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UNIVERSITY OF WITWATERSRAND

FACULTY OF MEDICINE

SCHOOL OF PUBLIC HEALTH

DETERMINANTS OF CONDOM USE AMONG YOUNG ADULTS AGED 15-24 YEARS IN THE AFRICA CENTRE DEMOGRAPHIC SURVEILLANCE AREA IN KWAZULU NATAL, SOUTH AFRICA, 2005

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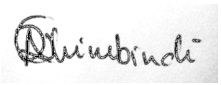
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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfillment of the requirements for the degree of Masters in Science in Medicine in Population based Field Epidemiology

2006

Declaration

I, Natsayi Zanile Chimbindi declare that this research report work is my own work. It is being submitted for the degree in Master of Science Medicine in Population based Field Epidemiology in the University of Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.



Natsayi Zanile Chimbindi

27th day of June 2007

Dedication

For you dad

With all my love

Abstract

Objectives

This study investigates the patterns and levels of condom use; the determinants of condom use and of consistency of use among young adults aged 15-24 years in the Africa Centre Demographic Surveillance Area (ACDSA) in 2005.

Methodology

Secondary data analysis of data from three sources of surveys conducted in ACDSA in 2005 was done. A sample of 4 157 respondents was analyzed. Univariate and multivariate analysis was employed to compare determinants of condom use and of consistency of use.

Results

Condom use with the most recent partner in the last year was (51.7%). The main determinants of condom use were partner age difference, residence of partner and assets. Having an older partner than a same age partner was associated with less likely to use condoms (AOR=0.71 p=0.03 females, AOR=0.51 p=0.01 males). Those who were not residing with their partners were more likely to use condoms than those residing with their partners (AOR=1.62 p=0.01 females, AOR=1.61 p=0.03 males). Having more than seven assets was associated with increased chances of using condoms than those with less than seven assets (AOR=1.51 p<0.01 females, AOR=1.67 p<0.01 males). The key determinants of consistent condom use were: age, sex and type of relationship. Females were less likely to use condoms consistently (AOR=0.63 p=0.02) and growing older was associated with lower consistent condom use (AOR=0.88 p<0.01 females, AOR=0.90 p<0.01 males). Being in a marital/cohabiting relationship was associated with lower consistent condom use (AOR=0.68 p<0.01 both sexes and AOR=0.64 p=0.01 males) than those in non-marital/non-cohabiting relationship.

Conclusion

Condom use differs between sexes and decreases with age probably because condoms are a male determined method, high contraception use, poor negotiation skills for condom use, need for children and formation of more stable relationships. A better socio-economic status increases condom use. Consistent condom use is lower in marital relationships and when the partner is older. This could be because of gender power inequalities in sexual relationships.

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Nomenclature

ABC	Abstinence; Being faithful to one uninfected partner and Correct and consistent use of condoms
AC	Africa Centre
ACDIS	Africa Centre Demographic Information System
ACDSA	Africa Centre Demographic Surveillance Area
AIDS	Acquired Immune Deficiency Syndrome
BTC	Belgium Technical Co-operation
CCETSA	Canon Collins Educational Trust for Southern Africa
DSA	Demographic Surveillance Area
DSS	Demographic Surveillance Site
HIV	Human Immuno Virus
HSE2	Household Socio-economic Survey Form 2
KZN	KwaZulu Natal
MGH	Men's General Health
PWA	People living With AIDS
SADHS	South African Demographic and Health Survey
STI	Sexually Transmitted Infection
SQL	Structured Query Language
UNAIDS	United Nations AIDS
WGH	Women's General Health

Chapter 1: Introduction

1.1 Background information

Globally, around half the people who acquire HIV become infected before they turn 25 years and they die before their 35th birthday (1). According to UNAIDS report 2006, in South Africa, about 5.5 million (4.9 million–6.1 million) people, including 240 000 (93 000–500 000) children younger than 15 years, were living with HIV (2). Africa Centre Demographic Surveillance Area (ACDSA), which is the area in which this study was conducted, is located in northern KwaZulu-Natal province and the HIV prevalence in this region is high; in 2000 HIV sero-prevalence was 42% in antenatal clinics (3).

Several factors affect young adults' sexuality and behavior especially regarding correct and consistent condom use. In a study in Angola on gender relationships and condom use among 15-24 year olds, consistent condom use was influenced by social and demographic characteristics, knowledge about reproductive health, self-efficacy and attitudes regarding condoms, and issues of access and affordability. Residence and socioeconomic status were also found to influence sexual behavior, as well as relationship type and marital status (4).

To further support these findings, studies in Nigeria and Kenya on the factors influencing adolescents' sexuality showed that reproductive health information and services were not easily accessible to adolescents in terms of location and operating hours and that they lacked confidentiality (5). A study carried out to examine risk behaviors and HIV risk factors among young people living in a Black South African township using community-based outreach methods among young adults aged 25 years and younger showed that men

(68%) and women (56%) reported HIV-related high risk sexual behaviors, including non-condom use (6).

Inconsistent condom use is a risk factor for HIV infection thus it is important to determine the factors that affect inconsistent condom use. According to a cross-sectional, nationally representative, household survey conducted in South Africa in 2003 on HIV prevalence and sexual behavior among a sample of 11 904 young adults aged 15–24 years, it was found that among both men and women, increasing partner numbers and inconsistent condom use were significantly associated with HIV infection (7). The same study also revealed that 57% of men and 48% of women who were sexually experienced reported that they used a condom at last sex, but the majority of both men and women reported that they did not always use a condom with their most recent sexual partner (61% versus 71%, $p<0.01$ respectively). These results indicate that although condom use rates seem to be increasing, the issue of consistency, which is a major aspect that affects HIV transmission, has not yet been addressed well enough and therefore there is need to investigate the factors associated with non-condom use as well as inconsistent use in those who use condoms.

1.2 Statement of the problem

Previous studies have shown a relatively low rate of condom use among young adults and especially in this study area where the HIV prevalence is one of the highest in the country (8) therefore it is imperative to identify the factors associated with condom use. High HIV prevalence has been found to be associated with low condom use as well as inconsistent condom use (9). It is estimated that consistent condom use reduces the risk of HIV transmission by about 80-90% (10). With this in the background, it is important to analyze

the determinants of condom use and of consistent use in order to design programs specifically tailored for young adults that encourage condom use and therefore reduce HIV infections.

1.3 Research Question

What are the factors associated with condom use, the levels and patterns and its consistency of use among young adults aged 15-24 years in the Africa Centre Demographic Surveillance Area in 2005?

1.4 Justification of the study

HIV is a public health issue and young adults are the main affected and infected group (2). Intervention programmes have been put in place to help reduce the spread of the disease through condom distribution and health education campaigns but condom use rates are still found to be relatively low in South Africa. Therefore, it is important to understand young adults' sexual behavior and the factors that influence their use of condoms as condoms offer dual protection against unwanted pregnancy and they are one of the most effective means of preventing the transmission HIV of and sexually transmitted infections (STIs) (11).

Although some studies have found the condom use rates to be increasing (7), there is need to understand consistency of condom use and the levels and patterns of condom use within this age group in order to sustain the positive behavior. To reduce the incidence of STIs, HIV infection and unplanned pregnancies both the government and non-governmental organizations need to implement youth-oriented programs whose target is consistent condom use as it has been found to be effective in protecting against the above outcomes

and thereby improve the reproductive health of the adolescents. In addition they have to increase and extensively distribute condoms so that they become available and accessible to all.

In order to facilitate the design of effective programs and implementation of policies, it is imperative to understand the levels and patterns of condom use as well as the determinants of condom use and continued consistency of use and how to maintain safe behaviors. With this backdrop, it is necessary to carry out an analysis of the determinants of condom use among young adults aged 15-24 years in the Africa Centre Demographic Surveillance Area (ACDSA).

1.5 Literature Review

A review of literature has shown that HIV related illnesses and AIDS continue to be the leading causes of death worldwide but more so in sub-Saharan Africa where young people are most affected (2). While abstinence is the main and foolproof method of prevention of transmission, it is not practical in many situations; hence the need to encourage consistent condom use in all circumstances.

1.5.1 HIV/AIDS prevalence in South Africa

According to the South African Department of Health Study 2005, based on data from antenatal clinics across all nine provinces, an estimated 30.2% of pregnant women were living with HIV. The provinces that recorded the highest HIV rates were KwaZulu-Natal (39.1%), Mpumalanga (34.8%) and Gauteng (32.4%). The estimates by age were higher in the 20-24 years (30.6%) compared to the less than 20 year olds (15.9%) (8). These figures, although they do not represent the general population, show that the burden of HIV/AIDS

in South Africa, especially in KwaZulu-Natal, is huge and needs urgent prevention intervention programmes.

A National HIV Survey involving sampling a proportional cross-section of communities was conducted in 2005 and the findings were adjusted to correct for the possibility of over- or under-representation of individual groups based on census data. Of the 24 236 people within households that were eligible to take part, 96% agreed to be interviewed and 65% agreed to take an HIV test. Based on this survey, it is estimated that 10.8% of all South Africans over 2 years old were living with HIV in 2005. Among those between 15 and 49 years old, the estimated HIV prevalence was 16.2% (8).

In a household based HIV sero-survey of all resident women 15-49 years, men 15-54 years, and a sample of non-residents (migrants) conducted between June 2003 and November 2004 in the ACDSA, which is the study area, the overall HIV prevalence among those residents who consented to HIV testing was 27% in female and 13.5% in males (12).

1.5.2 Condom use in South Africa

There is need for the adoption of positive behaviour change and a comprehensive approach to risk reduction usually referred to as safer sex practices–Abstinence, Being faithful to one uninfected partner and Correct and consistent use of condoms (ABC) (13). However, abstinence is difficult among youths of this age group therefore advocating for correct and consistence of condoms.

A study was done using 1998 South African Demographic and Health Survey (SADHS) to find out if knowing someone with AIDS affects condom use among women aged 15-49

years. However, the findings of the study showed that there was no association between condom use and having known a person with or who has died of AIDS (PWA). The factors that were found to be strongly associated with condom use were knowledge that condoms can prevent HIV/AIDS (OR=2.9 $p<0.01$), sex with a non-marital partner (OR=2.4 $p<0.01$), higher education level (OR=8.7 higher education; OR=5.0 secondary education and OR=2.5 primary education compared to no education), younger age and urban residency. Only 12% of those who were ever sexually active reported that a condom was used at their last sexual intercourse (14). In another study in the same area the ACDSA, in 2001, 51.7% of women aged 15-49 years reported to have ever used a modern contraceptive method and of these 11.5% of women ever used a male condom (15).

In a study carried out in KwaZulu Natal using data from the Transitions to Adulthood in the context of AIDS survey, on the reasons for condom use among young people aged 15-24 years in this area, 64% of the respondents reported to use condoms for dual protection, which is against both pregnancy and STIs and HIV. A small proportion, 24% of male and 18% of female condom users reported using condoms for pregnancy prevention only (16).

A national survey conducted in 2002 in South Africa found accessibility to male condoms to be generally high, more than 90% as reported by respondents aged 15-49 years. However, female condoms were reported to be distributed selectively in very low numbers at pilot sites (17) which makes them less accessible and uncommon to users especially the young adults.

Knowledge about condoms and HIV prevention (14; 16) are high among young adults but general perception of risk to infection and vulnerability is low resulting in the knowledge not transforming into behavior of condom use. The behavior of males and females in terms of condom use are also different (7) and therefore prevention programs should not generalize for both but take these differences into consideration.

A qualitative study in Khutsong township in Carltonville in South Africa in 1999, among adolescents aged 13-25 years, showed that 70% of the adolescents believed that they were at no risk or low risk of HIV infection despite the high rate in the area (18). Another interesting finding was that condom use was restricted to casual relationships rather than steady relationships as it was found to be "unnecessary", and that it was for prevention of infection in casual relationships. The perceptions of peers and adults were also found to influence condom use among young adults in this study (18). This means that condom use is a behavior that calls for more than individual participation but also the community at large by accepting and reinforcing condom use as an acceptable behavior rather than a taboo.

In another study among youths in Durban using both qualitative and quantitative methods, it was found that condom use was not a topic of discussion between partners and was not considered as a method of contraceptive as males were biased towards female hormonal contraceptive methods (19). Condoms were directly associated with STIs and HIV prevention and were also believed to reduce males "control" in a relationship (19). Such attitudes and beliefs towards condom use continue to lower consistent condom use among young adults. Social marketing and prevention programs promoting condom use have also

created a bias of condom use for prevention of STIs and HIV infection hence their association with infidelity and promiscuity (18; 19).

1.5.3 Condom use in Africa

Some studies (9; 20) report substantial sexual behavior change in Africa in response to HIV/AIDS, with generally an increase in condom use and a reduction in partners. Although these are positive and encouraging reports, it is also important to know the reasons for change of behavior, the consistency of condom use and extent of change of behavior. A study was carried out in rural southwest Uganda between 1996 and 2000, involving 196 participants to investigate the exact nature of behavior change and the reasons for change or lack of change since people became aware of HIV/AIDS (20). Data were collected using (triangulation) methods; from three rounds of questionnaire surveys, four rounds of open in-depth interviews, six rounds of semi-structured interviews and from informal conversations and participant observation. The results showed that 48% of respondents had ever used a condom and the reasons for use in 76% of all cases was at least partly AIDS related, while 19% was exclusively for protection against HIV. With regards to consistency, only 13% of current condom users reported having used a condom regularly and most of this use was for family planning (20).

An open population cohort of adults in two household censuses as well as local antenatal clinic attendees were enrolled in a study conducted in Manicaland Zimbabwe to measure changes in HIV prevalence and sexual behavior occurring between 1998 and 2003. HIV prevalence was observed to decline over an average 3-year inter-survey interval from 23.0% to 20.5% and since this decline was over a relatively short period and occurred

mainly among people with secondary school education, the authors suggested this to indicate a contribution of sexual behavior change. Consistent condom use with recent casual partners remained at a quite high level in men (41.6% versus 42.2%) but decreased in women (36.5% versus 26.2%; $p<0.01$) over the 3 years (9).

1.5.4 Condom use in the rest of the world

Generally adolescents are becoming sexually active at early ages and parents and guardians play a major role in educating them about their sexual reproductive health and the changes that come with puberty. A study in New York, United States of America and Puerto Rico (1998) involving sexually active adolescents aged 14-17 years, found that discussion of condom use with parents, especially mothers, at an early age increased the chances of using condoms in the future and with subsequent acts (21).

The nature and type of relationship also influences condom use. Condom use is higher in short term or casual relationships which are usually for commercial gain than steady long term relationships where condoms are not used because of trust built over time. A study was carried out in Brazil among 15-24 year olds to evaluate condom use at last sexual intercourse and analyse factors associated with condom use according to type of sexual partners as per participant's definition (22). The determinants were assessed using multivariate analysis of data and non-conditional logistic regression modelling. The results showed that overall level of condom use at last sexual intercourse was relatively high (60%) and 80% used condoms with casual partners, compared with 49% when partners were steady and this was significantly different. In univariate analysis, cohabitation in both casual and steady partnerships, not having children, being a woman and never having

worked, were associated with a lack of condom use. Having less schooling (0–4 or 5–8 years), having no work history, and per capita family income above the minimum wage were factors related to not using condoms in those who had their last sexual encounter with steady partners (22). The above determinants are interesting because they suggest that the socio-economic status of a person determines condom use.

Risk of HIV infection is high among the young adults because of early sexual debut. Condom use has been found to be low for first sexual encounters, a study in Cambodia among young men aged 15-24 years showed that condom use was higher at last (71.2%) compared with first sex (58.4%), and inversely and significantly associated with age, with older respondents (62.5%) being less likely to use condoms than younger men (91.3%, p=0.02) (23). The crude analyses show that compared with those still in education, working (OR=0.07 p<0.01) and unemployed (OR=0.11 p<0.01) young men were significantly less likely to use a condom at last sex. Condom use also varied significantly by type of last partner where it was 8.5 times more likely with a non-brothel-based or indirect sex worker than it was with a female friend or girlfriend (23). The results of this study show that the more commercial the relationship the easier it is for young women to negotiate condom use, or the more willing young men are to use condoms.

1.6 Definition of terms

Although efforts have been made to come up with a standard measurement for self-reported condom use and consistency, there are no agreed upon “gold standard” in terms of the best way to assess condom use (24), it differs by studies and places and in this study the following definitions were used.

1.6.1 Condom use

This refers to the proportion of those who reported ever having used a condom with the most recent partner in the last year measured by a proxy of the frequency of condom use. *"Have you and your partner ever used a condom? (IF YES) How often do you use condoms?" (Questionnaires Women's General Health and Men's General Health see Appendix 4).* All those who reported *"sometimes"* or *"always"* use of condoms were considered *"condom users"* and those who reported *"never"* to the question were regarded as "*non-condom users"*.

1.6.2 Consistency of condom use

The proportion of "condom users" who reported *"sometimes"* to the use of condoms were considered as *"inconsistent"* condom users and those responding "*always*" were considered as *"consistent"* condom users. Those who responded *"never"* were excluded. In this study consistency of condom use was defined in terms of condom use with the most recent partner in the last year.

1.6.3 Young adults

This definition varies with places and contexts but in this study, young adults refer to all those respondents aged between 15 and 24 years.

1.7 General objective

To determine the factors associated with condom use among young adults aged 15-24 years in the Africa Centre Demographic Surveillance Area (ACDSA) in 2005

1.7 Specific objectives

- To describe the levels and patterns of condom use in young adults aged 15 – 24 years in the Africa Centre Demographic Surveillance Area (ACDSA) in 2005
- To compare factors affecting condom use and non-condom use among young adults aged 15 – 24 years in the Africa Centre Demographic Surveillance Area (ACDSA) in 2005
- To compare factors associated with consistent condom use among young adults aged 15 - 24 years in the Africa Centre Demographic Surveillance Area (ACDSA) in 2005

Chapter 2: Methodology

This study was conducted using secondary data from three surveys being carried out in the Africa Centre Demographic Information System (ACDIS). Demographic variables were obtained from the Demographic Surveillance Survey (DSS) database; the Household Socio-economic Survey Form 2 (HSE2) provided variables on education and the household expenditure per capita as well as the household assets; and the variables on sexual history and behavior were selected from the Population based HIV Survey specifically from the Men's General Health (MGH) and Women's General Health (WGH) Forms. A data request form was signed between the site and the student. The student designed a data description table with the required variables and format for data extraction. Data for 2005 were extracted from the three surveys into one database or flat file.

2.1 Study area

KwaZulu-Natal is one of the most populous provinces of South Africa, with a population of more than nine million people (25). The population is predominantly rural and black with the main language in most homes being *isiZulu*. The DSA is best described as an area 437 km^2 in size in the extreme southern portion of the Umkhanyakude district bordered by the Umfolozi River in the south, the Umfolozi-Hluhluwe nature reserve on the west, the N2 in the east and the Inyalazi River in the north. It comprises portions of the Hlabisa and Mtubatuba municipalities and includes the KwaMsane Township in its south-eastern corner (see map Appendix 1). The ACDIS is situated in the municipalities of Hlabisa and Mtubatuba, in the Umkhanyakude District. The ACDIS surveys bi-annually approximately 12 000 households in the DSA, with a total population of about 90 000 people. Routine demographic information is collected on births, deaths, migrations and pregnancies from

residents as well as non-residents who retain membership of households in the DSA ('migrants' who return to their households periodically). Continuous monitoring and examining of changes in social and health status are done routinely. In addition, the DSS site also carries out an HIV sero surveillance survey of all resident men aged 15-54 years and all resident women aged 15-49 years, as well as a sample (12%) of non-resident members of these ages.

2.2 Study design

A cross sectional survey was employed to enable comparisons between condom users and non-condom users and consistent versus non-consistent condom users in order to determine factors affecting both outcomes. The primary study is a longitudinal survey carried out annually and for this study two points in time were defined; that is first of January 2005 to last day of December 2005 in order to determine condom use in 2005 among the young adults.

2.2.1 Methodology of primary study

The Africa Centre conducts an annual longitudinal HIV surveillance study on all resident adults; females aged 15-49 and males aged 15-54 years old and a sample (12%) of non-resident household members (12). It is an anonymous-linked study with voluntary disclosure of results to the participants. The study is currently in its fourth round; the first round took place in 2003-4. The site collects routine demographic information twice a year in the homesteads in addition to HIV testing done once every year. Every adult aged 15-49 years for females and 15-54 years for males is eligible for the HIV survey and in 2007 it was extended to all aged above 15 years. The study is fully integrated into the ACDIS DSS and pairs of trained fieldworkers do all fieldwork. Besides HIV testing, additional basic

data on the health status and on sexual behavior are collected using structured questionnaires (*Women's & Men's General Health Forms – Appendix 4*). Data collected from this module provides the outcome variable; condom use and the core explanatory variables on sexual health and behavior, for this study to answer the research question.

2.3 Study population and sampling frame

The sampling frame for this study was all residents aged between 15-24 years as on the first of January 2005 in the DSA. If a respondent was a resident on the first of January 2005 whether or not they continued to be a resident for the rest of the year, they externally migrated, or died, they were regarded as residents for this study.

2.3.1 Study sample and sampling

The target population was all resident males and females aged 15–24 years who reported ever having had sex. A total of 14 946 respondents were aged 15-24 years on the first of January 2005 and were resident in the DSA. There were 4 355 residents on the first of January 2005 who were non-responders: of these 2 413 were resident the whole year but could not be contacted or refused to participate, and 1 942 were resident on first of January 2005 but they externally migrated or died before they could be contacted for the survey. Of the total 14 946; 10 591 had information on the question *"Have you ever had sexual intercourse?"* and 9 144 responded either yes or no to the question; 1 447 responded "not applicable", "missing", "do not know" or "refused" to answer. Of the 9 144; 4 178 responded either "yes/no" to the question *"Have you or your partner ever used a condom? (IF YES) How often do you use condoms?"(Questionnaires Women's General Health and Men's General Health)*, and three respondents were "missing", ten "refused" to answer and eight were coded "non applicable" and these 21 were excluded from the analysis hence a

sample of 4 157. Figure 2.1 below shows a summary of the sampling and sample size selection.



Fig 2.1 Summary of the sampling and sample size selection

2.3.2 Inclusion/ Exclusion criteria

Selection of participants for this study was based on the following criteria: age, residence and sexual history defined as:

- **Age:** All the young adults aged between 15-24 years as on the first of January 2005.
- **Residence:** All the young adults who were resident as on the first of January 2005.
- **Sexual history:** All the young adults who reported having ever had sex.

2.4 Measurements and data sources

A structured interviewer-administered questionnaire was used to collect the data in all the surveys from which the data for this study was sourced. Trained fieldworkers who are fluent with the vernacular language *isiZulu* administer the questionnaire and the

demographic information collected for each household is updated at each visit bi-annually. A data description table with the variable name, source of data, data type (for example character, integer, date format) and data definition was developed to select the outcome and explanatory variables.

2.4.1 Outcome variable

The main outcome of interest was condom use. Condom use was defined as those who reported either *"sometimes"* or *"always"* using condoms and it was used as a categorical variable with a binary outcome. Condom use was assessed as with the most recent partner in the last year preceding the survey. This outcome variable was used in univariate analysis using chi-square test and logistic regression to assess associations and odds ratios respectively. The outcome was also used to develop a description of the levels of condom use; that is the proportion of young adults who reported using condoms and also the patterns of condom use; that is how condom use varies by sex, age and other demographic characteristics of young adults. Condom use with the most recent partner in the last year was used as the outcome because according to literature, recent self-reports of methods of contraception including condom use are less susceptible to recall errors than are reports of previous acts due to relative recency. Research also suggests that condom use at last sex is a reasonable proxy for consistent condom use (26).

2.4.2 Explanatory variables

The explanatory variables were categorized into socio-demographic, socio-economic; and sexual and behavioral history variables.

2.4.2.1 Socio-demographic variables

Age was a continuous variable but was assessed as categorical in descriptive and univariate analysis and as a continuous variable in multivariate analysis. Sex was treated as a categorical variable as well as marital status which was defined as current marital status at the time of the DSS survey. Due to small numbers, in some categories – civil married monogamous, traditional married monogamous and traditional marriage polygamous were combined to form the "married" category in descriptive analysis. Highest educational level reached was a categorical variable ranging from no education to Grade 12 and it was categorized into broad categories (none/less than one year education, primary, secondary (Grade 8-11) and high school (Matric)) for univariate and multivariate analysis; there was no one with tertiary education and above.

2.4.2.2 Socio-economic variables

Household assets and individual household expenditure were both continuous variables and the former was used as a proxy of socio-economic status of the household because it had more complete information than household expenditure. In addition, assets are more constant than household expenditure, and that respondents are more likely to respond on assets owned than expenditure. Household assets were categorized for multivariate analysis using the median number of assets of seven as the cut-off. Principal component analysis could have been used to assess SES but the database had an already calculated mean number of assets per household therefore the median number of assets per household was used for univariate and multivariate analysis as a proxy for socio-economic status. The assets that were included in the asset index were about twenty and these ranged from

telephone/cell phones, electric stove/gas cookers, fridge/freezers, block makers, television sets, radios/stereos, car/bakkies, bicycles, beds, table/chairs, sofa sets, wheelbarrows and bed nets among other things. Other items assessed were whether the household had access to piped water and electricity as well as the toilet type. .The following assets were not included as they are associated with a lower SES - cattle, other livestock like chicken; hoes, spade, garden fork and primus cooker *(sikeni)*.

2.4.2.3 Sexual and behavioral history

Age at sexual debut and number of sexual partners in the past year were continuous variables which were used in the descriptive analysis to find if their distribution varies with condom use. Number of sexual partners in the past year was a continuous variable and was used as such in multivariate analysis but was categorized into one and more than one partners for univariate analysis. Relationship type with most recent partner in the last twelve months was a categorical variable and it was used in place of marital status to assess risk of relationship type and condom use. Residence of the most recent partner, and age difference with partner (older, younger, same age) were both categorical variables. The HIV status of the respondents was based on the results of the sample collected for the population HIV survey. Information on uptake of results or prior knowledge of status was not available.

2.4.3 Potential confounders

The potential confounders in this study were sex and age. There is need to investigate if condom use may be influenced by age and sex; whether the younger ages are more likely than the older ages to use condoms and whether males are more likely to use condoms than

females. Another potential confounder is type of relationship; it would be interesting to investigate if being in a certain relationship status affects condom use; whether the married/cohabiting are more likely to use condoms than the non-married/non-cohabiting.

2.5 Ethical considerations

Ethics clearance for the primary data collection for the ACDIS was obtained from the University of KwaZulu-Natal Nelson R Mandela School of Medicine (Reference E029/03). Permission was obtained and a data user agreement was signed between the investigator and the Africa Centre for Health and Population Studies. Ethical clearance for this study was also obtained from the Human Research Ethics Committee of the University of Witwatersrand clearance certificate protocol number M060904.

2.6 Data processing methods and data analysis plans

2.6.1 Data storage and extraction

The data was stored in an ACDIS SQL Server database, and variables were selected and extracted into a flat file for data cleaning and analysis in STATA Version 9.2.

2.6.2 Data cleaning

Data was cleaned in STATA Version 9.2 for inconsistent and non logical data; incomplete information; data entry errors and omissions, and skip patterns that were not followed appropriately.

2.6.3 Data analysis

Descriptive analysis was done to give a summary of the respondents. Chi-square tests were done for categorical variables to establish associations and t-test to find the difference of means for continuous variables. Odds ratios and confidence intervals were calculated using logistic regression with a 5% level of significance. Multivariate analysis was stratified by sex as it was suspected that condom usage patterns could vary by sex. Logistic regression was done for the outcome "condom use" to find out how the explanatory variables affect the outcome; as well as for "consistency of condom use" using the same explanatory variables.

All the variables assessed in the univariate model were included in the multivariate analysis, both the significant and the insignificant variables from the univariate model. Income, household expenditure and assets were measuring the same thing (SES) therefore assets was used as a proxy for SES in the univariate and multivariate analysis as it improved the final models. Interaction and effect modification were checked for and potential confounders were controlled for.

Chapter 3: Results

A total of 4 157 respondents who reported having ever had sex in 2005 were included and analyzed using univariate and multivariate analysis methods. Descriptive data analysis gives a socio-economic profile and behavioral characteristics of the respondents in the study.

3.1 Descriptive data

Table 3.1 shows the profile of the respondents and the sex distribution was such that more than half (57.28%) of the respondents were females and the median age of the respondents was 20 years. About 45% had completed secondary school with less than one percent either having never been to school or having completed less than one year in school.

Most of the young adults had never been married or engaged (92%) with less than one percent stating that they were divorced or widowed. A higher proportion of condom users were those who were in non-marital/non-cohabiting relationships (53.45%) than those in marital/cohabiting relationships (p=0.42) and those whose partners resided in the *isigodi* (an area in the DSA for which single *Indunas*/chiefs are responsible) (53.13%) than those with partners residing either within the same household or outside the isigodi ($p< 0.01$)

Overall, the mean age of sexual debut was relatively low (17years). The median household expenditure per month was 129.7 rands and an average ownership of seven household assets.

The HIV prevalence for the young resident adults aged 15-24 years in this DSA as on the first of January 2005 was 12.92% (537/4157). Information on whether the young adults knew their status was not available which is very crucial as it affects behavior change.

The question on religion was not asked in 2005 therefore the respondents' religious status of 2004 was assumed, based on the assumption that religion does not change that much within a year. However, there were 1 858 young adults who had responses to the religion question in 2004 who could possibly be matched to the 2005 respondents and of these only 725 (17.35%) responded to the question on religion and met the criteria, therefore no further analysis was done on this variable as this would mean excluding a lot of the youths whose religious denomination was not recorded.

Table 3.1 Background characteristics of young adults 15-24 years in the study

Characteristics	Condom use N=2 151 n (%)	Non-condom use N=2 006 n (%)	Overall N=4 157 n (%)
Sex			
Males	1017(57.26)	759(42.74)	1776(42.72)
Females	1134(47.63)	1247(52.37)	2381(57.28)
Age			
15-19years	982(52.51)	888(47.49)	1870(44.98)
20-24years	1169(51.11)	1118(48.89)	2287(55.02)
Average age mean (sd) years	19.80(2.44)	19.91(2.49)	19.85(2.47)
Median (Q1-Q3) years	20.00(18-22)	20.00(18-22)	20.00(18-22)
Education			
None	9(37.50)	15(62.50)	24(0.58)
Primary	174(38.75)	275(61.25)	449 (10.80)
Secondary	935(50.27)	925(49.73)	1860 (44.74)
High school	910(57.85)	663(42.15)	1573 (37.84)
Don't know/Refused	30(41.67)	42(58.33)	72 (1.73)
Missing	93(51.96)	86(48.04)	179 (4.31)
Marital status			
Divorced	0(0.00)	1(100.00)	1(0.02)
Married	5(21.74)	18(78.26)	23(0.55)
Never married	3(50.00)	3(50.00)	6(0.14)
Never married, not engaged	2024(52.93)	1800(47.07)	3824(91.99)
Never married, engaged	119(39.53)	182(60.47)	301(7.24)
Widowed	0(0.00)	1(100.00)	1(0.02)
Don't know	0(0.00)	1(100.00)	1(0.02)
Age at first marriage mean(sd)	20.75±1.50	20.31±1.70	20.41±1.62
Age at sexual debut mean(sd)	16.99±1.95	17.02±1.97	17.00±1.96
Type of relationship			
Marital/cohabiting	1636(51.25)	1556(48.75)	3192(76.79)
Non-marital/non-cohabiting	511(53.45)	445(46.55)	956(23.00)
Missing	4(44.44)	5(55.56)	9(0.22)
Residence of partner			
With partner	112(40.14)	167(59.86)	279 (6.71)
Outside *isigodi*	1250(52.26)	1142(47.74)	2392 (57.54)
In *isigodi*	782(53.13)	690(46.88)	1472 (35.41)
Missing	7(50.00)	7(50.00)	14 (0.34)
Household expenditure n=3821			
Mean(sd)	186.12±180.42	165.45±158.59	175.80±169.75
Range	17.62-1745	0.42-2277.37	0.42-2277.37
Median	136.67	123.33	129.73
(Q1-Q3)	(88.94-211.13)	(82.68-190.90)	(85.19-199.67)
Assets n=3912			
Mean (sd)	7.63±3.49	6.70±3.29	7.18± 3.42
Median(Q1-Q3)	8(5-10)	6(4-9)	7(5-10)
HIV status			
HIV negative	1125(50.18)	1117(49.82)	2242(53.93)
HIV positive	277(51.58)	260(48.42)	537(12.92)
HIV unknown	749(54.35)	629(45.65)	1378(33.15)

3.2 Condom use by other variables

The overall rate of condom use with the most recent partner in the last year among resident young adults aged 15-24 years in the DSA in 2005 was 51.74% (2151/4157). Also interesting to note is that condom use rate of around 50% is seen in each year of age. Figure 3.1 below shows that there is a significant difference ($p<0.01$) in condom use between males and females with condom use being generally higher in males compared to females in all ages except at age 16 years where the proportions were similar.

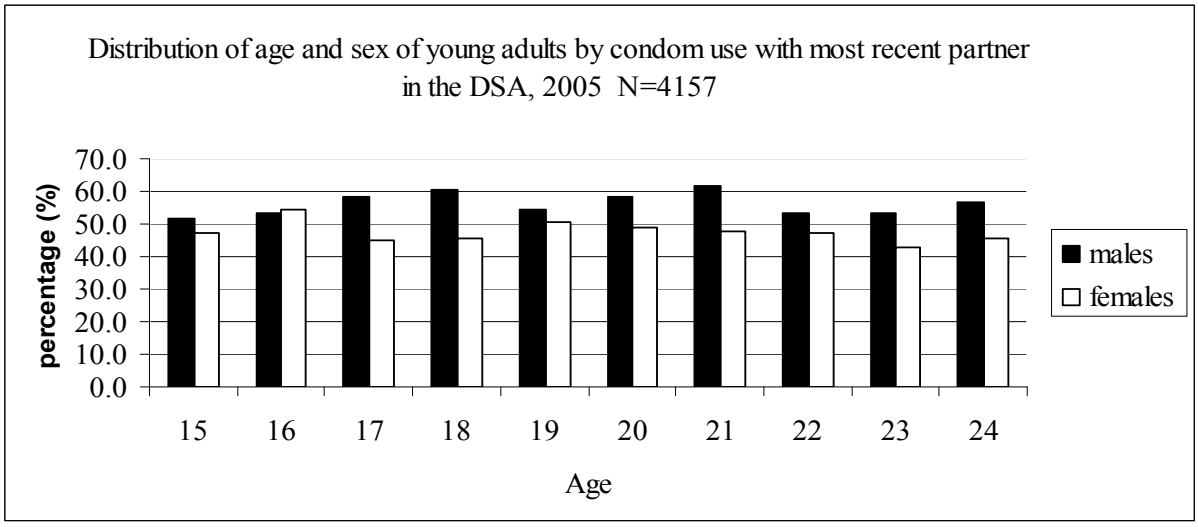


Figure 3.1 Distribution of condom use with most recent partner in the last year by age and sex of young adults 15-24 years in the DSA in 2005

The relationship between condom use and education is examined. Figure 3.2 shows that condom use increased significantly with increase in education which shows there is an association between highest education level reached and condom use by young adults ($pr<0.01$ chi-square test).

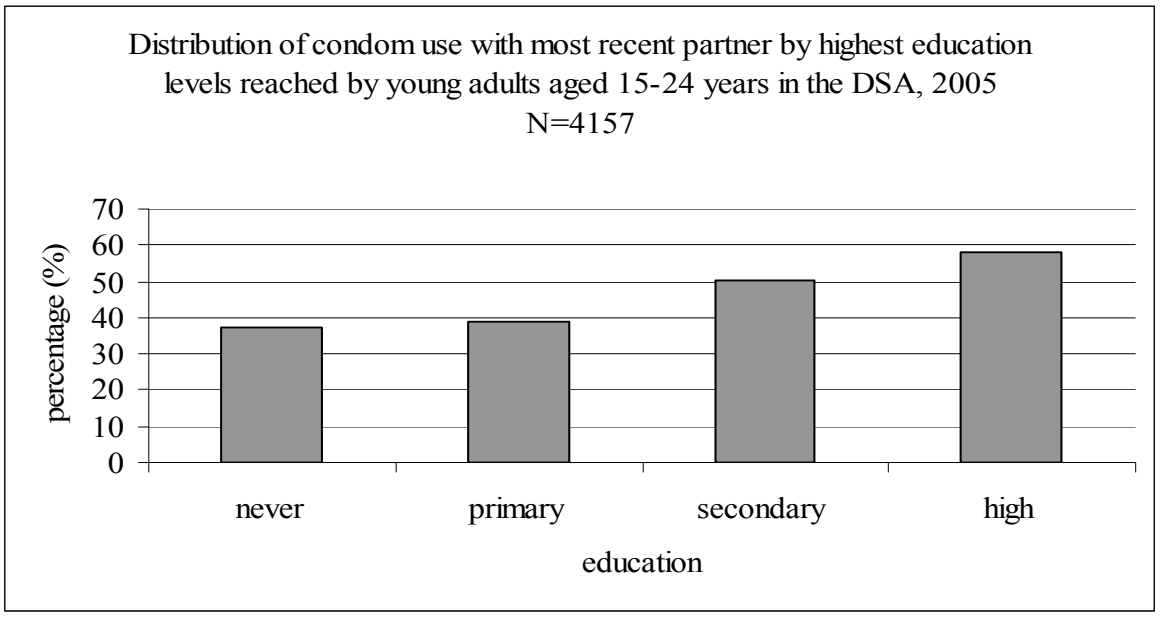


Figure 3.2 Distribution of condom use with most recent partner by highest education level reached by young adults aged 15-24 years in the DSA, 2005.

3.3 Univariate analysis of condom use

Table 3.2 shows the univariate analysis to determine associations with the explanatory variables. There is overwhelming evidence to suggest that females were less likely to use condoms than males (OR=0.68 $p<0.01$). Although the older adults (20-24years) were less likely to use condoms compared to the younger (15-19 years) the difference was not statistically significant.

There is an association between highest education level reached and condom use (chi-square p-value<0.01), and the odds ratios show that with each increase in education level there is an increased likelihood to use condoms compared to those with none (including low education) education (OR=1.05 primary and OR=1.94 secondary) though it was not significant.

Marital status was associated with condom use with those who reported never having been married and not engaged being four times more likely to use condoms than the married (OR=4.05 p=0.01).

Those who had partners older than them were less likely to use condoms compared to those who had partners of the same age (OR=0.65 p<0.01). In terms of where the partner resided, those who had partners residing outside (OR=1.63 p<0.01) or within (OR=1.69 p<0.01) the *isigodi* were more likely to use condoms than those who were staying with their partners.

Household assets were considered as a measure of socio-economic status in this study and seven assets was used as the cut off between good SES and poor SES because it was the median number of assets owned by households. Young adults coming from households that had more than seven assets were more likely to use condoms than those from households with less than seven assets (OR=1.64 p<0.01).

Young adults whose HIV status was unknown were more likely to use condoms (OR=1.18 p=0.02) than those who were HIV negative. Those HIV positive were also more likely to use condoms than those who were HIV negative (OR=1.06 p=0.56) although the difference was not significant.

Table 3.2 Condom use by socio-demographic characteristics and other explanatory variables

Characteristics	Condom use N=2151 n (%)	Odds ratio 95% CI	Pr>chi2
Sex*			
Males	1017(57.26)	1.00	-
Females	1134(47.63)	0.68(0.60-0.77)	<0.01
Age			
15 - 19	982(52.51)	1.00	-
20 – 24	1169(51.11)	0.95(0.84-1.07)	0.37
Education*‡			
None	9(37.50)	1.00	-
Primary	174(38.75)	1.05(0.45-2.46)	0.90
Secondary/High	1845(53.74)	1.94(0.85-4.44)	0.12
Marital status*			
Married	5(35.71)	1.00	-
Never married	3(50.00)	3.60(0.35-23.64)	0.18
Never married, not engaged	2024(52.93)	4.05(1.50-10.92)	0.01
Never married, engaged	119(39.53)	2.35(0.85- 6.51)	0.10
Type of relationship ‡			
Non-marital/non cohabiting	511(53.45)	1.00	-
Marital/cohabiting	1636(51.25)	0.92(0.79-1.06)	0.23
Partner age difference* ‡			
Same age	301(57.66)	1.00	-
Older	1045(47.11)	0.65(0.54-0.79)	<0.01
Younger	780(57.18)	0.98(0.80-1.20)	0.85
Residence of partner* ‡			
With member	112(40.14)	1.00	-
Outside *isigodi*	1250(52.26)	1.63(1.27-2.10)	<0.01
In *isigodi*	782(53.13)	1.69(1.30-2.19)	<0.01
Partners in the last 12 months* ‡			
1 partner	1776(82.57)	1.00	-
More than 1 partner	282(13.11)	1.16(0.96-1.39)	0.13
Assets n=2024			
Less than seven	778(38.44)	1.00	-
More than seven	1246(61.56)	1.64(1.44-1.86)	<0.01
HIV status*			
HIV negative	1125(52.30)	1.00	-
HIV positive	277(12.88)	1.06(0.88-1.28)	0.56
HIV unknown	749(34.82)	1.18(1.03-1.35)	0.02

***chi-square pr <0.05 significant at 5% level**

‡ 123 in education reported refused, don't know, missing

‡ 4 in type of relationship missing

‡ 25 in partner age difference responded don't know, not applicable and missing

‡7 in resides together with partner refused, responded don't know

‡ 93 in partners in the last 12 months responded 0, don't know or not applicable or missing

3.4 Multivariate analysis for condom use

Table 3.3 below shows the multivariate analysis for condom use adjusting for sex, age, education, relationship type, partner age difference, residence of partner, partners in the last twelve months, household assets and HIV status. After controlling for these factors, females were less likely to use condoms compared to males although the difference was not significant.

With every one year increase in age, there was a lesser chance of using condoms and this was significant among females (AOR=0.96 p=0.04), so as age increases, the chances of using condoms decreases, especially in females.

Education was not significantly associated with condom use in both males and females although the higher the education level reached the more likely to use condoms compared to those with no education.

Females who were in marital relationships were less likely to use condoms than those in non-marital relationships (AOR=0.75 p=0.03). Having an older partner whether the respondent was female or male, was significantly associated with less likelihood of using condoms (AOR=0.67 p<0.01 both, AOR=0.71 p=0.03 females and AOR=0.51 p=0.01 males) than those with partners of the same age. Having a partner who resided either outside or within the *isigodi* in the model for both sexes and males; and for females who had partners who resided outside the *isigodi* was associated with increased condom use compared to those who stayed with their partners. Increasing numbers of partners in the

last twelve months was not a significant determinant of condom use among the young adults.

Those who were from households that had more than seven assets, had an increased chance of using condoms than those who had less than seven (AOR=1.51 females and AOR=1.67 males and $p<0.01$ for both cases). Young adults who were HIV positive and those whose HIV status was unknown were more likely to use condoms than those who were negative.

Table 3.3 Adjusted Odds Ratios of condom use by explanatory variables N=4157

Variable	Both males and females N=3692		Females N=2113		Males N=1579	
	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI)	p-value
Sex						
Males	1.00	-	-	-	-	-
Females	0.89(0.68-1.18)	0.43				
Age	0.97(0.95-1.00)	0.06	0.96(0.93-1.00)	0.04	0.99(0.94-1.03)	0.61
Education						
None	1.00	-	1.00	-	1.00	-
Primary	0.98(0.41-2.33)	0.97	0.72(0.22-2.32)	0.58	1.31(0.37-4.70)	0.68
Secondary	1.74(0.75-4.06)	0.20	1.15(0.37-3.63)	0.81	2.46(0.70-8.59)	0.16
Type of relationship						
Non-marital	1.00	-	1.00	-	1.00	-
Marital	0.95(0.81-1.12)	0.57	0.75(0.59-0.97)	0.03	1.15(0.92-1.44)	0.23
Partner age difference						
Same age	1.00	-	1.00	-	1.00	-
Older	0.67(0.52-0.86)	<0.01	0.71(0.52-0.96)	0.03	0.51(0.31-0.83)	0.01
Younger	0.94(0.73-1.20)	0.62	0.85(0.35-2.05)	0.72	0.87(0.66-1.16)	0.36
Partner residence						
With member	1.00	-	1.00	-	1.00	-
Outside *isigodi*	1.62(1.24-2.14)	<0.01	1.62(1.13-2.32)	0.01	1.61(1.06-2.45)	0.03
In *isigodi*	1.54(1.16-2.04)	<0.01	1.33(0.90-1.95)	0.15	1.79(1.18-2.72)	0.01
Partners in the last 12 months	0.93(0.85-1.03)	0.15	0.73(0.48-1.10)	0.14	0.95(0.85-1.05)	0.30
Assets						
< 7 assets	1.00	-	1.00	-	1.00	-
≥ 7 assets	1.56(1.37-1.79)	<0.01	1.51(1.27-1.81)	<0.01	1.67(1.36-2.06)	<0.01
HIV Status						
HIV negative	1.00	-	1.00	-	1.00	-
HIV positive	1.35(1.09-1.67)	0.01	1.37(1.07-1.74)	0.01	1.16(0.70-1.92)	0.57
HIV unknown	1.18(1.02-1.37)	0.03	1.11(0.91-1.36)	0.30	1.30(1.04-1.61)	0.02

3.5 Summary of significant determinants of condom use

Table 3.4 shows a summary of all the significant determinants of condom use in univariate and multivariate analysis. Being female than male (OR=0.68 p<0.01) and older in years among the females (AOR=0.95 p=0.04) were associated with low condom use. Marital or cohabiting relationships were associated with a lower likelihood to use condoms and the

difference was significant among the females (AOR=0.75 p=0.03) as well as having an older partner than a same age partner among sexes, both females and males.

Residence of partner was a determinant of increased condom use as those who were not residing with their partners (partners either outside or within the *isigodi*) were more likely to use condoms than those residing with their partners in the same household. Having more than seven assets which was a proxy for better SES was associated with increased chances of using condoms than those with less than seven assets which was below the median number of assets. HIV status was a significant determinant of condom use with females whose status was positive being likely to use condoms (AOR=1.37 p=0.01) than those negative while in males it was those whose status was unknown (AOR=1.30 p=0.02) than those negative.

Table 3.4 Unadjusted and Adjusted Odds Ratios of condom use by sex with significant p-value

Variable	Unadjusted OR both sexes		Adjusted OR both sexes		Adjusted OR Females		Adjusted OR Males	
	OR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI)	p-value
Sex Males	1.00	-	1.00	-	-	-	-	-
Females	0.68(0.60-0.77)	<0.01	0.89(0.68-1.18)	0.43				
Age 15-19	1.00	-						
20-24	0.95(0.84-1.07)	0.37	0.97(0.95-1.00)	0.06	0.96(0.93-1.00)	0.04	0.99(0.94-1.03)	0.61
Type of relationship								
Non-marital/non cohabiting	1.00	-	1.00	-	1.00	-	1.00	-
Marital/cohabiting	0.92(0.79-1.06)	0.23	0.95(0.81-1.12)	0.57	0.75(0.59-0.97)	0.03	1.15(0.92-1.44)	0.23
Partner age difference								
Same age	1.00	-	1.00	-	1.00	-	1.00	-
Older	0.65(0.54-0.79)	<0.01	0.67(0.52-0.86)	<0.01	0.71(0.52-0.96)	0.03	0.51(0.31-0.83)	0.01
Younger	0.98(0.80-1.20)	0.85	0.94(0.73-1.20)	0.62	0.85(0.35-2.05)	0.72	0.87(0.66-1.16)	0.36
Residence of partner								
Resides with member	1.00	-	1.00	-	1.00	-	1.00	-
Reside outside *isigodi*	1.63(1.27-2.10)	<0.01	1.62(1.24-2.14)	<0.01	1.62(1.13-2.32)	0.01	1.61(1.06-2.45)	0.03
Reside in *isigodi*	1.69(1.30-2.19)	<0.01	1.54(1.16-2.04)	<0.01	1.33(0.90-1.95)	0.15	1.79(1.18-2.72)	0.01
Assets								
Less than 7 assets	1.00	-	1.00	-	1.00	-	1.00	-
More than 7 assets	1.64(1.44-1.86)	<0.01	1.56(1.37-1.79)	<0.01	1.51(1.27-1.81)	<0.01	1.67(1.36-2.06)	<0.01
HIV status								
HIV negative	1.00	-	1.00	-	1.00	-	1.00	-
HIV positive	1.06(0.88-1.28)	0.56	1.35(1.09-1.67)	0.01	1.37(1.07-1.74)	0.01	1.16(0.70-1.92)	0.57
HIV unknown	1.18(1.03-1.35)	0.02	1.18(1.02-1.37)	0.03	1.11(0.91-1.36)	0.30	1.30(1.04-1.61)	0.02

** Education and partners in the last 12months were not significant in both univariate and multivariate analysis*

3.6 Consistent condom use

Of the 4 157 respondents who reported ever having had sex, 2 006 (48.26%) reported "never" using condoms, 1 029 (24.75%) reported "sometimes" and 1 122 (26.99%) reported "always" using condoms with the most recent partner in the last 12 months. Figure 3.3 below shows the distribution of condom use when stratified by sex, where more females (52.37%) than males (42.74%) reported "never" using condoms with the most recent partner in the last 12 months and an inverse relationship existed for "always" using condoms, defined as consistent use of condom.

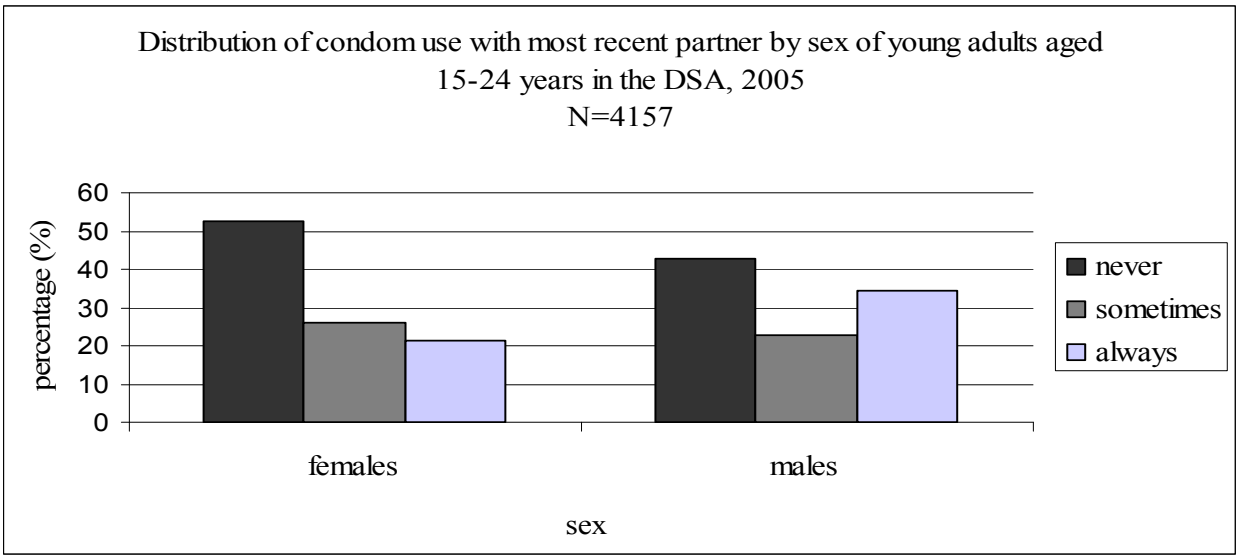


Figure 3.3 Distribution of condom use with most recent partner by sex of young adults aged 15-24 years in the DSA in 2005

3.7 Univariate analysis of consistent condom use

Consistent condom use was defined as those who reported "*always*" using condoms and inconsistent was defined as those who reported "*sometimes*" using condoms with their most recent partner. Those who reported "*never*" (n=2 006) were excluded from the analysis therefore the analysis was done on n=2 151 who reported either "*sometimes*" or "*always*" using condoms. Table 3.5 below shows that females were less likely to be consistent condom users (OR=0.55

p<0.01) compared to males and young adults in age group 20-24 years were significantly less likely to use condoms consistently (OR=0.61 p<0.01) compared to younger adults (15-19 years).

Young adults who were never married and not engaged were more likely to use condoms consistently than those who were married though it was not statistically significant. Type of relationship with partner and partner age difference were associated with consistent condom use. Those in marital/cohabiting relationships were less likely to use condoms consistently compared to those in non-marital/non-cohabiting relationships and those with older partners also having a lower likelihood to consistently use condoms (OR=0.54 p<0.01) than those with same age partners.

Residence of partner and the number of partners in the last 12 months preceding the survey were not significantly associated with consistent condom use although those with partners residing outside the "*isigodi"* were more likely to use condoms consistently than those residing with their partners and similarly those with more than one partner being more likely to be consistent condom users than those with one partner. These findings could be an indication of some risk assessment which could possibly be positively influencing consistent condom use.

Those young adults who were from households that had more assets were more likely to consistently use condoms although it was not significant. Those who were HIV positive were less likely to consistently use condoms with their most recent partner (OR=0.52 p<0.01) compared to those who were HIV negative.

Table 3.5 Consistent condom use by socio-demographic and other explanatory variables

Variable	Consistent condom use N=1122 n (%)	Odds ratio 95% CI	Pr>chi2
Sex *			
Males	609(59.88)	1.00	-
Females	513(45.24)	0.55(0.47-0.66)	<0.01
Age *			
15-19	577(58.76)	1.00	-
20-24	545(46.62)	0.61(0.52-0.73)	<0.01
Education ‡			
None	5(55.56)	1.00	-
Primary	89(51.15)	1.05(0.77-1.43)	0.77
Secondary	965(52.30)	1.19(0.31-4.60)	0.80
Marital status			
Married	2(40.00)	1.00	-
Never married	1(33.33)	0.75(0.04-14.97)	0.85
Never married, not engaged	1068(52.77)	1.68(0.28-10.05)	0.57
Never married but engaged	51(42.86)	1.13(0.18-6.98)	0.90
Type of relationship*			
Non-marital/non cohabiting	315(61.64)	1.00	-
Marital/cohabiting	804(49.14)	0.60(0.49-0.74)	<0.01
Partner age difference* ‡			
Same age	182(60.47)	1.00	-
Older	475(45.45)	0.54(0.42-0.71)	<0.01
Younger	453(58.08)	0.91(0.69-1.19)	0.48
Residence of partner* ‡			
With member	59(52.68)	1.00	-
Outside *isigodi*	667(53.36)	1.03(0.70-1.51)	0.89
In *isigodi*	396(50.64)	0.92(0.62-1.37)	0.69
Partners in the last 12 months ‡			
1 partner	924(52.03)	1.00	-
More than 1 partner	150(53.19)	1.05(0.81-1.35)	0.72
Assets n=1054			
Less than seven assets	387(36.72)	1.00	-
More than seven assets	667(63.28)	1.16(0.97-1.39)	0.10
HIV Status *			
HIV negative	615(54.81)	1.00	-
HIV positive	107(9.54)	0.52(0.40-0.68)	<0.01
HIV unknown	400(35.65)	0.95(0.79-1.14)	0.59

***Chi-square pr<0.05 at 5% significance level**

‡ 63 in education reported refused, don't know, missing

‡ 3 in type of relationship reported other, n/a, refused

‡ 12 in partner age difference reported "don't know"

‡ 7 in resides together with partner who reported don't know, refused

‡48 in partners in the last 12 months responded 0/don't know

3.8 Multivariate analysis of consistent condom use

Table 3.6 adjusting for sex, age, education, relationship type, partner age difference, residence of partner, partners in the last twelve months, household assets and HIV status; being female was significantly associated with lower consistent condom use than males (AOR=0.63 p=0.02). As age increased, the chances of using condoms consistently was decreased and the difference was significant (AOR=0.88 p<0.01 females and AOR=0.90 p<0.01 males).

Education was not associated with consistent condom use among both males and females. Those who were in marital/cohabiting relationships were less likely to consistently use condoms than those in non-marital/cohabiting relationships especially among males (AOR=0.68 p<0.00 both sexes, AOR=0.64 p=0.01 males) as well as in females though it was not significant. Partner age difference was only significant in females with those who had either older or younger partners being less likely to consistently use condoms than those who had partners of the same age (AOR=0.62 p=0.02 older and AOR=0.22 p=0.03 younger). Where the partner resided was not significantly associated with consistent condom use.

Among the females, with every increase in the partners they were involved with in the last 12 months, there was a higher chance of consistently using condoms while among the males there was a reduced chance of consistently using condoms although this was not significant in both cases. Having more assets and HIV status were not determinants of consistent use of condoms among both males and females.

Table 3.6 Adjusted Odds Ratios of consistent condom use by explanatory variables N=2151

Variable	Both males and females n=1925		Females n=1030		Males N=895	
	AOR 95% CI	p-value	AOR 95% CI	p-value	AOR 95% CI	p-value
Sex						
Males	1.00	-	-	-	-	-
Females	0.63(0.43-0.93)	0.02				
Age	0.89(0.86-0.93)	<0.01	0.88(0.83-0.93)	<0.01	0.90(0.84-0.95)	<0.01
Education						
None	1.00	-	1.00	-	1.00	-
Primary	0.58(0.14-2.37)	0.45	0.80(0.12-5.29)	0.82	0.38(0.04-3.97)	0.42
Secondary	0.70(0.18-2.76)	0.61	0.97(0.15-6.06)	0.97	0.47(0.05-4.68)	0.52
Type of relationship						
Non-marital	1.00	-	1.00	-	1.00	-
Marital	0.68(0.54-0.85)	<0.01	0.74(0.53-1.05)	0.09	0.64(0.47-0.88)	0.01
Partner age difference						
Same age	1.00	-	1.00	-	1.00	-
Older	0.77(0.54-1.09)	0.14	0.62(0.41-0.93)	0.02	1.20(0.56-2.57)	0.63
Younger	0.85(0.61-1.19)	0.34	0.22(0.05-0.88)	0.03	0.98(0.68-1.43)	0.93
Residence of partner						
With member	1.00	-	1.00	-	1.00	-
Outside *isigodi*	1.05(0.69-1.61)	0.82	1.52(0.84-2.73)	0.16	0.64(0.33-1.26)	0.20
In *isigodi*	0.75(0.48-1.15)	0.19	0.95(0.51-1.77)	0.88	0.52(0.26-1.02)	0.06
Partners in the last 12 months	0.91(0.78-1.06)	0.23	1.46(0.69-3.10)	0.32	0.89(0.75-1.04)	0.14
Assets						
< 7 assets	1.00	-	1.00	-	1.00	-
≥7 assets	1.10(0.91-1.33)	0.32	1.12(0.87-1.45)	0.38	1.09(0.82-1.46)	0.55
HIV Status						
HIV negative	1.00	-	1.00	-	1.00	-
HIV positive	0.81(0.60-1.09)	0.17	0.89(0.63-1.26)	0.53	0.62(0.32-1.21)	0.16
HIV unknown	1.02(0.83-1.26)	0.83	1.08(0.81-1.46)	0.60	0.99(0.74-1.31)	0.93

3.9 Summary of significant determinants of consistent condom use

Table 3.7 shows the significant determinants of consistent condom use for both the adjusted and unadjusted analysis. Females were less likely to use condoms consistently (AOR=0.63 p=0.02) than males and growing older was consistently associated with lower consistent condom use in all models.

Being in a marital/cohabiting relationship was a determinant of low consistency of condom use (AOR=0.68 $p<0.01$ for both) compared to those in non-marital/non-cohabiting relationship and especially males (AOR=0.64 $p=0.01$). Having an older partner (AOR=0.62 $p=0.02$) or a younger partner (AOR=0.22 $p=0.03$) than a same age partner among the females was associated with a lesser chance of consistently using condoms.

Residence of partner was not significantly associated with consistent condom use among both males and females. In the unadjusted model, having a positive HIV status was associated with a lesser chance of consistent condom use compared to those who were negative (OR=0.52 $p<0.01$).

Table 3.7 Unadjusted and Adjusted Odds Ratios of consistent condom use by sex with significant p-value

Variable	Unadjusted OR both sexes		Adjusted OR both sexes		Adjusted OR Females		Adjusted OR Males	
	OR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI)	p-value	AOR (95% CI)	p-value
Sex								
Males	1.00	-	1.00	-	-	-	-	-
Females	0.55(0.47-0.66)	<0.01	0.63(0.43-0.93)	0.02				
Age								
15 - 19	1.00	-						
20 - 24	0.61(0.52-0.73)	<0.01	0.89(0.86-0.93)	<0.01	0.88(0.83-0.93)	<0.01	0.90(0.84-0.95)	<0.01
Type of relationship								
Non-marital/non cohabiting	1.00	-	1.00	-	1.00	-	1.00	-
Marital/cohabiting	0.60(0.49-0.74)	<0.01	0.68(0.54-0.85)	<0.01	0.74(0.53-1.05)	0.09	0.64(0.47-0.88)	0.01
Partner age difference								
Same age	1.00	-	1.00	-	1.00	-	1.00	-
Older	0.54(0.42-0.71)	<0.01	0.77(0.54-1.09)	0.14	0.62(0.41-0.93)	0.02	1.20(0.56-2.57)	0.63
Younger	0.91(0.69-1.19)	0.48	0.85(0.61-1.19)	0.34	0.22(0.05-0.88)	0.03	0.98(0.68-1.43)	0.93
HIV status								
HIV negative	1.00	-	1.00	-	1.00	-	1.00	-
HIV positive	0.52(0.40-0.68)	<0.01	0.81(0.60-1.09)	0.17	0.89(0.63-1.26)	0.53	0.62(0.32-1.21)	0.16
HIV unknown	0.95(0.79-1.14)	0.59	1.02(0.83-1.26)	0.83	1.08(0.81-1.46)	0.60	0.99(0.74-1.31)	0.93

** Education, residence of partner, assets and partners in the last 12 months were not significant in both univariate and multivariate analysis*

Chapter 4: Discussion

In this study, a condom use rate of 51.7% with most recent partner in the last twelve months among resident young adults aged 15-24 years was identified. The condom use rate presented is similar to that reported by several studies in South Africa and KwaZulu Natal among young adults of the same age (7; 27; 28). This rate is quite low given the sero-prevalence rate (8; 12) in this study area and compared to other studies (9; 20; 22; 23) in Africa and other countries. This could also be an indication that although HIV/AIDS awareness campaigns and programmes are having a positive effect it is at a low magnitude.

Condom use in this study was found to decrease with age especially among females. This is consistent with other studies on women aged 15-49 years in the study area in 1998 and 2001 which showed a low condom use rate of up to 12% (14; 15). This probably indicates that condom use reduces as women grow older because of the need to have children and formation of stable relationships which negatively affect the desire to use condoms. The latter reason could also explain why young adults in this study were less likely to consistently use condoms as they grew older.

Assessment of condom use is difficult to standardize as it can be measured at different levels depending on the type of survey (29).. In this study it was measured as “ever used condom with the most recent partner in the last twelve months” as it represents a critical point on sexual risk. Consistent condom use was measured among those who responded

"always" using condoms with the most recent partner as it is imperative to also consider consistency of condom use because it is associated with HIV transmission.

The significant differentials in condom use between males and females could be explained by the fact that condoms are a male-determined method; it is the male who determines whether or not a condom is used and in addition there is the high rate of modern non-barrier contraception use among the females in this area (13; 15). A qualitative study done in a South African Khutsong township in Carltonville in 1999 showed that condom use was lower among females than males because of condom inaccessibility due to the attitudes of health care service providers towards women (18), although the attitudes and practices may have changed over the years.

In addition, owning more assets as a proxy measure of socio-economic status in this study was found to be a positive determinant of condom use in both males and females though it was not significant factor in consistency of condom use. This is probably because young adults from households that are better socio-economically are likely to be better educated and therefore more likely to be able to negotiate condom use (9; 14; 22; 23). Socio-economic factors that are related to poverty influence to a greater extent the way young adults and even older adults in South Africa may make decisions or engage in sexual behaviors and practices that increases their risk of HIV transmission (17). In a qualitative study in Khutsong Township in South Africa, the young adults expressed that condoms were expensive and therefore were not a priority for those who were poor (18) which could explain why those in a better SES were more likely to use condoms. A

counter argument, though, is that government through the Department of Health provides free condoms in most public places. However, in this study the assets were measured at household level rather than individual level because of the age group of the participants where most of them were still in school and not employed.

Contrary to most studies (9; 14; 22; 23) education was found not to be associated with either condom use or consistent use. Interaction was checked for between education and assets but was not established as it was suspected to be an effect modifier. Hence in further studies it would be interesting examine the association between household head education and number of assets owned. In addition, interaction was also checked for between type of relationship and level of education with condom use and no relationship was established. This could be because women are married despite their educational level and hence no effect on condom use was found.

This study found a negative relationship between consistent condom use and marital/cohabiting relationships and this is consistent with findings in other studies (22; 30) which show that condom use varies with the type of relationships. This is probably explained by the same fact that such relationships are intended to lead into marriage, the need to have children and also the issue of trust built between partners. Non-marital/non-cohabiting relationships are less formal, more casual and in some cases, they are even commercial, therefore it is easier for women to negotiate for condom use or the men are more willing to use condoms in such relationships (23). It is also important to note that

levels of marriage are low especially in this age group particularly in South Africa; hence most young adults would be using condoms in non-marital/non-cohabiting relationships.

Having an older partner was associated with reduced chances of condom use and this could be because of gender power inequalities in sexual relationships which affect mainly women's relationship control (31) in negotiating for safer sex where older partners are more likely to determine and make decisions in a relationship.. Young women usually get into relationships with men older than themselves with the expectation of marriage and starting up a family which further reduces consistent condom use (30; 32; 33). The other reason could be for economical benefit - transactional sex where older men "sugar daddies" provide gifts and money to younger women in exchange for sex (32). Another interesting finding in this study was that women who had partners younger than them were also less likely to consistently use condoms than those with same age partners. The probable reason for this anomaly could be that; for women the age difference with their partner does not really matter in decision making of whether a condom is used or not, the final decision comes from the partner (19). It could also depend on how young the partner is, which in most cases they would almost be the same age. However, more research needs to be done on this finding.

Condom use was more likely with young adults who had partners residing either outside or within the *isigodi* than those who resided with their partners in their households. This could be an indication that young adults do undertake a risk assessment and are more likely to take precautions with partners who do not reside with them. This may be

because of trust built by staying with the partner; equating condom use to lack of trust was found to be associated with reduced likelihood of condom use in another study (4).

HIV status was a significant determinant of condom use with females whose status was positive being more likely to use condoms than those whose status was negative while in males it was those whose status was unknown. However, having a positive HIV status was associated with a lesser chance of consistent condom use compared to those who were negative in the unadjusted model. Information on whether the respondents knew their status or not were not available which is crucial because knowledge of HIV status affects sexual behavior change. The discrepancy between sexes and HIV status could be explained by the fact that probably females are more likely to access health facilities often, get tested and adopt positive behaviors such as condom use than males.

The other possible reasons for increased condom use among the positive females could be that they have a high perception of risk hence use condoms (18) though not consistently but they are already infected; high knowledge of HIV prevention (14); exposure to HIV/AIDS awareness programmes or after uptake of results and counseling to prevent re-infection or infection of partner. The probable explanation for the differences in HIV statuses and condom use could be that people who are positive and those whose status is unknown are likely to behave similarly by adopting safer behaviors than those who are negative. However, those who are negative and are aware of their status are also more likely to adopt safer sex practices in order to maintain their negative

status. VCT is a preventative measure that encourages knowledge of HIV status for both the positive and negative so that they adopt safer sex practices.

The sex differentials and condom use and consistent use observed in this study are striking and therefore important to be addressed in designing programmes as they form part of the Millennium Development Goals (34) that aim to combat HIV/AIDS. The strategy to promote gender equality and empowerment of women in an effort to reduce poverty will give a synergy effect to combat HIV/AIDS. It is also important to bear in mind the possibility of the effect of self reporting bias as this study was based on self-reported data and issues of sexual behavior are quite sensitive so there could be over- and under-reporting of information.

4.1 Possible limitations and strengths

The main limitation with any secondary data is the presence of incomplete records and the inability to generate any new data but only analyze the available data. Data was collected using interviewer administered rather than self administered questionnaire, which could introduce reporter bias where respondents can over- or under report their condom usage because condom use is a sensitive topic. People who refused or who could not be contacted could be significantly different from the sample resulting in selection bias.

Information was not available as to whether the respondents knew their HIV status and also on knowledge of antiretroviral treatment or access to the roll out programme. Therefore the likelihood of these effects changing behavior of condom use can not be

concluded. However, uptake of HIV results is very low in this area therefore it was assumed that respondents did not know their status.

Although the questionnaire lacked a direct question (yes/no) for the main outcome condom use there was no information lost due to combining groups as it was already a categorical variable. Although the data was not primarily collected for this study in particular, the data answered the research question well. Secondary data and analysis is widely available and accessible therefore cheap and fairly quick to carry out in a relatively short period of time.

Chapter 5: Conclusions and Recommendations

5.1 Conclusion

In conclusion the study found that the positive determinants of condom use were not residing with partner, having more assets and a positive or unknown HIV status. The negative determinants of condom use were being female, increase in age (significant in females model), being in a marital relationship (significant in females model) and having an older partner, while for consistency it was being female, increase in age, being in a marital relationship (significant for males) and having an older partner (significant in females model).

Controlling for other factors, number of partners in the last twelve months and education were found not to be significantly associated with condom use and consistent condom use. Residence of partner and assets were not determinants of consistent condom use.

A fairly low rate of condom use was identified in this study, and other studies have not found a significant reduction on HIV prevalence (17) especially in this study area which suggests that correct and consistent condom use programs should continue to be promoted, intensified and encouraged among the young adults.

Overall, the results were consistent with other studies carried in the area and worldwide which suggest that the determinants of condoms use and consistent condom use vary between males and females. However, when designing programmes for promoting

condom use such similarities and differences should be considered in order to be effective.

It is also important to promote consistent use of condoms with both marital and non-marital partners as they are both risky groups especially when the HIV status of either or both is not known. There is also need for further investigation as there could be other behavioral factors such as substance use and cultural norms and beliefs that were not controlled for in this study that could affect condom use and its consistency of use. A further study into reasons for change of behavior, the extent and consistency of change of behavior would be of importance for planning and evaluating interventions. This can be achieved given that the data from DSS sites is longitudinal and hence can be used in this study design to answer this question.

5.2 Recommendations

Given the findings of this study, the following recommendations were proposed:

- The results show that females are less likely to consistently use condoms therefore there is need to develop more effective HIV prevention strategies that help empower females with better negotiation skills for condom use.
- There is a need to encourage condom use even in marital/cohabiting relationships especially where the HIV status of either or both partners is unknown and to discourage young women from having relationships with older men for commercial gain through public-health education programmes that show the extent of HIV transmission with in such relationships. There is need to create job

opportunities for women to discourage transactional sexual relationships with older men.

- It is also important to develop programmes like micro-financing that help to improve the socio-economic status of young adults especially women in order to create income and reduce economic dependency; as the results of this study show that having more assets is associated with increased condom use. It is also part of the goals of the Millennium Development Goals to combat HIV/AIDS, eradicate poverty and empower women.
- Young adults should be encouraged to consistently use condoms and also to go for voluntary testing and counseling in order to be able to make the right choices and decisions concerning their sexual health. There is also need to ensure that the services are available, accessible and of high quality to encourage effective utilization of VCT.

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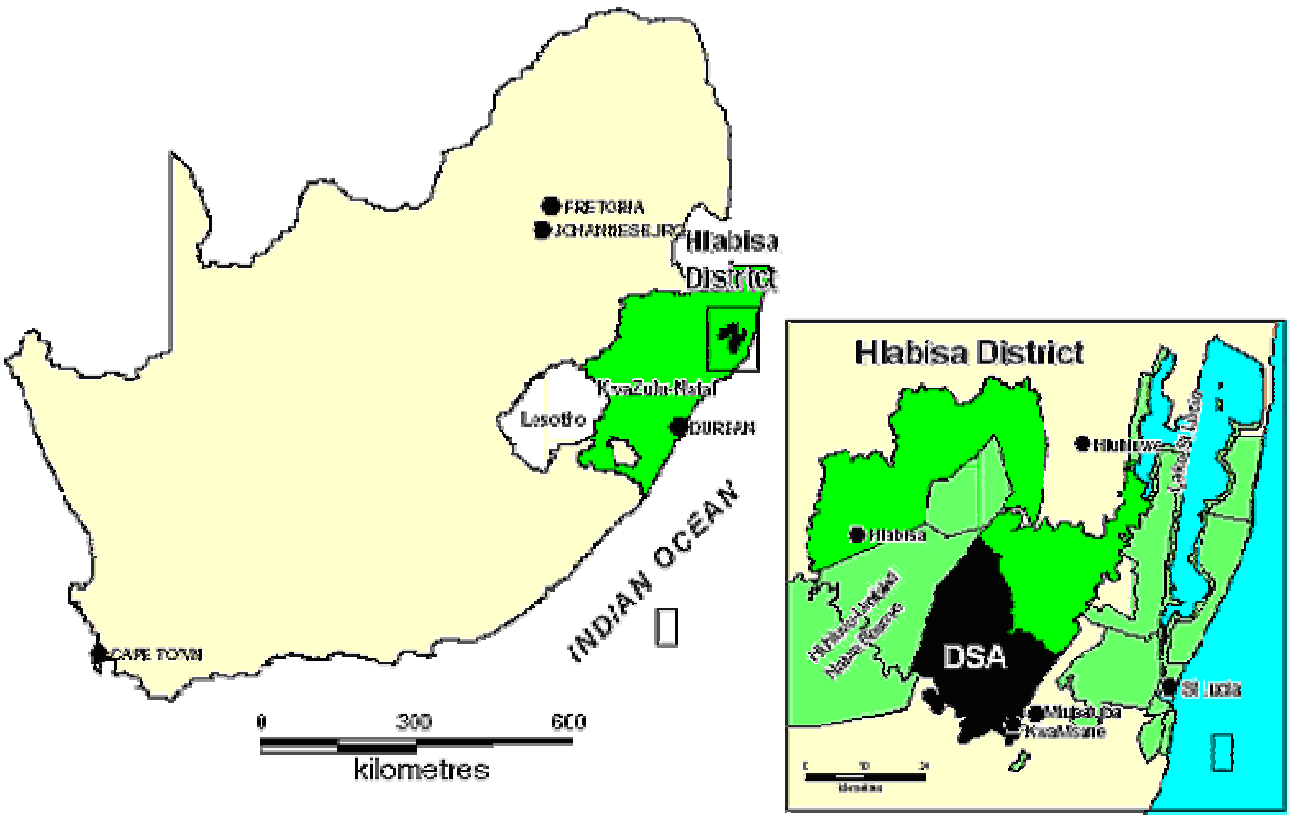
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APPENDIX 1: MAP OF AFRICA CENTRE DEMOGRAPHIC SURVEILLANCE AREA (ACDSA)



APPENDIX 2: HUMAN RESEARCH ETHICS CLEARANCE CERTIFICATE FROM THE UNIVERSITY OF WITWATERSRAND

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Chimbindi

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER M060904**
PROJECT	An analysis of the Determinants of Condom Use among Young Adults Aged 15-24 Years with Respect to....
INVESTIGATORS	Miss NZ Chimbindi
DEPARTMENT	School of Public Health
DATE CONSIDERED	06.09.29
DECISION OF THE COMMITTEE*	APPROVED UNCONDITIONALLY

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

DATE 07.06.14 **CHAIRPERSON** .....
(Professors PE Cleaton-Jones, A Dhai, M Vorster, C Feldman, A Woodiwiss)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor : Dr K SanTint

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 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

Chimbindi
26/06/07

APPENDIX 3: ETHICAL APPROVAL FOR ACDIS FROM NELSON MANDELA SCHOOL OF MEDICINE, UNIVERSITY OF KWAZULU-NATAL

Nelson R Mandela School of Medicine
Faculty of Health Sciences
Medical Research Administration

Private Bag 7 Congella 4013 South Africa
Telephone +27 (0)31 260 4495
Facsimile +27 (0)31 260 4410/4416
e-mail: borresen@nu.ac.za

9 July 2003

Professor A J Herbst
African Centre
Fax : 035 550 7565

Dear Professor Herbst

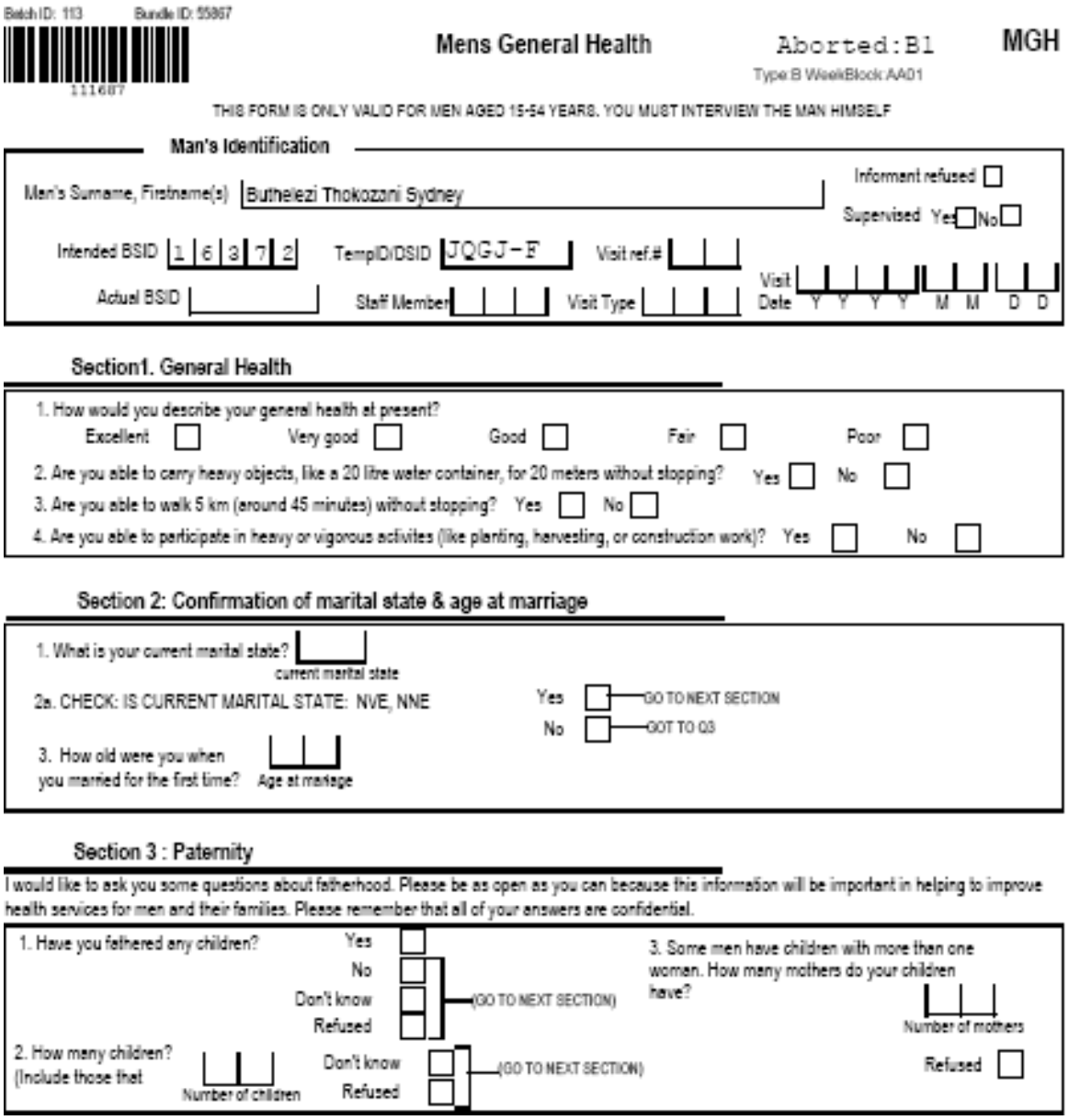
PROTOCOL : A proposal for the creation of a longitudinal population-based HIV research platform and non-communicable disease surveillance in the Africa Centre Demographic Information System, Hlabisa, South Africa. A Herbst, Africa Centre.
Ref.: E029/03

The Research Ethics Committee considered the abovementioned application and made various recommendations. These recommendations have been addressed and the protocol was approved by consensus at a full sitting of the Research Ethics Committee at its meeting held on 3 June 2003.

Yours sincerely

PROFESSOR J MOODLEY
Chairman : Research Ethics Committee

APPENDIX 4: QUESTIONNAIRES – MEN'S AND WOMEN'S GENERAL HEALTH FORMS



Batch ID: 113 Bundle ID: 55867

111607

Mens General Health Aborted:B1 **MGH**

Type:B WeekBlock:AA01

THIS FORM IS ONLY VALID FOR MEN AGED 15-54 YEARS. YOU MUST INTERVIEW THE MAN HIMSELF

Man's Identification

Man's Surname, Firstname(s): Buthelezi Thokozani Sydney

Informant refused ☐

Supervised Yes ☐ No ☐

Intended BSID: 1 6 3 7 2 TempIDIDSID: JQGJ-F Visit ref.#:

Actual BSID: Staff Member: Visit Type: Visit Date: Y Y Y Y M M D D

Section1. General Health

1. How would you describe your general health at present?
   Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor ☐
2. Are you able to carry heavy objects, like a 20 litre water container, for 20 meters without stopping? Yes ☐ No ☐
3. Are you able to walk 5 km (around 45 minutes) without stopping? Yes ☐ No ☐
4. Are you able to participate in heavy or vigorous activites (like planting, harvesting, or construction work)? Yes ☐ No ☐

Section 2: Confirmation of marital state & age at marriage

1. What is your current marital state? ___ current marital state
2a. CHECK: IS CURRENT MARITAL STATE: NVE, NNE
   Yes ☐ → GO TO NEXT SECTION
   No ☐ → GOT TO Q3
3. How old were you when you married for the first time? ___ Age at mariage

Section 3 : Paternity

I would like to ask you some questions about fatherhood. Please be as open as you can because this information will be important in helping to improve health services for men and their families. Please remember that all of your answers are confidential.

1. Have you fathered any children?
   Yes ☐
   No ☐
   Don't know ☐
   Refused ☐
   → (GO TO NEXT SECTION)
2. How many children? (Include those that ___ Number of children
   Don't know ☐
   Refused ☐
   → (GO TO NEXT SECTION)
3. Some men have children with more than one woman. How many mothers do your children have? ___ Number of mothers
   Refused ☐

Section 4. Sexual Relationships

INTERVIEWER: BEGIN WITH INFORMAL DISCUSSION FIRST TO BUILD RAPPORT TRUST & STRESS ABSENCE OF PREJUDICE. EXPLAIN THE NEED TO ASK SOME QUESTIONS ON THE RESPONDENTS OWN EXPERIENCE OF SEXUAL RELATIONSHIPS. STRESS THE IMPORTANCE OF PROVIDING ACCURATE INFORMATION. REQUEST PRIVACY. THE QUESTIONS IN SECTION 4 ARE TO BE ASKED ABOUT ANY SEXUAL PARTNERS IN THE PAST YEAR. REPEAT THE QUESTIONS FOR UP TO 3 PARTNERS. BEGIN BY ASKING ABOUT THE MOST RECENT PARTNER. IF THE MOST RECENT RELATIONSHIP WAS MORE THAN A YEAR AGO, STILL ASK ABOUT THIS MOST RECENT PARTNER.

Now I would like ot ask you some questions concerning sexual relations. This information is strictly confidential and we will not reveal your name to anyone. Your answers

1.	How old were you when you first started having sex? **INTERVIEWER: EXPLAIN WHAT WE MEAN BY "HAVING SEX"**	☐☐ Years Old IF UNDER AGE 12 COMMENT Not yet had sex ☐ → END OF FORM Don't know/remember ☐ Refused ☐		
2.	Remembering the most recent/previous time you had sex, what was your relationship to that partner at the time?	MOST RECENT PARTNER Current wife (at the time) ☐ Current regular partner(at the time ☐ Former wife/ regular partner ☐ Occasion or casual friend ☐ Visitor(incl. wedding/funeral) ☐ Other (specify) ☐	PREVIOUS PARTNER Current wife (at the time) ☐ Current regular partner(at the time ☐ Former wife/ regular partner ☐ Occasion or casual friend ☐ Visitor(incl. wedding/funeral) ☐ Other (specify) ☐	PREVIOUS PARTNER Current wife (at the time) ☐ Current regular partner(at the time ☐ Former wife/ regular partner ☐ Occasion or casual friend ☐ Visitor(incl. wedding/funeral) ☐ Other (specify) ☐
3.	Are you still in a sexual	Yes ☐ Don't know ☐ No ☐ Refused ☐	Yes ☐ Don't know ☐ No ☐ Refused ☐	Yes ☐ Don't know ☐ No ☐ Refused ☐
4.	Is she older, younger or about the	Older ☐ Younger ☐ Don't know ☐ GO TO Q6 Same age ☐	Older ☐ Younger ☐ Don't know ☐ GO TO Q6 Same age ☐	Older ☐ Younger ☐ Don't know ☐ GO TO Q6 Same age ☐
5.	About how many years (older/younger)? RECORD ACTUAL # OR 98=DON'T KNOW	☐☐ Number of years younger/older	☐☐ Number of years younger/older	☐☐ Number of years younger/older
6.	Is she a member of this household?	Yes ☐ Don't know ☐ No ☐ Refused ☐	Yes ☐ Don't know ☐ No ☐ Refused ☐	Yes ☐ Don't know ☐ No ☐ Refused ☐
7.	Where does she normally reside?	With member ☐ GO TO Q9 In this is/god ☐ Outside this is/god ☐ Refused ☐ Don't know ☐	With member ☐ GO TO Q9 In this is/god ☐ Outside this is/god ☐ Refused ☐ Don't know ☐	With member ☐ GO TO Q9 In this is/god ☐ Outside this is/god ☐ Refused ☐ Don't know ☐
8.	How far away does she normally live(i.e. where is her normal residency?	Within one hour walk or 5kms ☐ More than one hour or 5kms ☐ Don't know ☐	Within one hour walk or 5kms ☐ More than one hour or 5kms ☐ Don't know ☐	Within one hour walk or 5kms ☐ More than one hour or 5kms ☐ Don't know ☐
9.	Have you and your partner ever used a condom? (If yes) how often do you use a condom?	Never ☐ GO TO Q11 Sometimes/ Inconsisent ☐ Always ☐	Never ☐ GO TO Q11 Sometimes/ Inconsisent ☐ Always ☐	Never ☐ GO TO Q11 Sometimes/ Inconsisent ☐ Always ☐
10.	Did you use a condom the last time you had sex with that partner?	Yes ☐ Don't know/ remember ☐ No ☐ Refused ☐	Yes ☐ Don't know/ remember ☐ No ☐ Refused ☐	Yes ☐ Don't know/ remember ☐ No ☐ Refused ☐
11	How long (were you/have you been) IF LESS THAN 1 WEEK,RECORD NUMBER OF DAYS IF LESS THAN 1 MONTH, RECORD NUMBER OF WEEKS IF LESS THAN 1 YEAR,RECORD NUMBER OF MONTHS IF 1 YEAR OR MORE,CODE COMPLETED NUMBER OF YEARS	☐☐ Days ☐ Months ☐ Weeks ☐ Don't know ☐ Number Years ☐ Refused ☐	☐☐ Days ☐ Months ☐ Weeks ☐ Don't know ☐ Number Years ☐ Refused ☐	☐☐ Days ☐ Months ☐ Weeks ☐ Don't know ☐ Number Years ☐ Refused ☐
12	When is the last time you had sex with her? IF LESS THAN 1 WEEK, RECORD NUMBER OF DAYS IF LESS THAN 1 MONTH,RECORD NUMBER OF WEEKS IF LESS THAN 1 YEAR, RECORD NUMBER OF MONTHS IF 1 YEAR OR MORE, RECORD COMPLETED NUMBER OF YEARS	☐☐ Days ☐ Months ☐ Weeks ☐ Don't know ☐ Number Years ☐ Refused ☐	☐☐ Days ☐ Months ☐ Weeks ☐ Don't know ☐ Number Years ☐ Refused ☐	☐☐ Days ☐ Months ☐ Weeks ☐ Don't know ☐ Number Years ☐ Refused ☐

INTERVIEWER: ASK "CAN YOU TELL ME ABOUT THE SEXUAL PARTNER JUST PRIOR TO THE ONE WE JUST DISCUSSED? DID YOU HAVE SEX WITH HER IN THE PAST 12 MONTHS?" IF YES, REPEAT QUESTIONS FOR UP TO 2 ADDITIONAL PARTNERS, THEN GO TO Q13. IF THERE WERE NO OTHER PARTNERS IN PAST YEAR, WRITE IN THE CORRECT ANSWER TO Q13 AND END FORM.

13. How many sexual partners, in total, have you had in the past 12 months? ☐☐ Number of partners

Batch ID: 113 Bundle ID: 56673

1.27462

Womens General Health

Aborted:B1

WGH

THIS FORM IS ONLY VALID FOR WOMEN AGED 15-49 YEARS. YOU MUST INTERVIEW THE WOMAN HERSELF

Woman's Identification

Woman's Surname, Firstname(s): Mkhwanazi Tholiwe Thembeni

Informant Refused ☐

Supervised Yes ☐ No ☐

Intended BSID: 3 0 5 4 0 TempID/DSID: FFTM-J Visit ref.#: ☐☐

Actual BSID: ☐☐☐☐ Staff Member: ☐☐☐ Visit Type: ☐☐ Visit Date: Y Y Y Y M M D D

Section1. General Health

1. How would you describe your general health at present?
   Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor ☐
2. Are you able to carry heavy objects, like a 20 litre water container, for 20 meters without stopping? Yes ☐ No ☐
3. Are you able to walk 5 km (around 45 mins) without stopping? Yes ☐ No ☐
4. Are you able to participate in heavy or vigorous activites (like planting, harvesting, or construction work)? Yes ☐ No ☐

Section 2: Confirmation of marital state & age at marriage

1. What is your current marital state? ☐ (current marital state)

2a. CHECK: IS CURRENT MARITAL STATE: NVE, NNE
   Yes ☐ → GO TO NEXT SECTION
   No ☐ → GOT TO Q3

3. How old were you when you married for the first time? ☐☐ (Age at mariage)

Section 3 : Contraceptive Use

I would like to ask you some questions about contraception and reproductive health. Please be as open as you can because this information will be important in helping to improve health services for women and their partners. Please remember that all of your answers are confidential.

CHECK: IF WGH OR WHL NOT PREVIOUSLY RECORDED, FILL OUT PGH AND THEN RETURN TO THIS SECTION

Has Preg Hist Recorded

1. Have you ever had a pregnancy, including any pregnancy that did not result in a live birth?
   Yes ☐ → MARK 'Yes' FOR Q2, THEN MOVE TO Q3
   No ☐

2. Have you ever had sexual intercourse?
   Yes ☐
   No ☐ GO TO NEXT SECTION

3. For the moment, are you doing something or using any contraceptive method to delay or avoid getting pregnant?
   Yes ☐
   No ☐
   Refused ☐
   (RECORD ALL CURRENT METHODS OF CONTRACEPTION IN COLUMN 1. RECORD METHODS REPORTED SPONTANEOUSLY USING S. RECORD PROBED ANSWERS USING CODES Y,N OR U.)

4. The last ime you had sexual intercourse, did you or your partner do anything, or use any contraceptive method to prevent pregnancy?
   Yes ☐
   No ☐
   Refused ☐
   (RECORD ALL METHODS OF CONTRACEPTION AT LAST SEX IN COLUMN 2. RECORD METHODS REPORTED SPONTANEOUSLY USING S. RECORD PROBED ANSWERS USING CODES Y,N OR U.)

Methods answer codes:

Spontaneous: Probed Yes = Y

Probed No = N: DK = U

	1. CURRENT CONTRACEPTION	2 CONTRACEPTION AT LAST SEX
Pill		
Intra-uterine device (loop)		
Depoprovera injection(3m)		
Nur-isterate injection (2m)		
Male condom		
Female condom		
Emergency contraception		
Female sterilization		
Male sterilization		
Other		

(SPECIFY METHOD CURRENTLY USED FOR CONTRACEPTION

(SPECIFY METHOD OF CONTRACEPTION USED AT LAST SEX)

Section 4 : Sexual Relationships

INTERVIEWER: BEGIN WITH INFORMAL DISCUSSION FIRST TO BUILD RAPPORT & TRUST. STRESS ABSENCE OF PREJUDICE. EXPLAIN THE NEED TO ASK SOME QUESTIONS ON THE RESPONDENT'S OWN EXPERIENCE OF SEXUAL RELATIONSHIPS. STRESS THE IMPORTANCE OF PROVIDING ACCURATE INFORMATION. REQUEST PRIVACY.

Now I would like ot ask you some questions concerning sexual relations. This information is strictly confidential and we will not reveal your name to anyone. Your answers are very important to our research to help us understand health

1. FOR WOMEN WHO ANSWERED "NO" ON SECTION 3, Q2, BEGIN BY EXPLAINING WHATWE MEAN BY "HAVING SEX", THEN ASK Q1.

How old were you when you first

Not yet had sex ☐ → END OF FORM

Don't know/remember ☐

Refused ☐

☐☐ Years Old

IF UNDER AGE 12, FW SIGN TO CONFIRM THIS IS NOT AN ERROR

Section 4. Sexual Relationships

THE FOLLOWING QUESTIONS ARE TO BE ASKED ABOUT ANY SEXUAL PARTNERS IN THE PAST YEAR. REPEAT THE QUESTIONS FOR UP TO 3 PARTNERS. BEGIN BY ASKING ABOUT THE MOST RECENT PARTNER. IF THE MOST RECENT RELATIONSHIP WAS MORE THAN A YEAR AGO, STILL ASK ABOUT THIS MOST RECENT PARTNER.

	MOST RECENT PARTNER	PREVIOUS PARTNER	PREVIOUS PARTNER
2. Remembering the most recent/previous time you had sex, what was your relationship to that	☐ Current husband (at the time) ☐ Current regular partner(at the time) ☐ Former husband/ regular partner ☐ Occasion or casual friend ☐ Visitor(incl. wedding/funeral) ☐ Other (specify)	☐ Current husband (at the time) ☐ Current regular partner(at the time) ☐ Former husband/ regular partner ☐ Occasion or casual friend ☐ Visitor(incl. wedding/funeral) ☐ Other (specify)	☐ Current husband (at the time) ☐ Current regular partner(at the time) ☐ Former husband/ regular partner ☐ Occasion or casual friend ☐ Visitor(incl. wedding/funeral) ☐ Other (specify)
3. Are you still in a sexual relationship with him?	☐ Yes ☐ Don't know ☐ No ☐ Refused	☐ Yes ☐ Don't know ☐ No ☐ Refused	☐ Yes ☐ Don't know ☐ No ☐ Refused
4. Is he older, younger or about the same age?	☐ Older ☐ Younger ☐ Don't know ☐ Same age → GO TO Q6	☐ Older ☐ Younger ☐ Don't know ☐ Same age → GO TO Q6	☐ Older ☐ Younger ☐ Don't know ☐ Same age → GO TO Q6
5.About how many years [older/younger]? RECORD ACTUAL # OR 98=DON'T KNOW	☐☐ Number of years younger/older	☐☐ Number of years younger/older	☐☐ Number of years younger/older
6. Is he a member of this Household?	☐ Yes ☐ Don't know ☐ No ☐ Refused	☐ Yes ☐ Don't know ☐ No ☐ Refused	☐ Yes ☐ Don't know ☐ No ☐ Refused
7.Where does/did he normally reside?	☐ With member → GO TO Q9 ☐ In Isigodi ☐ Don't Know ☐ Outside Isigodi ☐ Refused	☐ With member → GO TO Q9 ☐ In Isigodi ☐ Don't Know ☐ Outside Isigodi ☐ Refused	☐ With member → GO TO Q9 ☐ In Isigodi ☐ Don't Know ☐ Outside Isigodi ☐ Refused
8. How far away does/did he normally live(i.e. where is/was his normal residency)?	☐ Within one hour walk or 5kms ☐ More than one hour or 5kms ☐ Don't know	☐ Within one hour walk or 5kms ☐ More than one hour or 5kms ☐ Don't know	☐ Within one hour walk or 5kms ☐ More than one hour or 5kms ☐ Don't know
9. Have you and your partner ever used a condom? (If yes) How often do you use condoms?	☐ Never → GO TO Q11 ☐ Sometimes/ Inconsistent ☐ Always	☐ Never → GO TO Q11 ☐ Sometimes/ Inconsistent ☐ Always	☐ Never → GO TO Q11 ☐ Sometimes/ Inconsistent ☐ Always
10. Did you use a condom the last time you had sex with that partner?	☐ Yes ☐ Don't know/ remember ☐ No ☐ Refused	☐ Yes ☐ Don't know/ remember ☐ No ☐ Refused	☐ Yes ☐ Don't know/ remember ☐ No ☐ Refused
11. How long (were you/have you been) IF LESS THAN 1 WEEK, UNIT IS DAYS IF LESS THAN 1 MONTH, UNIT IS WEEKS IF LESS THAN 1 YEAR, UNIT IS MONTHS IF 1 YEAR OR MORE, UNIT IS YEARS	☐☐ Number ☐ Days ☐ Weeks ☐ Months ☐ Years ☐ Don't know ☐ Refused	☐☐ Number ☐ Days ☐ Weeks ☐ Months ☐ Years ☐ Don't know ☐ Refused	☐☐ Number ☐ Days ☐ Weeks ☐ Months ☐ Years ☐ Don't know ☐ Refused
12. When is the last time you had sex IF LESS THAN 1 WEEK, UNIT IS DAYS IF LESS THAN 1 MONTH, UNIT IS WEEKS IF LESS THAN 1 YEAR, UNIT IS MONTHS IF 1 YEAR OR MORE, UNIT IS YEARS	☐☐ Number ☐ Days ☐ Weeks ☐ Months ☐ Years ☐ Don't know ☐ Refused	☐☐ Number ☐ Days ☐ Weeks ☐ Months ☐ Years ☐ Don't know ☐ Refused	☐☐ Number ☐ Days ☐ Weeks ☐ Months ☐ Years ☐ Don't know ☐ Refused

INTERVIEWER: ASK "CAN YOU TELL ME ABOUT THE SEXUAL PARTNER JUST PRIOR TO THE ONE WE JUST DISCUSSED? DID YOU HAVE SEX WITH HIM IN THE PAST 12 MONTHS?" IF YES, REPEAT QUESTIONS FOR UP TO 2 ADDITIONAL PARTNERS, THEN GO TO Q13. IF THERE WERE NO OTHER PARTNERS IN PAST YEAR, FILL IN THE CORRECT ANSWER FOR Q13 AND END FORM.

13. How many sexual partners, in total, have you had in the past 12 months? ☐☐ Number of partners