

Table 5. Univariate and multivariate analyses of risk factors for HIV seroprevalence in youth aged 14 - 35 years.

Variable	Crude OR (95% CI)	P value	Adjusted OR (95% CI)	P value
Migration				
Non-Migrants	1.10 (0.70-1.72)	0.662	1.19 (0.7-2.01)	0.520
Migrants	1		1	
Age				
30 - 36	2.74 (1.74 – 4.29)	<0.0001	6.62 (3.33 – 13.15)	<0.0001
25 - 29	3.96 (2.67-5387)		6.21 (3.38 - 11.39)	
19 - 24	3.12 (2.18 – 4.44)		4.31 (2.49 – 7.47)	
14 - 18	1		1	
Sex				
Females	2.02 (1.52-2.69)	<0.0001	2.18 (1.49 - 3.18)	<0.0001
Males	1		1	
Age at first sexual intercourse				
< = 17	1.20 (0.88-1.65)	0.239	0.62 (0.42-0.91)	0.016
>17	1		1	
Ever had sexual intercourse				
No	0.29 (0.19-0.45)	<0.0001	0.57 (0.34-0.94)	0.027
Yes	1		1	
Used a condom at the last sexual intercourse				
No	1.03 (0.73-1.47)	0.8482	0.86 (0.60-1.25)	0.435
Yes	1		1	
Number of partners				
>1	0.65 (0.42-1.04)	0.071	0.88 (0.53-1.45)	0.620
< = 1	1		1	

3.3 Relationship between migration and sexual behaviours.

The relationship between migration and sexual behaviours was examined, adjusted for age and sex and presented in table 6.

The crude OR in table 6 shows that there was an association between migration and age at first sexual intercourse but when adjusted the OR showed a weak protection effect of being a non-migrant. No significant association was measured between migration and ever had sexual intercourse nor between migration and condom use at last intercourse.

The crude and the adjusted OR shown in table 6 indicate that the association is protective for non-migrants suggesting that non-migrants tend to have fewer sexual partners than migrants.

Table 6. Analyses of the association between migration (explanatory variable) and sexual behaviours (outcome variables), adjusted for age and sex.

Variable	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value
Migration and age at first intercourse				
Non-migrants	1.73 (1.33 - 2.25)	<0.0001	0.76 (0.58 - 1)	0.054
Migrants	1		1	
Migration and ever had sexual intercourse				
Non-migrants	0.28 (0.19 – 0.42)	<0.0001	0.87 (0.53 – 1.42)	0.586
Migrants	1		1	
Migration and used condom at the last intercourse				
Non-migrants	0.91 (0.66 – 1.24)	0.569	0.88 (0.65 – 1.23)	0.475
Migrants	1		1	
Migration and number of partners				
Non-migrants	0.64 (0.46 – 0.88)	0.008	0.67 (0.47 – 0.96)	0.032
Migrants	1		1	

CHAPTER 4: DISCUSSION.

The high prevalence of HIV in South Africa raises questions about the factors that contribute to the spread of the disease. The way these factors intervene in the spread of HIV is very complex. Migration has been identified as one of the risk factors of the disease.

4.1- Prevalence rates.

4.1.1- Overall prevalence rate.

Many studies have been conducted in order to determine the prevalence of HIV infections in South Africa and others have particularly examined the prevalence in migrants compared to non-migrants. This study found an overall prevalence of 10.84%, 7.19% in men versus 13.56% in women ($p < 0.0001$); and 10.04% in migrants versus 10.97% in non-migrants ($p = 0.662$). The overall prevalence was consistent with other studies conducted nationally and in the province.

A study carried out by Connolly, Colvin and Shisana that sought to determine the prevalence of HIV in the South African population and to explore the risk factors of this epidemic found a HIV prevalence of 11.4% (12.85% in females and 9.5% in males) in the general population aged from 2 years and older (30). These

figures are similar to those in our study.

The Nelson Mandela/Human Sciences Research council (HSRC) survey of HIV/AIDS which had the credit of including individuals of all race, sex and age groups arrived at an estimated HIV prevalence of 15.6% (CI: 13.9 - 17.6) in the age group 15 to 49 years (32). In their projections, Rehle and Shisana (48) obtained in the same age group a projected prevalence of 17.4%, which fits in the confidence interval of the measured prevalence.

In his study in Hlabisa/Nomgoma Districts in KwaZulu/Natal where he was investigating the role of migration and sexuality in the spread of HIV/AIDS in rural South Africa, Lurie (45) observed an overall prevalence of 20.1 %.

The Nelson Mandela/Human Sciences Research Council (HSRC) survey of HIV/AIDS estimated as well an HIV prevalence of 24% among pregnant women (32). It approximates the figure of 25.9% estimated prevalence of HIV based on the number of pregnant women attending antenatal clinics in the Dorrington model (31).

The Department of Health observed a prevalence of 29.5% (CI 25.5% - 27.6%) in its national HIV and syphilis antenatal sero-prevalence survey initiated in 2004, which included women aged between 15 and 49 years. KwaZulu/Natal, in the report that emerged from the Department of health 2004, reached the highest

prevalence rate of 40.7% (CI: 28.5% – 30.5%) compared to 19.3% (CI: 16.8% - 21.9%) in Limpopo (49). In the report that transpired from the Department of Health in 2005, the national prevalence of HIV in pregnant women was 30.2% (CI: 29.1% - 31.2%). In KwaZulu/Natal the prevalence was 39.1% (36.8% - 41.4%) compared to 21.5% (CI: 18.5% - 24.6%) in Limpopo (50). It is obvious that the prevalence in Limpopo has been lower compared to KwaZulu/Natal.

The Carltonville study that looked particularly at the migration and the risk of HIV infection and sexually transmitted diseases among women in an urban setting in South Africa found an overall HIV prevalence of 37.1% (44).

The epidemic in rural Limpopo is behind the one in KwaZulu-Natal although both provinces have the same level of male labor migration (60%) and according to Collinson (51), this can be related to the fact that the epidemic in KwaZulu-Natal started earlier through the sex trade in Richard's Bay and Durban and migrants in these areas were exposed before migrants in Limpopo (51).

4.1.2- Prevalence rates among men and women.

Apart from the Hlabisa/Nongoma study in Kwazulu/Natal (45) that found that the HIV prevalence among men was not significantly different compared to the prevalence among women (22.7% versus 19.1%; $p = 0.34$), our study and many other studies (22) (30) (51) (52) observed that the prevalence among women

was higher than among men which is generally explained by gender based violence (47) and in terms of physiological differences.

4.1.3- Prevalence among age groups.

The highest prevalence of 21.79% was observed among the female individuals of the age group 25 - 29 years. Our results differ from Lagarde's (52), who observed that in West Africa the highest prevalence of HIV among men was highest in the 30 – 39 year age group and that high prevalence was associated with no schooling, more than one partner and short term mobility. The Nelson Mandela/HSRC study and the antenatal data from the Department of Health found that the highest prevalence of HIV is in the age group 25 - 29 years (24) (32) for both sexes. In our study the 30 – 35 year age group had the highest prevalence for men.

4.1.4- Migration and HIV risk.

Contrary to our study that shows that the prevalence among migrants was not significantly different from that among non-migrants, numerous studies reported a higher HIV prevalence among migrants compared to non-migrants.
The Hlabisa/Nongoma study is very interesting in the extent that it looked at circular migration. It also defined a migrant as one who spent most nights away

and who had been away for a total of more than 6 months and a non-migrant as one who spent most nights home and who had not been a migrant for a total of more than 6 months. It showed that migrants and their partners had a significantly higher prevalence compared to non-migrants and their partners (24.0% versus 15.0%; p = 0.02; OR = 1.8; 95% CI = 1.1 - 3.0) (45) and 25.9 % of migrant men compared to 12.7% of non-migrant men were infected with HIV (p = 0.029; odds ratio = 2.4; CI = 1.1 - 5.3) (53).

Similarly, Lurie in his study that set out to measure HIV discordance among migrant and non-migrant men along with their rural partners and to compare the relative risk of infection whether it was increased from inside or from outside, he found that migrant couples were more likely than non-migrant couples to have one or both partners infected with HIV (35% versus 19%; p = 0.026; OR = 2.28) (54).

The Carltonville study that looked particularly at the migration and the risk of HIV infection among women found an increased HIV prevalence in migrant women compared to non-migrant women (46.0% versus 34.7%; OR = 1.61; 95% CI: 1.11 - 2.31) (44).

All the studies where migrants had a higher HIV prevalence rate compared to non-migrants suggested that migrants were at added risk of HIV infection. However, our study showed that HIV prevalence rates between the migrants'

category and the non-migrants category were not significantly different, suggesting that the risk of HIV infection in both categories was more or less equal.

We cannot find specific reasons as to why migrants and non-migrants are equally at increased risk of HIV infection in this setting. Although they are categorized in migrants and non-migrants, we suspect that they might be exposed to the same risk of infection.

Studies mentioned used terms such as ‘’circular’’ or ‘’oscillating’’ (37) (44) (45) (54) (55) (56) and also internal migration (51) to describe people who leave their families and partners in rural areas to work in urban areas and preserve close links with families or partners when they return home periodically. Lagarde (52) referred to long term mobility (at least one month away in the past 12 months) compared to short term mobility (at least one day and one night away in the past 4 weeks).

Collinson (51) who carried out his study in Limpopo Province to investigate if migrants came into contact with more sexual partners in comparison to non-migrants observed that men who reported two or more sexual partners varied according to their work and migration status. Those who were unemployed had the least likelihood of reporting two or more partners (38%). They were followed by employed migrant who were more likely to report two or more partners (45%).

The rural resident employed men (working locally) had the highest likelihood of reporting two or more partners (more than 50%). He also observed that the reporting of two or more partners in the previous year by employed migrant men varied according to their patterns of returning home to rural area. Employed migrant men who returned home on a monthly basis had the least likelihood of reporting two or more partners (41%), followed by those who returned home three to nine times in a year (47%) and then those who returned home fewer than three times a year who had the highest likelihood of reporting two or more partners (55%) (51).

Numerous studies in South Africa and outside have shown that migration is associated with HIV infection and increases the risk of HIV infection (44) (45) (53) (54) (56). At no time in our analyses, did we find that migration was associated with HIV infection and this may suggest that migration does not contribute to the spread of HIV infection in all settings. Other possible explanations include firstly, the percent of missing values were insignificant to affect our results. Secondly, the role played by the validity of the HIV tests. Data quality in one of the articles published by RADAR raised concerns because some samples were stored for longer than 21 days as the manufacturer recommended (47). Thirdly, the reverse causality (57) may have affected the results. Those who were HIV positive could not migrate due to ill health. Fourthly, the dilution effect of in-migrants may have masked the association (58). In-migrants who work in

mines form a specific group. If this group is big and their HIV risk is high or similar to those who migrate, the risk between migrants and non-migrants could appear equal. Finally, the confounders such as socio-economic status, schooling and village or place of residence that we did not take into consideration might also have some bearing on the relationship.

In univariate analysis as well as in multivariate analysis, migration was not a risk factor. Age and being a female were risk factors of HIV infection.

We could not find many studies supporting this finding. However, a study carried out with Mexican migrants in California, USA observed a prevalence rate lower than 0.10% in migrants. In this study, authors reviewed published and unpublished reports on HIV prevalence and risk behaviours among Mexican migrant farm workers. The prevalence was stable and low indicating that migration was not associated with an increase in HIV risk. However, the authors suggested that those reports were issued ten or more years way back, and the sample sizes (N= 50 and N = 173) could not generate reliable estimates (55).

4.2- Relationship between migration and sexual behaviours.

Results indicate that non-migrants were less likely to have ever had sexual intercourse than migrants but after adjusting it was not significant.

The Carletonville study of migrant women pointed out that two or more lifetime partners increased by five the risk of HIV infection (44). In the Hlabisa/Nomgoma study (45) (54) (56), migrant men were significantly more likely (p = 0.02) than non-migrant men to have at least one current casual partner and reported a significantly higher number of casual partners. Lagarde (52) reported also that mobility was associated with a high frequency of risk behaviour (casual partners). In our study non-migrants were less likely than migrants to have casual partners (OR = 0.67; p = 0.032). Our results did not show that the number of sexual partners increased the risk of HIV.

There was a weak association between the use of condom and HIV infection as well as migration and the use of condom but it was not significant.

Our study showed that non-migrants were less likely to have many sexual partners than migrants. Migration seemed to increase sexual behaviour, in particular the number of sexual partners.

Collinson (51) in his paper shed some light. In Limpopo, the province where our study took place, employed migrants were less likely to report two or more partners than employed non-migrants and depending on the patterns of returning home to rural area, employed migrants were at added risk of reporting two or more partners if they returned home fewer than three times a year compared to those who returned home on a monthly basis. We found in our study that there

was no relationship between the pattern of returning home and the reporting of multiple sexual partners among migrants.

In some instances migration may not lead to a rise in HIV infection. Our study was not able to show that migration increases the risk of HIV infection. However, our study in Limpopo Province has shown that migration could lead to a rise in sexual behaviour notably the reporting of multiple sexual partners.

4.3- Limitations

Research that involves sexual behaviours such as this one is prone to social desirability bias. Respondents tend to give answers that are suitable to the norms of the society and make them socially acceptable. On one hand, men tend to give answers that boost their masculinity such as ever had sexual intercourse, not using condom or exaggeration of the number of sexual partners (32). On the other hand, women tend to give answers that people approve of, or that conform to social norms especially in a rural setting such as this one. Women will not be comfortable to say that they have multiple partners whereas in fact they have more than one sexual partner or a non-spousal partner who provides for their financial and emotional needs (32). This is likely to have lead to reporter bias.

As in any cross-sectional study, the exposures and outcomes were measured at the same time therefore making difficult the determination of temporality of events.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS.

5.1- Conclusion.

Relationship between migration and HIV infection is determined by a host of structural and behavioural factors at a community level. Structural factors are those that have links with the condition or status of the migrant and form the structure of the migrant. Increased risk of HIV infection in migrants had been attributed to their migration characteristics. Risky sexual behaviours in migrants have been at the forefront of the debates. In our study, migration had not proved to be a risk factor for HIV infection. Other underlying structural factors need to be investigated in order to clarify the conditions that lead to HIV infection.

5.2- Recommendations.

Interventions should deal not only with migrants or the youth but they will be aimed at the all community. However, we found that the individuals in the age groups 25 - 29 years for women and 30 – 35 years for men had the highest HIV prevalence rate and interventions targeted at these age groups should take on a special emphasis.

The first intervention is the Information campaign. This can be in school or out of

schools and will be aimed at addressing changes in knowledge, attitudes and beliefs (A, B, C: Abstinence, Be faithful and use Condom) and risk perception. It will also be aimed at addressing changes in sexual behaviours and the delaying of sexual debut. The migrant should be advised to stick to one partner, to avoid multiple partners or to observe abstinence.

APPENDIX A: VARIABLES MEASURED

Table . Variables measured.

Type	Variables	Questions
Main explanatory	Migration	• Have you made an overnight trip to a large city during the last year? • For how many months of the last year were you staying here? • If less than 7 months, how was the pattern of your visits home in the last year?
Main outcome	HIV	• The measure of HIV status was the test that participants gave their consent to undergo.
Confounder	Age	• Date of birth: dd/mm/yy?
Confounder	Sex	• Male or female?
Risk factors	Sexual Behaviours	
	1. - Sexual experience	• Have you ever had sexual intercourse?
	2. - Age at first sexual intercourse	• At what age did you first have sexual intercourse?
	3. -Sexual partners	• How many of yours partners in the last 12 months were sexual partners that you are not married to and never lived with? • During the last 12 months how often would you say you have had sexual intercourse with these persons?
	4. - Use of condom	• Did you use a condom the last time you had sex with this person?
	5. - Paid money or material goods in exchange of sex	• During the last 12 months, have you ever paid this person with money or material goods in exchange for sex?
	6. - Received money or material goods in exchange of sex	• During the last 12 months, have you ever received money or material goods from this person in exchange for sex?

APPENDIX B: QUESTIONNAIRE

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Y100 : Background Information
Question Codes
Y101 Sex
Monna/Mosadi
1 = Male / *Monna*
2 = Female / *Mosadi*
Y102 Date of Birth dd/mm/yy
Y103 Have you ever been married or lived as being married?
O kile wa nyala/nyalwa goba wa dula ekare o nyetswe/nyetse?
1 = Never married / *A se nke*
2 = Currently married / living as married / *Nyetswe/Nyetse / dula ekare o Nyetswe/Nyetse*
3 = Separated / Divorced / *Kgaogane/ Hlalane*
4 = Widowed / *Mohlologadi / Mohlolo*
Y104 Nationality
Bodulo
1 = South African
2 = Mozambican
3 = Zimbabwe
4 = Other / *Tse dingwe*
Y105 What is your first language ?
Polelo ya ka gae
1 = Tsonga
2 = Sepedi
3 = Sepulana
4 = English
9 = Other / *Tse dingwe* _____
Y106 How long have you been a *permanent resident of* this village?
Ke nako e kae ole modudi wa mo motseng?
Number of years / *Mengwaga*
98 = since birth / *ke belegetswe mo.*
Y107 Where was your family living when you were born?
[Mark only one answer]

Le be le dula kae ge belegwa?
1 = This house / *Ntlong yona ye.*
2 = Other house in this village / *Ntlong e ngwe gona mo motseng*
3 = Other village in this region / *Motseng o mongwe gona mo nageng ye.*
4 = Other region in South Africa / *Nageng e ngwe gona mo South Africa.*
5 = Outside South Africa / *ka ntle ga South Africa*
Y108 Have you made an overnight trip to a large city during the last year? *O kile wa tsea leeto go ya nageng e ngwe gomme wa robala gona mo ngwageng wa go feta?*
1 = Yes / *Ee*
2 = No / *Aowa*
99 = No response / *A gona karabo*
Y109 For how many months of the last year were you staying here? *Ke dikgwedi tse kae tseo o di tserego o dula mo?*
Give no. of months
Efa palo ya dikgwedi.
Y110 **If less than 7 months**
How was the pattern of your visits home in the last year ?
O be etela gae ka mokgwa ofe ngwageng wa gofeta?
1 = Mainly weekends / *Mafelelo a beke*
2 = Mainly month ends / *Mafelelo a kgwedi*
3 = Occasional extended trips / *Ka maeto ago amana le mediro*
4 = Migrated in this year / *O hudugile ngwageng o*
5 = Other / *Tse dingwe*
Y111 Have you ever worked in any of the following industries ? *O kile wa shoma go le lengwe la mafapa a meshome*
1 = Mining industry
2 = The Military / *Boshole*
3 = Truck driver / *Mootledi wa Truck*
4 = None of the above / *Ago setee sa tseo*
Y112 Is your mother alive ?
Mme wa gago oa phela?
1 = Yes, household member / *Ee, Leloko la lelapa*
2 = Yes, non household member / *Ee, Ga se leloko la lelapa*
3 = No / *Aowa*
9 = Don't know / *Ga ke tsebe*

Y500 : Sexual Behaviour
Y501 Have you *ever* had sexual intercourse?
O kile wa robalana?

1 = Yes / *Ee*
2 = No / *Aowa*
9 = No response given / *A gona karabo*
If NO, go to page 8
Y502 At what age did you first have sexual intercourse?
O thomile tsa thobalano o nale mengwaga e me kae?
Age in years / *Efa mengwaga*
88 = Don't know / *Ake tsebe*
99 = No Response / *A gona karabo*
Y503 How would you describe the first time that you had sex? Would you say that you wanted to have sex, you did not want to have sex but it happened anyway, or were you forced to have sex?
O ka hlalosa bjang letsatsi la gago la mathomo ge o thoma tsa thobalano? O ka bolela gore o be o nyaka go robalana goba o be o sa nyake efela gwano direga ka tsela e ngwe, goba o gapeleditswe go robalana.
1 = Wanted to have sex / *O be o nyaka*
2 = Did not want but happened / *O be o sa nyake, efela gwa no direga ka tsela e ngwe*
3 = Forced to have sex / *O gapeleditswe*
99 = No Response / *A gona karabo*
Y504 How many people would you say you have had sexual intercourse with in total up to now in your life ?
Ke batho ba ba kae bao o ka rego o robetse le bona go fihla ga bjale, bophelong bja gago?
Give total number / *Efa palo kamoka*
88 = Don't know (too many) *A ke tsebe(Ba bantshi kudu)*
99 = No Response / *A gona karabo*
Y505 Have you had sexual intercourse in the last 12 months?
O kile wa robalana mo dikgweding tse 12 tsa go feta
1 = Yes / *Ee*
2 = No / *Aowa*
9 = No response given / *A gona karabo*
For WOMEN:
Think about all the male sexual partners you've had in the last 12 months / *Nagana ka balekane ba banna bao o bilego nabo dikgweding tse12 tsago feta*
For MEN:
Think about all the female sexual partners you've had in the last 12 months / *Nagana ka balekane ba basadi bao o bilego nabo dikgweding tse12 tsago feta*

Y506 How many of your partners in the last 12 months were Your spouse / live in partner(s)
Mo dikgweding tse 12 tsa go feta ke ba bakae ba balekane ba gago ba thobalano bao elego gore obe nyalane/dula le bona?
Efa palo.
88 = A ke tsebe
99 = A gona karabo
Y507 How many of your partners in the last 12 months were Sexual partners that you are not married to and have never lived with
Mo dikgweding tse 12 tsa go feta ke ba bakae ba balekane ba gago ba thobalano bao elego gore obe osa nyalana/dule le bona?
Efa palo.
88 = A ke tsebe
99 = A gona karabo

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Y700 : Non spousal partners
Last 3 partners during past 12 months. Start with most recent (1).
1 2 3
Y701 INITIAL

___
___
___
Y702 Give no. from HH interview if household member
Efa nomoro go tswa go HH questionaire, ge ele leloko la lelapa.

___ ___ ___
Y703 How old is that person? (99 = Don't know)
Motho yo o nale mengwaga e me kae? (99 = A ke tsebe)

___ ___ ___
Y704 Do you regularly provide financial support to this person ? (1 = Yes, 2 = No)
O fela o mo thusha ka tsa ditshelete? (1= Ee, 2 = Aowa)

___
___
___
Y705 Do you regularly receive financial support from this person ? (1 = Yes, 2 = No)

O fela o amogela thusho ka tsa ditshelete go tswa go motho yo? (1= Ee, 2 = Aowa)

___
___
___

Y706 During the last 12 months how often would you say you have had sexual
intercourse with this person (1 = Once only, 2 = 2 – 5 times, 3 = 6 – 20 times, 4
= >20 times)
Mo dikgweding tse 12 tsa go feta o ka bolel a gore o robalane le motho yo ga kae?
(0 = lefela, 1 = ga tee feela, 2 = ga 2-5 , 3 = ga 6- 20, 4 = go feta 20

___
___
___

Y707 How often would you say you have used a condom when having sex with this
person in the last 12 months (1 = Never, 2 = Less than half the times, 3 = Half
or >half the times, 4 = Always or nearly always)
O kare o shomishitse condom ga kae ge o robalana le motho mo dikgweding tse 12 tsa go feta? (1=
a se nke, 2 = gago fete seripa, 3 = gofeta seripa, 4 = ka mehla)

___
___
___

Y708 Did you use a condom the last time you had sex with this person
(1 = Yes, 2 = No)
O shomishitse condom ge o robalana le motho yo la mafelelo? (1= Ee, 2 = Aowa)

___
___
___

Y709 During the last 12 months, have you ever paid this person with money or
material goods in exchange for sex? (1 = Yes, 2 = No)
Dikgweding tse 12 tsa go feta, o kile wa fa motho yo tshelete goba se sengwe gore o robalane le
yena (1= Ee, 2 = Aowa)

___
___
___

Y710 During the last 12 months, have you ever received money or material goods
from this person in exchange for sex? (1 = Yes, 2 = No)

Dikgweding tse 12 tsa go feta, o kile wa amogela tshelete goba se sengwe gotswa go motho yo gore
o robalane le yena (1= Ee, 2 = Aowa)

___
___
___
Y711 Would you describe the relationship as Currently ongoing, or Now Ended (1 = Current, 2 = Ended)
O ka hlalosa gore lerato la lena le tswela pele goba le fedile?

___
___
___
Y712 Do you think this person has other sexual partners ? (1 = Yes, 2 = No)
O nagana gore motho yo o nale dinyatsi ? (1= Ee, 2 = Aowa)

___
___
___
Y713
In your opinion is this person at risk of HIV infection? (1 = Yes, 2 = No)
Go ya ka wena motho yo o kotsing ya go fetelwa ke HIV? (1= Ee, 2 = Aowa)

___
___
___
[ ] If NO NON Spousal Partners
check this box and go to page

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