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MSc in EPIDEMIOLOGY AND BIostatISTICS

RESEARCH REPORT

**FACTORS ASSOCIATED WITH HIV INFECTION IN OLDER SOUTH AFRICAN
WOMEN IN SOWETO, JOHANNESBURG**

**A RESEARCH REPORT SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH,
UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG IN PARTIAL
FULIFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE
IN EPIDEMIOLOGY AND BIostatISTICS**

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DECLARATION

I, **Christian Aguta Nyaundi** declare that this research report is my own work. It is being submitted for the degree of Master of Science in Epidemiology in the field of Biostatistics and Epidemiology in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

7th Day of October, 2011.

Sign:

A handwritten signature in cursive script that reads "Christian Nyaundi".

DEDICATION

I thank the Lord Almighty who has seen me through all phases of life up to this point. To my parents Nehemiah and Alice Nyaundi; who inspired me to never stop studying, and who instilled in me the discipline to complete this Masters degree. *Mom and Dad*, thanks for believing in me, and for your never wavering support throughout the past two years.

ABSTRACT

Introduction: The spread and prevalence of the HIV epidemic has resulted in extensive social, cultural and economic consequences in sub-Saharan Africa. It is estimated that about 60% of adults living with HIV in sub-Saharan Africa are women. South Africa, with 5.2 million HIV infected people, is estimated to have the largest number of people living with HIV/AIDS in the world. HIV among older women is not well documented, despite high prevalence rates amongst women 45 years and older. Moreover, few HIV-related interventions are directed to the elderly in South Africa. HIV risk factors among older women have also not been well documented. It is important to determine the factors associated with older women, and how they affect their HIV infection rates. Understanding these factors may lead to better HIV prevention strategies. This study aimed to determine the HIV prevalence in older South African women and to determine the factors associated with HIV infection in older South African women living in Soweto, Johannesburg.

Materials and Methods: We did an analytical cross-sectional study on a convenience sample of 500 women (45 years and older) recruited from various venues in Soweto, a large urban African setting in Johannesburg, South Africa, and who accepted to be tested for HIV. Private face-to-face interviews were conducted and included an assessment of socio-demographic characteristics and behavioural factors thought to be associated with HIV.

Results: 449 women were included in the study and 52 (11.6%) women were found to be HIV positive. Increased odds of HIV infection was associated with condom use (OR=3.75, 95%CI: 1.71–8.19), transactional sex (OR=2.44, 95%CI: 1.04–5.69) and marital status. Compared to a married woman, a woman was more likely to be HIV positive if she was single, widowed or

“cohabiting”. Decreased odds of HIV infection was associated with age (OR=0.90, 95%CI: 0.85–0.96) and education. With respect to a woman with less than 5 years of education, a woman was less likely to be HIV infected if she had more than 5 years of education.

Conclusion: Further research needs to be done to determine the exact HIV prevalence amongst older women, as well as risk factors associated with HIV infection. It is also important that older women be encouraged to use condoms, as they are known to be an effective barrier to HIV infection. There is need for HIV-related interventions targeted to older women.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIDS Acquired Immuno Deficiency Syndrome

AUDIT Alcohol Use Disorders Identification Test

CES-D Center for Epidemiologic Studies Depression

ELISA Enzyme-linked Immunosorbent Assay

HIV Human Immuno-Deficiency Virus

HPTN HIV Prevention Trials Network

HSRC Human Sciences and Research Council

IPV Intimate Partner Violence

NDOH National Department of Health

NIMH National Institute for Mental Health

PHRU Perinatal HIV Research Unit

SES Socio Economic Status

SRPS Sexual Relationship Power Scale

SSA Sub Saharan Africa

STD Sexually Transmitted Diseases

UCLA University of California, Los Angeles

UNAIDS Joint United Nations Programme on HIV and AIDS

VCT Voluntary Counselling and Testing

WHO World Health Organisation

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1. INTRODUCTION

1.1. Background

Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Disease Syndrome (AIDS) is a global health problem and it remains a leading cause of morbidity and mortality globally. It was estimated that 33.4 million people were living with HIV in the world in 2008 with a global prevalence of 0.8% (UNAIDS, 2009).

Sub-Saharan Africa remains the most heavily affected region, accounting for 67% of the world's HIV infections. Of 2 million estimated deaths from HIV/AIDS in 2008, 72% occurred in countries within sub-Saharan Africa (UNAIDS, 2009). Furthermore, out of 2.7 million new infections, it was estimated that 1.9 million occurred in sub-Saharan Africa (Shisana et al., 2009). In 2007, it was estimated that women represented 61% of adults living with HIV in sub-Saharan Africa (Hattingh et al., 2009). With 5.2 million HIV infected people, South Africa has the largest number of people living with HIV/AIDS in the world (Anguko, 2009).

HIV among older women is a largely ignored phenomenon, despite estimates of HIV prevalence among women over 45 being high in some areas. HIV prevalence in South Africa is generally higher in women than in men, with younger women being at a greater risk of infection. However older women in South Africa still have an HIV prevalence of more than 5% (Shisana et al., 2009).

Few HIV-related interventions are targeted to the older people, with focus in South Africa generally directed towards the younger age groups where prevalence is highest. However, older

women are at risk of becoming HIV infected, and may be particularly vulnerable to infection. It is unclear if risk factors associated with HIV infection are the same for women across all age groups (Lieberman, 2000).

1.2. Problem Statement

The impact of HIV and AIDS has been felt in all sectors of society. HIV and AIDS has had a massive impact on the economy, food security and health services for relatively poor countries like South Africa (Hattingh et al., 2009).

Older women are generally perceived to be sexually inactive or to be in monogamous, heterosexual relationships. However, older women (over 50) are reported to engage in sexual activity on average 2-4 times a month (Patel et al., 2003). Furthermore, older women do engage in behaviour that may increase the risk of HIV infection, since pregnancy is no longer a concern and barrier methods of protection may be infrequent (Patel et al., 2003).

Health challenges in older people in developing countries are often neglected. This is evident in most HIV studies where the upper limit for reporting HIV prevalence is usually 49 years. However, the long latency period and the fact that older people continue to be sexually active suggests that HIV and AIDS are likely to affect older people (Negin et al., 2010). Many HIV positive people will eventually transition into the older age groups with the virus. Furthermore, with increased treatment options, the nature of HIV and AIDS will change from the lethal acute disease it was once thought to be into a chronic illness that will eventually affect increasing numbers of older people (NASW, 2003).

Although older people have their own age-specific health challenges like osteoporosis, Alzheimer's disease, prostate cancer, menopause and hypertension, HIV infection is not usually associated or discussed within this community (Lieberman, 2000). Furthermore, HIV risk factors among older women are not well documented thus little known about the burden of HIV amongst this group in South Africa.

1.3. Rationale

HIV and AIDS has traditionally been viewed as a disease of younger, more sexually active people (Emlet, 2006). However, sexuality is an important aspect of all phases of life and older people can and do engage in sexual activity, albeit at lower rates than younger women. While women in older age groups are no longer at risk for pregnancy, they are at risk of acquiring sexually transmitted infections (Patel et al., 2003).

It is important to determine the factors associated with HIV infection among older women. It is also important to determine whether these factors are different from those associated with HIV infection in younger women. Understanding these risk factors may lead to better HIV prevention strategies.

2. LITERATURE REVIEW

2.1. HIV prevalence in older women

An estimated 3 million adults 50 years and older are living with HIV in sub-Saharan Africa. People in this age group account for 14.3% of all HIV infections in people over 15 years of age (Negin and Cumming, 2010). Older people are globally the fastest growing HIV-infected group, having increased by 138% from 1993 to 2002 (Patel et al., 2003). Similarly, the South African population is rapidly aging, with the number of people aged over 50 years projected to increase to 13 million by 2050, which will represent 28% of the projected 2050 population (Nyirenda et al., 2011). HIV programmes in South Africa predominantly focus on younger women in the 25–29 age group, where one in three (32.7%) are HIV infected. HIV prevalence in South Africa is highest in adults between 15–49 years, with younger women being at greater risk, but older women have an estimated HIV prevalence of 5% (Shisana et al., 2009).

In the South African context, an older person refers to a woman aged 60 years or older. However, in the HIV context, the term “older adult” usually denotes people aged 50 years or older mainly because they are often left out in HIV care programmes and research (Ng'anjo and Diwouta, 2011).

In South Africa, HIV is mainly tracked through HIV surveillance at antenatal clinics where the prevalence has increased from below 1% in 1990 to 28% in 2007. HIV prevalence in Gauteng province, where Soweto is located, is about 30% in antenatal women (National Department of Health, 2008), while HIV prevalence in pregnant women between the ages of 45–49 years was

reported to be 23.9% (AVERT, 2010). These figures are not a good reflection of prevalence in older women because few women get pregnant at this age.

Table 1 below shows HIV prevalence in women aged 45 years and older from the 2008 South African National HIV Prevalence, Incidence, Behaviour and Communication Survey. HIV infection is high in older women; ranging from 7.7% among women aged 55-59 years and 14.1% among women aged 45-49 years (Shisana et al., 2009).

Table 1: HIV prevalence (%) in women 45 years and over; (Source: Shisana et al., 2009).

Age Group	HIV prevalence (%)
45 – 49	14.1%
50 – 54	10.2%
55 – 59	7.7%
60+	1.8%

Data from a longitudinal population-based HIV surveillance site conducted at the Africa Centre for Health and Population Studies (Africa Centre) in northern KwaZulu-Natal found an HIV prevalence of 4.4% in women aged over 50 years in 2008 and 9.0% in women aged over 60 years. However, the prevalence estimates in this setting are expected to be high due to the severe nature of the HIV epidemic in this community compared to others around the country (Wallracuh et al., 2010).

Little is known about the HIV prevalence in the general Soweto population and much less is known about HIV among adults who are aged 45 years and over. HIV prevalence in Soweto has been reported to be 14.6%, 13.9% among males and 15.3% in women (Personal communication with Precious Modiba, Project Accept). HIV prevalence in women at a walk-in Voluntary

Counselling and Testing (VCT) centre was 37% and it was 28.9% in older women (45 years and older) (Table 2). The age specific prevalence is shown in Table 2 below:

Table 2: Walk-in VCT centre at PHRU, Chris Hani Baragwanath Hospital (Jan 2007 – Sep 2008) (Data from Perinatal HIV Research Unit (PHRU))

Age Group	Number tested	HIV prevalence
All	4207	37%
0 – 44	3768	38%
45 – 50	264	33%
51 – 55	115	25%
56 – 60	40	20%
61 – 70	18	39%
71+	2	0%

These numbers still suggest that the HIV prevalence in older women in Soweto is a health concern.

2.2. Sexual patterns in older women

Frequency of sexual activity generally declines with age and women are not likely to report sexual activity compared to men. Reasons for women’s decreased sexual activity may include low sexual desire, difficulty in vaginal lubrication and inability to climax. It is also difficult for most of these women to discuss sex problems with their physicians (Lindau et al., 2007).

Douching is also practiced by a minority of women; it has been linked with increased risk of chlamydial and gonorrhoeal infections. Moreover, older women are at risk of STI infection because of the physical changes that occur during aging. These include thinning of the vaginal mucosa and increased friability of cervical tissue may increase susceptibility to HIV. This is compounded by decreased T-cell activity and immunoglobulin production. These age-related

physical changes might make older women more susceptible to HIV than their younger counterparts (Foxman et al., 1998).

Nevertheless, more research has been shaped to legitimate or enhance sexual behaviour in old age. Sexual activity is higher among older married than non-married persons. A study in older American people found that a large proportion of married women remain sexually active compared to unmarried women (Diokno et al., 1990). Older women may also be influenced by changes in marital status, such as divorce or widowhood, or by cultural messages that may discourage sexual assertiveness (Zablotsky and Kennedy, 2003).

Three national demographic and health surveys carried out in South Africa (2002, 2005 and 2008) all reported that the prevalence of multiple sexual partners in women aged 50 years or older stood at about 1% in each survey. Moreover, there was a decline in reported multiple sex partners in men, from a high of 9.8% in 2005 to 3.7% in 2008 (Shisana et al., 2009). This might suggest a declining trend in sexual partners amongst older people (Zablotsky and Kennedy, 2003).

Little is known about contraceptive use among older women. It has been estimated that nearly 30% of American women aged 45–54 are still in need of contraception, mainly because they have not gone through menopause or have been sterilized. There is low reported condom usage amongst people in this age group (Lieberman, 2000). Studies on initiating condom use for disease protection have almost always been conducted in younger women, and even when older

women are included, they make up a very small proportion of the study sample (Zablotsky and Kennedy, 2003).

A variety of sexual response changes may occur in women after menopause, as well as anatomical changes. The anatomical and physiological changes associated with aging can negatively affect the sexual response cycle (Gelfand, 2000).

While women in the oldest age groups are no longer at risk for pregnancy, they are at risk for acquiring or transmitting STDs, making them a unique target for STD-related research and support services (Patel et al., 2003).

2.3. Risk perception

There is reported risky sexual behaviour in people aged 50 years and older. Unfortunately, many older women remain unaware, uninformed and unconcerned about HIV and AIDS, with an “it can’t happen to me” attitude (Binson et al., 1997). In the 2005 Human Sciences Research Council (HSRC) study, 48% of older women thought that they would definitely not get infected with HIV (Shisana, et al. 2005).

A nationwide American study (Binson et al., 1997) found that most older women did not perceive themselves to be at any risk of HIV infection. About 90% of the women who did not know the risk status of their primary partner indicated that they were not at risk of HIV. In South Africa, self-reported risk of getting infected with HIV found that 48.2% thought that they would

probably not get infected, 27.1% thought they would possibly not get infected and 1.3% thought they would definitely get infected (Shisana and Rehle, 2005).

Older women underestimate their personal risk, or have no idea what it is (Zablotsky and Kennedy, 2003) and may have fewer opportunities to be tested for HIV (Schable et al., 1996). There is also a general perception that older people cannot get infected with HIV, because they are expected to be monogamous and should be abstaining from drugs and alcohol, which is not always the case (Lieberman, 2000). Furthermore, older adults may be under the misconception that they are protected from HIV if they are in a stable relationship. Nonetheless, those who are in new relationships after being widowed, separated or divorced, are also at risk. Moreover, the South African HIV epidemic is also highly heterogenous, with a substantial variation by geographic location and ethnic group, which may put these women at high risk (Ng'anjo and Diwouta, 2011, Wallracuh et al., 2010).

2.4. Intimate partner violence

Gender-based violence is increasingly cited as a major risk factor for HIV infection in women (Dunkle et al., 2006). Intimate partner violence (IPV) in South Africa is very high (Dunkle et al., 2004c). IPV has also been found to increase risk of incident HIV infection in young South African women (Jewkes et al., 2010). A study conducted in antenatal clinics in Soweto found that women with violent or controlling male partners were at increased risk of HIV infection (Dunkle et al., 2004a). This study postulated that abusive men were more likely to be HIV infected and may impose risky sexual practices on partners. A study in Rwanda found that HIV positive women were more likely to report a history of violence (van der Straten et al., 1998). Moreover, there is alarming evidence emerging of sexual abuse amongst older women in South

Africa (Wilson and Adamchak, 2001). Although most of these studies were conducted on younger women, it is likely that older women would be similarly affected.

2.5. Transactional Sex

Sex work is associated with increased risk of HIV infection in South Africa but it only represents one end of a broad spectrum of transactional sexual behaviour (Dunkle et al., 2004b). Research in sub-Saharan Africa has shown that few women who exchange sex for material gain identify as sex workers (Hunter, 2002). Transactional sex is usually defined in terms of money or gifts, but may also include gifts that motivate the relationship (Dunkle et al., 2004b). Transactional sex is thought to be a major driver of HIV in sub-Saharan Africa (Swidler and Watkins, 2007).

Transactional sex may place women at increased risk for HIV as it is associated with IPV, substance abuse and socio-economic disadvantage. A study in Soweto (Dunkle et al., 2004b) found that women who reported past experience of IPV were more likely to report transactional sex, while women who were married or had a post-secondary education were less likely to report transactional sex. The same study found that women who reported transactional sex with men other than their primary partners were significantly more likely to be HIV positive than those who did not report transactional sex. Women who were 36 years or older were more likely to report transactional sex with non-primary partners than women who were 16-20 years old (OR=1.76, CI: 1.03-3.02) (Dunkle et al., 2004b). While the majority of research on transactional sex is focused on the youth (Luke, 2003), these results show that transactional sexual behaviour is clearly not limited to youth and it should be considered a possible risk factor for HIV in older women.

3. STUDY OBJECTIVES

3.1. Study Question

What are the factors associated with HIV infection in older South African women (45 years and older) living in Soweto, Johannesburg?

3.2. General Objective

To determine the factors associated with HIV infection in older South African women living in Soweto, Johannesburg in July 2009.

3.3 Specific Objectives

1. To describe the socio-demographic factors such as age, education level, marital status, and socio-economic status of older women in Soweto, Johannesburg.
2. To describe sexual and lifestyle factors in older women living in Soweto, Johannesburg, e.g. transactional sex, condom use, alcohol and intimate partner violence.
3. To determine the prevalence of HIV in older women (aged 45 years and above) living in Soweto, Johannesburg.
4. To investigate the association between these factors and HIV status in older women living in Soweto, Johannesburg.

4. METHODOLOGY

4.1. Study design

This study is an analytical cross-sectional study using secondary data from a study of older women carried out by the Perinatal HIV Research Unit (PHRU) and Anova Health Institute in Soweto, Johannesburg, South Africa. The original study was designed to describe the overall burden of HIV in older women and to specifically determine the HIV prevalence, risk factors for HIV infection and personal impact of HIV and AIDS.

4.2. Study Area

The study was conducted in Soweto; a large urban African setting located in the South West of Johannesburg. The people of Soweto are predominantly black and are a mixture of almost all tribal groups found in South Africa. The 2001 national census estimated that there were 1.1 million people living in Soweto, but it is reported that this figure could be as much as 3.5 million, due to the large number of illegal immigrants from other countries (Ramchander, 2004). Soweto is made up of a cross-section of all types of people; from the relatively wealthy who live in private homes to the poor living in squatter camps.

4.3. Study Population

The study targeted all women aged 45 years and older who lived in Soweto, Johannesburg in July 2009.

4.4. Study Sample and Sample Size

4.4.1. Inclusion criteria

Women 45 years and above who were prepared to sit with an interviewer for approximately one hour and prepared to give blood for HIV and CD4 cell count testing were included in the study.

4.4.2. Sample size

A convenience sample of approximately 500 older women was recruited from various venues including clinics, shopping centres, churches, stokvels and taxi ranks. These areas form the catchment areas of the HPTN 043/NIMH *Project Accept* Study; a community based voluntary counselling and testing project hosted in collaboration with University of California, Los Angeles (UCLA) and funded by the US National Institute for Mental Health.

4.5. Data collection

4.5.1. Data collection procedures

The study took place in July 2009. Participants were invited to take part in the study and were informed that it was voluntary, confidential and that they could withdraw at any time. Each participant was offered a free health check-up where blood pressure, blood sugar level, weight and height were measured. If any of these were found to be abnormal, the participant was referred to the nearest clinic or hospital for treatment. The participants were also given advice on how to take care of their health.

Provided that consent had been given, approximately 5ml of blood was drawn by a trained nurse, which was used to test for HIV. HIV status was confirmed by performing laboratory blood tests

using a WHO approved protocol for diagnostic rapid testing. Positive results were confirmed with a second test and discrepant results were resolved using ELISA.

After blood was drawn, participants were invited to participate in an interview that took between 45 minute to 1 hour, conducted in private. A detailed, structured questionnaire covering questions on socio-demographic factors, experiences with and attitudes towards HIV and AIDS, experiences of violence, sexual behaviour and other behavioural factors was administered through a face-to-face interview. Interviews were conducted either in isiZulu or SeSotho.

The structured questionnaire consisted almost entirely of questions that had been used in previous surveys (Jewkes et al., 2006) (Dunkle et al., 2004b) (Dunkle et al., 2004a) in South Africa or were components of standard instruments. A continuous scale measuring socio-economic status was derived from the frequency of owning different items e.g. TV, cell phone, electricity, etc (Jewkes et al., 2006). Information about experiences of emotional abuse, physical and sexual violence from any male partner was measured using an adapted version of the WHO violence against women instrument (WHO, 2000). Alcohol use and dependence was assessed using the Alcohol Use Disorders Identification Test (AUDIT) scale (Saunders et al., 1993) while depression was measured using the Centre for Epidemiologic Studies Depression Scale (CES-D) (Weissman et al., 1977).

Women were asked about primary and/or non-primary male partners, history of transactional sex and whether they had ever used condoms. Non-primary partners were defined as “*makwapheni*” (secret concurrent partners) or once-off partners, (men with whom women had had sex with only

once). “Casual partner” was defined as having had any of these and was a mutually exclusive variable. We created a mutually exclusive variable (“partners”) to describe whether a woman had 1) no current or casual sex partner, 2) and 3) had only a current sex partner or a casual sex partner, or 4) had both a current sex partner and a casual sex partner. Similarly, we created a mutually exclusive variable (“transactional sex”) to define transactional sex. Transactional sex was defined as having had sex with a partner mostly motivated by material gain (e.g. food, clothes, cash, status, etc.). This definition has been used in a previous study measuring HIV infection in Soweto (Dunkle et al., 2004b).

The South African adaptation of the Relationship Control Subscale from the Sexual Relationship Power Scale (SRPS) was also administered (Dunkle et al., 2004a). There were 10 items measured on a 5 point scale (1=strongly agree, 2=agree, 3=don’t know, 4=disagree, 5=strongly disagree) on women’s subjective experiences of being “controlled” while in an intimate relationship. A similar scoring system was used to develop a scale for attitudes on condom usage and on stigma associated with HIV and AIDS. This method has also been used in a previous South African study (Jewkes et al., 2006).

Should a participant want to know their HIV result, depending on the venue:

1. The participant was referred to the closest voluntary counselling and testing (VCT) centre where arrangements were made for same day VCT.
2. A trained lay counsellor provided pre- and post-test counselling and discussed HIV and AIDS and what the test results meant. The results were explained to the participant and if the result was HIV positive, the blood was sent to the laboratory for a CD4 cell count.

The study co-ordinator would take the participant's contact details so that the CD4 cell count result could be given and then they could be referred to the nearest clinic for follow-up. If a study participant tested HIV negative, they would be encouraged to have a repeat test within six weeks to cover the window period.

3. The HIV test was done at the PHRU laboratory and the participant would be contacted to come to the PHRU for the test results where she would receive counselling before and after receiving the test results. If she tested HIV positive, the CD4 count would be given to her at the same time and she would be referred for appropriate treatment. If a study participant tested HIV negative, they would be encouraged to have a repeat test in six weeks to cover the window period.

All study personnel were trained by the investigators on interview techniques. They were also trained on confidentiality issues, being sensitive to the respondent's needs and understanding that some of the information might cause the respondent some distress.

4.5.2. Risks to participants and procedures to reduce risk

The main risk associated with this study was breach of confidentiality. This was managed by allowing the participants to select the venue and time for the interview, as well as making private space available at PHRU as a default location. No names were attached to any interview schedule. All written records from the study were kept in locked cabinets only accessible to study personnel. Digital information from the study was kept in password protected files. Another risk was mild stress during the interview. This was managed by allowing the study participant to stop the interview at any time or refuse to answer any question. If a participant seemed emotionally distressed by her participation, the interviewer would refer her to the study co-ordinator to offer support and refer her to psycho-social support services as needed. Mild

discomfort might also have been experienced while taking blood. This was managed by informing the participant beforehand and giving the participant the option to refuse to give blood.

4.5.3. Benefits

Benefits of participation included a free basic health screen and an opportunity to learn their HIV status and, if necessary, their CD4 cell count. Each participant was offered a free health check where blood pressure, blood sugar, weight and height were measured. If any of these were found to be abnormal, the participant would be referred to the nearest clinic or hospital for treatment. The participants would also be given advice on how to take care of their health. If a study participant wanted to know her HIV result, VCT testing was provided free of charge. If she tested HIV positive her CD4 count results would be given to her (unless she did not want to be contacted) and appropriate referral would be made to the closest clinic or hospital.

4.5.4. Reimbursements

Study participants were given R50 for participation in the study and to cover transport costs.

4.6. DATA MANAGEMENT

4.6.1. Data Management

Data were entered into Epi Info (Centres for Disease Controls and Prevention, Atlanta, Georgia) and transferred to STATA 10 (Statacorp, College Station, Texas) for statistical analysis. Questionnaire data were linked to HIV and CD4 test results via unique study ID codes. The study code was used on all interview schedules, blood samples and test results. The participant's name and code appeared only on one document which was kept separate from any of the

interviews, blood samples and test results. The only time the study code was linked to the results was when the participant agreed to be contacted to receive their CD4 count test results.

4.6.2. Outcome variable

HIV infection: It was a binary variable. A study participant was either HIV positive or HIV negative

4.6.3. Study variables

Socio-demographic characteristics: Study variables that were assessed included age, marital status, education level, home language, residence (rural or urban) and socio-economic status.

Behavioural factors: Behavioural factors that were assessed included condom use, transactional sex, substance abuse, depression, HIV and AIDS stigma, intimate partner violence, relationship control and sexual behaviour.

4.7. DATA ANALYSIS

Descriptive tables were constructed for socio-demographic characteristics and for factors thought to be associated with HIV. Data was summarised by HIV status. Means (standard deviations) or medians (inter-quartile ranges) were described for continuous variables. Categorical variables were tabulated and their frequencies were recorded. We used t-tests, ranksum (for data that was not normally distributed) and chi-square (using Fischer's exact where appropriate) to determine factors associated with HIV infection. The internal consistency of scales was assessed by examining Cronbach's- α (Santos, 1999) and items were removed if necessary to maximise the α for each scale.

For each of the major independent variables (e.g. age, condom use, transactional sex, etc.) the crude associations with HIV infection were estimated by odds ratios with 95% confidence intervals. Univariable analysis was used to select variables that would be included in the multivariable analysis. Multiple logistic regression was used to further explore for association between the outcome (HIV) and explanatory variables (factors of interest) of interest in adjusted models. A p-value of 0.2 was used for selection of variables into this model. Factors that were found to be important risk factors in previous studies were also included into this model. All socio-demographic variables significantly associated with HIV were considered as potential confounders of the relationship between the behavioural factors and HIV. Variables that were noted to significantly confound this association were included in the final model. The Hosmer-Lemeshow test was used to assess the fit of the models.

Interaction terms were created between variables found to be significant in the multivariable model. The variable “partners” was also assessed for effect modification. These interaction terms were fitted into the multivariable model to assess statistical significance. We used dummy variables as place holders in places where 10% of data was missing.

4.8. Ethical Review

The study protocol was submitted to the Wits Ethics Review Committee for Human Subjects. Written informed consent was obtained from the respondents before the interviews began. Permission was also sought from the Perinatal HIV Research Unit and Anova Health Institute to use the data for this secondary analysis.

5. RESULTS

5.1. Characteristics of the Study Population

A total of 503 women were interviewed during the study. Thirty-one (6.2%) women were excluded from data analysis because their HIV test results were either indeterminate or missing. A further 23 (4.6%) whose age was unknown or who were aged less than 45 were also excluded. A total of 449 (89.3%) women were included for statistical analysis. Figure 1 shows a summary of enrolment and outcomes.

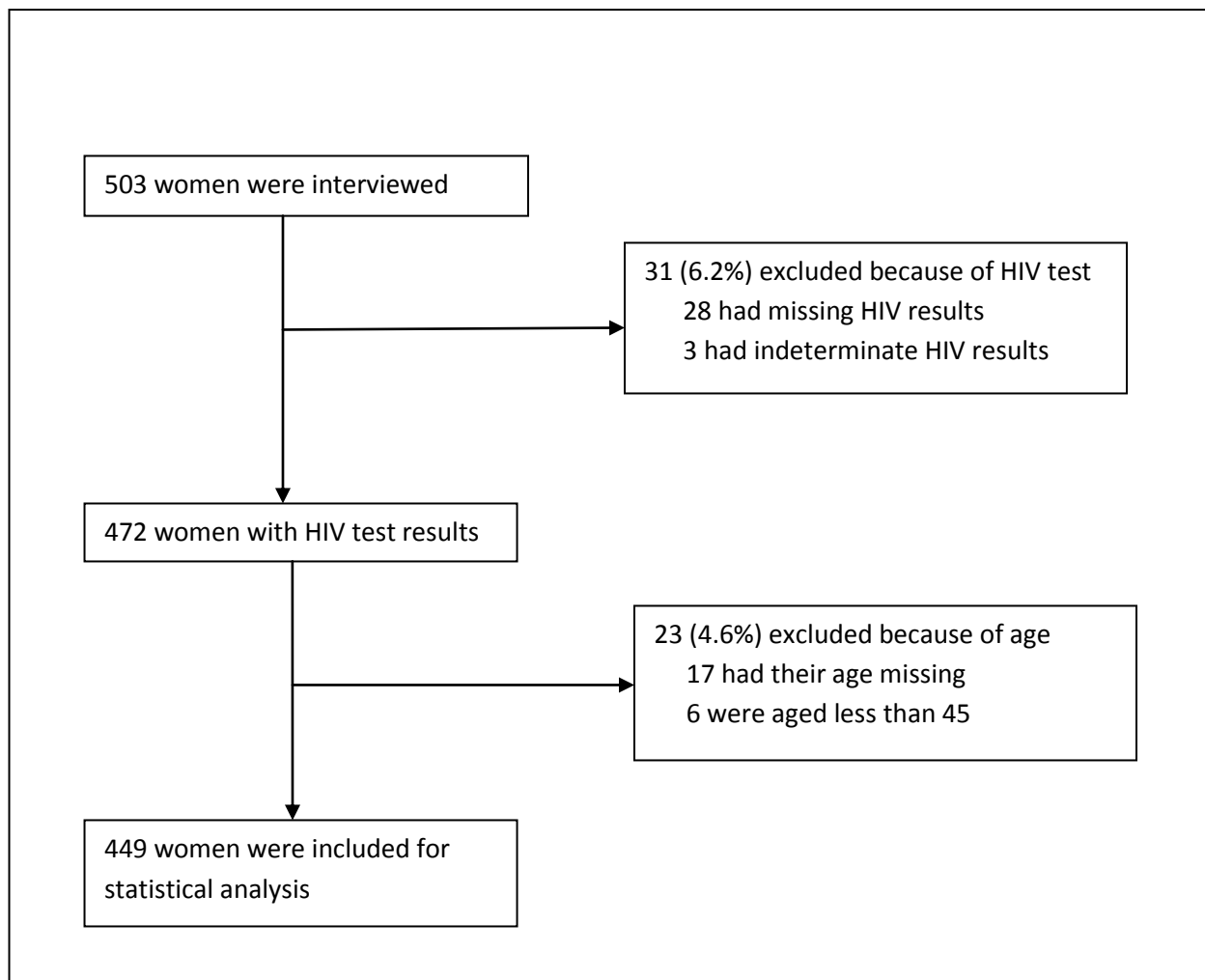


Figure 1: Women who participated in the sexual health survey in Soweto.

Table 3 below gives a summary of the socio-demographic characteristics of women who participated in the survey and results are stratified by HIV status (column percentages). Many of the women (43.2%) were older than 60 years old. About a half of the women (46.6%) had 8 or more years of education. Approximately 42% of the women reported that they were divorced or separated while 128 (29.6%) of the women said that they were married. Almost half of the HIV positive women (44.9%) were single and most of them (60.8%) had 1 or 2 children. Most of the women (73.9%) said that they were unemployed and 279 (77.7%) said that they had earned no money for work in the past 12 months.

Table 3: Summary of socio-demographic characteristics

Demographic characteristics	HIV Negative, n=397 (88.4%) n, (%)	HIV Positive, n=52, (11.6%) n, (%)	Total n=449 N	p-value
Age group				
• 45 – 50	87 (22.9%)	29 (56.9%)	116 (26.9%)	<0.01
• 51 – 60	115 (30.2%)	14 (27.4%)	129 (29.9%)	
• 60 +	179 (46.9%)	8 (15.7%)	187 (43.2%)	
Education level				
• <5 years	50 (13.0%)	10 (19.6%)	60 (13.8%)	0.04
• 5 – 7 years	160 (41.8%)	12 (23.5%)	172 (39.6%)	
• 8 or more years	173 (45.2%)	29 (56.9%)	202 (46.6%)	
Home language				
• Isizulu	155 (40.4%)	28 (53.8%)	183 (41.9%)	0.51
• Sesotho	110 (28.6%)	10 (19.2%)	120 (27.5%)	
• Setswana	54 (14.1%)	5 (9.6%)	59 (13.6%)	
• Isixhosa	41 (10.7%)	6 (11.5%)	47 (10.8%)	
• Other	24 (6.2%)	3 (5.9%)	27 (6.2%)	
Marital status				
• Married	120 (31.2%)	8 (16.3%)	128 (29.6%)	<0.01
• Single	72 (18.8%)	22 (44.9%)	94 (21.7%)	
• Divorced/Separated	170 (44.3%)	13 (26.5%)	183 (42.3%)	
• Other (widowed/cohabiting)	22 (5.7%)	6 (12.3%)	28 (6.4%)	
Parity				
• No children	12 (3.1%)	2 (3.9%)	14 (3.2%)	<0.01
• 1 or 2 children	133 (34.2%)	31 (60.8%)	164 (37.3%)	
• 3 or 4 children	144 (37.0%)	12 (23.5%)	156 (35.4%)	
• 5 or more children	100 (25.7%)	6 (11.8%)	106 (24.1%)	

Demographic characteristics	HIV Negative, n=397 (88.4%) n, (%)	HIV Positive, n=52, (11.6%) n, (%)	Total n=449 N	p-value
Residence				
• Rural	26 (6.7%)	2 (4.0%)	28 (6.4%)	0.47
• Urban	363 (93.3%)	48 (96.0%)	411 (93.6%)	
Earned money for work in the past 12 months				
• No	244 (78.5%)	35 (72.9%)	279 (77.7%)	0.39
• Yes	67 (21.5%)	13 (27.1%)	80 (22.3%)	
Employment status				
• Unemployed	272 (73.5%)	40 (76.9%)	312 (73.9%)	0.15
• Student	55 (14.9%)	3 (5.8%)	58 (13.7%)	
• Part-time	16 (4.3%)	5 (9.6%)	21 (5.0%)	
• Full-time/Self-employed	27 (7.3%)	4 (7.7%)	31 (7.4%)	
Range of monthly income				
• R0 – R799	18 (5.0%)	7 (14.6%)	25 (6.1%)	0.02
• R800 – R1799	143 (39.4%)	23 (47.9%)	166 (40.4%)	
• R1800 or more	175 (48.2%)	16 (33.3%)	191 (46.5%)	
• Don't know/Refused to answer	27 (7.4%)	2 (4.2%)	29 (7.0%)	
Income provider				
• Self	162 (42.6%)	23 (45.1%)	185 (42.9%)	0.94
• Husband/Partner	53 (14.0%)	8 (15.7%)	61 (14.2%)	
• Both equally	62 (16.3%)	7 (13.7%)	69 (16.0%)	
• Other person	103 (27.1%)	13 (25.5%)	116 (26.9%)	
Main material used to build walls of house				
• Permanent material	366 (95.3%)	41 (78.9%)	407 (93.4%)	<0.01
• Impermanent material	18 (4.7%)	11 (21.1%)	29 (6.6%)	
SES score				
Mean (standard deviation)	11.4 (4.7)	9.1 (3.3)	399	<0.01

5.2. HIV Prevalence

Fifty-two women (11.6%, 95%CI: 8.6–14.6) were HIV positive. Figure 2 shows the prevalence of HIV infection in different 5 year age-group bands amongst study participants. Prevalence of HIV infection decreased with increasing age. HIV infection was highest in the 45-49 year age group, at 25.7%. HIV prevalence was lowest in the 60+ age group, with only 4.1% of the study participants HIV positive.

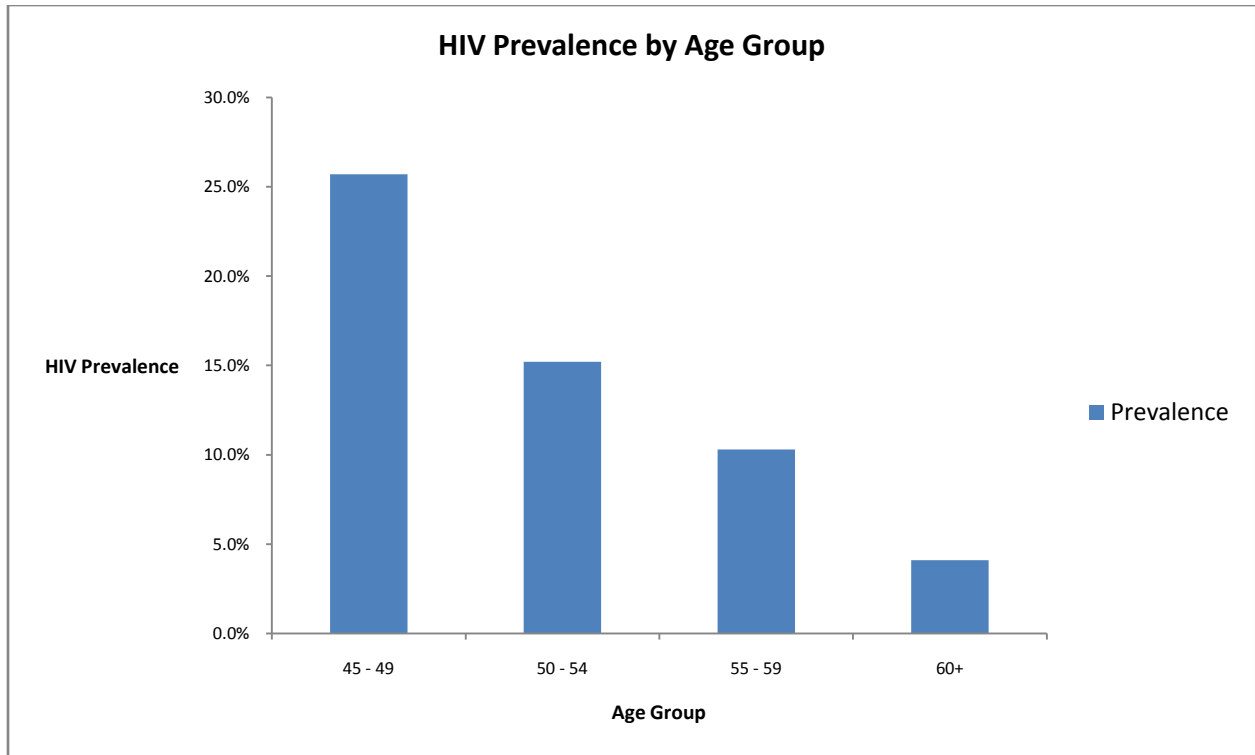


Figure 2: HIV prevalence by Age Group

Figure 3 below shows the HIV prevalence by marital status. The prevalence of HIV infection was highest among single women (23.4%) and those classified as “other” which included widowed women (21.4%).

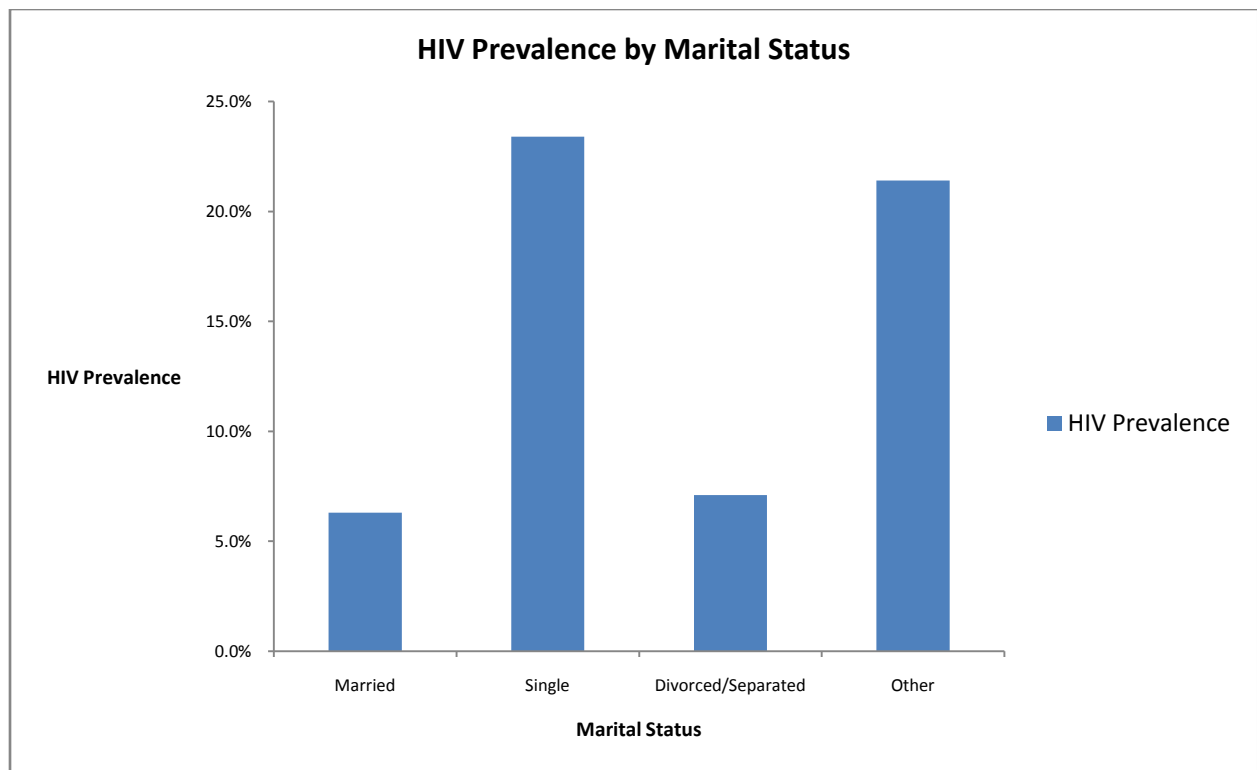


Figure 3: HIV prevalence by Marital Status

5.3. Behavioural factors associated with HIV

Table 4 is a summary of the behavioural factors associated with HIV status amongst study participants. Thirty-six women reported having casual partners, 8 of whom were HIV positive. About a third of the women (30.4%) could be defined as having transactional sex, 18 (20%) of whom were HIV infected.

About 61% of women (251 out of 412) reported neither physical nor sexual violence. More than half of the HIV infected women (29 out of 52) said that they had not experienced any form of intimate partner violence. Only 87 out of 436 women (19.9%) reported ever having used a condom, 24 of whom were HIV positive.

Almost half (44%) of the women who had an STI in the preceding 12 months were HIV infected. Seventeen (6.4%) women reported having both a current sex partner and a casual partner. Eighteen (6.8%) reported having only a casual partner, 109 (41.1%) said they only have one current sex partner, while 121 (45.7%) reported neither a casual partner nor a current sex partner.

The median AUDIT score was 6 (IQR: 3–11) amongst the HIV negative women and 7 (IQR: 3–11) in the HIV positive women, which suggests that alcohol abuse is not a major problem amongst these women (Saunders et al., 1993). Only 11 (2.8%) women reported any form of drug use, two of whom were HIV infected.

Table 4: Summary of Behavioural factors associated with HIV

Factor	HIV Positive n=52 (11.6%) n (%)	HIV Negative n=397 (88.4%) n (%)	Total n=449 N	p-value
Transactional sex				
Any transactional sex				
• No	17 (8.2%)	189 (91.8%)	206 (69.4%)	<0.01
• Yes	18 (20.0%)	72 (80.0%)	90 (30.4%)	
With main partner				
• No	35 (10.5%)	298 (89.5%)	333 (81.6%)	0.05
• Yes	14 (18.7%)	61 (81.3%)	75 (18.4%)	
With <i>makwapheni</i>				
• No	27 (10.1%)	242 (89.9%)	269 (89.4%)	0.14
• Yes	6 (18.8%)	26 (81.2%)	32 (10.6%)	
With once-off partner				
• No	35 (13.3%)	228 (86.7%)	263 (93.3%)	0.35
• Yes	4 (21.0%)	15 (79.0%)	19 (6.7%)	
Any casual partner				
• No	26 (11.1%)	208 (88.9%)	234 (86.7%)	0.06
• Yes	8 (22.2%)	28 (77.8%)	36 (13.3%)	
Have a current sexual partner				
• No	20 (8.0%)	229 (92.0%)	249 (57.1%)	<0.01
• Yes	31 (16.6%)	156 (83.4%)	187 (42.9%)	
Partners				
• No Sex or Casual partner	9 (7.4%)	112 (92.6%)	121 (45.7%)	0.04
• Current Sex partner only	17 (15.6%)	92 (84.4%)	109 (41.1%)	
• Casual partner only	3 (16.7%)	15 (83.3%)	18 (6.8%)	
• Both Sex and Casual partner	5 (29.4%)	12 (70.6%)	17 (6.4%)	

Factor	HIV Positive n=52 (11.6%) n (%)	HIV Negative n=397 (88.4%) n (%)	Total n=449 N	p-value
<u>Intimate Partner Violence</u>				
• No physical or sexual violence	29 (11.5%)	222 (88.5%)	251 (60.9%)	0.74
• Physical only	11 (12.8%)	75 (87.2%)	86 (20.9%)	
• Sexual only	1 (7.7%)	12 (93.3%)	13 (3.2%)	
• Both physical and sexual violence	10 (16.1%)	52 (83.3%)	62 (15.0%)	
Ever used a condom?				
• No	26 (7.4%)	323 (92.6%)	349 (80.1%)	<0.01
• Yes	24 (27.6%)	63 (72.4%)	87 (19.9%)	
Condom use with main partner				
• Never	17 (8.2%)	189 (91.8%)	206 (75.5%)	<0.01
• Often/Sometimes	8 (33.3%)	16 (66.7%)	24 (8.8%)	
• Always	15 (34.9%)	28 (65.1%)	43 (15.7%)	
Condom use with <i>makwapheni</i>				
• Never	18 (11.3%)	141 (88.7%)	159 (92.9%)	0.05
• Often/Sometimes	1 (25.0%)	3 (75.0%)	4 (2.4%)	
• Always	3 (37.5%)	5 (62.5%)	8 (4.7%)	
Ever tested for HIV				
• No	17 (6.6%)	239 (93.4%)	256 (58.3%)	<0.01
• Yes	35 (19.1%)	148 (80.9%)	183 (41.7%)	
Had an STI in the past 12 months				
• No	26 (9.7%)	241 (90.3%)	267 (93.7%)	<0.01
• Yes	8 (44.4%)	10 (55.6%)	18 (6.3%)	
Last sexual encounter with				
• Other partner (Ex-partner, makwapheni or once-off)	5 (17.9%)	23 (82.1%)	28 (8.5%)	0.57
• Main partner	42 (13.9%)	260 (86.1%)	302 (91.5%)	
Use of drugs (Dagga, mandrax, injectable drugs, etc)				
• No	47 (12.3%)	336 (87.7%)	383 (97.2%)	0.56
• Yes	2 (18.2%)	9 (81.8%)	11 (2.8%)	
Alcohol use (AUDIT score)				
Median (IQR)	7 (3 – 11)	6 (3 – 11)	6 (3 – 11)	0.42
Depression (CES-D score)				
Mean (standard deviation)	22.7 (10.2)	22.7 (10.8)	22.7 (10.8)	0.97
Derived scores				
• Relationship (SRPS score) – Median (IQR)	39 (32 – 48)	38 (28 – 47)	38 (28 – 47)	0.59
• HIV /AIDS stigma – Median (IQR)	59 (55 – 60)	59 (55 – 63)	59 (55 – 63)	0.26
• Condom attitude – Median (IQR)	41 (37 – 47)	43 (36 – 48)	42 (36 – 47.5)	0.61

5.4. Univariable Analysis

To investigate the relationship between socio-demographic variables, behavioural factors and HIV infection, univariable analysis was explored. Table 5 shows univariable and multivariable analysis for socio-demographic variables and behavioural factors thought to be associated with HIV infection. The significant bivariate predictors of HIV infection were marital status (single and widowed/cohabiting), age, education, monthly income, house-wall material (impermanent), condom use (ever used), HIV test (ever tested), “partners” (having both a current and casual sex partner) and transactional sex. Variables like HIV knowledge, alcohol and intimate partner violence were not associated with HIV infection.

5.5. Multivariable Analysis

In multivariable analysis, increased odds of HIV infection was associated with marital status, condom use and transactional sex. A single woman was three times more likely to be HIV positive compared to a married woman (adjusted Odds Ratio (aOR)=2.88, 95%CI: 1.10–7.55, p=0.03) and a woman who was widowed/cohabiting was five times more likely to be infected compared to a married woman (aOR=5.19, 95%CI: 1.45–18.53, p=0.01). A woman was also almost four times more likely to be HIV infected if she he had ever used a condom (aOR=3.75, 95%CI: 1.71–8.19, p<0.01). The odds of HIV infection increased by two and a half times if the woman engaged in transactional sex (aOR=2.44, 95%CI: 1.04–5.69, p=0.04).

Table 5: Univariable and multivariable analysis

Characteristic	Univariable analysis OR (95% CI) p-value	Multivariable analysis Adj. OR (95% CI) p-value
Education level		
• <5 years	Ref.	Ref.
• 5 – 7 years	0.38 (0.15 – 0.92) 0.03	0.25 (0.08 – 0.77) 0.02
• 8 or more years	0.84 (0.38 – 1.84) 0.66	0.24 (0.08 – 0.74) 0.01
Age	0.90 (0.86 – 0.94) <0.01	0.90 (0.85 – 0.96) <0.01
Marital status		
• Married	Ref.	Ref.
• Single	4.58 (1.94 – 10.83) <0.01	2.88 (1.10 – 7.55) 0.03
• Divorced/Separated	1.15 (0.46 – 2.85) 0.77	2.70 (0.94 – 7.75) 0.07
• Other (widowed, cohabiting)	4.09 (1.29 – 12.95) 0.02	5.19 (1.45 – 18.53) 0.01
Occupation		
• Unemployed	Ref.	
• Student/Other	0.37 (0.11 – 1.24) 0.11	
• Part-time	2.13 (0.74 – 6.11) 0.16	
• Full-time/Self-employed	1.01 (0.34 – 3.30) 0.99	
Range of monthly income		
• R0 – R799	Ref.	
• R800 – R1799	0.41 (0.16 – 1.10) 0.08	
• R1800 or more	0.23 (0.09 – 0.65) <0.01	
• Don't know/Refused to answer	0.19 (0.35 – 1.02) 0.05	
House wall material		
• Permanent	Ref.	
• Impermanent	5.46 (2.41 – 12.34) <0.01	
Intimate Partner Violence		
• No physical or sexual violence	Ref.	
• Physical only	1.12 (0.53 – 2.36) 0.76	
• Sexual only	0.64 (0.08 – 5.09) 0.67	
• Physical and sexual	1.47 (0.68 – 3.21) 0.33	
Ever used a condom?		
• No	Ref.	Ref.
• Yes	4.73 (2.56 – 8.77) <0.01	3.75 (1.71 – 8.19) <0.01
Ever tested for HIV?		
• No	Ref.	
• Yes	3.32 (1.80 – 6.15) <0.01	
Partners		
• No Current sex partner and no casual partner	Ref.	
• Current sex partner but no casual partner	2.30 (0.98 – 5.40) 0.06	
• No current partner but has a casual partner	2.49 (0.60 – 10.23) 0.21	
• Both current sex partner and casual partner	5.19 (1.49 – 18.00) 0.01	
Transactional sex		
• No	Ref.	Ref.
• Yes	2.78 (1.36 – 5.69) 0.01	2.44 (1.04 – 5.69) 0.04

Decreased odds of HIV infection was associated with age and education. A one year increase in age decreased the odds of HIV infection by 10% (aOR=0.90, 95%CI: 0.85–0.96, $p<0.01$). With respect to a woman with less than 5 years of education, a woman with 5-7 years of education was 75% less likely to be HIV infected (aOR=0.25, 95%CI: 0.08–0.77, $p=0.02$) while a woman with 8 or more years of education was 76% less likely to be HIV infected (aOR=0.24, 95%CI: 0.08–0.74, $p=0.01$).

The effect of some variables was slightly reduced when adjusting for other variables in the model. But the direction of the effect did not change. None of the interaction terms assessed between variables in the multivariable model was found to be statistically significant. There was also no effect modification present in the multivariable model after stratifying by the variable “partners”. Various variables such as “transactional sex”, “casual partners” and “partners” were also stratified by age, but there was no significant relationship in any of the models.

6. DISCUSSION

This cross-sectional study assessed the factors associated with HIV infection in older women (45 years or older) living in Soweto, a black residential township situated South-West of Johannesburg, South Africa.

This study illustrates a high prevalence of HIV infection in older women in Soweto. The HIV prevalence in this study was 11.6% and it was associated with marital status, transactional sex, condom use, age and education.

6.1. HIV Prevalence

The interpretation of HIV prevalence trends in South Africa becomes increasingly complex as the epidemic matures and prevention, care and treatment efforts improve (Shisana et al., 2009). Increased access to antiretroviral treatment (ART) has increased the survival time of people living with HIV, which is likely to result in an increase in HIV prevalence levels amongst the older age groups (Jahn et al., 2008).

The 11.6% HIV prevalence level reported in this study is higher than the 10.9% national HIV prevalence (for all age groups) reported in 2009 by the South African National HIV Prevalence, Incidence, Behaviour and Communication Survey and the 5% reported for older women. However, this is not surprising as the study took place in a community in South African which has a high HIV prevalence compared to other areas of the country (Shisana et al., 2009). This high HIV prevalence can also possibly be attributed to low condom use amongst women in this age group as only 87 (19.9%) women reported that they had ever used condoms. Given that

consistent condom use is protective against HIV (Pettifor et al., 2004), the fact that fewer than one fifth of the women reported ever using condoms indicates that most are at risk for future infection.

HIV prevalence decreased with increasing age. This is almost similar with other studies which show that HIV prevalence in older women decreases with age (Wallracuh et al., 2010, Shisana and Rehle, 2005) (Shisana et al., 2009). Figure 4 shows the difference in HIV prevalence levels by age group in the 2008 South Africa National Demographic and Health Survey (Shisana et al., 2009) and in this study. HIV prevalence in both studies was especially high in the 45-49 year age group. This is probably because these women are still in their reproductive years and are more likely to be HIV infected (Hattingh et al., 2009). That HIV prevalence decreased with age might not be surprising because sexual activity decreases with age (Addis et al., 2006).

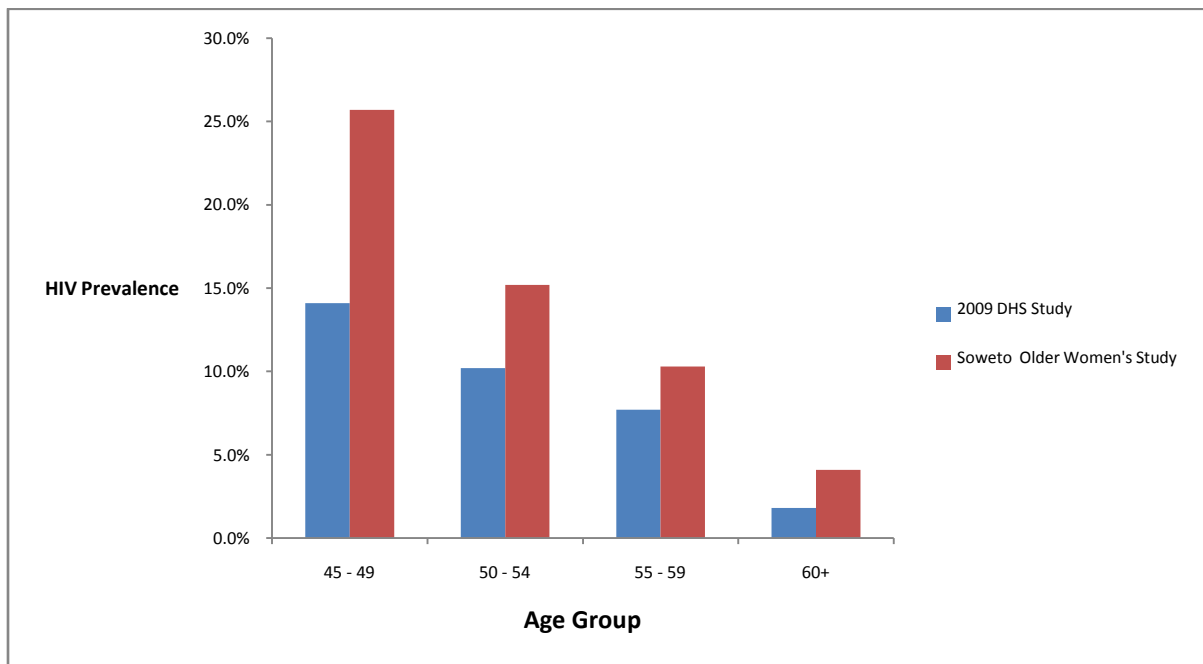


Figure 4: HIV prevalence by age group in the 2008 South African National Prevalence, Incidence, Behaviour and Communication Survey and the Soweto Older Women's study

There has been a significant increase in HIV prevalence trends in older women. However, the interpretation of HIV prevalence trends in older women is difficult without further analysis of HIV incidence, and the effects of increased ART access.

6.2. Socio-demographic determinants

Poor education has been mentioned as a major determinant in HIV infection (Hattingh et al., 2009). In this study, most of the women had less than 8 years of education. However, it was shown that compared to a woman with less than 5 years of education, a woman was 75-76% less likely to be HIV infected if she had more than 5 years of education. This might be because women with more than 5 years of education have basic literacy skills which may improve their access to HIV and AIDS communication and awareness campaigns. It can be argued that the “education vaccine” works through AIDS information and sex education at school. Basic education is important as it equips a person to understand and internalize relevant information and to translate knowledge into behavioural change (Vandermoortele and Delamonica, 2002). The findings are similar to a national household survey conducted on young South African women which showed that a high education level decreases odds of HIV infection (Pettifor et al., 2004). Another study in Tanzania found that exposure to AIDS education was more likely to influence behaviour change, including increased use of condoms (Eloundou-Enyegue and Meekers, 2005).

Age is an important determinant of HIV infection (Zuma et al., 2003). This study found that a one year increase in age reduced a woman’s chance of being HIV infected by 10%. This may be due to decreasing levels of sexual activity as a woman grows older. Moreover, findings from other areas of South Africa have found steadily declining HIV prevalence with age in women

after peak HIV prevalence in the middle age groups, and the age relationship found in this study extends this pattern to the older age groups (Wallracuh et al., 2010). Although age has commonly been found to be associated with behavioural variables (Dunkle et al., 2005), this study found no interaction between age and any of the behavioural variables. There is a large age variation amongst older women as a group, but they might all have similar behavioural patterns which are different from those of younger women.

The relationship between marital status and HIV has been said to be complex (Shisana et al., 2004) due to its dependence on various socio-demographic factors and sex behavioural practices. Marital status is an important determinant of sexual activity in every age group, because it reflects the availability of sex partners (Patel et al., 2003). However, the length of time that individuals spent without a married partner is likely to be associated with HIV risk factors, such as lifetime partners and number of risky sex practices which may in turn lead to a positive HIV status. Similarly, individuals who are currently married, widowed, separated or divorced will have spent less time without a married partner than individuals who have been single throughout their lifetime (Wallracuh et al., 2010).

This study found that compared to a married woman, the odds of HIV infection increased three-fold if a woman was single and five-fold if a woman was either widowed or “cohabiting”. These findings are not surprising considering that a single woman may be more likely to engage in risky sexual behaviour. One explanation for this is that single women may be more likely to have multiple partners, or engage in casual and transactional sex. A South African study (Shisana et al., 2004) found that unmarried women were 59% more likely to be HIV infected

than married women. Widowed women, on the other hand might also have the same behavioural patterns as single women, for example, having casual partners or engaging in transactional sex. The likelihood that their partners might have died of AIDS is also very high. “Cohabiting” or “going steady” cannot be taken to be as stable a relationship as marriage (Quigley et al., 2000). Therefore, women who may have identified themselves as “cohabiting” might also be involved in the same risky sexual behaviours like single women, such as transactional sex.

6.3. Behavioural determinants

Studies have shown that condoms, when used consistently and correctly are effective barriers to HIV infection (Clark et al., 1997) (Patel et al., 2003) (Shisana et al., 2009). However, 80% of the women in this study reported that they had never ever used condoms. Consistent findings have shown that older women are less likely to use condoms than those who are young and single (Zablotsky and Kennedy, 2003) (Stall and Catania, 1994) (Binson et al., 1997) (Schable et al., 1996). This might be because of little information on contraceptive use, due to awareness campaigns which are generally targeted for younger people. Many older women do not have extensive knowledge about condom use, while to others it might be a new behaviour or rediscovery (Zablotsky and Kennedy, 2003). Sex education has been found to influence a person’s behaviour (Eloundou-Enyegue and Meekers, 2005). In 2008, all levels of accurate knowledge about HIV transmission were generally low, with older women (50 and above) having the lowest scores (39.4%) (Shisana et al., 2009). Another possible explanation is that since older women are more likely to be menopausal, use of barrier methods to prevent pregnancies is rare.

In this study, 15.7% of women who used condoms used them consistently with their main partners and only 4.7% used them with their *makwapheni*. One explanation for lower condom use with their *makwapheni* might be because women may be less comfortable negotiating condom use with partners other than their primary partners (Clark et al., 1997).

This study found that women who used condoms were almost four times more likely to be HIV infected compared to women who had never used condoms. This finding is not consistent with research on the effectiveness of consistent condom use to prevent HIV infection (Pettifor et al., 2004). It is possible that HIV seropositivity in these women influences condom use consistency because they are aware of their status (Mnyika et al., 1996). An American study conducted between 1990 and 1994 (Schable et al., 1996) found that 86% of women over 50 years of age had never used a condom before learning of their HIV status. An alternate explanation for this finding is that the higher infection rate among women who used condoms was probably due to inconsistent use of condoms. The women might also have reported condom use because they thought that is what the interviewer wanted to hear, and not necessarily because they were using them (Mnyika et al., 1996).

The exchange of sex for material support is claimed to be a major driver of the spread of HIV (Swidler and Watkins, 2007). While many studies report high estimates of transactional sex in young women (Luke, 2003) (Dunkle et al., 2004b) (Dunkle et al., 2004a), no study of such kind has been undertaken in older women in South Africa. In this study, women who reported any form of transactional sex were almost two and a half times more likely to be HIV seropositive at the time of interview than those who did not report transactional sex. These findings suggest that

the association between transactional sex and HIV infection is not limited to younger women only. Financial need may introduce an explicit power imbalance into sexual relationships, and women are less likely to request the use of condoms if material gain is at stake (Hunter, 2002). Older women are more likely to be caregivers (Wilson and Adamchak, 2001), and due to low education levels and unemployment, may be desperate for any financial help that they can acquire.

Women over the age of 35 have been found to be more likely than younger women to report a lifetime history of transactional sex (Dunkle et al., 2004b). Unfortunately, this study did not control for lifetime number of male partners nor by the length a woman had been sexually active when assessing HIV infection. However, an attempt was made to assess any relationship between transactional sex and intimate partner violence (IPV). IPV on its own was not found to be associated with HIV infection. Moreover, there was no significant interaction between transactional sex and IPV in this study. Other South African studies (Dunkle et al., 2004a) (Dunkle et al., 2004b) (Jewkes et al., 2008) have found significant associations between IPV and HIV, as well as transactional sex and IPV (Dunkle et al., 2004a). About 60% of the women in this study reported absence of any form of IPV (physical or sexual). It is likely that due to their elderly age, these women had not been subject to any recent physical or sexual abuse from their partners. In addition, due to the self reporting nature of the study, women might have been too embarrassed to reveal that they were being abused by their partners.

6.4. Limitations of the Study

This study focused on older women (45 years and over) because this group has received limited attention regarding HIV risk in the past. However, the findings from this study must be interpreted with caution, because of potential selection and recall bias. The sampling method was more likely to have chosen women of lower socio-economic status, leaving out the relatively richer women who would be less likely to be found in the chosen sampling areas. This population might differ from the women who took part in the study.

There are two major issues that cause particular challenges when trying to interpret the HIV prevalence in older people. One is the occurrence of new HIV cases amongst older people and the second is the ageing of the population that is already infected with HIV (Negin and Cumming, 2010).

Like any other cross-sectional study, exposures and outcomes are collected at the same time, which leads to difficulties in determining causality. The difficulties in determining the temporal sequence of HIV infection and potential risk factors increase when using prevalence rather than incidence, because some of the HIV infections might have occurred more than ten years previously, whereas questionnaires enquire on current risk behaviours. Individuals may have changed their behaviour since becoming infected with HIV. Surveys like this one are normally based on respondents' self-declaration which may be prone to recall bias. Moreover, when it comes to questions on one's private life, study participants tend to be affected by a social desirability bias, where they choose to give answers they think are socially acceptable (Shisana et al., 2009). Nevertheless, it must be pointed out that questions on behaviour, knowledge or stigma were questions that had been used in previous South African studies dealing with similar

issues. Although this might not necessarily reduce bias, it made sure study practices were consistent with others of its kind in South Africa.

Study participants may also not have been representative of the Soweto population. Soweto comprises of a large cross-section of the Black urban population, which includes wealthy people who may not have been found at any of the sampling areas used during the study. They would also be less likely to sacrifice their time for R-50 to take part in the study. This may have led to a selection bias.

The low sample size in this study gives it limited statistical power. This may have given some imprecision in detecting associations and interactions. This further coupled with a lot of missing data in the study dataset. Fifty-four (10.7%) women were excluded from the data analysis because their HIV results were either indeterminate or missing, or because they were aged less than 45 years old. Moreover, 13 (2.6%) women who were 44 years old were included in data analysis because they would have been turning 45 years old later in the year. However, save for the transactional sex and casual sex variables, variables that had more than 10% missing data were excluded from regression analysis, which led to lack of further analysis on some variables which have previously been found to be associated with HIV.

6.5. Conclusion

The results in this study are somewhat consistent with other findings from studies conducted elsewhere in the world. Nevertheless, as far as we can ascertain, this was the first study of its kind to be undertaken in an urban African setting. Further research needs to be done to

determine the exact HIV prevalence amongst older women, as well as risk factors that are associated with HIV infection. More also needs to be done to identify older women who are at highest risk of HIV infection.

There is a continued presence of HIV and AIDS among older women (Zablotsky and Kennedy, 2003). Moreover, as more people survive longer with HIV, the overall case-load will age and new challenges will arise (Negin and Cumming, 2010). Although, successful prevention programmes may have contributed to a reduction in new HIV infections, increasing coverage of ART programmes, in conjunction with reduction in new infections, may have the potential effect of maintaining HIV prevalence at the same level, thus making it difficult to draw conclusions about the epidemic over time (Shisana et al., 2009).

There is clearly a need for intervention programmes targeted at older women. We recommend that interventions, including HIV communication programmes, that take into account epidemiological, social and cultural factors be developed and implemented immediately (Shisana et al., 2009). More critically, access to HIV-related services and information needs to be provided to older people.

Condoms provide a barrier to HIV transmission (Clark et al., 1997), and it is important that older women be encouraged to use them. Little has been done to encourage post-menopausal women to initiate condom use for protection from HIV. Condom use for disease prevention amongst these women needs to be investigated further and efforts expanded to include older men as well.

There is need to extrapolate programmes tailored for younger women to older women. Safer sexual behaviour should be taken as part of sexual health and should be normalized for women of all ages. Future HIV intervention efforts should target these women as a high risk group, while considering their specific age-related behaviour.

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APPENDIX 1: Ethical clearance from Human Research Ethics Committee (Medical)

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Mr Christian Nyaudi

CLEARANCE CERTIFICATE

M10935

PROJECT

African women in Soweto, Johannesburg

Factors associated with HIV infection in older South

INVESTIGATORS

Mr Christian Nyaudi.

DEPARTMENT

School of Public Health

DATE CONSIDERED

01/10/2010

DECISION OF THE COMMITTEE*

Approved unconditionally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE

01/10/2010

CHAIRPERSON


(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor : Helen Struthers

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to a completion of a yearly progress report.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES...

APPENDIX 2: Permission to use dataset from Anova Health Institute



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6 September 2010

To whom it may concern

We are pleased to give permission to Christian Nyaundi to use the data from the Soweto Older Women's Study. The data may be use for their Master's dissertations but may otherwise not be published without prior permission. The data must remain confidential and not be distributed or shared in any form. The students must acknowledge the organizations (Anova Health Institute and Perinatal HIV Research Unit) and the funders (USAID and PEPFAR) in the final document and in any presentation they make.

I have read through the final submissions for ethics and am happy that they have both responded to the concerns raised in the assessors meeting and have made the required corrections.

Kind regards,

A handwritten signature in black ink, appearing to read 'D. Shillars'.

Director

APPENDIX 3: Questionnaire

Perinatal HIV Research Unit (PHRU)

Soweto Women's Study (Pit-1)

<p>Soweto Women's Study (070)</p>	<p>Pit 1 (001)</p>	<p>Visit 1 (010)</p>									
<p>Volunteer ID</p> <input style="width: 40px; height: 20px;" type="text"/>	<p>Demographic Information</p>	<p>Date of interview</p> <table border="0" style="margin: auto;"> <tr> <td style="text-align: center;"><input style="width: 30px; height: 20px;" type="text"/></td> <td style="text-align: center;"><input style="width: 30px; height: 20px;" type="text"/></td> <td style="text-align: center;"><input style="width: 30px; height: 20px;" type="text"/></td> <td style="text-align: center;"><input style="width: 30px; height: 20px;" type="text"/></td> </tr> <tr> <td style="text-align: center;"><i>dd</i></td> <td style="text-align: center;"><i>MMM</i></td> <td colspan="2" style="text-align: center;"><i>yyyy</i></td> </tr> </table>		<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<input style="width: 30px; height: 20px;" type="text"/>	<i>dd</i>	<i>MMM</i>	<i>yyyy</i>	
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<i>dd</i>	<i>MMM</i>	<i>yyyy</i>									

SECTION ONE: Demographics

I am going to start by asking you some questions about yourself and your home. Please try and relax, there are no right or wrong answers. Remember that everything you tell me will be kept secret and that you can refuse to answer any question you do not wish to answer.

1.1 Where do you live? _____

1.2 Which language do you speak at home?*(tick as many as applies)*

<input type="checkbox"/> Afrikaans	<input type="checkbox"/> English	<input type="checkbox"/> Isindebele	<input type="checkbox"/> Isixhosa	<input type="checkbox"/> Isizulu	<input type="checkbox"/> Sepedi
<input type="checkbox"/> Sesotho	<input type="checkbox"/> Setswana	<input type="checkbox"/> Siswati	<input type="checkbox"/> Tshivenda	<input type="checkbox"/> Xitsonga	<input type="checkbox"/> Other, specify

Specify other: _____

1.3 What is your date of birth?.....
dd MMM yyyy

1.4 What is the highest level of schooling you have completed? Tertiary education

<input type="checkbox"/> <5 yrs (<i>less than Grade 5</i>)	<input type="checkbox"/> 8-10 yrs (<i>Grade 8 to 10 - junior secondary education</i>)
<input type="checkbox"/> 5-7 yrs (<i>Grade 5 to 7 - senior primary education</i>)	<input type="checkbox"/> 11-12 yrs (<i>Grade 11 or 12 - senior secondary education</i>)
<input type="checkbox"/> No schooling	

1.5 In the last 5 years, have you spent more time living in an urban or rural area?..... Urban Rural

1.6 How many people currently live in your house?.....
(By this I mean children or adults, including yourself, who sleep in the household at least two nights or more every week.)

1.7 How many children under 16 years old currently live under your care?.....
(Including children who are not of your own)

1.8 What is your primary occupation? *(tick only one)*

<input type="checkbox"/> Full-time employment (<i>formal labor market</i>)	<input type="checkbox"/> Unemployed	<input type="checkbox"/> Student	<input type="checkbox"/> Self employed
<input type="checkbox"/> Part-time employment (<i>formal labor market</i>) <input type="checkbox"/> Other, specify: _____			

1.9 In the past 12 months, have you earned any money for work?..... Yes No
(By this I mean that you received money from some person, trade, organization or from self-employment.)

1.10 In the past 12 months have you ever received any of the following sources of income. *(tick all that apply)*

<input type="checkbox"/> Social grant - disability	<input type="checkbox"/> Social grant - old age pension	<input type="checkbox"/> Social grant - child support
<input type="checkbox"/> Donations from sexual partner, family members and/or friends		
<input type="checkbox"/> Other, specify: _____		

1.11 In the past 12 months how many months/days did you earn money or receive other sources of income?

<input style="width: 30px; height: 20px;" type="text"/> Months	OR	<input style="width: 30px; height: 20px;" type="text"/> Days
--	----	--

1.12 During the past 12 months how many other household members earned money?.....

Version 1 0 29 JUNE 2009

Patient Initials

 Staff Initials / Date



Soweto Women's Study (070)

Pit 2 (002)

Visit 1 (010)

Volunteer ID

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Demographic Information

1.13 What is the range of your household's monthly income?

(Income includes money received for work, other sources of income and gifts. Tick only one)

- R0-R399
 R400-R799
 R800-R1199
 R1200-R1799
 R1800-R2499
 R2500-R4999
 R5000-R9999
 R10000 or more
 Don't know
 Refused to answer

1.14 Who provides most of the income for your household?

(Would you say it is you yourself, your partner, both of you equally or some other person? (Tick only one)

- Self
 partner
 Both equally
 Other person

1.15 What is the main material that was used to build the walls of your house?*(tick only one)*

- Brick/cement/block mud and cement
 Concrete wattle and daub
 Prefab tile
 Wood asbestos
 Plastic
 Cardboard
 Corrugated iron thatching
 Other, specify: _____

1.16 What sort of toilet facility does your household use*(tick as many as applies)*

- Flush toilet-public sewage system
 Pit latrine without ventilation
 Pit latrine with ventilation
 Chemical toilet
 Flush toilet-septic tank
 Bucket toilet
 Other, specify: _____

1.17 Is the toilet facility that your household uses indoors?..... Yes No

1.18 Is the toilet facility that your household uses shared with another household?..... Yes No

1.19 Does your own household have the following?*(tick as many as applies)*

- Electricity
 Tap drinking water in house
 Car in working condition
 Refrigerator
 Stove(coal,electric,primus,gas)
 Bicycle
 Television
 Cell phone
 Radio
 Telephone *(landline)*

1.20 Would you say that the people in your home often, sometimes, seldom or never go without food?*(tick only one)*

- Often
 Sometimes
 Seldom
 Never

1.21 Would you say that people in your home often, sometimes, seldom or never have a day when they do not eat meat?

(tick only one)

- Often has no meat
 Sometimes
 Seldom
 Always has meat
 Vegetarian

1.22 If a person became ill in your home and R100 was needed for treatment or medicines, how easy/difficult would it be to find the money?

- Very difficult
 Quite difficult
 Easy
 Very easy



Soweto Women's Study (070)

Plt 3 (003)

Visit 1 (010)

Volunteer ID

Health Information

SECTION TWO: HEALTH

2.1 In general, would you say your health is:

(Tick only one.)

- Very good Good Fair Poor Very poor

2.2 Please indicate below which chronic conditions you have:

(Tick as many as applies.)

- None Diabetes High blood pressure

Heart disease, specify type: _____

Other, specify: _____

2.3 If you have a chronic condition, what medication are you on?

(Tick as many as applies.)

- None Insulin injections Water tablets

Tablets for diabetes Tablets for high blood pressure

Other, specify: _____

2.4 Are you physically active?

(e.g. walking, gardening, household chores. Tick only one.)

- Everyday Once a week Less than once a week Never

2.5 Have you or anyone in your household been sick or hurt in the past 6 months?

- Yes No

2.6 In the past 6 months, have you tried to get medical care or treatment from the following people or places when you or someone in your family was hurt or sick? *(Tick as many as applies.)*

Traditional healer Public or government clinic or hospital Faith or religious healer

Pharmacy Mission/Church clinic/hospital Community health worker

Private clinic or hospital General Practitioner

Other, specify: _____

2.7 In general, where do you most often get medical care or treatment when you or someone in your family is sick or hurt? *(Tick only one.)*

Traditional healer Public or government clinic or hospital Faith or religious healer

Pharmacy Mission/Church clinic/hospital Community health worker

Private clinic or hospital General Practitioner

Other, specify: _____



Soweto Women's Study (070)

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Volunteer ID

Five empty boxes for Volunteer ID

Gynaecology Information

SECTION THREE: GYNAECOLOGY QUESTIONS

3.1 At what age did you start having menses?..... [] [] yrs

3.2 Have you had a menstrual period in the past 12 months?..... Yes No

3.3 Are you still having menstruation every month?..... Yes No
Go to Q3.10

3.4 If not, are the periods irregular, or have they stopped completely?... Irregular Have stopped completely

3.5 If the menstruation has stopped, how long has it been?..... [] [] Months [] [] Years

3.6 Do you know if your menstruation stopped because of any of the following reasons?

Table with 4 columns: Reason, Yes, No, Don't know. Rows include Medication, Chemotherapy or radiation treatment, Womb was removed, Chronic disease you have.

3.7 Are you on any hormone replacement therapy(HRT)?..... Yes No
(HRT, treatment for hot flushes and other symptoms of menopause like vaginal dryness?)

3.8 If yes, for how long?..... [] [] Months [] [] Years

3.9 If on HRT, what type of HRT is it? (Tick only one)

- Tablets Implants Patch Vaginal gel Other, specify: _____

3.10 Have you ever used any contraception before?..... Yes No

3.11 If yes, what did you use? (Tick all that apply.)

- Pills 2 months injection (Nur Isterate) Loop (IUD) 3 months injection (Depo Provera) Other, specify: _____

3.12 If you have ever used the 3 months injection (Depo Provera), how long did you use it for in total?..... [] [] Months [] [] Years



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Gynaecology Information

3.13 When was the last time you had a pap smear?

(Tick only one.)

- Four radio button options: In the past year, In the past 5 years, More than 5 years ago, Never

3.14 If you have had a pap smear before, what was the result of the last one?

(Tick only one.)

- Three radio button options: Normal, Abnormal, Don't know, never collected the results

3.15 If abnormal did you receive any treatment for it?..... Yes No

3.16 If yes, what was the treatment? (Tick all that apply.)

- Five radio button options for treatments: Removal of a piece from the mouth of the womb (LLETZ/LEEP), Removal of the womb, Radiotherapy ('X-ray treatment with the machine'), Chemotherapy (Medication given with a drip), Other, specify

3.17 Have you had an operation to your womb or tubes?..... Yes No

3.18 If yes, what was the operation?

(Tick all that apply.)

- Four radio button options: A womb scrape, Removal of the womb, Sterilization, Operation on the tubes for infertility, Other, specify

3.19 If you had your womb removed, when was it?..... Month/Year

Month boxes (MMM)

Year boxes (yyyy)

3.20 Were your ovaries also removed?..... Yes No Don't know

3.21 Have you had any STIs in the past 12 months?..... Yes No

3.22 If yes, what treatment did you receive?

(Tick all that apply)

- Four radio button options: No treatment, Antibiotics, Admitted to hospital (PID diagnosis requiring IV antibiotics), Other, specify

3.23 Do you have any pain during sexual intercourse?

- Three radio button options: Yes, No, Not Applicable/don't have sex



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**Conversations
about HIV/AIDS**

SECTION FOUR: CONVERSATIONS ABOUT HIV/AIDS

Now I would like to ask you about conversations that you may have had about HIV/AIDS. Some people have had many conversations about HIV/AIDS, and other people have never talked about it. In the next section of questions, I would like to know whether or not you have talked about HIV/AIDS. I would like you to think about whether or not you have talked with anyone about the following issues:

1. How to prevent getting HIV/AIDS or ways of protecting yourself from HIV/AIDS such as abstinence or faithfulness;
2. Whether or not you feel you are at risk of getting HIV/AIDS;
3. Behaviors that you think cause HIV infection;
4. How you would find out if you were infected with HIV or getting an HIV test;
5. Whether or not you should be involved with HIV activities in your community; and
6. Whether or not you think it's a good idea to help people living with HIV/AIDS.

4.1 In your **lifetime**, have you ever talked with anyone about HIV/AIDS?..... Yes No

4.2 In the **past 6 months**, have you talked with anyone about HIV/AIDS?..... Yes No

4.3 In the **past 6 months**, have you talked to any of the following people about HIV/AIDS?

	Yes	No	Not Applicable
4.3a. Partner.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3b. Other sexual partner.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3c. Family (parents, children, siblings, etc).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3d. Other relative (aunts, uncles, cousins, grandparents, etc).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3e. Friend.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3f. Doctor, nurse or other health care professional.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3g. Religious Leader.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3h. Employer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3i. Other (If Yes, specify below).....	<input type="checkbox"/>	<input type="checkbox"/>	

4.4. How many times have you talked about HIV/AIDS **in the past 30 days**?.....

(NOTE: If you don't know the exact number, give a best guess.)



Volunteer ID

HIV testing history

SECTION FIVE: HIV TESTING HISTORY

Many people have had a test to see if they have HIV. We are interested in knowing how many people have been tested and where they go to be tested. I am going to ask you about whether you have been tested for HIV and whether you received the results. I will also be asking you to share your test results and talk about your experiences after testing. Please remember that all of your answers are confidential and no one else will know what your answers are.

- 5.1 Have you **ever** been tested for HIV?..... Yes No
- 5.2 If yes, was it voluntary or not?..... Voluntary Non voluntary ➔ Go to Q6
- 5.3 In your **lifetime**, how many times have you been tested for HIV? Please also include tests when you did not receive the results.....
(If you don't know the exact number, give a best guess.)
- 5.4 In the **past 12 months**, how many times have you been tested for HIV? Please also include tests when you did not receive the results.....
(If you don't know the exact number, give a best guess.)
- 5.5 Have you ever received the results of any HIV test in your **lifetime**?..... Yes No
- 5.6 The **last time** that you were tested for HIV, did you receive the results of your test?... Yes No
- 5.7 If yes, what was the most recent result?..... Neg Pos Don't know
➔ Go to Q6
- 5.8 If positive, how long have you known about your HIV status?..... Months Years
- 5.9 If positive, are you on highly active anti-retroviral therapy(HAART)?..... Yes No
- 5.10 If on HAART, when did you start treatment?.....
dd MMM yyyy
- 5.11 What tablets are you on? *(tick all that apply)*
 D4T 3TC NVP EFV AZT
 Other, specify: _____
- 5.12. Where do you mainly receive your anti-retrovirals from?
 Local Clinic Hospital Private Doctor
 Other, specify: _____
- 5.13 What is your latest CD4 count?.....
- 5.14 When did you receive this result?.....
MMM yyyy



Volunteer ID
[][][][][]

**Personal experience
of HIV/AIDS**

SECTION SIX: PERSONAL EXPERIENCE OF HIV/AIDS

6.1 Do you know of anyone in your family who has died of AIDS?..... Yes No Don't know

6.2 If yes, who was it? *(Tick as many as applies.)*
 Parent Partner Sibling Child Grandchild
 Other, specify: _____

6.3 Do you know of anyone in your family who is living with HIV?..... Yes No Don't know

6.4 If yes, who is it? *(Tick as many as applies.)*
 Parent Partner Sibling Child Grandchild
 Other, specify: _____

6.5 Are you caring for, or have you ever cared for someone with HIV/AIDS? *(Tick as many as applies.)*
 Yes, currently Yes, in the past No

6.6 If yes, who is /was it? *(Tick as many as applies.)*
 Parent Partner Sibling Child Grandchild
 Other, specify: _____

6.7 What kind of care are/were you providing? *(Tick as many as applies.)*
 Physical care Emotional care Economic support
 Other, specify: _____

6.8 What impact does / did the caring have on your own life? *(Tick as many as applies.)*
 None Financial Emotional Time
 Other, specify: _____

6.9 If you are currently caring for someone who is HIV-infected, what is the state of their health?*(Tick only one)*
 Very good Good Fair Poor Very poor

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**HIV/AIDS
stigma**

SECTION SEVEN: HIV/AIDS STIGMA

Different people feel differently about people who have HIV/AIDS. Now I am going to ask you to tell me your opinions about people with HIV/AIDS. Please try to be as honest as you can. Some of the questions during this part of the interview will ask for your opinion on how people with HIV/AIDS are treated in this community. Please tell me how strongly you agree or disagree with the statement that I read. If the answers don't fit your opinions exactly, just tell me the answer that is closest to what you think. *(Use response card.)*

Please indicate how much you agree or disagree with the following statements by choosing the option which best fits your response to each item. Use the following scale:

1 = Strongly agree	4 = Strongly disagree
2 = Agree	5 = Don't know
3 = Disagree	

	1	2	3	4	5
7.1 People living with HIV/AIDS should be ashamed.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.2 People who have HIV/AIDS deserve compassion.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.3 People who have HIV/AIDS are cursed.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.4 People with AIDS should be treated similarly by health care professionals as people with other illnesses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.5 People living with HIV/AIDS in this community face neglect from their family.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.6 People living with HIV/AIDS deserve to be punished.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.7 People living with HIV/AIDS in this community face physical abuse.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.8 People want to be friends with someone who has HIV/AIDS.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.9 People living with HIV/AIDS in this community face rejection from their homes by their families.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.10 Most people would not buy vegetables from a shopkeeper or food seller that they knew had AIDS.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.11 A person with AIDS should be allowed to work with other people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.12 Families of people living with HIV/AIDS should be ashamed.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.13 People with HIV should be allowed to fully participate in social events in this community.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.14 It is reasonable for an employer to fire people who have AIDS.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.15 People who are suspected of having HIV/AIDS lose respect in the community.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.16 People who have AIDS are disgusting.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.17 People with AIDS should be isolated from other people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.18 People who have HIV/AIDS should be treated the same as everyone else.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.19 People with HIV/AIDS do not deserve any support.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.20 People living with HIV/AIDS in this community face rejection from their peers.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.21 People living with HIV/AIDS in this community face verbal abuse or teasing.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.21 People living with HIV/AIDS should not have the same freedoms as other people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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<p>Volunteer ID</p> <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>						<p>Condom use</p>	

SECTION EIGHT: IDEAS ABOUT CONDOM USE

Now I would like to ask questions about using condoms. Can you tell me how you feel about the following statements?
(Use the following scale)

1 = Strongly agree	4 = Strongly disagree
2 = Agree	5 = Don't know
3 = Disagree	

	1	2	3	4	5
8.1 Using a condom for sex would be embarrassing.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.2 If I was going to have sex, I would not use a condom because I want it "flesh to flesh".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.3 I know how to use a condom.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.4 If you have been using condoms but miss them one or two times there is no point using them anymore with that partner.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.5 A condom may come off in a woman's vagina but it is impossible to lose one there	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.6 If a man and woman trust each other they do not need to use a condom.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.7 If a person wants to use a condom you know they probably have HIV.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.8 If my partner suggested we use a condom I would think he was having sex with other people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.9 If I asked my partner to use a condom, he would think I am having sex with other people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.10 I could definitely ask my current partner to use a condom.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.11 I have discussed condom use with my partner.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.12 I can insist on condom use even if my partner does not want to use one.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Five empty boxes for Volunteer ID

Sex and children

SECTION NINE: SEX AND CHILDREN

The next set of questions are about different aspects of your health and any children you may have.

9.1 At what age did you first have sexual intercourse?..... [] [] years

9.2 Which of the following statements most closely describes your experiences the first time you had sexual intercourse? (Tick only one)

- I was willing I was persuaded I was tricked I was forced I was raped

9.3 Have you ever used a condom?..... [] Yes [] No Go to Q9.5

9.4 If yes above, can you remember the month and year when you first had sex with a condom?..... [] [] [] [] [] [] [] [] MMM yyyy

9.5 Have you ever been pregnant?..... [] Yes [] No Go to Q9.7

9.6 How old were you when you first became pregnant?..... [] [] years

9.7 Are you currently doing something or using any method to delay or avoid getting pregnant?..... [] Yes [] No

9.8 If yes above, which method/s are you using? (Tick as many as applies)

- Injection Pill Condom IUD Herb/other traditional method Condom & Pill/Injection Other, specify:

9.9 How many children have you given birth to?..... [] [] (If none, enter 00) If 00 go to Q9.17

9.10 If > 0 above, how many of your biological children reside with you?..... [] [] (If none, enter 00)

9.11 Have any of your biological children died?..... [] Yes [] No

9.12 If yes above, at what age(s)? (Can choose more than one option if more than 1 child has died)

- <1yr 1-5 >5-18 >18

9.13 How many biological grandchildren do you have?..... [] [] (If none, enter 00)

9.14 How many of your biological grandchildren reside with you?..... [] [] (If none, enter 00)

9.15 Have any of your biological grandchildren died?..... [] Yes [] No

9.16 If yes above, at what age(s)? (Can choose more than one option if more than 1 grandchild has died)

- <1yr 1-5 >5-18 >18



Volunteer ID

Sex and children

9.17 What is your current marital status?

- Single/never married
- Divorced
- Widowed
- Other, specify: _____
- Married (legal, traditional or common law marriage)
- Married, but living separately for work reasons
- Separated (married, but living separately for non-work reasons)

9.18 Do you currently have a sexual partner?..... Yes No

9.19 Do you currently live with a sexual partner in the same house?..... Yes No

9.20 How long have you been living (cohabiting) with your sexual partner? Years OR Months

CHECK IF MARRIED/LIVING WITH A MAN/STEADY BOYFRIEND

I'd now like to ask you about your husband/partner.

9.21 How old was your husband/partner on his last birthday?..... years
 (If don't know enter 99)

9.22 What is the highest level of education that he achieved? (Tick only one)

- <5 years (nursery/creche)
- 5-7 years (senior primary education)
- 8-10 years (junior secondary education)
- No schooling
- 11-12 years (senior secondary education)
- Tertiary education

9.23 Is he currently working? (Tick as many as applies)

- Full-time employment (formal labor market)
- Self employed
- Other, specify: _____
- Part-time employment (formal labor market)
- Unemployed
- Student

9.24 How often does/did your your husband/partner drink alcohol?

- Everyday/nearly everyday
- Only on weekends
- A few times in a month
- Less than once a month
- Never
- Don't know

9.25 Has he ever used: (Tick as many as applies)

- Dagga
- Mandrax
- Any drug that is injected
- Don't know
- Any other drug, specify _____

9.26 Have you ever quarrelled or had any other conflict over his drinking or drug use?. Yes No



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Relationship control and duration of sexual relations

SECTION TEN: RELATIONSHIP CONTROL AND DURATION OF SEXUAL RELATIONS

I would now like to ask you some questions about your relationship with your CURRENT husband or main boyfriend and for each I would like you to tell me if you strongly agree, agree, disagree or strongly disagree. (Use the following scale)

- | | |
|--------------------|-----------------------|
| 1 = Strongly agree | 4 = Strongly disagree |
| 2 = Agree | 5 = Don't know |
| 3 = Disagree | |

	1	2	3	4	5
10.1 If I asked my partner to use a condom, he would beat or hit me.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.2 If I asked my partner to use a condom, he would get angry.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.3 My partner won't let me wear certain things.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.4 My partner has more to say than I do about important decisions that affect us	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.5 My partner tells me who I can spend time with.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.6 I feel trapped or stuck in our relationship.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.7 My partner does what he wants, even if I don't want him to.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.8 When my partner and I disagree, he gets his way most of the time.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.9 My partner always wants to know where I am.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.10 My partner is having sex with someone else.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Soweto Women's Study (070)

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Violence

SECTION ELEVEN: VIOLENCE

In any relationship there are good times and bad times. I now want to ask you about some of the bad times you may have had in relationships and what happened. Remember there are no right or wrong answers and anything you say will be kept confidential.

11.1 Have any of your partners ever threatened to hurt you?..... Yes No
▶ Go to Q11.2

11.1a In the past 12 months would you say this has happened once, a few times or many times, or never?

Once Few Many Never

11.1b Before the past 12 months would you say this has happened once, a few times or many times, or never?

Once Few Many Never

PHYSICAL ABUSE

Men often fight with their wives and girlfriends and often these fights get physical. I am going to ask some questions about this because we want to learn more about what women experience in their lives. I'd like you to tell me if your current partner, or any partner, has ever done the following things.

11.2 Have any of your partners ever pushed you or shoved you?..... Yes No
▶ Go to Q11.3

11.2a In the past 12 months would you say this has happened once, a few times or many times, or never?

Once Few Many Never

11.2b Before the past 12 months would you say this has happened once, a few times or many times, or never?

Once Few Many Never

11.3 Have any of your partners ever slapped you, hit you with his fist or other object or thrown something at you which could hurt you?..... Yes No
▶ Go to Q11.4

11.3a In the past 12 months would you say this has happened once, a few times or many times, or never?

Once Few Many Never

11.3b Before the past 12 months would you say this has happened once, a few times or many times, or never?

Once Few Many Never

11.4 Have any of your partners ever kicked, strangled, burnt or used a gun, knife or other weapon against you on purpose?..... Yes No
▶ Go to Q11.5

11.5 Any physical violence?

11.5a Was your current partner one of the men who did these things to you?..... Yes No

11.5b Can you tell me how old you were the first time you experienced any physical violence from a man you were involved with?..... years



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Violence

SEXUAL ABUSE

11.6 Have any of your partners ever physically forced you to have sex when you didn't want to?..... Yes No
 Go to Q11.7

11.6a In the past 12 months would you say this has happened once, a few times or many times, or never?
 Once Few Many Never

11.6b Before the past 12 months would you say this has happened once, a few times or many times, or never?
 Once Few Many Never

11.7 Have you ever had sex when you did not want to with your current boyfriend or husband, or any other partner, because you were afraid of what he might do?..... Yes No
 Go to Q11.8

11.7a In the past 12 months would you say this has happened once, a few times or many times, or never?
 Once Few Many Never

11.7b Before the past 12 months would you say this has happened once, a few times or many times, or never?
 Once Few Many Never

11.8 Has your current boyfriend or husband, or any other partner, ever forced you to do something sexual that you found degrading or humiliating?..... Yes No
 Go to Q11.9

11.8a In the past 12 months would you say this has happened once, a few times or many times, or never?
 Once Few Many Never

11.8b Before the past 12 months would you say this has happened once, a few times or many times, or never?
 Once Few Many Never

11.9 Any sexual violence?

11.9a Was your current partner one of the men who did these things to you?..... Yes No

11.9b Can you tell me how old you were the first time you experienced any sexual violence from a man you were involved with?..... years



Volunteer ID

Sexual behaviour

SECTION TWELVE: SEXUAL BEHAVIOUR

The next questions are about your sexual relationships. I know that these questions can be embarrassing. Please remember that everything you say will be kept secret and your name will not appear anywhere on the questionnaire. We are asking over 500 women the same questions, and we know that women have a wide range of experiences. Some start having sex in their early teens; some start a bit later. Most of us have more than one partner.

12.1 When was the last time you had sex?

Days (If less than 14 days)
 Weeks (If 2-8 weeks)
 Months (If over 8 weeks)
 Years (If over 12 months)

Never
 → Go to Section 15

12.2 The last time you had sex did you use a condom?..... Yes No
 → Go to Q13.6

12.3 Did you use a condom for every round?..... Yes No

12.4 Who brought the condom?..... Self Partner Both

12.5 Did you experience:

- a) Condom breaking..... Yes No
- b) Condom slipped off..... Yes No
- c) Condom only put on half way..... Yes No
- d) Condom was removed..... Yes No

Some people have different types of affairs. We have our main partners, our makhwapheni and sometimes we have sex with a person who we never see again or never have sex with again. Let's call these one-off partners.

12.6 The last time you had sex was it with a main partner, makhwapheni or one off partner or ex-partner? (Tick only one)

Main partner Makhwapheni One off Ex-partner

12.7 Have you used condoms with your main partner in the past year?
 Would you say you used them always, often or sometimes?

Never Always Often Sometimes
 → Go to 13.11

12.8 Have you ever suggested to your main partner that you use a condom to protect you from HIV?..... Yes No
 → Go to Q13.10

12.9 How did he respond (Mark all mentioned.)

- a) Agree to use one..... Yes No
- b) Became angry..... Yes No
- c) Said he did not like them..... Yes No
- d) He was offended..... Yes No
- e) Other, specify: _____



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Sexual behaviour

12.10 What is the main reason why you have not suggested condom use?

- a) Never thought of asking..... Yes No
- b) Trust each other..... Yes No
- c) Does not know how to ask..... Yes No
- d) Fear he would leave..... Yes No
- e) I do not like them..... Yes No
- f) Trying to get pregnant..... Yes No
- e) Other, specify: _____

12.11 How many main partners, if any have you had sex with in the last year?.....

 (If None, enter 00)

12.12 How many makhwapheni, if any have you had sex with during the past year?.....

 (If None, enter 00)

12.13 How many men have you had sex with during the past year?.....

 (If None, enter 00)

Check1: Any Makhwapheni or one off partners mentioned? If Yes, go to Q12.14

12.14 Over the last year have you used condoms with makhwapheni and one off partners?
Would you say you used them always, often or sometimes?

- Never Always Often Sometimes
- ▶ Go to 13.19

12.15 Have you ever suggested to makhwapheni or one off partner that you use a condom to protect you from HIV?..... Yes No

▶ Go to Q13.18

12.16 How many times have you suggested condom use to makhwapheni or one off partners?.....

12.17 What responses did you get? (Mark all mentioned.)

- a) Agree to use one..... Yes No
- b) Became angry..... Yes No
- c) Said he did not like them..... Yes No
- d) He was offended..... Yes No
- e) Other, specify: _____

12.18 What is the main reason why you have not suggested condom use?

- a) Never thought of asking..... Yes No
- b) Trust each other..... Yes No
- c) Does not know how to ask..... Yes No
- d) Fear he would leave..... Yes No
- e) I do not like them..... Yes No
- f) Trying to get pregnant..... Yes No
- e) Other, specify: _____



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Sexual behaviour

I would like to ask you about the number of sexual partners you have had in your whole life including this year. I want to know about the number of different partners.

- 12.19 How many main partners have you had sex with in your life?.....

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 (If None, enter 00)
- 12.20 How many makhwapheni have you had sex with in your life?.....

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 (If None, enter 00)
- 12.21 How many people have you had sex with just once in your life?.....

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 (If None, enter 00)



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Transactional sex

SECTION THIRTEEN: TRANSACTIONAL SEX

We as women often find ourselves in situations where we need someone to help us.

13.1 Have you ever become involved with a main partner because he provided you with or you expected that he would provide you with:

- a) Food?..... Yes No
- b) Clothes?..... Yes No
- c) Transport, tickets, or money for transport?..... Yes No
- d) Somewhere to stay?..... Yes No
- e) Cash?..... Yes No
- f) Status?..... Yes No
- g) Cosmetics?..... Yes No
- h) Items for your children or family such as clothes, food, school fees?..... Yes No

13.2 Have you ever become involved with a makhwaphehi because he provided you with or you expected that he would provide you with:

- a) Food?..... Yes No
- b) Clothes?..... Yes No
- c) Transport, tickets, or money for transport?..... Yes No
- d) Somewhere to stay?..... Yes No
- e) Cash?..... Yes No
- f) Status?..... Yes No
- g) Cosmetics?..... Yes No
- h) Items for your children or family such as clothes, food, school fees?..... Yes No

13.3 Did you have sex with him?..... Yes No

13.4 Now I would like you to think about men you have had sex with only once.

Have you ever had sex with a man because he gave you or you expected that he would give you:

- a) Food?..... Yes No
- b) Clothes?..... Yes No
- c) A lift, tickets, or money for transport?..... Yes No
- d) A place to sleep for the night?..... Yes No
- e) Cash?..... Yes No
- f) Status?..... Yes No
- g) Drink/Good time?..... Yes No

Never had once off partner

Check Q13.1, 13.2 & 13.4. If no 'Yes' answers skip to Q14.1.

13.5 When was the last time you had sex with a man because he gave you or you expected that he would give you money or something else?.....

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MMM

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yyyy

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Dry sex						
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SECTION FOURTEEN: DRY SEX

14.1 In the last six months have you used anything to dry or tighten your vagina before having sex? Yes No

14.2 If yes, how often have you done this?

Everytime
 Sometimes
 Once
 Never

↘ Go to Q14.4

14.3 What have you used? *(Mark all that apply)*

a) Soap?..... Yes No
 b) Herbs/Snuff?..... Yes No
 c) Ice/Water?..... Yes No
 d) Other, specify: _____

14.4 Before the last six months did you ever use anything to dry or tighten your vagina before having sex? Yes No

14.5 If yes, how often have you done this?

Everytime
 Sometimes
 Once
 Never

↘ Go to Q15.1

14.6 What have you used? *(Mark all that apply)*

a) Soap?..... Yes No
 b) Herbs/Snuff?..... Yes No
 c) Ice/Water?..... Yes No
 d) Other, specify: _____



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Mental health status

SECTION FIFTEEN: MENTAL HEALTH STATUS (Depression and Self-Esteem)

I would like to ask you some questions about how you have been feeling in the past week. I am going to read out some statements and ask you to say how many days you have had particular feelings or ideas or whether you have not had them at all.

Please choose the frequency of each:

- | |
|---|
| 1 = Rarely or none of the time
2 = Some or a little of the time (1-2 days)
3 = Moderate amount of time (3-4 days)
4 = Most or all of the time (5-7 days) |
|---|

	1	2	3	4
15.1 During the past week I was bothered by things that usually don't bother me.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.2 During the past week I did not feel like eating, my appetite was poor.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.3 During the past week I felt I could not cheer myself up even with the help of family and friends.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.4 During the past week I felt I was just as good as other people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.5 During the past week I had trouble keeping my mind on what I was doing.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.6 During the past week I felt depressed.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.7 During the past week I felt that everything I did was an effort.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.8 During the past week I felt hopeful about the future.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.9 During the past week I thought my life had been a failure.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.10 During the past week I felt fearful.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.11 During the past week my sleep was restless.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.12 During the past week I was happy.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.13 During the past week I talked less than usual.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.14 During the past week I felt lonely.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.15 During the past week people were unfriendly.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.16 During the past week I enjoyed life.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.17 During the past week I had crying spells.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.18 During the past week I felt sick.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.19 During the past week I felt that people dislike me.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.20 During the past week I could not get "going".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Mental health status

Please choose the frequency of each:

- | |
|---|
| 1 = Rarely or none of the time
2 = Some or a little of the time (1-2 days)
3 = Moderate amount of time (3-4 days)
4 = Most or all of the time (5-7 days) |
|---|

	1	2	3	4
15.21 On the whole, I am satisfied with myself.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.22 At times, I think I am no good at all.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.23 I feel that I have a number of good qualities.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.24 I am able to do things as well as most other people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.25 I feel I do not have much to be proud of.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.26 I certainly feel useless at times.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.27 I feel that I am a person of worth, at least on an equal plane with others.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.28 I wish I could have more respect for myself.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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Mental health status

SECTION SIXTEEN: SUBSTANCE ABUSE

16.1 How often do you have a drink containing alcohol?

Never
 Monthly or less
 2-4 times a month
 2-3 times a week
 4+ times a week
 → Go to Q16.4

16.2 Have you ever drunk alcohol?..... Yes No
 → Go to Q16.5

16.3 Have you ever drunk alcohol in the past 12 months?..... Yes No
 → Go to Q16.12

16.4 How many drinks containing alcohol do you have on a typical day when you are drinking?

1 or 2
 3 or 4
 5 or 6
 7 or 9
 10 or more

Please choose the frequency of each question below:

1 = Never	4 = Weekly
2 = Less than monthly	5 = Daily or almost daily
3 = Monthly	

16.5 How often do you have six or more drinks on one occasion?..... 1 2 3 4 5

16.6 How often in the past year did you find you were not able to stop drinking once you started?..... 1 2 3 4 5

16.7 How often during the past year did you find you need a drink in the morning to get you going after a heavy drinking session?..... 1 2 3 4 5

16.8 How often in the past year have you failed to do what was normally expected from you because of drinking?..... 1 2 3 4 5

16.9 How often in the past year have you had a feeling of guilt or remorse after drinking?..... 1 2 3 4 5

16.10 How often in the past year were you unable to remember what happened the night before because of your drinking?..... 1 2 3 4 5

16.11 How often in the past year did you have sex without a condom because of your drinking?

Never
 Once
 Few times
 Many times

16.12 Have you or someone else been injured as a result of your drinking? (Tick as many as applies)

No
 Yes, but not in the last year
 Yes, in the last year

16.13 Has a friend or relative or doctor or health worker been concerned about your drinking and suggested that you cut down? (Tick as many as applies)

No
 Yes, but not in the last year
 Yes, in the last year

16.14 Have you ever quarrelled with any of your male sexual partners about your drinking?... Yes No

16.15 Have you ever used:

Dagga.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Drugs that you inject.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Benzine or petrol.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Any other drug?.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Mandrax.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No			



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Mental health status

SECTION SEVENTEEN: RACIAL IDENTITY AND RACIAL PRIDE

Thank you for your answers. We are now very near the end of the survey. These last questions are about how you feel about yourself as a Black person.

Please indicate how much you agree or disagree with the following statements by choosing the option which best fits your response to each item. (Use the following scale)

- | | |
|--------------------|-----------------------|
| 1 = Strongly agree | 4 = Strongly disagree |
| 2 = Agree | 5 = Don't know |
| 3 = Disagree | |

	1	2	3	4	5
17.1 Overall, being Black has very little to do with how I feel about myself.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.2 In general, being Black is an important part of my self-image.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.3 My destiny is tied to the destiny of other Black people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.4 Being Black is unimportant to my sense of what kind of person I am.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.5 I have a strong sense of belonging to Black people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.6 I have a strong attachment to other Black people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.7 Being Black is an important reflection of who I am.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.8 Being Black is not a major factor in my social relationships.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.9 I feel good about Black people.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.10 I am happy that I am Black.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.11 I feel that Blacks have made major accomplishments and advancements.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.12 I often regret that I am Black.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.13 I am proud to be Black.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.14 I feel that Black people have made valuable contributions to South Africa.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I would like to thank you very much for helping us. We have talked about some very difficult things today. I appreciate the time you have taken. I realise that these questions may have been difficult for you to answer, but it is only by hearing about women’s lives that we can really begin to understand them. We really appreciate your openness with us. Most women have difficult times in their lives and it’s good to share them and remember we did not bring them on ourselves. We really appreciate your participation in this study. By sharing this personal information with us, you are helping us with our research and that will ultimately help many other people in the country.

End time of interview:..... □ □ : □ □
hr min



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[][][][][][]

Results Form

Date
[][] [][][] [][][][]
dd MMM yyyy

LAB STICKER
[]

SECTION EIGHTEEN: RESULTS FORM

As part of the study, you will be offered the following tests: blood pressure, blood sugar, weight and height measurement, and a HIV test. If you test HIV positive, a CD4 cell count will be done, and we will request that you give us your contact details so that we can inform you of your CD4 cell count results and refer you appropriately. You can choose to do all the tests or some of them.

- 18.1 Agrees to to HIV test?..... Yes No
- 18.2 Agrees to be informed about HIV test results?..... Yes No
- 18.3 Agrees to be contacted about CD4 cell count results?..... Yes No

TEST RESULTS:

18.4 Blood pressure : [][][] / [][][]

18.5 Weight : [][][] , [][] kg

18.5 Height : [][][] , [][] cm

18.6 BMI : [][] , [][]

18.7 Random blood glucose [][] , [][]

18.8 HIV test Negative Positive Indeterminate (blood collected for ELISA)

18.9 If HIV test positive, blood collected for CD4 cell count?..... Yes No

18.10 CD4 cell count results? [][][][]

Contact details

18.11 Cell phone number []

18.12 Home telephone number []

18.13 Address _____
