The relationship between alcohol use and risky sexual behaviour in South Africa

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Declaration

I, Sarah Magni, declare that this dissertation is my original work. It is submitted in fulfilment of the requirements for the degree of Master of Science in Medicine by dissertation, in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to this or any other university.

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Abstract

Introduction: Alcohol is an indirect contributor to HIV transmission in sub-Saharan Africa. Alcohol users in general, and heavy, episodic drinkers in particular, are more likely to engage in risky sexual behaviour. Interventions promoting the reduction of alcohol use in conjunction with sex are likely to enhance the HIV prevention response. However, little is known about the relationship between different dimensions of alcohol use and risky sexual behaviour in the general adult population in South Africa. The overall aim of this study was to examine the relationship between alcohol dependence, binge drinking and frequency of drinking in the past month and risky sexual behaviour among males and females aged 16-55 years in South Africa in 2012.

Methods: This was a secondary analysis of data from a nationally representative cross-sectional study of males and females aged 16-55 years in 2012. Bivariate and multivariate analysis was conducted to investigate the relationship between alcohol use and risky sexual behaviour. Three nuanced measures of alcohol use were used – alcohol dependence, binge drinking, and frequency of drinking in the past month. The outcomes examined included multiple sexual partners (MSP) in the past 12 months, MSP in the past month, transactional sex, age-disparate sex and condom use at last sex.

Results: Some 10,034 respondents (n=4,065 males and n=5,969 females) were interviewed. This study found that for males, there was no significant relationship between alcohol dependence and risky sexual behaviour. For females, those who were alcohol dependent were more likely to have received money/gifts in exchange for sex. Binge drinking and frequency of drinking in the past month were associated with risky sexual behaviour for both males and females. For males, binge drinking was associated with: MSP in the past 12 months (AOR: 1.93, 95% CI 1.37 - 2.72), providing gifts/money in exchange for sex (AOR: 1.53, 95% CI 1.01 - 2.33), and having a sexual partner five or more years younger than themselves (AOR 1.44, 95% CI 1.09 - 1.89). An interaction between binge drinking and self-efficacy for resisting MSP was positively associated with MSP in the past month. Frequency of drinking in the previous month was associated with all five outcome variables and a dose response relationship was present. An interaction between frequency of drinking and self-efficacy for resisting MSP was positively associated with MSP in the past month. For females, binge drinking was associated with: MSP in the past 12 months (AOR 1.93, 95% CI 1.37-2.72), MSP in the past month (AOR 1.79, 95% CI: 1.03 - 3.10), and receiving money/gifts in exchange for sex (AOR 3.10, 95% CI 1.45 - 6.62). An interaction between binge drinking and self-efficacy for resisting MSP was positively associated with MSP in the 12 past months. Frequency of drinking was associated with MSP in the past month. A dose response relationship was evident with females who drank more frequently in the past month being more likely to have had MSP in the past 12 months. This study found high levels of non-drinking (62.80%) but high levels of hazardous drinking among those who drank. Males were more likely to drink and to display hazardous drinking patterns. In general males were more likely to engage in risky sexual behaviour, although males were more likely to have used a condom at last sex.

Conclusions: Overall this study has described the patterns and prevalence of alcohol use and risky sexual behaviour in the general population in South Africa. It has demonstrated gender-specific relationships between various types of alcohol use and risky sexual behaviour and has new insights into the complex relationship between these two phenomena. Results suggest that the drinking environment facilitates high-risk sexual encounters. Findings from this study can be used to design and implement future interventions to address this important risk factor for HIV.

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Acronyms

AOR	Adjusted odds ratio
AUDIT	Alcohol Use Disorders Identification Test
CAGE	**C**utting down, **A**nnoyance at criticism, **G**uilty feelings and use of **E**ye-openers
CAPI	Computer assisted personal interviewing
CI	Confidence interval
DALY	Disability adjusted life years
HCP	HIV communication programme
HIV	Human immunodeficiency virus
IQR	Interquartile range
MSP	Multiple sexual partners
NCS	National HIV Communication Survey
NSP	National Strategic Plan for HIV, STIs and TB
POL	Popular Opinion Leader
PSU	Primary sampling unit
SABSSM	South African National HIV Prevalence, Behaviour and Communication Survey
SADHS	South African Demographic and Health Survey
SANAC	South African National AIDS Council
STI	Sexually transmitted infection
UNAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World Health Organization
YRBS	South African Youth Risk Behaviour Survey

Chapter 1: Introduction

At the end of 2011, UNAIDS reported that an estimated 34.0 million people were infected with HIV globally (1). Approximately 69% (23.5 million) of these people live in sub-Saharan Africa. In addition, of the 2.5 million people who were newly infected with HIV in 2011, 1.8 million live in sub-Saharan Africa (1).

South Africa is one of the worst affected countries, with 16.9% of South African adults (15-49 years) in the general population infected with HIV (2). HIV prevalence among South Africans of all age groups was 10.6%. Put differently, it is estimated that about 5.2 million people in the total population were HIV positive in 2008. Preliminary unpublished results from the 2012 South African National HIV Prevalence, Behaviour and Communication Survey (SABSSM) indicate that HIV prevalence is 12.3% in South Africans of all ages (3).

A global meta-analysis of 10 studies showed that those who consumed alcohol before or at the time of sex had an 87% increased risk for HIV infection (4). Those who engaged in heavy, episodic drinking (binge drinking) had double the risk of non-binge drinkers (4). A number of studies have reported on the relationship between alcohol and HIV sero-positivity in sub-Saharan Africa (5-7). Kalichman et al (2007) found that any alcohol use and greater quantities of alcohol use were strongly associated with the risk of HIV transmission in sub-Saharan Africa (8). A systematic review of the association between HIV infection and alcohol use found that even when all other factors were taken into account, alcohol users had a 57% greater likelihood of being HIV positive than non-drinkers (9). The risks were similar for males and females (9).

The explanation for the relationship between alcohol use and the transmission of HIV in sub-Saharan countries is increasingly being recognised as indirect. Alcohol use has been found to contribute to risky sexual behaviour (10) such as having multiple sexual partners (MSP) and inconsistent condom use. Risky sexual behaviour is also exacerbated both by the social context in which alcohol is served and consumed and the physical characteristics of drinking establishments (11, 12).

Designing and implementing interventions to promote safer drinking practises together with interventions to reduce risky sexual behaviour may have the potential to reduce HIV transmission in South Africa (13, 14).

Understanding the extent of alcohol use, the characteristics of drinkers, the prevalence of risky sexual behaviour and the relationship between alcohol use and risky sexual behaviour in the general population in South Africa will assist policymakers and planners to design and implement future interventions to address this important risk factor.

Chapter 2: Literature Review

2.1 Burden of disease linked to alcohol use and HIV in South Africa

Globally, alcohol accounts for 4% of the burden of diseases (15). In South Africa, alcohol's contribution to the burden of disease is even higher, accounting for an estimated 7% of all disability adjusted life years (DALYs). The alcohol-attributable burden is particularly notable for males, accounting for 10.4% of DALYs. For females, alcohol accounted for 3.3% of total DALYs (16). The authors note that a limitation of their study is that the alcohol-attributable burden of diseases does not take account of increased risk of HIV transmission (16). In a separate study that modelled the contribution of HIV and other sexually transmitted infections (STIs) to South Africa's burden of disease, Johnson et al (2007) found that HIV and other STIs account for about a third of DALYs in South Africa. HIV and STIs account for a greater proportion of DALYs in females (36.4%) compared to males (27.0%) (17).

In Africa, many countries have a heavy burden of both HIV and alcohol-related morbidity and mortality (1, 18, 19). Alcohol use and HIV transmission are closely linked in sub-Saharan Africa (5-7, 20, 21). Alcohol is increasingly being recognised as a key determinant of risky sexual behaviour and as a result, an indirect contributor to the transmission of HIV (10) although this relationship is complex and experts conclude that further research is needed to establish causality (22).

2.1.1 Prevalence and patterns of alcohol use in South Africa

Not all adult South Africans consume alcohol, it is estimated that 44.5% have ever had an alcoholic drink (23). However, among those who drink, indicators from public health surveillance on alcohol use points to widespread misuse of alcohol (24). It is estimated that each drinker consumes approximately 20 litres of pure alcohol per year which is one of the highest rates of alcohol consumption in the world (19). Unlike settings with low-risk drinking patterns, such as in southern Europe where there is low volume drinking per occasion and drinking with meals, sub-Saharan Africa is characterised by risky drinking patterns such as consuming high quantities of alcohol per occasion, drinking in public spaces and drinking outside of mealtimes (18). Heavy episodic drinking (also referred to as binge drinking) predominates, regardless of settlement type or socio-economic status (25, 26).

2.1.2 Prevalence and patterns of HIV in South Africa

With approximately 23.5 million HIV positive people living in sub-Saharan Africa, the region bears the brunt of the HIV epidemic (1). South Africa has a very high HIV prevalence with 12.3% of South Africans of all ages living with HIV (3). The draft results of the latest HIV prevalence survey found

that among males, HIV prevalence peaked at 24.2% in the 35–39-year-old age group while for females it peaked those aged 30–34 years at 36.8% (3).

2.2 Defining and measuring alcohol use

Terms referring to alcohol use and misuse are often used interchangeably and defined slightly differently across various studies. For example in studies in South Africa alone risky drinking has been defined as drinking five or more standard drinks per day for males and three or more drinks a day for females in the South African Demographic and Health Survey (SADHS) of 1998 (27). A study in drinking establishments in Gauteng defined risky drinking as drinking five or more standard drinks per day for males and three or more drinks a day for females during some or all weekends within the previous 12 months (11). Research conducted in an urban and rural site with females defined it as having a score of 8-40 using the Alcohol Use Disorders Identification Test (AUDIT) (28). Among older adults, risky drinking was defined as heavy drinking (more than seven drinks per week) and binge drinking (more than three drinks on one occasion per week) in a study of problem drinking (29).

Alcohol use includes multiple dimensions, including having ever consumed an alcohol drink as well as measures of quantity and frequency of alcohol consumed. Table 1 below summarises some of the terms used in the literature and of relevance to this study.

Table 1: Alcohol use and misuse terminology and operationalisation

Term	Definition
Alcohol dependence	The repetitive pattern of excessive alcohol use with serious adverse consequences, often including lack of control, tolerance and withdrawal (30).
Alcohol misuse	A collective term to encompass alcohol dependence and harmful alcohol use (31).
Binge drinking	A pattern of heavy drinking that occurs in an extended period set aside for the purpose, often with intervening periods of abstinence (32). This is sometimes operationalised in studies as five or more drinks in one sitting for males and four or more drinks in one sitting for females (33). In other studies binge drinking is measured by asking respondents: “How often do you have six (males)/ five (females) or more drinks on one occasion?”(34).
Current drinking	Defined as having consumed alcohol within a defined period of time eg. past month (27, 29).
Harmful drinking	Alcohol consumption resulting in adverse events such (eg. physical and psychological harm) (35, 36).
Hazardous drinking	A quantity or pattern of alcohol consumption that is above recognised alcohol patterns and which places patients at risk for adverse health events (35, 36). Hazardous drinking is also referred to as problem, heavy or excessive drinking (36).

Term	Definition
Lifetime drinking	Defined as ever having consumed a drink that contains alcohol (29). Some studies add a proviso such as: "other than for a religious ceremony or just to sample or taste" to the question: "Have you ever had an alcoholic drink?" (23).
Problem drinking	In some studies, problem drinking has operationalised as having two or more positive responses to the **C**utting down, **A**nnoyance at criticism, **G**uilty feelings and use of **E**ye-openers (CAGE) questionnaire (37). In others, it is defined as having an Alcohol Use Disorders Identification Test (AUDIT) score of eight or more (38-40).
Risky drinking	The consumption of more than five or per day for males and more than three drinks per day for females during some or all weekends within the previous 12 months (Australian National Health and Medical Research council, 1992 in Morojele et al (2006: 22).

2.2.1 Measuring alcohol use

Many different patterns of alcohol use exist and broad measures, like lifetime alcohol use combine all types of drinking behaviour in a single measure, which could lead to inaccurate conclusions (41). Various different screening instruments have been developed to measure alcohol use in a more nuanced way. These include, but are not limited to, the **C**utting down, **A**nnoyance at criticism, **G**uilty feelings and use of **E**ye-openers (CAGE) questionnaire (42), the Alcohol Use Disorders Identification Test (AUDIT), and a standardised measure for binge drinking for males and females (43) .

2.2.1.1 The Cutting down, Annoyance at criticism, Guilty feelings and use of Eye-openers (CAGE) questionnaire

The CAGE questionnaire is a brief, four-item screening tool to measure alcohol dependence. The mnemonic CAGE stands for four yes/no items with questions on '**C**utting down, **A**nnoyance at criticism, **G**uilty feelings and use of **E**ye-openers (42). Individual item responses are scored 0 if the respondent answers "no" and 1 if the respondent answers "yes", with the total score ranging from 0 to 4.The recommended cut-off for CAGE is two or more to screen for alcohol dependence, although a cut-off of one or more has been used in some studies (44).

CAGE has demonstrated high test-re-test reliability and adequate correlations with other screening instruments (45). Dhalla and Kopec (2007) conclude that it is a valid tool for detecting alcohol abuse and dependence (45). CAGE had a high sensitivity and specificity for screening for alcohol dependence in a South African sample (46). However, CAGE is an inappropriate screening tool for less severe forms of drinking (45), and it may be better to use AUDIT to detect these (44, 47).

Although few studies have examined the sex based differences of the CAGE questionnaire, Bradley et al (1998) found that CAGE tended to perform somewhat better in black females, leading the

authors to conclude that CAGE is a reasonable choice for identification of alcohol dependence in predominately black female populations (30). The CAGE questionnaire was used in the South African Demographic and Health Survey (SADHS) in 1998 and 2003 (48, 49).

2.2.1.2 Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT questionnaire, developed by the World Health Organization (WHO), was designed to identify people who have an alcohol-use disorder (31). AUDIT is a 10-item questionnaire containing three domains (alcohol consumption, alcohol dependence and alcohol-related problems) (31) which is used to ascertain alcohol-related information for the previous year (50).

AUDIT can be used to detect less severe forms of drinking (44). An individual's AUDIT score is the sum of the scores for each of the questions: a score of seven or less indicates low risk drinking, while scores of 8-40 indicate high risk drinking (28). AUDIT had a high sensitivity and specificity for both hazardous and harmful drinking when a cut-off of 8 or more was used (44). AUDIT has been used to measure high-risk drinking in SABSSM II and SABSSM III, conducted in 2005 and 2008 respectively (2, 51).

2.2.1.3 Binge drinking

Initially a study undertaken in the United States, defined binge drinking as consuming five or more drinks in the same sitting (52). This definition was used for both males and females. However, because of the gender differences in the risk of alcohol-related harm, the comprehensive College Alcohol Study conducted by the Harvard School of Public Health used a gender-specific measure of five or more drinks for males, and four or more drinks for females (33, 53, 54). This gender-specific definition for binge drinking increases the identification of females who drink at dangerous levels (43). This definition for binge drinking is now widely accepted but current binge drinking literature varies widely on the nature of the individual studies, making it difficult to compare results (55). This is true for studies undertaken in South Africa. For example, the National HIV Communication Survey (NCS) 2009 defined binge drinking using the five/four measure and the timeframe was "at last visit" to an alcohol-serving establishment (23). The Youth Risk Behaviour Survey (YRBS) of 2008 defined binge drinking as drinking five or more drinks in succession on one or more days in the past month (56).

2.2.2 Measuring alcohol use in South Africa

Few nationally representative, population-based surveys of alcohol consumption have been conducted in South Africa. These include: two Demographic and Health Surveys (SADHS) of 1998 and

2003 (48, 49), the South African National HIV Prevalence, Behaviour and Communication Surveys (SABSSM) of 2005 and 2008 (2, 51), the Second National HIV Communication Survey (NCS) of 2009 (23) and the Study of Global Ageing and Adults Health of 2012 (57). Two Youth Risk Behaviour Surveys (YRBS) (2002 and 2008) have been undertaken with learners nationally (56, 58). A number of smaller community-based surveys have also been undertaken. However, there is a lack in commonality in the way alcohol consumption was measured across studies.

Table 2: Studies measuring alcohol use in South Africa

Study	Study setting	Study participants	Measure
The First South African Demographic and Health Survey (1998) (48)	National	Males and females ≥ 15 years	• Lifetime drinking • Alcohol use now • Amount of alcohol typically consumed on (a) weekends and (b) weekdays • CAGE
The benefits of the CAGE as a screening tool for alcoholism in a closed rural South African community (1999) (46)	Ammerville, Northern Cape	Males and females ≥18 years	• CAGE
Risk factors for HIV infection among women in Carletonville, South Africa: migration, demography and sexually transmitted diseases (2003) (59)	Carletonville, Gauteng	Females aged 13-60 years	• Alcohol use in the last 4 weeks
The First Youth Risk Behaviour Survey (2003) (58)	National	Male and female grade 8 -11 public school learners	• Lifetime drinking • Age at which first alcoholic drink was consumed • Current drinking • Binge drinking on one or more days in the past month
The Second South African Demographic and Health Survey (2003) (49)	National	Males and females ≥ 15 years	• Lifetime drinking • Alcohol use in the past year • Number of days alcohol drunk in the past 7 days • Number of drinks consumed on average on a day that they drink • Frequency of drinking in past 12 months • CAGE

Study	Study setting	Study participants	Measure
South African National HIV Prevalence, Behaviour and Communication Survey, SABSSM II, (2005) (51)	National	Males and females ≥ 15 years	• AUDIT
South African National HIV Prevalence, Behaviour and Communication Survey, SABSSM III, (2009) (2)	National	Males and females ≥ 15 years	• AUDIT
The Second National HIV Communication Survey 2009 (2010) (23)	National	Males and females 16-55 years	• Lifetime drinking • Current drinking • Binge drinking
The Second Youth Risk Behaviour Survey (56)	National	Male and female grade 8 -11 public school learners	• Lifetime drinking • Age at which first alcoholic drink was consumed • Current drinking • Past month binge drinking
Factors associated with female high-risk drinking in a rural and an urban South African site (2010) (28)	Urban Gauteng Rural Western Cape	Females aged 18-44 years	• Current drinking • AUDIT
Study of Global Ageing and Adults Health (South Africa) (57)	National	Males and females ≥ 50 years	• Lifetime drinking • Current drinking • Number of days alcohol drunk in the past 7 days • Frequency of drinking in past 12 months • Number of drinks consumed on average on a day that they drank in past 12 months

2.3 Alcohol use in South Africa

Evidence from a number of surveys suggests that lifetime drinking in South Africa is relatively low. The NCS 2009 found that 57% of males and 33% of females reported ever having an alcoholic drink (23), which was higher than lifetime drinking prevalence found in the SADHS 2003 (48.5% for males and 22% for females) (49). Prevalence of lifetime drinking among older people (60 years and above) was 23.7% (29). Younger people also appear to have tried alcohol, with just under half of learners (grades 8-11) reporting having drunk at least one alcoholic drink in their lifetime (56, 58). Ramsoomar and colleagues (2013) found that lifetime prevalence of alcohol use increased with age among adolescents (60). Some 22% had ever drunk alcohol at early adolescence (13 years) while by late adolescence (18 years) this had increased to two thirds (60). Adolescent males were more likely to have ever drunk alcohol than adolescent females (60).

National survey data found that fewer than a third (27.7%) of South Africans were current (past month) drinkers (61). Males were more likely to report current drinking than females (41.5% vs 17.1% respectively). These rates show a slight increase since the previous survey conducted in 2005 where current drinking was reported to be 24.5% overall. In males, current drinking was 39.3% and in females it was 15.7% (61). Current alcohol use was 10.7% in South Africans over 60 years (29). In terms of current drinking among younger people, about a third (34.9%) of learners reported drinking in the past month (56). Male learners were more likely to report current drinking (40.5%) than female learners (29.5%).

While levels of alcohol use in South Africa are relatively low when compared to those in most developed countries, many of those who do drink appear to engage in risky drinking behaviour, especially over the weekends (62). Parry (2005) states that around one in four adult males and one in ten adult females in South Africa experience symptoms of alcohol problems (63). Peltzer et al (2011) report that among current drinkers, the overall prevalence of hazardous or harmful drinking was 31.5%, and among males 39.4% and females 16.6% (61).

Surveys have also shown that a large percentage of adult drinkers were alcohol dependent. Using a CAGE score of greater than two, the SADHS 1998 found that 28% of males and 10% of females were alcohol dependent (48). The subsequent survey in 2003 found alcohol dependence rates of 21.4% for males and 6.9% for females (49).

However, it is not just alcohol dependence which is problematic. Both quantity and frequency are important indicators of risky drinking (64). Episodic, heavy drinking is of particular concern. In South Africa, this is especially common over the weekends. Parry et al (2005) found that rates of binge drinking were approximately 4-5 times greater at weekends than on weekdays (27).

Peltzer et al (2011) report that 9.6% of all South African adults were binge drinkers (61). Males were more likely to binge drink (17.1%) than females (3.8%) (61). Some 29% of learners reported binge drinking (56). According to the YRBS data, more male learners reported binge drinking than their females counterparts (56, 58). Binge drinking increased markedly between the two surveys, particularly among female learners, from 17.9% in 2002 to 23.7% in 2008 (65). For older South Africans, binge drinking levels were much lower, with only 3.7% of those over 60 years reporting this. Older males were more likely than older females to be binge drinkers (29).

2.3.1 The drinking environment

The social dynamics of alcohol use which tend to centre around places where people drink and socialise, including taverns, beer halls and informal drinking establishments, are also of importance (12, 66). In southern Africa drinking at these venues is a norm. Visiting beer halls was the second most common recreational pastime in rural Zimbabwe while in South Africa drinking appeared to be an important social activity to pass the time (67). Morojele et al (2006) state that, for men, drinking with their peers seemed to foster a sense of identity and feeling of companionship. Drinking was encouraged and condoned by age-mates and heavy drinking was seen as masculine (11).

2.4 Risky sexual behaviour

In sub-Saharan Africa, the HIV epidemic is predominately spread through heterosexual sex (68). An expert think tank on HIV prevention in southern Africa concluded that the key drivers of the epidemic in the region included "multiple concurrent partnerships by men and women with low consistent condom use and in the context of low levels of male circumcision" p.3 (69). The meeting also concluded that contributing drivers to the HIV epidemic include intergenerational sex, gender and sexual violence, untreated viral STIs, and lack of consistent condom usage in long-term multiple concurrent sexual partnerships (69). Risky sexual behaviours influence the risk of HIV acquisition - those examined in is this study are discussed below.

2.4.1 Multiple sexual partners

The more sexual partners a person has, the greater the likelihood that they will come into contact with an HIV positive individual (70). In regions where HIV prevalence is particularly high, such as in South Africa, the risk of HIV acquisition is further increased. The relationship between multiple sexual partners (MSP) and HIV prevalence is well documented (59, 71-73).

In surveys, MSP is usually measured as having had more than one sexual partner in the past 12 months. Studies conducted in South Africa using this definition, have found that about one in ten sexually active adults report MSP. The 2008 SABSSM survey found that 9.3% of sexually active adult South Africans had MSP in the past year (2), while the NCS 2009 found slightly higher levels at 11.4% (23).

Significant differences in the prevalence of MSP in the past 12 months have been found. Males were between five and seven times more likely than females to have MSP (16.2% vs 3.3% in SABSSM III and 20.1% vs 3.0% in the NCS 2009) (2, 23). Young males and females were more likely to report having MSPs than somewhat older males and females. Males aged 16-29 reported the highest levels of MSP in the past 12 months. Although substantially lower rates were found females, they were most prevalent in those aged 16-24 years (23).

Another measure of MSP which has been used in South Africa is MSP in the past month (23). Johnson and colleagues (2010) found that 4.9% of adult South Africans reported having MSP in the past month in 2009 (23). Prevalence by sex was not reported on.

2.4.2 Transactional sex

Transactional sex is generally defined as a sexual relationship which is primarily motivated by financial or material exchange (74, 75). Although this transaction has both a financial and sexual component, it is differentiated from sex work in that the person who engages in transactional sex does not self-identify as a sex worker, nor is he or she viewed as such by their communities (76).

Research from sub-Saharan African has demonstrated that exchange of sex for material or financial resources is commonly practised and the majority of females who engage in such transactions do not self-identify as sex workers (77-83). In fact, transactional sex occurs across all types of sexual relationships, including casual and main sexual relationships (38, 79, 83). Transactional sex sometimes occurs between younger females and older, wealthier males who are commonly referred to as 'sugar daddies' (38, 77, 78, 82).

In surveys, transactional sex is usually defined in terms of giving money or gifts to a sexual partner (38). Across 12 sub-Saharan African countries, the prevalence of receiving money or gifts among females aged 15 years and older ranged from 1.8% to 11%. Prevalence of providing money or gifts in exchange for sex among males of the same age ranged from 4.7% to 24.7% (74). In South Africa, Dunkle et al (2004) found that about a fifth of females attending antenatal clinics in Soweto reported transactional sex (84). In South Africa, 66% of males aged 18-49 years reported at least one transactional sexual relationship (85) .

Young females report engaging in transactional sex for a number of reasons: some related to survival, others to consumption and some to increase a sense of agency (83, 86-88). Males report a sense of transactional sex being normative and an opportunity to obtain things they wanted ie. sex (83).

Transactional sex is a risk factor for HIV and is commonly associated with intergenerational sex, concurrent sexual partners and unprotected sex (87). Provision of financial or material resources introduces a power imbalance into sexual relationships, which for females, often means being less able to influence the timing and nature of sex (79, 82). Individuals with little negotiating power to insist on use of condoms experience a higher risk of contracting STIs, including HIV (86). Transactional sex also increases the risk of male-perpertrated intimate partner violence (38), which in itself is a risk factor for HIV (89). Research among females in Soweto has shown that engaging in transactional sex is associated with HIV sero-status (84).

2.4.3 Age-disparate sex

Antenatal surveillance (90) and population surveys (2) in South Africa show high levels of HIV infection among young females relative to young males. For example, prevalence among females in their teens and early 20's (15.5%) is substantially higher than their male counterparts (4.8%) (73). One of the reasons that this pattern is seen is as a result of age-disparate sex.

The term age-disparate sex generally refers to relationships in which the age gap between sexual partners is five years or more, whereas the term intergenerational sex generally refers to relationships where there is a 10 year or greater age disparity between sexual partners (91).

Jewkes and colleagues (2006) found that young rural females who had sex partners three or more years older than themselves were 1.69 times more likely to be infected with HIV (39). This is consistent with other studies which have found that risk of HIV infection in young females is increased by having a greater age difference between themselves and their partner (73, 79, 92). Gregson and colleagues (2002) landmark study revealed that for each additional year that a male partner was older, there was an increased risk for females of being infected with HIV (86).

Females, in general, are more susceptible to HIV infection than males (93). Pettifor and colleagues (2007) reported that the per-partnership risk for HIV infection among young females is extremely high – possibly due to their immature genital tracts which are more easily damaged during sex (71). HIV prevalence is higher among older males (2), and young females are more likely to get infected by an older sexual partner than an age-mate (86). In addition, age-disparate sex power dynamics in these relationships makes it difficult for young females to negotiate condom use (94).

Qualitative research reveals that age-disparate and intergenerational sex are commonplace in sub-Saharan Africa. Young females often report having two sexual partners; one an older sexual partner who is able to provide financial and material resources and the other, a younger sexual partner to whom they feel committed and describe as 'true loves' (83). However, few national, quantitative studies report on the prevalence of age-disparate sex and/or intergenerational sex. A small qualitative study of female learners aged 15-18 years in Gaborone found that 10% of respondents were currently engaged in intergenerational sex and a quarter had ever had an intergenerational relationship (95).

2.4.4 Condom use

Condoms are the single most effective and widely available method of prevention to reduce the transmission of HIV and some STIs if used correctly and consistently (93). A review of prospective studies evaluating the effectiveness of condoms found that consistent condom use was associated with reduced transmission of HIV (96). In surveys, condom use is usually measured by asking respondents if they used a condom the last time that they had sex (2, 23)

Recent population-based studies show varying results in relation to condom use at last sex. The 2008 SABSSM survey found that 62.4% of sexually active adult South Africans used a condom at last sex

(2), nearly double the prevalence (35.4%) found in the 2005 survey (51). The NCS, conducted in 2009, found significantly lower levels of condom use at last sex (39.8%) among sexually active adults than SABSSM III.

Condom use differs substantially by age and sex. Multiple studies have found that males are more likely to use condoms than females are (2, 23). There is a clear dose response relationship between age and condom use at last sex – the older people are the less likely there are to use condoms (2, 23). In addition, condoms are used more frequently in less stable relationships, where people were more likely to perceive themselves as vulnerable to HIV, STIs and unwanted pregnancies, than in steady or longer-term relationships (23).

2.5 Alcohol use and risky sexual behaviour

Drinking alcohol is associated with a number of risky sexual behaviours. According to the literature, high risk drinkers themselves held the view that consumption of alcohol and risky sexual behaviour are related. One young male risky drinker in Gauteng, South Africa described this relationship as "a match made in heaven! You cannot separate the two!" p.222 (11).

People who consume alcohol are more likely to have multiple sexual partners (7, 21, 97-99) Alcohol is also associated with other risky sexual practices such as engaging in sex for money and/or gifts (7, 98). The transactional sexual relationships described by drinkers are often age-disparate relationships between older males and younger females (11).

Alcohol use has also been shown to be associated with lack of correct and consistent condom use (21, 97, 100, 101). Drinkers reported that when they consumed alcohol, condoms would be forgotten or seen as less important (11). Morojele and colleagues (2006) found that many male drinkers with multiple partners, although fearful of contracting HIV, did not use condoms with their regular partners (11). Heavy alcohol use was a strong correlate for unprotected sexual intercourse in males and females in Botswana (98). That said, results from a recent study of males and females receiving sexually transmitted infections (STI) clinic services in South Africa failed to show that alcohol use played a significant role in unprotected sex with multiple recent partners (102).

Other demonstrable relationships with alcohol include gender-based violence (11), sexual violence (100, 103) and intimate partner violence (104).

Sexual exploitation is also related to alcohol use. Perceived and actual self-efficacy for resisting unwanted sexual advances decreases after alcohol consumption which increases vulnerability to sexual exploitation (11). In addition, males and females appear to have different responses to alcohol in terms of sexual arousal, with males reporting that they were more likely to be aroused while many females reported that they did not feel like or enjoy sex while under the influence. Morojele et al (2006) found that this mismatch can sometimes lead to forced sex (11).

The quantities of alcohol which people consume have important bearing on their risk. Across a number of studies, a strong dose response relationship between alcohol use and risky sexual behaviour is evident (98). Heavy, episodic drinking is associated with greater sexual risks than lighter

or non-binge drinking (9). Frequency of drinking is also of importance. For example, Fritz (2002) found that frequency of drinking in the past week was correlated with the number of episodes of unprotected sex among males (10).

The causal pathways which link alcohol use and risky sexual behaviour are still being investigated (13). Research from the field of psychology shows that much of the risky sexual behaviour associated with drinking is attributable to alcohol's physiological properties which decrease accurate risk perception and increase attention to sexual arousal (105, 106). Other research indicates that a person's likelihood of consuming alcohol before sex may be motivated by their expectation that it will increase their enjoyment of sex or improve their sexual performance (107, 108).

Social scientists have also examined the relationship between alcohol use and risky sexual behaviour and have proposed and built on a culture-specific, conceptual model to explain this complex relationship (11, 109, 110).

2.5.1 The drinking environment and risky sexual behaviour

Establishments which serve alcohol are often the very places which link alcohol consumption with HIV infection risks (12). Research has demonstrated that simply having visited a place where alcohol is served, increased one's likelihood of engaging in risky sexual behaviour as well as being infected with HIV. People who had recently visited a beer hall, were more likely to report earlier sexual debut, more lifetime partners and greater experience of STIs (111).

In South Africa, many people report meeting their new sexual partners at drinking establishments (12, 112, 113). Meeting sex partners in drinking venues is associated with MSP and higher rates of unprotected sex (11, 12).

These venues are often frequented by men who are seeking new sex partners (11) and casual sexual encounters occur while men are dinking in alcohol establishments (10-12, 66). A study with young people in South Africa found a relationship between alcohol consumption and the likelihood of males and females engaging in unprotected casual sex, particularly in alcohol-serving establishments like shebeens or taverns (70).

It is thought that the physical features and atmosphere of places where alcohol is served is conducive to sex. These include lack of lighting, dark corners, unisex toilets and seductive music. In some places patrons and owners seem to be unconcerned and condom provision is often lacking (11). As a result, the social context which exists combined with alcohol use in drinking establishments with these features, may contribute to increased transmission of HIV by facilitating risky sexual behaviour.

2.6 Ideational factors associated with risky sexual behaviour

Ideational factors have been demonstrated to influence risky sexual behaviour. First introduced by Cleland and Wilson in 1987, ideation refers to new ways of thinking that diffuse within a culture by means of social interaction (114). It is a wide term, encompassing cognitive, emotional, and social determinants of behaviour (115). According to Kincaid (2000), cognitive determinants include knowledge, beliefs and perceived risk. Emotional determinants include self-efficacy – which is the confidence in one's own ability to do something (116), for example, to use a condom effectively. Social determinants of behaviour at an individual level include personal advocacy and social norms (115). Ideational factors of relevance to this study include knowledge, attitudes towards condom use and MSP, and self-efficacy for condom use and to refuse MSP.

2.6.1 Knowledge of HIV prevention

Extensive literature supports the role of knowledge of HIV transmission and prevention in reducing the risk of HIV transmission. Numerous HIV prevention interventions have been designed to improve knowledge of HIV transmission with a particular emphasis on risky sexual behaviour, with the ultimate aim of changing behaviour (117). However, studies examining the relationship between knowledge of HIV prevention and risky sexual behaviour have found vastly differing results. For example, Katz et al (2013) suggests that knowledge of HIV is a protective factor in adolescent sexual behaviour in Uganda (118), while a study undertaken in Nigeria found that the amount of knowledge of HIV prevention did not influence condom use at last sex among males or females (119). Similarly, a study among females in Botswana found that HIV-related knowledge was not significantly associated with risky sexual behaviour (120).

2.6.2 Attitudes towards condom use and MSP

Attitudes towards condom use and MSP are widely accepted as determinants of these behaviours. A meta-analysis of theories of reasoned action and planned behaviour as models of condom use found that condom use was related to intention to use condoms, which in turn was based on attitudes towards condom use and subjective norms (121). A study of South African Grade 12 learners found a similar phenomenon, with condom use attitudes and social norms predicting condom use intention (122). In a study among rural females in Ethiopia, those who used condoms were more likely to have favourable attitudes towards condom use (123).

The impact of attitudes towards MSP on actually having MSP has also been explored, but to a far lesser degree. For example, the NCS 2009 found that having attitudes favouring MSP was a significant predictor of actually having more than one sexual partner in the past 12 months (23).

2.6.3 Self-efficacy for condom use and to refuse MSP

Numerous studies have shown that self-efficacy to use condoms influences both condom use (123-128) and intention to use condoms (129, 130). For example, Babalola (2006) found that high self-efficacy for condom use and discussing condoms with friends/ sexual partners were the most significant predictors of condom use at last sex among young males and females in Tanzania (124) and Letamo et al (2013) found that young people in Botswana who had high levels of self-efficacy in relation to condom use were 89% significantly less likely to have engaged in risky sexual behaviour than those with low self-efficacy (131).

Self-efficacy for resisting MSP is not a commonly used measure and the NCS has made advances in measuring this construct. For example, statements acquired from qualitative research with youth were used to measure attitudes and self-efficacy related to having MSP. Extensive factor analysis of over a hundred similar statements was conducted to create a small set of reliable scales that would be expected to predict MSP and sometimes used by people to justify or resist having MSP (132).

2.7 Alcohol and HIV prevention interventions

It has been suggested that in countries with severe HIV epidemics, addressing harmful drinking, together with interventions to reduce risky sexual behaviour may have the potential to reduce HIV transmission more quickly than conventional HIV preventions alone (13). This suggestion is supported by the results from a recent modelling study in Kenya which evaluated the potential impact of a hypothetical alcohol intervention on HIV transmission and AIDS-related deaths (14). Results indicate that with widespread uptake of the interventions targeting unhealthy alcohol use, HIV infections could be reduced by five percent and some 18,000 AIDS-related deaths could be averted (14).

There are relatively few interventions which specifically address alcohol-related risky sexual behaviour, although a few alcohol and HIV prevention programmes have been developed and implemented in sub-Saharan Africa and Asia (13, 133). Although these programmes have not always been evaluated, they still provide important lessons about feasibility, acceptability, and potential effectiveness of different approaches to reducing alcohol-related risky sexual behaviour (13).

Broadly, interventions developed and implemented to date represent four types of approaches: curriculum-based prevention for youth; brief interventions; place-based interventions and community mobilisation and advocacy (13).

2.7.1 Curriculum-based alcohol and HIV interventions for youth

In South Africa, two programmes have developed and implemented curricula combining alcohol-risk reduction content with HIV prevention messaging. Both programmes used existing curricula

developed in the United States and adapted for the local context (134, 135). For example, the HIV and Alcohol Prevention in Schools Project was implemented in KwaZulu-Natal and has been rigorously evaluated. A randomised-controlled trial found that among those becoming sexually active during the project, learners in the intervention group reduced their frequency of alcohol use before or during sex compared to those in the control group. Females in the intervention group reported feeling more confident to refuse sex compared to controls. The intervention had no effect on alcohol use or alcohol-related problems (134).

2.7.2 Brief interventions

Research conducted in North America, Europe, and Australia has demonstrated that hazardous alcohol use can be effectively reduced by screening for alcohol-related problems and following-up with brief counselling (136). AUDIT is used to screen individuals, and those who screen positive for potential alcohol problems, are given brief counselling. This includes information on alcohol-related harm, assistance in identifying drinking-related, high-risk situations which they may encounter, and development of a personalised plan to reduce their drinking (35).

This screening and brief intervention model has been used in South Africa with STI clinic patients in order to address their alcohol-related HIV risk (137). A randomised controlled trial found that participants who received the intervention were less likely to have used alcohol before or during sex and had decreased expectations that alcohol use would enhance sexual experiences. Six months after the intervention, those who received brief counselling demonstrated a 25% increase in condom use and a 65% reduction in unprotected sex (137).

2.7.3 Place-based interventions

Drinking establishments are the very places which connect alcohol use and risky sexual behaviour (12). Place-based programmes therefore represent a crucial opportunity to intervene in hazardous drinking and to reach high risk individuals at a critical time in condom use negotiation (112).

One place-based intervention which has been effective is the Popular Opinion Leader (POL) approach. This approach suggests that a small group of forward-thinking innovators can act as change agents for an entire social network. The POL approach capitalises on the strength of existing social networks to provide channels for information dissemination, thereby expanding the reach of prevention messages to a large number of people. In addition, by displaying the target behaviour, POLs act as role models for their peers. In alcohol-serving establishments, the POL approach can also address the role alcohol plays in facilitating risky sexual behaviour. Research has demonstrated that the POL approach successfully lowered the frequency of risky sexual behaviour among patrons of gay bars in the United States (138). The POL approach has been adapted for use in wine bars in Chennai, India (139) and provides and interesting example of how the POL model can be adapted for a developing context (13).

Another approach which has shown effectiveness is a multi-level peer counselling and social influence on HIV risk reduction programme targeted at female sex workers in drinking venues in the Philippines. The programme included manager training to reinforce employee health and health improvement programmes for females (133). An evaluation showed significant increases in condom use at last sex, and reductions in STIs compared with control sites (140). Kalichman and colleagues (2013) suggest that similar interventions, which encourage owners of drinking establishments to institute health programmes, may be culturally adaptable and effective in alcohol-serving establishments in South Africa (99).

2.7.4 Community mobilisation and advocacy

Fisher (2010) indicates that action at a community level to reduce the harmful use of alcohol (141) is a promising strategy. One example of this is Soul City's Phuza Wize campaign (142). Phuza Wize aims to prevent violence by make social spaces safer and by reducing alcohol-fuelled violence. In addition to its other objectives, the campaign seeks to highlight the risks of drinking in relation to HIV and violence (143).

In addition to including the campaign into regular Soul City media programming, Phuza Wize has important community mobilisation and advocacy elements. The campaign promotes community mobilisation, and working with local stakeholders in order to create safer drinking spaces and a supportive environment for safe drinking (143).

The advocacy component of the campaign includes: providing advocacy training to communities; engaging with various government departments and lobbying for legislative change and a holistic policy in the Departments of Health, Transport, Trade & Industry, Social Development and Education; providing technical support to selected provinces and departments to shape and develop alcohol laws; holding media roundtables; hosting critical thinking fora; and providing substantive input into 2011 Substance Abuse Summit (142, 143).

An evaluation of the Phuza Wize campaign found that 45% of the population aged 16-55 years were exposed to the campaign and that those exposed were significantly more likely to intend to cut down on their drinking (144).

2.8 Problem Statement

Alcohol use and misuse is an important risk factor for HIV infection in southern Africa. South Africa's National Strategic Plan (NSP) for HIV, STIs and TB defines people who abuse alcohol as a key population for targeted interventions (145). Despite the urgent need to address the relationship between alcohol use and risky sexual behaviour as part of the HIV prevention response, little has been done to date. The only national campaign, Phuza Wize, which addressed this important issue is no longer funded (146).

2.9 Study Justification

Alcohol consumption has been identified as one of the drivers of the HIV epidemic in South Africa. Various studies have examined the relationship between alcohol and risky sexual behaviour but these have predominately been undertaken in high risk groups such as sex workers (100, 111), bar patrons (37, 111), bar/hotel workers (7) or high risk drinkers (100). In addition, many of these studies have been venue based. However, as Chersich et al (2007) point out, the relationship between drinking patterns and unsafe sex varies between drinking contexts, population groups and other interacting factors (100). Findings among high risk groups are likely to differ from the general population (100).

A few population-based studies on the relationship between alcohol and risky sexual behaviour have been undertaken (147, 148). In Carletonville, South Africa, a cross-sectional study reported on the relationship between alcohol and HIV prevalence in migrant females (149) but did not look at the relationship between alcohol use and risky sexual behaviour. The two SADHS of 1998 and 2003 (48, 49), reported on alcohol use but not on its relationship to risky sexual behaviour. The 2009 South African National HIV Prevalence, Behaviour and Communication Survey (SABSSM III) (2) reported on risky sexual behaviours such as MSP among high-risk drinkers but this was in the context of a greater survey and the results for alcohol are not specifically presented. At the time of writing there was no published national, population-based study on this topic which had been undertaken in South Africa.

How and among whom different dimensions of alcohol use affect risky sexual behaviour in South Africa's general population is unknown. However, Morojele et al (2006) suggest that a study to look at the extent of risky sexual behaviour among adult and risky drinkers in South Africa is needed (11). Understanding the extent of alcohol use and risky sexual behaviour and the relationship between the two in the general population in South Africa will assist policymakers and planners to design and implement future interventions to address this important risk factor.

Chapter 3: Aims and Objectives

3.1 Aim

The overall aim of this study was to examine the relationship between alcohol use and risky sexual behaviour among males and females aged 16-55 years in South Africa in 2012.

3.2 Specific objectives

The research objectives were:

1. To describe the socio-demographic characteristics of male and female drinkers aged 16-55 years in South Africa in 2012
2. To describe the prevalence and patterns of alcohol consumption among males and females aged 16-55 years in South Africa in 2012
3. To describe the prevalence and patterns of risky sexual behaviours (multiple sexual partners in the past 12 months, multiple sexual partners in the past month, transactional sex, age-disparate sex and unprotected sex) among males and females aged 16-55 years in South Africa in 2012
4. To explore the relationship between alcohol use and risky sexual behaviours among males and females aged 16-55 years in South Africa in 2012

The fourth objective tested the hypothesis that adult male and female alcohol users were more likely to engage in risky sexual behaviour. The null and alternative hypotheses were:

1. Alcohol dependence and risky sexual behaviour:
   H_0: There is no difference between males and females who are alcohol dependent and those who are not alcohol dependent to engage in multiple sexual partnerships, transactional sex and age-disparate sex; and condom use
   H_1: Males and females who are alcohol dependent are more likely to engage in multiple sexual partnerships, transactional sex and age-disparate sex; and less likely to use a condom than those who are not alcohol dependent

2. Binge drinking and risky sexual behaviour:
   H_0: There is no difference between males and females who binge drink and those who do not binge drink to engage in multiple sexual partnerships, transactional sex and age-disparate sex; and condom use
   H_1: Males and females who binge drink are more likely to engage in multiple sexual partnerships, transactional sex and age-disparate sex; and less likely to use a condom than those who do not binge drink

3. Frequency of drinking in the past month and risky sexual behaviour:
   H_0: There is no difference between males and females who drink frequently in the past month and those who do not drink frequently in the past month to engage in multiple sexual partnerships, transactional sex and age-disparate sex; and condom use.
   H_1: Males and females who drank frequently in the past month are more likely to engage in multiple sexual partnerships, transactional sex and age-disparate sex; and less likely to use a condom than those who do not drink frequently in the past month

Chapter 4: Methodology

4.1 Study Design

This was a secondary analysis of data from the Third National HIV Communication Survey (NCS) (132). Primary data were collected through a nationally representative cross-sectional study conducted between February and May 2012. The aim of the primary study was to examine the impact of HIV communication programmes on various HIV-related outcomes (132). Although the main aim was not to investigate alcohol use, several alcohol-related questions were included in the questionnaire.

The overall aim of this study was to examine the relationship between alcohol dependence, binge drinking and frequency of drinking in the past month and risky sexual behaviour in the adult population in South Africa in 2012. In this study, patterns and prevalence of alcohol use was examined among all respondents (n=10,034). All other analysis was restricted to sexually active respondents (n=6,061).

4.2 Study Population and Sampling

The population for the primary study was all South Africans aged 16-55 years who lived in private households. Multi-stage, cluster sampling was used to collect data from a random sample of 10,034 respondents (n=4,065 males and n=5,969 females). The sample size was calculated based on the statistical rules applicable for multi-stage probability-based cluster methodologies: the population percentage, the standard error, the desired level of significance and the design effect (132).

The multi-stage, cluster sampling followed three stages. In the first stage, primary sampling units (PSUs) were selected within each province with probability proportional to size, the measure of size being the number of individuals in each sub-place. PSUs were Statistics South Africa sub-places. An initial sub-place was randomly selected from each province, thereafter additional sub-places were selected from each province by systematically skipping through the listed sub-places in each province according to a sampling interval that yielded the desired sample size for each province. A total of 400 PSUs were selected. In the second stage, the number of households within each PSU was defined. This number was calculated proportional to the size of the population of each sub-place. A systematic sampling approach was utilised to select the households to be visited in each sub place. For each sub-place, a sampling interval was calculated and the starting point was randomly selected. In the third stage, one eligible respondent (male or female 16-55 years old who spent four or more nights at the household for most days of the year) per household was randomly selected to be interviewed using the KISH Grid method (132).

Sample weights were introduced to correct for selection bias at the sub-place, household and individual levels. The “smallest” province in the sample, the Northern Cape was oversampled. This

was because it yielded a sample size prediction of less than 100 respondents for the age group 16-24 years (based on a possible 33:66 age group proportion split between ages 16-24 and ages 25-55), which was considered too small to yield reliable results when analysing the data at provincial level. The sample was weighted back to be representative of the population in South Africa in respect of sex, age, race, settlement type and province. Sample weights were benchmarked using the 2007 Community Survey undertaken by Statistics South Africa (132).

All data from the primary study was included in the secondary analysis for objectives 1 and 2. The sample for the secondary data analysis consisted of 10,034 respondents (n=4,065 males and n=5,969 females). For the analysis of risky sexual behaviour, a subset of 6061 sexually active women and men (male n=2,467; female n=3,594) were included.

4.3 Data Collection

Data were collected using a structured, interviewer-administered questionnaire. Fieldworkers used computer assisted personal interviewing (CAPI) to administer the questionnaire, which was translated into all eleven official South African languages. At each selected household, face-to-face interviews were conducted with respondents in their home language by trained interviewers matched as far as possible to the socio-demographics of the respondent. The interview took approximately one-and-a half hours. A 10% validation check was undertaken in person or telephonically to review the work of each interviewer.

4.4 Measurement

The questionnaire comprised 13 sections designed to measure socio-demographic variables exposure to HIV communication programmes and various HIV-related outcomes (132). Of relevance to this study were the sections covering: socio-demographic characteristics; alcohol use; sexual behaviour and practises (including a sexual calendar); HIV knowledge; attitudes and self-efficacy for faithfulness and MSP; self-efficacy for condom use; violence and abuse; and exposure to HIV communication programmes (HCP). The items used in this study are included in Appendix A.

4.4.1 Exposure variables

a. *Lifetime drinking* was measured by asking respondents “Have you ever had an alcoholic drink?”. Response options were “Yes” or “No”. Current drinking was measured by collapsing the response options to the question: “During the past month, how many times did you have an alcoholic drink?”, into two categories consistent with the way current drinking has been measured elsewhere (61). These were: “Drank any alcohol in the past month” and “Did not drink any alcohol in the past month”.

b. *Alcohol dependence* was assessed using the CAGE questionnaire (42). Respondents were asked to respond to the four-item CAGE questionnaire. The specific items, with yes/no responses, were: "Have you ever felt you should cut down on your drinking?"; "Have people annoyed you by criticising your drinking"; "Have you ever felt bad or guilty about your drinking?"; and "Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (eye-opener)?". As recommended by Dhalla and Kopec (2007) (45) and in line with other studies in South Africa (46), respondents were classified as alcohol dependent if they responded "yes" to at least two items. Chronbach alpha for CAGE for this sample was 0.79 and 0.80 and 0.71 for males and females respectively.

c. *Binge drinking* was measured using a gender-specific question (43): "How often do you have (for males) five or more and (for females) four or more drinks on one occasion?". Response items were: "Never"; "Hardly ever"; "Less than once a month"; "A few times a month"; "Almost every week; and "Almost every day". A new variable was created to classify respondents into two categories "Binge drinkers" and "Non binge drinkers". Those who answered "Never" or "Hardly ever" to the original question were coded as "Non binge drinkers", while those who chose any of the other answer options were coded as "Binge drinkers".

d. *Frequency of drinking* was measured using the question: "During the past month, how many times did you have an alcoholic drink?". Response options included: "Almost every day"; "Several times per week"; "At least once a week"' "At least once a month"; and "Never".

4.4.2 Outcome variables

The outcome measures (risky sexual behaviour) were as follows: MSP in the past 12 months; MSP in the past month; transactional sex; age-disparate sex and unprotected sex. The measurement of these variables is described below.

a. *Multiple sexual partners* in the past 12 months was measured by asking respondents: "Overall, how many different people did you have sex with in the past 12 months (including your spouse or live-in partner)?". Respondents who reported two or more sex partners in the past 12 months were defined as having MSP in the past 12 months (2). Respondents' answers were validated using the data from the sexual calendar.

b. Multiple sexual partners in the past month was measured by asking respondents: "How many different people have you had sex with in the past month (including your spouse or live-in partner)?". Respondents who reported two or more sex partners in the past month were defined as having MSP in the past month.

c. Two different measures of *transactional sex* were used, namely provision of money/gifts in exchange for sex and receipt of money/gifts in exchange for sex. Providing money/gifts in

exchange for sex was measured by a positive response to a question in the sexual calendar: "In the past year did you give this person gifts or money in order to have sex with him/her?". Receiving money/gifts in exchange for sex was measured by a positive response to a question in the sexual calendar: "In the past year did you receive gifts or money from this person in order to have sex with him/her?". Both variables measured transactional sex across all sexual partnerships reported in the sexual calendar. For males, transactional sex was defined as having provided money/gifts in exchange for sex while for females, transactional sex was defined as having received money/gifts in exchange for sex.

d. In this study, *age-disparate sex* was defined as a sexual partnership where there was an age gap larger than five years. The difference between a respondent's age and the age of their sex partner was calculated using data from a sexual calendar. Two, gender specific variables were created. For males, age-disparate sex was defined as having any sex partner five or more years younger than themselves. For females, age-disparate sex was defined as having any sexual partner five or more years older than themselves.

e. Condom use: Similar to other studies (7), unprotected sex was defined as condom use at last sex and measured using a question from the sexual calendar: "Did you use a condom the last time you had sex with this person?". "This person" referred to the respondent's last sex partner.

4.4.3 Covariates

Covariates measured in this study included socio-demographic factors, ideational factors, HIV status, exposure to HIV communication programmes (HCP) and behaviour.

4.4.3.1 Socio-demographic factors

Sex, age, race, marital status, education, employment and settlement type were measured using the questions outlined in section 1 of the questionnaire (Appendix A).

In line with other research (150), the NCS 2012 used a number of items to measure poverty including availability of food. In this study, food security was used as a measure of socio-economic status. The main reason for selecting this measure was that one of the outcomes, transactional sex, was defined as the exchange of sex for money or gifts. Food security could be associated with risky sexual behaviour such as transactional sex and MSP (151).Food security was measured using a single question: "In the past 12 months, how often have you gone without enough food to eat?". Response options included: "Often", "Sometimes", "Rarely" and "Never". Those who answered "Often" or "Sometimes" were defined as food insecure.

4.4.3.2 Ideational factors

The ideational factors examined in this study comprised knowledge of HIV prevention methods, attitudes towards condom use, attitudes towards MSP, self-efficacy for condom use and self-efficacy to resist MSP.

Knowledge of HIV prevention methods was assessed using the question: "Can you tell me all the ways that you know that HIV infection can be prevented?". In line with other studies (119), a cumulative knowledge score was created using 10 correct response options. This continuous scale was split into three categories: no HIV prevention knowledge, lower knowledge (defined as knowing one to three correct methods) and high knowledge (defined as knowing five to ten correct ways in which HIV can be prevented).

Table 3 describes the scales which were created using items from the primary study to measure attitudes and self-efficacy towards condom use and MSP. Items were measured on 4-point scale: (1) strongly disagree to (4) strongly agree or (1) not sure at all to (4) completely sure. Data were reversed coded where necessary. Items relating to condom use were gender specific, so separate scales for males and females were developed. These continuous scales were split into categorical variables to use in the analysis.

Table 3: Measurement of ideational factors

Ideational factor	**Items**	**Alpha coefficient**
Attitudes towards condom use	5 items for males and females eg."Using a condom will make your partner think you don't trust him/her"	0.75 (males) 0.70 (females)
Self-efficacy for condom use	4 items for males; 5 items for females eg. "I can refuse to have sex if someone I like refuses to use a condom"	0.62 (males) 0.73 (females)
Attitudes towards MSP	4 items for both males and females eg. "It's ok to have sex with others as long as your main partner does not find out"	0.71
Self-efficacy for resisting MSP	5 items for both males and females eg. "How sure are you that you can resist the temptation of having sex with anyone else besides your main sex partner"	0.71

4.4.3.3 HIV status

Knowledge of HIV status was measured by asking respondents: “Do you know your HIV status?”. Response options were “Yes” and “No”. Self-reported HIV status was measured by asking respondents who had indicated that they knew their HIV status and who felt comfortable answering the question: “What is your HIV status?”. Response options were “HIV positive” or “HIV negative”.

4.4.3.4 Exposure to HIV communication

A number of evaluations have demonstrated that exposure to HCPs is associated with safer sexual behaviours such as condom use (23, 152). During the 12 months prior to the survey several independent HCPs as well as integrated communication campaigns to prevent HIV infection and help people living with HIV and AIDS were implemented. To create the combined measure of programme exposure, several steps were taken. In each step, several statistical analyses were undertaken that ended in the creation of 19 differentiated programme components. These were: *Intersexions* TV drama and radio programme; *4Play: Sex Tips for Girls* TV drama; *Brothers for Life* programme components (7); *Scrutinize Campaign; iLife* community radio drama; *Siyayinqoba Beat It!* programme components (7); Soul City *TV drama;* Soul City *OneLove* campaign components (5); Soul *City community radio talk show*; Soul City *Love Stories in a Time of HIV/AIDS*; Soul City *Soul Buddyz* TV and/or club participation; Soul City *booklets* (8); loveLife *UNCUT magazine*; loveLife *talk radio*; loveLife *Foxy Chix* radio drama; loveLife *Nakanjani* TV campaign (3); loveLife *telephone activities* (4; loveLife *face-to-face programmes* (14); and SANAC’s *“I am responsible”* campaign. Factor analysis was conducted to confirm that the 19 programmes could be added into a single measure of exposure. The internal reliability of the combined measure as measured by Cronbach alpha was 0.85, indicating a high level of reliability (132). This continuous scale was split into not exposed to any HCPs (0) and exposed to at least one HCP (1) to use in the analysis.

4.4.3.5 Behaviour: interpersonal violence

Literature has revealed that different types of violence were associated with both alcohol use (11, 100, 103) and risky sexual behaviour (38, 39, 84, 104) and was thus included as a covariate. Violence was assessed through the question: “Have you been in a physical fight in the past year?”. Answer options were “Yes” or “No”.

4.5 Data Management and Data Analysis

For the primary study, data were imported into Stata (version 12.0, STATA Corp,. College Station, Texas, USA). The secondary study used the de-identified and cleaned dataset. For the secondary study, the dataset was checked and additional cleaning conducted using Stata version 12. Normality was checked for using histograms and Skewness/Kurtosis tests in Stata. New categories and variables were created using the study data and adapted to meet the objectives of this secondary analysis. All analysis took into account the multistage, cluster sample design of the study.

For objective 1, to describe the characteristics of drinkers in South Africa, the data were largely categorical and chi-squared (X^2) tests were used to test associations between socio-demographic characteristics and alcohol use. Continuous data such as age were transformed to categorical variables. Analysis was restricted to sexually active respondents only and was performed for males and females separately. Results were presented using frequencies, percentages and *p*-values.

For objective 2, to describe the patterns and prevalence of alcohol use, descriptive analysis of the alcohol variables was conducted. The categorical variables such as age and education were presented using frequency and percentages. A median with interquartile range was calculated for continuous variables such as age. Analyses were conducted for all respondents and for sexually active respondents separately.

For objective 3, to describe the patterns and prevalence of risky sexual behaviour, the data were largely categorical and chi-squared (X^2) tests were used to test associations between covariates (ie. socio-demographic characteristics, ideational factors; HIV status; exposure to HCPs and behaviour) and the five outcome variables. Analysis was restricted to sexually active respondents only and was performed for males and females separately. Results were presented using frequencies, percentages and *p*-values.

For objective 4, to test the hypothesis that multiple dimensions of alcohol use increased risky sexual behaviour, logistic regression models were built that modelled alcohol dependence, binge drinking and frequency of drinking in the past month and risky sexual behaviour. Each model was built separately for males and females. Because of the multiple outcomes measures in this study, alcohol variables were only added into the models where they were significant ($p<0.1$) in the univariate analysis.

Analyses controlled for other covariates which were selected on a basis of theoretical relevance and being independently associated with the outcomes in bivariate analysis (*p*-value <0.10). These models were developed using a backwards stepwise logistic approach. All significant variables were entered into the model, and at each step the least significant variable was removed until all the remaining variables had a statistically significant contribution to the model or were theoretically important (based on the literature). Variables were eliminated based on p-values > 0.1.

Age and cohabitation status were controlled for in each model. Age was included in the model as a continuous variable as a relationship between age and risky sexual behaviour has been described in the literature. Marital status was collapsed into two categories: cohabiting and non-cohabiting.

Finally, interaction terms were created and tested for inclusion in the models. The interaction between two exposure variables was considered if the effect of one exposure varied according to the level of the other exposure (153). Where adjusted odds ratios (AORs) varied by 10% or more after adding the alcohol variables to the models, interaction parameters were introduced (153).

The results of the final logistic regression models were reported using AORs and 95% confidence intervals (CIs). Interaction was shown using strata with AORs and 95% CIs.

4.6 Ethics

Ethical approval for the primary study (Protocol H110701) was obtained from the University of the Witwatersrand's Human Research Ethics Committee (HREC Non-medical) (Appendix B). Permission to use the data was obtained from the principle investigator of the primary study (Appendix C) as well as from the NCS steering committee (Appendix D). Ethical approval for the secondary study (M130965) was obtained from the University of the Witwatersrand Human Research Ethics Committee (HREC Medical) (Appendix E).

Several ethical issues were considered for the primary study. Fieldworkers received extensive training on ethical issues. Gender considerations were addressed by ensuring, as far as possible, that participants are interviewed by fieldworkers of a similar age and gender to the participant. Male fieldworkers interviewed only male participants while female fieldworkers interviewed both male and female respondents. This was in an attempt to ensure gender sensitivities around sex and sex partners (132).

Each participant received an information sheet and a consent form in his or her home language. The information and consent form invited the individual to participate in the study and explained the purpose of the study, the respondent selection process, the voluntary nature of participation, confidentiality, anonymity, and the fact that participants could change their mind about participating at any time. The information document also explained the potential benefits of participating in this study. While there are no financial or material incentives, respondents were informed that the information gathered in this study would be used to help HIV organisations better serve the population. Respondents were also warned that they might feel some discomfort as several questions are about sex and sexual behaviour (132).

The fieldworker read the information and consent form to each selected respondent. If the selected individual was willing to participate, s/he signed a copy of the consent form or, in the case of respondents with limited literacy, placed a mark on the paper. Each respondent kept a copy (132).

For participants aged 16 and 17 years, the child's own consent was sought as well as that of a parent or guardian. Each respondent was given a choice as to where and when the interview would be conducted (132).

Once the interviews are complete, respondents were asked if they would like to make any other comments or ask any questions. Thereafter, they were thanked and provided with a list of

organisations where they could seek additional information or assistance on issues pertaining to health, HIV and general issues such as drugs, HIV, and abuse (132).

Careful training of fieldworkers included enabling them to observe a number of measures introduced to ensure confidentiality of information. For instance, fieldworkers could not conduct the face-to-face interview if there was a third person present in the room. Names of participants were recorded on a separate sheet and there was no way of linking specific answers back to individuals. Anonymity of respondents was maintained throughout the study (132).

In terms of ethical considerations for this study, the database was anonymous and there was no way of linking individual answers and information back to the questionnaires. Secondary data analysis was conducted by the researcher alone, with guidance from her supervisors. The dataset will be stored on the researcher's laptop which will be password protected for a period of two years following the end of the study. Access to the dataset will be limited to the researcher and her supervisors and the data will not be shared with any other person.

Chapter 5: Results

The overall aim of this study was to examine the relationship between alcohol use and risky sexual behaviour among males and females in the general population in South Africa in 2012. In this chapter the prevalence and patterns of alcohol use among all respondents and among sexually active respondents, the characteristics of drinkers, and prevalence and patterns of risky sexual behaviour are presented. Associations between the five outcome variables (ie. MSP in the past 12 months, MSP in the past month, transactional sex, age-disparate sex and condom use) and the exposure variables (binge drinking and frequency of drinking in the past month) are also presented.

5.1 Socio-demographic characteristics and prevalence and patterns of alcohol consumption among all males and females aged 16-55 years in South Africa in 2012

5.1.1 Socio-demographic characteristics of all respondents

The socio-demographic characteristics of all respondents (n=10,034) who participated in the study are described in table 4. The median age of the study sample was 29 years and the interquartile range (IQR) was 17 years. One in five (18.61%) respondents were aged 20-24 years, 17.91% were 25-29 years of age. Most of the participants (78.20%) were Black African. A third had completed matric and 39.80% had attended some high school. Just under half (47.46%) were unemployed and 15.42% were students. Nearly two thirds (62.15%) of respondents lived in urban areas.

Table 4: Socio-demographic characteristics of all respondents

Characteristics	Frequency	Unweighted percentage (%)	Weighted percentage (%)
Sex *n=10,034*			
Male	4,065	40.51	48.33
Female	5,969	59.49	51.67
Age (years) *n=10,034*			
16-19	1,336	13.31	12.99
20-24	2,063	20.56	18.61
25-29	1,769	17.63	17.91
30-34	1,369	13.64	13.46
35-39	1,077	10.73	11.42
40-44	821	8.18	9.16
45-49	684	6.82	6.99
50-55	915	9.12	9.47
Median (IQR)	*29 (17)*		

Characteristics	Frequency	Unweighted percentage (%)	Weighted percentage (%)
Race *n=10,026*			
Black	8,225	82.04	78.20
Coloured	1,447	14.43	9.28
Indian	171	1.71	2.53
White	183	1.83	10.00
Education *n=10,014*			
No schooling	142	1.42	1.58
Up to primary school	1,075	10.73	10.41
Up to grade 11	4,253	42.47	39.80
Matric	3,385	33.80	33.83
Tertiary	1,159	11.57	14.38
Employment *n=9,739*			
Employed	3,246	33.33	37.12
Unemployed	5,012	51.46	47.46
Student	1,481	15.21	15.42
Settlement type *n=10,034*			
Urban	6,870	68.47	62.15
Rural	3,164	31.53	37.85

5.1.2 Prevalence of alcohol consumption

The prevalence of alcohol use among all respondents is shown in table 5 below. About two thirds (62.80%) of South Africans aged 16-55 years reported never having had an alcoholic drink. Nearly half (49.58%) of males reported lifetime drinking, while 25.69% of females reported this. This study found that 25.28% of all respondents were current (past month) drinkers. More males (34.35%) drank in the past month than females (16.79%).

Of those who reported ever drinking alcohol, 37.11% were classified as alcoholic dependent. Over 40% (41.79%) of male drinkers were alcohol dependent, while 28.78% of females were.

About 70% of males were classified as binge drinkers and more than half (53.80%) of female drinkers were.

Table 5: Prevalence of alcohol use and misuse among all adult males and females

Lifetime drinking *n=9,748*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=3,927***	**Weighted percentage (%)**	**Frequency Females *n=5,821***	**Weighted percentage (%)**
3,369	37.20	1,909	49.58	1,460	25.69
Current drinking *n=10,034*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n= 4,065***	**Weighted percentage (%)**	**Frequency Females *n= 5,969***	**Weighted percentage (%)**
2,359	25.28	1,359	34.35	1,000	16.79
Alcohol dependence *n=3,252*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=1,842***	**Weighted percentage (%)**	**Frequency Females *n=1,410***	**Weighted percentage (%)**
1,288	37.11	818	41.79	470	28.78
Binge drinking					
Total sample	**Weighted percentage (%)**	**Frequency Males *n= 1,872***	**Weighted percentage (%)**	**Frequency Females *n=1,421***	**Weighted percentage (%)**
-	-	1,277	70.09	711	53.80

5.1.3 Drinking patterns in the past month

Table 6 shows that nearly a quarter (24.09%) of lifetime drinkers did not drink in the past month. Some 28.63% of respondents reported drinking at least once a month. A further 28.39% said they drank at least once a week. About 15% (14.72%) said that they drank several times per week and less than 5% reported drinking almost every day.

Among males who had ever drunk, 17.81% did not drink in the month prior to the survey. Some 27.12% said they had drunk at least once a month and a third (32.15%) reported drinking at least once a week. Less than a fifth (17.83%) said that they drank several times per week and around 5% reported drinking almost every day.

Among female lifetime drinkers, 35.40% did not drink in the previous month. Around a third (31.35%) said they had drunk at least once a month and just over a fifth (21.60%) reported drinking at least once a week. Less than 10% (9.11%) said that they drank several times per week and 2.55% reported drinking almost every day.

Table 6: Prevalence of alcohol consumption in the past month among all adult males and females

	All respondents *n=3,307*		Males *n=1,876*		Females *n=1,431*	
During the past month how many times did you have an alcoholic drink?	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**
Almost every day	140	4.18	95	5.08	45	2.55
Several times per week	489	14.72	352	17.83	137	9.11
At least once a week	849	28.39	567	32.15	282	21.60
At least once a month	948	28.63	517	27.12	431	31.35
Never	881	24.09	345	17.81	536	35.40

Table 7 shows the how often males and females reported being drunk in the past month. Just under half (45.35%) of lifetime drinkers said they had not been drunk in the past month. Some 23% of respondents reported being drunk at least once in the previous month. A further 18.88% said they were drunk at least once a week. About 10% said that they were drunk several times per week and 2.70% reported being drunk almost every day in the month prior to the survey.

Among males who had ever drunk, 36.67% said that they were never drunk in the month prior to the survey. A quarter said they were drunk at least once in the last month and 22.39% reported being drunk at least once a week. Over 10% said that they were drunk several times per week and 3.35% reported being drunk almost every day in the past month.

Among females who had ever drunk, 60.83% said that they were never drunk in the previous month. Around a fifth (18.54%) said they had been drunk at least once in the previous month and 12.64% reported drinking at least once a week in the past month. Over five percent (6.44%) said that were drunk several times per week and 1.55% reported being drunk almost every day in the month before the survey.

Table 7: Prevalence of being drunk in the past month among all adult males and females

	All respondents *n=3,289*		Males *n=1,867*		Females *n=1,422*	
During the past month how many times have you been drunk?	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**
Almost every day	92	2.70	64	3.35	28	1.55
Several times per week	335	10.37	241	12.57	94	6.44
At least once a week	651	18.88	452	22.39	199	12.64
At least once a month	736	22.69	466	25.02	270	18.54
Never	1,475	45.35	644	36.67	831	60.83

5.1.4 Drinking environment

All respondents, regardless of whether they had ever had an alcoholic drink or not, were asked whether they had been to a shebeen, bar, tavern and/or nightclub where alcohol was served in the month preceding the survey. Table 8 shows that 16.15% of all respondents had visited a place where alcohol was served in the past month. Just over a quarter of males (25.88%) and 6.72% of females said they had been to an alcohol-serving establishment in the last month.

Table 8 also shows nearly three-quarters (73.49%) of males reported binge drinking at their last visit to an alcohol-serving establishment. Around sixty percent (60.55%) of females reported this.

Table 8: Prevalence of visiting a drinking establishment and binge drinking at last visit among all adult males and females

Visited a place where alcohol was served in the past month *n=4,759*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=1,941***	**Weighted percentage (%)**	**Frequency Females *n=2,818***	**Weighted percentage (%)**
702	16.15	494	25.88	208	6.72
Binge drinking at last visit to place where alcohol was served n=702					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=487***	**Weighted percentage (%)**	**Frequency Females *n=209***	**Weighted percentage (%)**
-	-	358	73.49	115	60.55

5.2 Prevalence and patterns of alcohol consumption among sexually active males and females aged 16-55 years in South Africa in 2012

5.2.1 Socio-demographic characteristics of sexually active respondents

The socio-demographic characteristics of sexually active respondents (n=6,061) who participated in the study are described in table 9. The median age of sexually active respondents was 29 years and the interquartile range was 15 years. One in five (20.80%) respondents were aged 20-24 years, 21.28% were 25-29 years of age. The majority of respondents (79.33%) were Black African. Over a third had completed matric and 38.07% had attended some high school. Just under half (49.08%) were unemployed and 9.47% were students. Nearly two-thirds (62.13%) of respondents lived in urban areas.

Table 9: Socio-demographic characteristics of sexually active respondents

Characteristics	Frequency	Unweighted percentage (%)	Weighted percentage (%)
Sex *n=6,061*			
Male	2,467	40.70	48.27
Female	3,594	59.30	51.73
Age (years) *n= 6,061*			
16-19	421	6.95	6.32
20-24	1,378	22.74	20.80
25-29	1,294	21.35	21.28
30-34	995	16.42	16.26
35-39	718	11.85	12.83
40-44	516	8.51	9.62
45-49	371	6.12	6.23
50-55	368	6.07	6.65
Median (IQR)	*29 (15)*		
Race *n=6,061*			
Black	5,029	83.00	79.33
Coloured	824	13.60	8.87
Indian	104	1.72	9.31
White	102	1.68	2.48
Education *n=6,061*			
No schooling	56	0.93	1.02
Up to primary school	507	8.38	8.44
Up to grade 11	2,477	40.94	38.07
Matric	2,201	36.38	35.68
Tertiary	809	13.37	16.79
Employment *n=5,970*			
Employed	2,229	37.34	41.45
Unemployed	3,198	53.57	49.08
Student	543	9.10	9.47
Settlement type *n=6,061*			
Urban	4,193	69.18	62.13
Rural	1,868	30.82	37.87

5.2.2 Prevalence of alcohol consumption

The prevalence of alcohol use is shown in table 10 below. Over half (56.75%) of sexually active South Africans aged 16-55 years reported never having had an alcoholic drink alcohol. Some 56.91% of males reported ever having drunk alcohol while 30.56% of females reported this. This study found that 32.35% of sexually active respondents were current (past month) drinkers. More males (46.48%) drank in the past month than females (19.17%).

Of those who reported ever drinking alcohol, 37.80% were classified as alcohol dependent. Some 43.52% of male drinkers were alcohol dependent, while 27.98% of females were. Over 70% (72.58%) of males and 56.61% of females who had ever drunk alcohol were classified as binge drinkers.

Table 10: Prevalence of alcohol use and misuse among sexually active adult males and females

Lifetime drinking *n=5,972*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=2,418***	**Weighted percentage (%)**	**Frequency Females *n=3,554***	**Weighted percentage (%)**
2,421	43.25	1,373	56.91	1,048	30.56
Current drinking *n=6,061*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=2,467***	**Weighted percentage (%)**	**Frequency Females *n=3,594***	**Weighted percentage (%)**
1,786	32.35	1,136	46.48	650	19.17
Alcohol dependence *n=2,361*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=1,340***	**Weighted percentage (%)**	**Frequency Females *n=1,021***	**Weighted percentage (%)**
952	37.80	607	43.52	345	27.98
Binge drinking					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=1,347***	**Weighted percentage (%)**	**Frequency Females *n=1,021***	**Weighted percentage (%)**
-	-	954	72.58	535	56.61

5.2.3 Drinking patterns in the past month

Respondents were asked about alcohol use in the past month. Table 11 shows that 22.41% of all respondents who had ever drunk alcohol did not drink in the past month. Some 28.73% of respondents reported drinking at least once a month. A further 29.91% said they drank at least once a week. Over 15% (15.64%) said that they drank several times per week and 3.30% reported drinking almost every day.

Among males who had ever drunk, 15.30% did not drink in the month prior to the survey. Less than 30% (27.39%) said they had drunk at least once a month and a third (33.89%) reported drinking at least once a week. A fifth (19.38%) said that they drank several times per week and 4.04% reported drinking almost every day. Among females who had ever drunk, 34.79% did not drink in the previous month. A third (31.08%) said they had drunk at least once a month and 22.98% reported drinking at least once a week. Less than 10% (9.14%) said that they drank several times per week and 2.01% reported drinking almost every day.

Table 11: Prevalence of alcohol consumption in the past month among sexually active adult males and females

	All sexually active respondents *n=2,381*		Males *n=1,351*		Females *n=1,030*	
During the past month how many times did you have an alcoholic drink?	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**
Almost every day	80	3.30	54	4.04	26	2.01
Several times per week	364	15.64	269	19.38	95	9.14
At least once a week	640	29.91	434	33.89	206	22.98
At least once a month	702	28.73	379	27.39	323	31.08
Never	595	22.41	215	15.30	380	34.79

Table 12 shows the how often sexually active males and females reported being drunk in the past month. Some 44.05% of sexually active respondents who had ever drunk alcohol reported not having been drunk in the past month. Some 23.90% of respondents reported being drunk at least once a month. A further 18.70% said they were drunk at least once a week in the past month. Around 10% (10.84%) said that they were drunk several times per week and 2.51% reported being drunk almost every day in the month prior to the survey.

Among males who had ever drunk, 33.85% said that they had not been drunk in the month prior to the survey. Some 26.87% said they were drunk at least once in the last month and 22.54% reported being drunk at least once a week. Over 10% (13.45%) said that they were drunk several times per week and 3.29% reported being drunk almost every day in the past month.

Among females who had ever drunk, 61.53% said that they were not drunk in the previous month. About a fifth (18.83%) said they had been drunk at least once a month and 12.12% reported drinking at least once a week in the past month. Just over 6% said that were drunk several times per week and 1.17% reported being drunk almost every day in the month before the survey.

Table 12: Prevalence of being drunk in the past month among sexually active adult males and females

	All sexually active respondents *n=2,370*		Males *n=1,347*		Females *n=1,023*	
During the past month how many times have you been drunk?	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**
Almost every day	58	2.51	42	3.29	16	1.17
Several times per week	242	10.84	177	13.45	65	6.36
At least once a week	483	18.70	337	22.54	146	12.12
At least once a month	564	23.90	361	26.87	203	18.83
Never	1,023	44.05	430	33.85	593	61.53

Respondents who had ever drunk alcohol were asked whether they had sex with someone after having too much to drink in the past month. About a quarter (25.96%) of sexually active drinkers indicated that in the past month they had sex after having too much to drink. More males (30.03%) reported this than females (18.95%).

Table 13: Prevalence of having sex with someone after having too much to drink in the past month among sexually active adult males and females

All sexually active respondents *n=2,328*		**Males *n=1,320***		**Females *n=1,008***	
Frequency	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**
577	25.96	394	30.03	183	18.95

5.2.4 Drinking environment

All sexually active respondents, regardless of whether they had ever had an alcoholic drink or not, were asked whether they had been to a shebeen, bar, tavern and/or nightclub where alcohol was served in the month preceding the survey. Table 14 shows that 19.52% of all sexually active respondents had visited a place where alcohol was served in the past month. Just under a third of males (31.15%) reported this while 8.38% of females said they had been to an alcohol-serving establishment.

Table 14 also shows that nearly three-quarters (72.06%) of males reported binge drinking at their last visit to an alcohol-serving establishment. Two-thirds (66.46%) of females reported this.

Table 14: Prevalence of visiting a drinking establishment and binge drinking at last visit among sexually active adult males and females

Visited a place where alcohol was served in the past month *n=2,813*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=1,157***	**Weighted percentage (%)**	**Frequency Females *n=1,656***	**Weighted percentage (%)**
504	19.52	350	31.15	154	8.38
Binge drinking at last visit to place where alcohol was served					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=337***	**Weighted percentage (%)**	**Frequency Females *n=147***	**Weighted percentage (%)**
-	-	253	72.06	93	66.46

Respondents who had been to an alcohol-serving establishment in the past month were asked: "The last time you went to a shebeen, bar, tavern and/or nightclub did you end up having sex with someone that you met there for the first time?". Some 18.29% of sexually active respondents answered "yes" to this question. Some 19.17% of males reported having sex with someone they met for the first time the last time they went to an alcohol-serving establishment compared with 15.04% of females.

Table 15: Prevalence of having sex with someone met for the first time at last visit to place where alcohol was served among sexually active adult males and females

All sexually active respondents *n=483*		Males *n=335*		Females *n=148*	
Frequency	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**
90	18.29	65	19.17	25	15.04

5.3 Characteristics of male and female drinkers aged 16-55 years in South Africa in 2012

5.3.1 Alcohol use

5.3.1.1 Factors associated with alcohol use among sexually active males

This study examined the prevalence of life time drinking and current (past month) drinking among males by socio-demographic characteristics. These results are summarised in table 16 below.

Marital status was significantly associated with lifetime drinking (p=0.03). Among males reporting ever drinking, more were likely to be single, divorced or widowed (37.20% vs 33.08%). Males who were in a steady relationship but not living with their partner were also more likely to report ever drinking (28.13% vs23.41%). While males who were married and living with their partner did report lifetime drinking (19.37%), a greater proportion did not (26.26%). There was no significant association between marital status and current alcohol use among males (p=0.55).

Employment status was not significantly associated with lifetime drinking (p=0.31) but it was significantly associated with current drinking (p<0.01). Males who were employed were significantly more likely to have drunk in the past month with 51.29% reporting this compared to 39.97% who did not. Those who were unemployed were less likely to have used alcohol in the past month (37.61% vs 51.56%).

Age, level of education, food security and settlement type were not significantly associated with lifetime drinking or current drinking males.

Table 16: Associations between socio-demographic characteristics and alcohol use among sexually active males n (%)

	Lifetime drinking *n=2,418*			Current drinking *n=1,351*		
Characteristics	**Yes n (%)**	**No n (%)**	**P value**	**Yes n (%)**	**No n (%)**	**P value**
Age						
16-24	463 (28.55)	292 (23.56)	0.08	381 (28.87)	77 (27.88)	0.96
25-34	502 (37.78)	399 (39.78)		420 (37.51)	74 (38.65)	
35-55	408 (33.67)	354 (36.67)		335 (33.62)	64 (33.47)	
Marital status						
Single/ Divorced/Widowed	557 (37.20)	369 (33.08)	0.03	459 (37.06)	87 (36.15)	0.55
Not married or living together but in a steady relationship	386 (28.13)	259 (23.41)		320 (28.22)	61 (27.90)	
Not married, but living with sexual partner	165 (12.28)	121 (13.45)		142 (12.69)	21 (10.62)	
Married, living together	230 (19.37)	258 (26.26)		186 (19.39)	40 (19.92)	
Married not living together	35 (3.02)	38 (3.80)		29 (2.64)	6 (5.42)	
Education						
No/ primary school	107 (7.49)	88 (9.82)	0.29	87 (7.41)	19 (8.27)	0.40
Up to grade 11	513 (35.93)	403 (37.39)		415 (35.22)	93 (41.26)	
Matric	521 (36.75)	392 (35.79)		443 (37.17)	69 (33.72)	
Tertiary	228 (19.84)	161 (17.00)		187 (20.20)	34 (16.76)	
Employment						
Unemployed	589 (40.01)	398 (35.91)	0.31	468 (37.61)	109 (51.56)	<0.01
Employed	636 (49.37)	507 (53.35)		549 (51.29)	79 (39.97)	
Student	131 (10.63)	118 (10.74)		106 (11.10)	23 (8.46)	
Food security						
Food insecure	215 (15.29)	145 (13.67)	0.47	175 (15.08)	37 (16.24)	0.70
Settlement type						
Urban	984 (62.51)	710 (57.34)	0.13	812 (62.48)	156 (63.20)	0.87
Rural	389 (37.49)	335 (42.66)		324 (37.52)	59 (36.80)	

5.3.1.2 Factors associated with alcohol among sexually active females

Table 17 shows the associations between ever using alcohol and using alcohol in the past month by socio-demographic characteristics among females.

Age was significantly associated with ever drinking alcohol ($p<0.01$). Females aged 16-24 years were more likely to have ever drunk, with 32.20% reporting this compared to 26.00% who did not. Females over 35 years were less likely to have ever drunk alcohol (29.29% vs 37.78%). There was no significant association between age and alcohol use in the past month among females ($p=0.07$).

Marital status was significantly associated with ever drinking alcohol ($p<0.01$). Among females reporting ever drinking, more were likely to be single, divorced or widowed (32.73% vs 29.03%). Females who were in a steady relationship but not living with their partner were also more likely to report ever drinking (29.45% vs 21.03%). Females who were married and living with their partner were less likely to have ever drunk alcohol (21.28% vs 29.58%). There was no significant association between marital status and alcohol use in the past month among females ($p=0.42$).

Level of completed education was significantly associated with having ever drunk alcohol ($p<0.001$). Females with lower levels of education were less likely to have ever drunk alcohol. Those who had completed matric were slightly more likely to report lifetime drinking (36.60% vs 34.46%). More females who had a tertiary level education reported ever drinking (19.78% vs 12.75%). There was no significant association between education and drinking in the past month among females ($p=0.06$).

Employment status was significantly associated with ever drinking alcohol ($p=0.04$). Unemployed females were less likely to report ever using alcohol (53.95% vs 62.43%) while those who were employed were more likely to do so (36.20% vs 29.88%). Students were also more likely to have ever drunk alcohol. Employment status was significantly associated with alcohol use in the past month ($p<0.01$). A similar pattern was present with unemployed females being less likely to have drunk alcohol in the past month and employed females being more likely to have done so.

Food security was not associated with ever drinking alcohol ($p=0.22$). Females who were food insecure were significantly less likely to have had a drink in the past month, with 12.28% reporting this compared to 20.65% who did not ($p<0.01$).

Settlement type was significantly associated with ever drinking alcohol among females ($p<0.001$). Females from urban areas were more likely to report ever drinking alcohol while those from rural areas were significantly less likely to have done so. There was no significant association between settlement type and alcohol use in the past month among females ($p=0.40$).

Table 17: Associations between socio-demographic characteristics and alcohol use among sexually active females n (%)

	Lifetime drinking *n=3,554*			Current drinking *n=1,030*		
Characteristics	**Yes n (%)**	**No n (%)**	**P value**	**Yes n (%)**	**No n (%)**	**P value**
Age						
16-24	351 (32.20)	669 (26.00)	<0.01	220 (33.64)	125 (30.50)	0.07
25-34	418 (38.51)	938 (36.22)		266 (35.77)	149 (45.33)	
35-55	279 (29.29)	899 (37.78)		164 (30.59)	106 (24.17)	
Marital status						
Single/ Divorced/Widowed	357 (32.73)	732 (29.03)	<0.01	232 (33.56)	116 (29.14)	0.42
Not married or living together but in a steady relationship	336 (29.45)	574 (21.03)		205 (28.08)	129 (33.68)	
Not married, but living with sexual partner	137 (13.07)	369 (15.46)		92 (14.04)	42 (11.29)	
Married, living together	182 (21.28)	735 (29.58)		102 (21.46)	76 (21.05)	
Married not living together	36 (3.47)	96 (4.90)		19 (2.87)	17 (4.85)	
Education						
No/ primary school	84 (7.24)	271 (11.51)	<0.001	47 (6.18)	36 (9.56)	0.06
Up to grade 11	459 (36.37)	1,076 (41.29)		277 (32.74)	170 (42.09)	
Matric	376 (36.60)	875 (34.46)		241 (38.91)	132 (34.19)	
Tertiary	128 (19.78)	279 (12.75)		84 (22.16)	42 (14.16)	
Employment						
Unemployed	620 (53.95)	1,554 (62.43)	0.04	368 (48.11)	240 (63.08)	<0.01
Employed	315 (36.20)	727 (29.88)		216 (41.03)	96 (28.66)	
Student	96 (9.85)	192 (7.70)		55 (10.86)	39 (8.26)	
Food security						
Food insecure	180 (15.45)	421 (18.03)	0.22	104 (12.28)	70 (20.65)	<0.01
Settlement type						
Urban	801 (74.30)	1,641 (59.37)	<0.001	496 (76.33)	291 (71.56)	0.40
Rural	247 (25.70)	865 (40.63)		154 (23.67)	89 (28.44)	

5.3.2 Binge drinking

5.3.2.1 Factors associated with binge drinking among sexually active males

This study found that age was significantly associated with binge drinking among males (p<0.01). Table 18 shows that males aged 16-24 years and those aged 25-34 years were significantly more likely to be binge drinkers. In contrast, males aged 35-55 were significantly less likely to be binge drinkers, with only 30.89% having done so compared to 41.79% who did not.

There was a significant relationship between education status and binge drinking among males (p=0.05). Males who had a matric were significantly more likely to report binge drinking (38.70% vs 30.83%). Males who had a Grade 11 education were significantly less likely to be binge drinkers.

Settlement type was associated with binge drinking. Males from urban areas were less likely to be binge drinkers (60.81% vs 68.03%), while those from rural areas were more likely to be binge drinkers (39.19% vs 31.97%).

Marital status, employment status and food security were not significantly associated with binge drinking among males.

Table 18: Associations between socio-demographic characteristics and binge drinking among sexually active males n (%)

Characteristics	Binge drinking *n=1,347*			
	Yes n (%)	No n (%)	P value	
Age				
16-24	319 (29.55)	135 (25.82)		<0.01
25-34	376 (39.56)	117 (32.39)		
35-55	259 (30.89)	141 (41.79)		
Marital status				
Single/ Divorced/Widowed	374 (36.52)	167 (36.76)		0.11
Not married or living together but in a steady relationship	289 (30.06)	91 (23.60)		
Not married, but living with sexual partner	125 (12.91)	40 (11.51)		
Married, living together	141 (17.52)	85 (24.84)		
Married not living together	25 (2.99)	10 (3.29)		
Education				
No/ primary school	75 (7.88)	30 (6.40)		0.05
Up to grade 11	332 (33.47)	174 (43.14)		
Matric	379 (38.70)	131 (30.83)		
Tertiary	165 (19.94)	57 (19.63)		
Employment				
Unemployed	407 (39.35)	166 (39.98)		0.67
Employed	450 (49.23)	177 (50.86)		
Student	88 (11.43)	42 (9.16)		

Characteristics	Binge drinking *n=1,347*			
	Yes n (%)	No n (%)	P value	
Food security				
Food insecure	143 (14.72)	69 (16.89)		0.42
Settlement type				
Urban	664 (60.81)	303 (68.03)		<0.01
Rural	290 (39.19)	90 (31.97)		

5.3.2.2 Factors associated with binge drinking among sexually active females

This study found that age was significantly associated with binge drinking among females (p=0.01). Table 19 shows that females aged 16-24 years were significantly more likely to be binge drinkers (38.34% vs 24.96%). In contrast, females aged 25-34 and those aged 35-55 years were significantly less likely to be binge drinkers.

There was a significant relationship between education status and binge drinking among females (p<0.001). Females who had a matric were significantly more likely to report binge drinking (42.09% vs 30.17%). Females with a tertiary level education were also more likely to be classified as binge drinkers with 24.08% reporting this compared to 14.60% who did not. Females who had a Grade 11 education and those with no/low levels of schooling were significantly less likely to be binge drinkers.

Employment status was significantly associated with binge drinking among females (p<0.05). Unemployed females were less likely to be binge drinkers, with 49.67% reporting this compared to 59.03% who did not. Students were more likely to report binge drinking (13.03% vs 5.67%). Females who were food insecure were less likely to report binge drinking, with 11.78% reporting this compared to 19.89% who did not (p<0.01).

Marital status and settlement type were not significantly associated with binge drinking among females.

Table 19: Associations between socio-demographic characteristics and binge drinking among sexually active females n (%)

Characteristics	Binge drinking *n=1,021*		
	Yes n (%)	No n (%)	P value
Age			
16-24	207 (38.48)	137 (24.96)	0.01
25-34	216 (35.35)	192 (42.51)	
35-55	112 (26.17)	157 (32.53)	

Characteristics	Binge drinking *n=1,021*		
	Yes n (%)	No n (%)	P value
Marital status			
Single/ Divorced/Widowed	184 (32.76)	158 (31.93)	0.60
Not married or living together but in a steady relationship	187 (31.27)	148 (28.74)	
Not married, but living with sexual partner	78 (14.37)	56 (11.12)	
Married, living together	71 (18.59)	104 (24.10)	
Married not living together	15 (3.00)	20 (4.11)	
Education			
No/ primary school	37 (5.79)	46 (9.45)	<0.001
Up to grade 11	204 (28.04)	239 (45.78)	
Matric	219 (42.09)	149 (30.17)	
Tertiary	75 (24.08)	51 (14.60)	
Employment			
Unemployed	310 (49.67)	294 (59.03)	<0.05
Employed	162 (37.31)	147 (35.30)	
Student	57 (13.03)	35 (5.67)	
Food security			
Food insecure	80 (11.78)	95 (19.89)	<0.01
Settlement type			
Urban	390 (73.97)	389 (73.82)	0.98
Rural	145 (26.03)	97 (26.18)	

5.4 Prevalence and patterns of risky sexual behaviours among males and females in South Africa in 2012

5.4.1 Multiple sexual partners

5.4.1.1 Prevalence of multiple sexual partners

Some 12.55% of sexually active respondents reported having more than one sexual partner in the 12 months preceding the survey (table 20). Fewer than 10% (8.96%) of sexually active respondents had more than one sexual partner in the month preceding the survey. Just less than a fifth (18.79%) of sexually active males reported having more than one sexual partner in the 12 months preceding the survey. Less than 10% (6.72%) of sexually active females reported having more than one sexual partner in the 12 months preceding the survey.

Less than 15% (13.57%) of sexually active males had more than one sexual partner in the month preceding the survey. Around five percent of sexually active females had more than one sexual partner in the month preceding the survey.

Table 20: Prevalence of MSP in the past year and past month among sexually active adult males and females

MSP in the past 12 months *n=6,061*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=2,467***	**Weighted percentage (%)**	**Frequency Females *n=3,594***	**Weighted percentage (%)**
744	12.55	481	18.79	263	6.72
MSP in the past month *n=4,818*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=1,859***	**Weighted percentage (%)**	**Frequency Females *n=2,959***	**Weighted percentage (%)**
442	8.96	276	13.57	166	5.01

5.4.1.2 Factors associated with MSP in the past year and the past month among males

This study examined the prevalence of MSP among males by socio-demographic characteristics. These results are summarised in table 21 below.

Age was significantly associated with MSP in the past 12 months ($p<0.01$) but was not significantly associated with MSP in the past month. Males aged 16-24 years were significantly more likely to report MSP in the past 12 months (34.40% vs 24.41%). Similarly, males aged 25-34 years were significantly more likely to have had MSP in the past 12 months (42.56 vs 37.55%). In contrast, males aged 35-55 were significantly less likely to have MSP in the past 12 months, with only 23.04% having MSP compared to 38.04% who did not.

Marital status was significantly associated with having MSP in the past year ($p<0.01$). Among males reporting MSP in the past 12 months more were single/divorced or widowed (45.38% vs 32.74%). Males who were in a steady relationship but not living with their partner were also more likely to report MSP in the past year (33.13% vs24.40%). While males in cohabiting relationships reported MSP, a greater proportion did not report MSP. A similar association between marital status and MSP in the past month was present ($P<0.01$). Single/divorced/widowed males were significantly more likely to report having MSP in the past month, with 41.64% having MSP in the month preceding the survey compared to 28.23% who did not.

Food security was significantly associated with having MSP in the past 12 months. Males who were food insecure were significantly more likely to report MSP ($p<0.01$), with 22.12% having MSP in the past year compared to 12.78% who did not. There was no significant association between food security and MSP in the past month among males ($p=0.52$).

Attitudes towards MSP were significantly associated with MSP in the past 12 months ($p<0.001$) as well as in the past month ($p<0.001$). Males who held attitudes discouraging MSP were less likely to report MSP. Similarly, self-efficacy was significantly associated with MSP in the past 12 months ($p<0.001$) and MSP in the past month ($p<0.001$). Those who had high self-efficacy for resisting MSP were less likely to have had multiple sexual partners.

Males who knew their HIV status were significantly less likely to report MSP in the past year (p=0.05) and in the past month (p<0.01). Being HIV positive was not significantly associated with MSP in the past 12 months (p=0.12) but was associated with MSP in the past month (p=0.05). Among males reporting being HIV positive, 13.98% reported MSP in the past month as compared to 7.42% who did not.

Having been in a physical fight was significantly associated with having more than one sexual partner in the previous 12 months (p <0.001). Males who had been in a physical fight were significantly more likely to report MSP, with 21.30% having MSP in the past year compared 12.43% who did not. There was a borderline significant association between physical violence and MSP in the past month among males (p=0.06).

Level of education, employment status, settlement type, knowledge of HIV prevention methods and being exposed to at least one HCP were not significantly associated with MSP in the past year or MSP in the past month among males.

Table 21: Associations between socio-demographic characteristics, ideational factors, behaviour and multiple sexual partners among sexually active adult males n (%)

	MSP in the past 12 months *n=2,467*				MSP in the past month *n=1,859*			
	Yes	n (%)	No	n (%)	P value	Yes	n (%)	No	n (%)	P value
Socio-demographic characteristics										
Age										
16-24	188	(34.40)	580	(24.41)	<0.001	102	(29.96)	472	(25.42)	0.23
25-34	191	(42.56)	727	(37.55)		104	(39.12)	581	(37.88)	
35-55	102	(23.04)	679	(38.04)		70	(30.92)	530	(36.69)	
Marital status										
Single/ Divorced/Widowed	218	(45.38)	723	(32.74)	<0.001	128	(41.64)	494	(28.23)	<0.001
Not married or living together but in a steady relationship	171	(33.13)	489	(24.40)		84	(30.23)	469	(29.13)	
Not married, but living with sexual partner	44	(9.42)	247	(13.54)		28	(11.15)	205	(13.69)	
Married, living together	36	(9.45)	466	(25.87)		32	(14.81)	360	(25.11)	
Married not living together	12	(2.63)	61	(3.44)		4	(2.17)	55	(3.84)	
Education										
No/ primary school	34	(7.61)	168	(8.80)	0.75	19	(7.53)	131	(8.32)	0.68
Up to grade 11	185	(37.15)	747	(36.04)		91	(33.07)	611	(37.17)	
Matric	180	(38.18)	751	(36.16)		120	(40.17)	585	(35.98)	
Tertiary	78	(17.05)	319	(19.00)		45	(19.23)	253	(18.54)	
Employment										
Unemployed	205	(39.60)	795	(37.47)	0.17	116	(40.30)	616	(36.01)	0.49
Employed	214	(46.85)	960	(52.66)		132	(51.00)	783	(53.67)	
Student	59	(13.55)	194	(9.86)		25	(8.70)	158	(10.32)	
Food security										
Food insecure	108	(22.12)	260	(12.78)	<0.001	45	(15.91)	230	(14.20)	0.52

	MSP in the past 12 months *n=2,467*				MSP in the past month *n=1,859*			
	Yes	**n (%)**	**No**	**n (%)**	**P value**	**Yes**	**n (%)**	**No**	**n (%)**	**P value**
Settlement type										
Urban	345	(62.74)	1,380	(59.37)	0.33	195	(63.19)	1,112	(62.19)	0.80
Rural	136	(37.26)	606	(40.63)		81	(36.81)	471	(37.81)	
Ideational factors										
Knowledge of HIV prevention methods										
No/low knowledge	96	(22.67)	425	(22.78)	0.31	47	(18.88)	311	(20.29)	0.32
Medium knowledge	198	(39.21)	867	(43.95)		117	(39.58)	696	(44.31)	
High knowledge	187	(38.11)	694	(33.27)		112	(41.53)	576	(35.40)	
Attitudes towards MSP										
Attitudes discouraging MSP	109	(21.52)	1,022	(52.57)	<0.001	61	(22.61)	818	(52.46)	<0.001
Self-efficacy for MSP										
High self-efficacy for resisting MSP	183	(40.84)	1,432	(76.13)	<0.001	112	(42.86)	1,130	(75.09)	<0.001
HIV status & exposure to HIV communication										
Knows HIV status										
Yes	250	(91.70)	1,141	(95.55)	0.05	133	(90.07)	947	(95.41)	<0.01
Self-reported HIV status										
HIV positive	22	(12.26)	83	(7.72)	0.12	14	(13.98)	62	(7.42)	0.05
HIV communication programmes										
Exposed to at least one HCP	427	(87.09)	1,622	(83.31)	0.23	230	(86.41)	1,307	(83.95)	0.41
Behaviour										
Violence										
Been in a physical fight in the past year	106	(21.30)	252	(12.43)	<0.001	57	(18.65)	209	(13.76)	0.06

5.4.1.3 Factors associated with MSP in the past year and the past month among females

Table 22 below shows the association between MSP and socio-demographic characteristics among females. Age was significantly associated with MSP in the past 12 months ($p<0.001$). Females aged 16-24 years were significantly more likely to report MSP in the past 12 months (32.58% vs 27.57%). Similarly, females aged 25-34 years were significantly more likely to have had MSP in the past 12 months (49.16 vs 35.76%). Females aged 35-55 were significantly less likely to have MSP in the past 12 months, with only 18.26% having MSP compared to 36.68% who did not. Age was not significantly associated with MSP in the past month ($p=0.13$).

Marital status was significantly associated with having MSP in the past year ($p<0.001$). Females who were single/divorced/widowed were significantly more likely to report having MSP in the past 12 months (44.94% vs 26.39%). Females who were in a steady relationship but not living with their partner were also more likely to report MSP in the past year. In contrast, females who were married and living with their spouse were significantly less likely to report MSP in the past year, with only 11.41% reporting MSP as compared to 28.13% who did not. A similar association between marital status and MSP in the past month was present. Single/divorced/widowed females were significantly more likely to report having MSP in the past month, with 44.94% having MSP in the month preceding the survey compared to 26.39% who did not.

Attitudes towards MSP were significantly associated with MSP in the past 12 months ($p<0.001$) as well as in the past month ($p<0.001$). Females who held attitudes discouraging MSP were less likely to report MSP. Self-efficacy was significantly associated with MSP in the past 12 months ($p<0.001$). Those who had high self-efficacy for resisting MSP were less likely to have had MSP in the previous year. There was no significant relationship between self-efficacy for MSP and having had MSP in the past month ($p=0.07$).

Being HIV positive was significantly associated with MSP in the past 12 months ($p<0.01$) but was not associated with MSP in the past month ($p=0.42$). Among females reporting being HIV positive, 25.20% reported MSP in the past year as compared to 12.61% who did not.

Females who were exposed to at least one HCP were significantly more likely to report MSP in the previous 12 months ($p<0.01$), with 93.42% reporting MSP in the past 12 months compared to 84.10% who did not. There was no significant relationship between exposure to HCPs and MSP in the past month ($p=0.17$).

Having been in a physical fight was significantly associated with having more than one sexual partner in the previous 12 months ($p<0.001$). Females who had been in a physical fight were significantly more likely to report MSP, with 17.10% having MSP in the past year compared 6.67% who did not. There was no significant association between physical violence and MSP in the past month among females ($p=0.12$).

Level of education, employment status, food security, settlement type, knowledge of HIV prevention methods and knowing one's HIV status were not significantly associated with MSP in the past year or MSP in the past month among females.

Table 22: Associations between socio-demographic characteristics, ideational factors, behaviour and multiple sexual partners among sexually active adult females n (%)

	MSP in the past 12 months *n=3,594*				MSP in the past month *n=2,959*			
	Yes	n (%)	No	n (%)	P value	Yes	n (%)	No	n (%)	P value
Socio-demographic characteristics										
Age										
16-24	94	(32.58)	937	(27.57)	<0.001	65	(35.03)	789	(27.45)	0.13
25-34	130	(49.16)	1,241	(35.76)		68	(38.84)	1,050	(36.62)	
35-55	39	(18.26)	1,153	(36.68)		33	(26.13)	954	(35.93)	
Marital status										
Single/ Divorced/Widowed	109	(38.53)	994	(29.72)	<0.001	77	(44.94)	746	(26.39)	<0.001
Not married or living together but in a steady relationship	88	(33.59)	835	(22.77)		44	(26.20)	738	(24.57)	
Not married, but living with sexual partner	32	(13.71)	479	(14.87)		22	(15.63)	432	(15.70)	
Married, living together	28	(11.41)	897	(28.13)		18	(9.38)	772	(28.52)	
Married not living together	6	(2.76)	126	(4.51)		5	(3.86)	105	(4.81)	
Education										
No/ primary school	18	(7.92)	343	(10.45)	0.33	17	(11.57)	289	(10.62)	0.94
Up to grade 11	127	(46.31)	1,418	(39.29)		71	(38.79)	1,202	(39.80)	
Matric	87	(32.18)	1,183	(35.07)		53	(33.50)	986	(35.03)	
Tertiary	29	(13.58)	383	(15.18)		24	(16.14)	311	(14.54)	
Employment										
Unemployed	150	(57.07)	2,048	(59.65)	0.78	99	(61.73)	1,732	(60.23)	0.82
Employed	81	(33.59)	974	(31.97)		47	(28.69)	806	(31.36)	
Student	25	(9.34)	265	(8.39)		16	(9.58)	218	(8.41)	
Food security										
Food insecure	56	(21.49)	553	(16.91)	0.17	28	(16.12)	473	(17.13)	0.80

	MSP in the past 12 months *n=3,594*				MSP in the past month *n=2,959*			
	Yes	**n (%)**	**No**	**n (%)**	**P value**	**Yes**	**n (%)**	**No**	**n (%)**	**P value**
Settlement type										
Urban	189	(70.75)	2,279	(63.63)	0.16	112	(63.03)	1,896	(63.77)	0.89
Rural	74	(29.25)	1,052	(36.37)		54	(36.97)	897	(36.23)	
Ideational factors										
Knowledge of HIV prevention methods										
No/low knowledge	48	(19.41)	749	(22.38)	0.61	27	(13.84)	629	(22.32)	0.14
Medium knowledge	106	(39.78)	1,389	(40.08)		64	(41.12)	1,141	(38.95)	
High knowledge	109	(40.80)	1,193	(37.54)		75	(45.05)	1,023	(38.73)	
Attitudes towards MSP										
Attitudes discouraging MSP	83	(33.96)	2,032	(61.75)	<0.001	49	(29.20)	1,699	(61.11)	<0.001
Self-efficacy for MSP										
High self-efficacy for resisting MSP	160	(62.17)	2,668	(82.10)	<0.001	123	(74.54)	2,242	(81.73)	0.07
HIV status & exposure to HIV communication										
Knows HIV status										
Yes	207	(91.59)	2,606	(93.46)	0.37	132	(91.76)	2,224	(93.04)	0.69
Self-reported HIV status										
HIV positive	41	(25.20)	275	(12.61)	<0.01	18	(16.32)	233	(13.08)	0.42
HIV communication programmes										
Exposed to at least one HCP	245	(93.42)	2,901	(84.10)	<0.01	154	(90.96)	2,441	(85.24)	0.17
Behaviour										
Violence										
Been in a physical fight in the past year	49	(17.10)	227	(6.67)	<0.001	20	(10.69)	203	(7.14)	0.12

5.4.2 Transactional sex

5.4.2.1 Prevalence of transactional sex

Table 23 below shows that fewer than 10% of sexually active respondents reported engaging in transactional sex in the past year, ie. both trading money/gifts in exchange for sex and vice versa. Some 6.45% of sexually active respondents reported giving money/gifts in exchange for sex with any of their sex partners in the year preceding the survey. Just under 10% (9.39%) of sexually active males reported providing money or gifts in exchange for sex with any sex partner in the year preceding the survey. Less than five percent (3.70%) of females reported providing money/gifts in exchange for sex.

About five percent of sexually active respondents reported receiving money/gifts in exchange for sex with any of their sex partners in the past year. Less than 5% (4.65%) of sexually active males reported receiving money or gifts in exchange for sex with any sex partner in the past 12 months. This study found that 6.27% of sexually active females received money/gifts in exchange for sex with any of their sex partners in the past 12 months.

Table 23: Prevalence of transactional sex with any sex partner in the past year among sexually active adult males and females

Giving money/gifts in exchange for sex with any sex partner in the past year *n=5,996*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=2,449***	**Weighted percentage (%)**	**Frequency Females *n=3,547***	**Weighted percentage (%)**
370	6.45	236	9.39	134	3.70
Receiving money/gifts in exchange for sex with any sex partner in the past year *n=6,021*					
Total sample	**Weighted percentage (%)**	**Frequency Males *n=2,447***	**Weighted percentage (%)**	**Frequency Females *n=3,574***	**Weighted percentage (%)**
353	5.49	128	4.65	225	6.27

5.4.2.2 Factors associated with transactional sex with any sex partner in the past year among males

This study found that age was significantly associated with providing money or gifts in exchange for sex among males (p=0.02). Table 24 shows that males aged 25-34 years and those aged 35-55 years were significantly more likely to provided money/gifts in exchange for sex. In contrast, males aged 16-24 were significantly less likely to have exchanged money/gifts for sex, with only 17.86% having done so compared to 27.28% who did not.

There was a significant relationship between employment status and provision of money/gifts in exchange for sex among males (p<0.01). Employed males were significantly more likely to report having exchanged money/gifts for sex (63.36% vs 50.19%). Males who were unemployed or students were significantly less likely to have done so.

Knowledge of HIV prevention methods was significantly associated with transactional sex among males (p=0.01). Males with high HIV prevention knowledge were significantly more likely to have provided money/gifts in exchange for sex (46.20% vs 33.04%). Those with low knowledge of HIV prevention options were significantly less likely to have done so.

Having been in a physical fight was significantly associated with transactional sex (p <0.001). Males who had been in a physical fight were significantly more likely to report engaging in transactional sex, with 23.29% providing money/gifts in exchange for sex as compared with 13.15% who did not.

Marital status, level of education, food security and settlement type, knowing one's HIV status, being HIV positive and being exposed to at least one HCP were not significantly associated with giving money/gifts in exchange for sex among males.

Table 24: Associations between socio-demographic characteristics, ideational factors, behaviour, and transactional sex among sexually active adult males n (%)

	Gave money/gifts in exchange for sex with any sex partner in the last 12 months *n=2,449*		
	Yes n (%)	**No n (%)**	**P value**
Socio-demographic characteristics			
Age			
16-24	53 (17.86)	711 (27.28)	0.02
25-34	101 (42.96)	811 (38.14)	
35-55	82 (39.19)	691 (34.58)	
Marital status			
Single/ Divorced/Widowed	99 (38.98)	836 (34.84)	0.56
Not married or living together but in a steady relationship	64 (27.76)	593 (26.00)	
Not married, but living with sexual partner	29 (11.95)	258 (12.75)	
Married, living together	37 (17.56)	460 (23.14)	
Married not living together	7 (3.75)	66 (3.27)	
Education			
No/ primary school	13 (4.57)	186 (8.91)	0.09
Up to grade 11	86 (35.04)	836 (36.39)	
Matric	86 (35.45)	843 (36.87)	
Tertiary	50 (24.93)	344 (17.83)	
Employment			
Unemployed	88 (32.31)	904 (38.50)	<0.01
Employed	134 (63.36)	1,031 (50.19)	
Student	12 (4.33)	241 (11.31)	
Food security			
Food insecure	55 (20.75)	310 (13.93)	0.14
Settlement type			
Urban	153 (60.87)	1,560 (59.89)	0.88
Rural	83 (39.13)	653 (40.11)	

	Gave money/gifts in exchange for sex with any sex partner in the last 12 months *n=2,449*			
	Yes	**n (%)**	**No**	**n (%)**	**P value**
Ideational factors					
Knowledge of HIV prevention methods					
No/low knowledge	40	(16.27)	477	(23.49)	0.01
Medium knowledge	88	(37.52)	969	(43.47)	
High knowledge	108	(46.20)	767	(33.04)	
HIV status & exposure to HIV communication					
Knows HIV status					
Yes	112	(93.54)	1,267	(94.96)	0.49
Self-reported HIV status					
HIV positive	9	(8.42)	95	(8.51)	0.98
HIV communication programmes					
Exposed to at least one HCP	205	(88.29)	1,832	(83.87)	0.15
Behaviour					
Violence					
Been in a physical fight in the past year	54	(23.29)	301	(13.15)	<0.001

5.4.2.3 Factors associated with transactional sex with any sex partner in the past year among females

This study found that knowing one's HIV status was significantly associated with receiving money/gifts in exchange for sex among females. Table 25 shows that females who knew their HIV status were significantly less likely (p=0.02) to report receiving money/gifts in exchange for sex (86.02% vs 93.80%). There was a borderline significant relationship between being HIV positive and engaging in transactional sex (p=0.06).

Females who were in a physical fight in the past 12 months were significantly more likely (p<0.001) to have engaged in transactional sex in exchange for money/gifts than those who did not (14.59% vs 6.91%).

Age, marital status, level of education, employment status, food security, settlement type, knowledge of HIV prevention methods and being exposed to HCPs were not significantly associated with receiving money/gifts in exchange for sex among females.

Table 25: Associations between socio-demographic characteristics, ideational factors, behaviour, and transactional sex among sexually active adult females n (%)

	Received money/gifts in exchange for sex with any sex partner in the last 12 months *n=3,574*			
	Yes	n (%)	No	n (%)	P value
Socio-demographic characteristics					
Age					
16-24	77	(29.69)	949	(27.86)	0.09
25-34	97	(43.94)	1,263	(36.08)	
35-55	51	(26.37)	1,137	(36.06)	
Marital status					
Single/ Divorced/Widowed	102	(41.17)	995	(29.61)	0.14
Not married or living together but in a steady relationship	44	(19.39)	874	(23.79)	
Not married, but living with sexual partner	31	(15.70)	478	(14.78)	
Married, living together	43	(21.68)	876	(27.29)	
Married not living together	5	(2.05)	126	(4.53)	
Education					
No/ primary school	18	(7.00)	342	(10.54)	0.47
Up to grade 11	98	(37.58)	1,438	(39.84)	
Matric	83	(38.14)	1,178	(34.65)	
Tertiary	25	(17.28)	386	(14.98)	
Employment					
Unemployed	145	(61.52)	2,042	(59.33)	0.67
Employed	59	(31.61)	988	(32.07)	
Student	17	(6.86)	273	(8.60)	
Food security					
Food insecure	60	(22.47)	547	(16.90)	0.14
Settlement type					
Urban	117	(60.41)	2,338	(64.38)	0.54
Rural	108	(39.59)	1,011	(35.62)	
Ideational factors					
Knowledge of HIV prevention methods					
No/low knowledge	42	(19.02)	750	(22.31)	0.10
Medium knowledge	73	(32.15)	1,414	(40.63)	
High knowledge	110	(48.83)	1,185	(37.06)	
HIV status & exposure to HIV communication					
Knows HIV status					
Yes	156	(86.02)	2,641	(93.80)	0.02
Self-reported HIV status					
HIV positive	27	(19.05)	289	(13.17)	0.06

	Received money/gifts in exchange for sex with any sex partner in the last 12 months *n=3,574*				
	Yes	**n (%)**	**No**	**n (%)**	**P value**
HIV communication programmes					
Exposed to at least one HCP		202 (89.45)		2,927 (84.41)	0.12
Behaviour					
Violence					
Been in a physical fight in the past year		36 (14.59)		239 (6.91)	<0.001

5.4.3 Age-disparate sex

5.4.3.1 Prevalence of age-disparate sex

Table 26 shows that more than a third (38.41%) of sexually active males had a sexual partner 5 or more years younger than themselves in the 12 months preceding the survey. Some 2.22% of sexually active females had a sexual partner five or more years younger than themselves in the 12 months preceding the survey.

Less than 3% (2.83%) of males had a sexual partner 5 or more years older than themselves. Forty one percent of females had a sexual partner 5 or more years older than themselves.

Table 26: Prevalence of age-disparate sex with any sex partner in the past year among sexually active adult males and females

Any sex partner 5 or more years younger than respondent in the past 12 months			
Frequency Males *n=2,465*	**Weighted percentage (%)**	**Frequency Females *n=3,594***	**Weighted percentage (%)**
916	38.41	102	2.22
Any sex partner 5 or more years older than respondent in the past 12 months			
Frequency Males *n=2,465*	**Weighted percentage (%)**	**Frequency Females *n=3,594***	**Weighted percentage (%)**
74	2.83	1,474	40.55

5.4.3.2 Factors associated with age-disparate sex with any sex partner in the past year among males

Table 27 shows that respondents' age was significantly associated with having a sex partner 5 or more years younger than themselves (p<0.001). Males aged 16-24 years were significantly less likely to report a younger sex partner in the past 12 months. In contrast, males aged 25-34 and 35-55 were significantly more likely to have had a younger sex partner.

Marital status was significantly associated with having a younger sex partner (p<0.01). Males who were not married but living with their sex partner were more likely to have a younger sex partner, with 15.96% having a younger partner compared to 10.80%. Those who described themselves as unmarried but in a steady relationship were less likely to have a younger sex partner.

Educational attainment was associated with having a younger sex partner (p<0.001). Males with no or low levels of schooling were more likely to have a sex partner five or more years younger than themselves while those who had completed matric were significantly less likely to.

Males who were employed were significantly more likely to have a younger sex partner, with 57.56% reporting this compared to 47.90% who did not (p<0.001). Male students were less likely to have younger sex partners (3.10% vs 15.26%).

Knowledge of HIV prevention methods was significantly associated with age-disparate sex among males (p=0.05). Males with high knowledge levels were significantly more likely to have a younger sex partner (37.99% vs 31.83%).

Being HIV positive was significantly associated with age-disparate sex (p<0.01). Among males reporting being HIV positive, 11.89% reported having a younger sex partner, compared with 6.45% who did not.

Food security, settlement type, violence, knowing one's HIV status and exposure to HCPs were not significantly associated with males having a sex partner five or more years younger than themselves.

Table 27: Associations between socio-demographic characteristics, ideational factors, behaviour and age-disparate sex among sexually active adult males n (%)

	Any sex partner in the past 12 months 5 or more years younger than respondent *n=2,465*		
	Yes n (%)	**No n (%)**	**P value**
Socio-demographics			
Age			
16-24	76 (6.43)	692 (38.73)	<0.001
25-34	390 (42.81)	527 (35.72)	
35-55	450 (50.76)	330 (25.55)	
Marital status			
Single/ Divorced/Widowed	330 (35.25)	610 (35.06)	<0.01
Not married or living together but in a steady relationship	209 (22.40)	450 (28.21)	
Not married, but living with sexual partner	133 (15.96)	158 (10.80)	
Married, living together	204 (21.73)	298 (23.49)	
Married not living together	40 (4.66)	33 (2.44)	
Education			
No/ primary school	106 (12.61)	96 (6.07)	<0.001
Up to grade 11	347 (37.60)	585 (35.48)	
Matric	301 (31.43)	628 (39.60)	
Tertiary	161 (18.36)	236 (18.85)	

	Any sex partner in the past 12 months 5 or more years younger than respondent *n=2,465*			
	Yes	**n (%)**	**No**	**n (%)**	**P value**
Employment				
Unemployed	359	(39.34)	639	(36.84)	<0.001
Employed	516	(57.56)	658	(47.90)	
Student	27	(3.10)	226	(15.26)	
Food security				
Food insecure	141	(15.22)	227	(14.14)	0.52
Settlement type				
Urban	651	(60.65)	1,073	(59.68)	0.81
Rural	265	(39.35)	476	(40.32)	
Ideational factors				
Knowledge of HIV prevention methods				
No/low knowledge	204	(22.16)	317	(23.18)	0.05
Medium knowledge	360	(39.86)	704	(44.99)	
High knowledge	352	(37.99)	528	(31.83)	
HIV status & exposure to HIV communication				
Knows HIV status				
Yes	515	(94.08)	875	(95.38)	0.31
Self-reported HIV status				
HIV positive	52	(11.89)	53	(6.45)	<0.01
HIV communication programmes				
Exposed to at least one HCP	768	(85.15)	1,280	(83.34)	0.40
Behaviour				
Violence				
Been in a physical fight in the past year	134	(13.75)	224	(14.34)	0.74

5.4.3.3 Factors associated with age-disparate sex with any sex partner in the past year among females

Table 28 shows the associations between various socio-demographic characteristics and age-disparate sex among females.

Education was significantly associated with having a sex partner five or more years older (p<0.01). Females with lower levels of education were more likely to have an older sex partner than those with matric or tertiary qualifications.

Employment status was associated with having an older sex partner (p<0.001). Females who were unemployed were more likely to have an older sex partner (63.68% vs 56.64%). Food security was also significantly associated with having an older sex partner (p<0.05). Of those who had a sex

partner five plus years older than themselves, 19.18% reported being food insecure, while 15.88% did not.

Being HIV positive was significantly associated with age-disparate sex (p<0.01). Among females reporting being HIV positive, 16.74% reported having a younger sex partner, compared with 11.26% who did not.

Age, marital status, settlement type, knowledge of HIV prevention methods, violence, knowing one's HIV status, and exposure to HCPs were not significantly associated with having a sex partner five or more years older than the respondent.

Table 28: Associations between socio-demographic characteristics, ideational factors, behaviour and age-disparate sex among sexually active adult females n (%)

	Any sex partner in the past 12 months 5 or more years older than respondent *n=3,594*		
	Yes n (%)	**No n (%)**	**P value**
Socio-demographic characteristics			
Age			
16-24	413 (26.54)	618 (28.83)	0.23
25-34	597 (38.62)	774 (35.32)	
35-55	464 (34.84)	728 (35.85)	
Marital status			
Single/ Divorced/Widowed	412 (27.02)	691 (32.55)	0.09
Not married or living together but in a steady relationship	382 (24.11)	541 (23.08)	
Not married, but living with sexual partner	208 (14.77)	303 (14.81)	
Married, living together	411 (29.24)	514 (25.48)	
Married not living together	61 (4.86)	71 (4.08)	
Education			
No/ primary school	173 (12.91)	188 (8.50)	<0.01
Up to grade 11	635 (42.05)	910 (38.20)	
Matric	504 (32.11)	766 (36.76)	
Tertiary	159 (12.93)	253 (16.54)	
Employment			
Unemployed	922 (63.68)	1,276 (56.64)	<0.001
Employed	444 (30.62)	611 (33.06)	
Student	82 (5.70)	208 (10.31)	
Food security			
Food insecure	266 (19.18)	343 (15.88)	<0.05
Settlement type			
Urban	986 (62.50)	1,482 (65.20)	0.30
Rural	488 (37.50)	638 (34.80)	

	Any sex partner in the past 12 months 5 or more years older than respondent *n=3,594*		
	Yes n (%)	**No n (%)**	**P value**
Ideational factors			
Knowledge of HIV prevention methods			
No/low knowledge	321 (21.40)	476 (22.71)	0.11
Medium knowledge	639 (42.83)	856 (38.16)	
High knowledge	514 (35.77)	788 (39.12)	
HIV status & exposure to HIV communication			
Knows HIV status			
Yes	1,123 (92.56)	1,690 (93.85)	0.35
Self-reported HIV status			
HIV positive	150 (16.74)	166 (11.26)	<0.01
HIV communication programmes			
Exposed to at least one HCP	1,278 (83.99)	1,868 (85.23)	0.46
Behaviour			
Violence			
Been in a physical fight in the past year	121 (7.93)	155 (7.01)	0.48

5.4.4 Condom use at last sex

5.4.4.1 Prevalence of condom use at last sex

Less than half (47.16%) of sexually active respondents reported using a condom the last time they had sex (table 29). Just under half (49.01%) of sexually active males used a condom at last sex. Less than half (45.43%) of sexually active females used a condom at last sex.

Table 29: Prevalence of condom use at last sex among sexually active adult males and females

All sexually active respondents *n=6,038*		**Males *n=2,455***		**Females *n=3,583***	
Frequency	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**	**Frequency**	**Weighted percentage (%)**
2,881	47.16	1,253	49.01	1,628	45.43

5.4.4.2 Factors associated with condom use at last sex among males

Age was significantly associated with condom use at last sex (p<0.001). Males aged 16-24 years and those aged 25-34 years were significantly more likely to report using a condom at last sex (table 30). In contrast, males aged 35-55 were significantly less likely to have used a condom, with only 24.00% using a condom compared to 46.01% who did not.

Marital status was significantly associated with having condom use at last sex ($p<0.001$). Males who were single/divorced/widowed were significantly more likely to report using a condom at last sex (46.17% vs 24.34%). Males who were married and living together were less likely to report condom use at last sex, with 9.70% using a condom compared to 35.36% who did not.

Educational attainment was significantly associated with condom use at last sex ($p<0.001$). Males who completed matric were more likely to have used a condom at last sex while males with no or primary school education were less likely to.

Employment status was significantly associated with condom use at last sex ($p<0.001$). Males who were unemployed and those who were students were more likely to have used a condom the last time that they had sex. Employed males were less likely to have used a condom, with 42.59% reporting condom use at last sex compared to 60.28% who did not.

Attitudes towards condom use were significantly associated with condom use at last sex ($p<0.001$). Males who had positive attitudes towards condom use were more likely to report condom use (55.09% vs 41.54%). Similarly, self-efficacy was significantly associated with condom use at last sex ($p<0.001$). Those who had high self-efficacy for condom use were more likely to have used a condom at last sex.

Being HIV positive was significantly associated with condom use at last sex ($p<0.001$). Among males reporting being HIV positive, 11.43% reported condom use at last sex as compared with 5.36% who did not.

Exposure to HCPs was significantly associated with condom use at last sex. Males who were exposed were more likely to report condom use at last sex, with 88.75% using a condom compared to 79.55% who did not.

Having been in a physical fight was significantly associated with condom use at last sex ($p=0.03$). Males who had been in a physical fight were significantly less likely to have used a condom the last time they had sex, with 12.38% reporting this as compared 15.86% who did not.

Food security, settlement type, knowledge of HIV prevention methods and knowing one's HIV status were not significantly associated with condom use at last sex among males.

Table 30: Associations between socio-demographic characteristics, ideational factors, behaviour and condom use at last sex among sexually active adult males n (%)

	Condom use at last sex *n=2,455*		
	Yes n (%)	**No n (%)**	**P value**
Socio-demographic characteristics			
Age			
16-24	504 (34.78)	262 (18.17)	<0.001
25-34	475 (41.23)	437 (35.83)	
35-55	274 (24.00)	503 (46.01)	
Marital status			
Single/ Divorced/Widowed	605 (46.17)	330 (24.34)	<0.001
Not married or living together but in a steady relationship	382 (29.97)	276 (22.34)	
Not married, but living with sexual partner	123 (11.31)	167 (14.22)	
Married, living together	111 (9.70)	388 (35.36)	
Married not living together	32 (2.85)	41 (3.74)	
Education			
No/ primary school	60 (4.67)	141 (12.28)	<0.001
Up to grade 11	445 (35.57)	480 (36.78)	
Matric	526 (42.21)	402 (31.16)	
Tertiary	219 (17.55)	177 (19.78)	
Employment			
Unemployed	550 (42.00)	447 (33.95)	<0.001
Employed	510 (42.59)	657 (60.28)	
Student	180 (15.40)	71 (5.77)	
Food security			
Food insecure	177 (13.79)	187 (15.15)	0.38
Settlement type			
Urban	891 (60.23)	827 (59.90)	0.92
Rural	362 (39.77)	375 (40.10)	
Ideational factors			
Knowledge of HIV prevention methods			
No/low knowledge	263 (22.22)	255 (23.20)	0.82
Medium knowledge	549 (43.77)	509 (42.30)	
High knowledge	441 (34.01)	438 (34.50)	
Attitudes towards condom use			
Positive attitudes towards condom use	675 (55.09)	477 (41.54)	<0.001
Self-efficacy for condom use			
High self-efficacy	1,078 (86.49)	894 (74.19)	<0.001
HIV status & exposure to HIV communication			
Knows HIV status			
Yes	744 (94.64)	643 (95.13)	0.70

	Condom use at last sex *n=2,455*			
	Yes	**n (%)**	**No**	**n (%)**	**P value**
Self-reported HIV status					
HIV positive	65	(11.43)	38	(5.36)	<0.001
HIV communication programmes					
Exposed to at least one HCP	1,102	(88.75)	937	(79.55)	<0.001
Behaviour					
Violence					
Been in a physical fight in the past year	171	(12.38)	187	(15.86)	0.03

5.4.4.3 Factors associated with condom use at last sex among females

Table 31 shows the associations between various socio-demographic characteristics and condom use at last sex among females.

Age was significantly associated with condom use at last sex (p<0.001). Females aged 16-24 years were significantly more likely to report using a condom at last sex. In contrast, females aged 35-55 were significantly less likely to have used a condom, with only 26.22% using a condom compared to 43.43% who did not.

Marital status was significantly associated with having used a condom at last sex (p<0.001). Single/divorced/widowed females were significantly more likely to report using a condom at last sex (39.33% vs 23.00%). Females who were in steady relationships but not living with their sexual partner were also more likely to have used a condom. Females who were married and living together were less likely to report condom use at last sex, with 13.03% using a condom compared to 38.25% who did not.

Educational attainment was significantly associated with condom use at last sex (p<0.001). Females who completed matric were more likely to have used a condom at last sex while females with no or primary school education were less likely to have.

Employment status was significantly associated with condom use at last sex (p<0.001). Female students were more likely to have used a condom the last time that they had sex, with 12.53% reporting this compared to 5.13% who did not.

Self-efficacy for condom use was significantly associated with condom use at last sex (p<0.001). Females who had had high self-efficacy for condom use were more likely to report condom use at last sex (81.15% vs 67.40%).

Being HIV positive was significantly associated with condom use at last sex (p<0.001). Among females reporting being HIV positive, 20.71% reported condom use at last sex as compared to 7.34% who did not.

Exposure to HCPs was significantly associated with condom use at last sex. Females who were exposed were more likely to report condom use at last sex, with 89.30% using a condom compared to 80.89% who did not.

Food security, settlement type, knowledge of HIV prevention methods, violence, knowing one's HIV status and attitudes towards condom use were not significantly associated with condom use at last sex among females.

Table 31: Associations between socio-demographic characteristics, ideational factors, behaviour and condom use at last sex among sexually active adult females n (%)

	Condom use at last sex *n= 3,583*		
	Yes n (%)	**No n (%)**	**P value**
Socio-demographic characteristics			
Age			
16-24	595 (35.51)	433 (21.65)	<0.001
25-34	632 (38.27)	733 (34.92)	
35-55	401 (26.22)	789 (43.43)	
Marital status			
Single/ Divorced/Widowed	648 (39.33)	453 (23.00)	<0.001
Not married or living together but in a steady relationship	528 (30.48)	391 (17.72)	
Not married, but living with sexual partner	199 (13.25)	311 (16.21)	
Married, living together	207 (13.03)	715 (38.25)	
Married not living together	46 (3.91)	85 (4.82)	
Education			
No/ primary school	100 (6.57)	258 (13.37)	<0.001
Up to grade 11	667 (39.91)	875 (39.91)	
Matric	644 (39.27)	623 (31.51)	
Tertiary	214 (14.25)	196 (15.21)	
Employment			
Unemployed	960 (57.71)	1,231 (61.30)	<0.001
Employed	451 (29.75)	600 (33.57)	
Student	197 (12.53)	93 (5.13)	
Food security			
Food insecure	287 (18.60)	320 (16.19)	0.16
Settlement type			
Urban	1,121 (63.72)	1,340 (64.26)	0.87
Rural	507 (36.28)	615 (35.74)	
Ideational factors			
Knowledge of HIV prevention methods			
No/low knowledge	349 (21.11)	445 (23.21)	0.25
Medium knowledge	717 (42.55)	773 (38.10)	
High knowledge	562 (36.35)	737 (38.70)	

	Condom use at last sex *n= 3,583*				
	Yes	**n (%)**	**No**	**n (%)**	**P value**
Attitudes towards condom use					
Positive attitudes towards condom use	770	(47.91)	849	(43.53)	0.06
Self-efficacy for condom use					
High self-efficacy	1,321	(81.15)	1,339	(67.40)	<0.001
HIV status & exposure to HIV communication					
Knows HIV status					
Yes	1,302	(93.98)	1,502	(92.68)	0.30
Self-reported HIV status					
HIV positive	208	(20.71)	107	(7.34)	<0.001
HIV communication programmes					
Exposed to at least one HCP	1,486	(89.30)	1,653	(80.89)	<0.001
Behaviour					
Violence					
Been in a physical fight in the past year	130	(8.56)	144	(6.35)	0.06

5.5 Relationship between alcohol consumption and risky sexual behaviours among males and females aged 16-55 years in South Africa in 2012

5.5.1 Multiple sexual partners in the past 12 months

5.5.1.1 The relationship between alcohol and multiple sexual partners in the past 12 months among males

Two stepwise backwards logistic regressions of MSP in the past 12 months among males were modelled while adjusting for age and cohabitation status.

Binge drinking

Table 32 shows the results for the final model for MSP in the past 12 months and binge drinking. Binge drinking was significantly associated with MSP in the past 12 months (p<0.001). Males who reported binge drinking were twice as likely (AOR: 1.93, 95% CI 1.37 - 2.72) to have had more than one partner in the past year compared with those who did not.

Cohabitation status, food security, exposure to HCPs, attitudes discouraging MSP, self-efficacy and resisting MSPs were also significantly associated with having had more than one sexual partner in the past 12 months among males.

Males who lived with their sexual partner were 44% less likely to have MSP in the past 12 months (AOR 0.56, 95% CI 0.38 - 0.81) than those who did not. Males who were food secure were 36% less likely (AOR 0.64, 95% CI 0.44 - 0.92) to have had MSP than those who were classified as food insecure.

Males who held attitudes which discouraged MSP were 71% less likely (AOR 0.29, 95% CI 0.21 -0.40) to have had MSP in the previous year. Similarly, those with high self-efficacy for resisting MSP, were 70% less likely (AOR: 0.30, 95% CI 0.23 - 0.40) to have had MSP. Those exposed to at least one HCP were more likely to have MSP (AOR 2.08, 95% CI 1.34 -3.22).

Table 32: Multivariate logistic regression results for MSP in the past 12 months and binge drinking among males (*n=1,266, p<0.001*)

Characteristics	AOR	95% CI	P value
Binge drinking			
No	Ref		
Yes	1.93	1.37 - 2.72	<0.001
Age	0.98	0.97 - 1.00	0.10
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.56	0.38 - 0.81	<0.01
Employment status			
Unemployed	Ref		
Employed	1.26	0.92 - 1.72	0.15
Student	1.04	0.63 - 1.71	0.89
Food security			
Food insecure	Ref		
Food secure	0.64	0.44 - 0.92	0.02
Attitudes discouraging MSP			
Negative attitudes	Ref		
Positive attitudes	0.29	0.21 -0.40	<0.001
Self-efficacy for resisting MSP			
Low	Ref		
High	0.30	0.23 - 0.40	<0.001
Exposed to HIV communication programmes			
No	Ref	1.34 -3.22	0.001
Yes	2.08		
Been in a physical fight			
No	Ref	0.85 - 1.67	0.31
Yes	1.19		

Frequency of drinking in the past month

When frequency of alcohol consumption was included in the model for MSP in the past 12 months, age, cohabitation status, food security, exposure to HCPs, attitudes discouraging MSP, self-efficacy for resisting MSPs and frequency of drinking in the past month were significantly associated with MSP in the previous 12 months.

Table 33 shows that frequency of drinking in the past month was positively associated with MSP. A dose response relationship was evident with males who drank more frequently in the past month being more likely to have MSP. For example, males who drank almost every day in the month prior to the survey were nearly three times more likely (AOR: 2.83, 95% CI 1.33 - 6.02) to have MSP than those who did not drink in the preceding month.

For each additional year in age there was a 2% decrease in the likelihood of having MSP in the past 12 months (AOR: 0.98, 95% CI 0.96 - 1.00). Males who lived with their sexual partner were 43% less likely to have MSP in the past 12 months (AOR 0.57, 95% CI 0.39 - 0.83) than those who did not. Those who were food secure were 33% less likely (AOR 0.67, 95% CI 0.46 - 0.97) to have had MSP than those who were food insecure.

Those with attitudes which discouraged MSP were 71% less likely (AOR 0.29, 95% CI 0.22 - 0.40) to have had MSP in the previous year. Similarly, high self-efficacy for resisting MSP was negatively associated (AOR 0.31, 95% CI 0.23 - 0.41) with MSP in the past 12 months. Males exposed to at least one HCP were twice as likely (AOR 2.27, 95% CI 1.46 - 3.54) to have MSP as compared to those who were unexposed.

Table 33: Multivariate logistic regression results for MSP in the past 12 months and frequency of drinking in the previous month among males (*n=1,269, p<0.001*)

Characteristics	AOR	95% CI	P value
Frequency of drinking in the past month			
Never	Ref		
At least once a month	1.51	0.94 -2.43	0.09
At least once a week	1.58	1.00 -2.50	0.05
Several times per week	2.14	1.32 - 3.48	<0.01
Almost every day	2.83	1.33 - 6.02	<0.01
Age	0.98	0.96 - 1.00	<0.05
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.57	0.39 - 0.83	<0.01
Employment status			
Unemployed	Ref		
Employed	1.22	0.89 - 1.67	0.21
Student	1.00	0.60 - 1.64	0.99
Food security			
Food insecure	Ref		
Food secure	0.67	0.46 - 0.97	0.03

Characteristics	AOR	95% CI	P value
Attitudes discouraging MSP			
Negative attitudes	Ref		
Positive attitudes	0.29	0.22 - 0.40	<0.001
Self-efficacy for resisting MSP			
Low	Ref		
High	0.31	0.23 - 0.41	<0.001
Exposed to HIV communication programmes			
No	Ref		
Yes	2.27	1.46 - 3.54	<0.001
Been in a physical fight			
No	Ref		
Yes	1.12	0.79 - 1.57	0.53

5.5.1.2 The relationship between alcohol and multiple sexual partners in the past 12 months among females

One stepwise backwards logistic regression of MSP in the past 12 months among females was modelled while adjusting for age and cohabitation status.

Binge drinking

Effect modification between binge drinking and self-efficacy for resisting MSP was present. When this was added to the model, attitudes discouraging MSP, exposure to HCPs and self-reported HIV status were significantly associated with MSP in the past 12 months.

Table 34 shows that the interaction between binge drinking and self-efficacy was positively associated with MSP. Females with low self-efficacy for resisting MSP but who did not binge drink were nine times more likely to have had MSP in the past year (AOR 8.65, 95% CI 3.44 - 21.77) than those with high self-efficacy who did not binge drink. Females who had high self-efficacy for resisting MSP and who reported binge drinking were nearly four times more likely to have had MSP in the past 12 months (AOR 3.58, 95% CI 1.82 - 7.03). Those with low self-efficacy who were classified as binge drinkers were five times more likely to have had more than one sexual partner in the year prior to the survey (AOR 4.92, 95% CI 2.23 - 10.86).

Females with attitudes which discouraged MSP were 74% less likely (AOR 0.26, 95% CI 0.15 - 0.44) to have had MSP in the past 12 months. Those exposed to at least one HCP were five times more likely to have had more than one sexual partner in the past year (AOR 5.42, 95% 1.20 - 24.54). Females who reported being HIV positive were two and a half times more likely to report having more than one sexual partner in the year preceding the survey (AOR 2.53, 95% CI 1.31 - 4.88).

Table 34: Multivariate logistic regression results for MSP in the past 12 months and binge drinking among females (*n=694, p<0.001*)

Characteristics	AOR	95% CI	P value
Binge drinking and self-efficacy for resisting MSP			
High self-efficacy and no binge drinking	Ref		
Low self-efficacy and no binge drinking	8.65	3.44 - 21.77	<0.001
High self-efficacy and binge drinking	3.58	1.82 - 7.03	<0.001
Low self-efficacy and binge drinking	4.92	2.23 - 10.86	<0.001
Age	0.99	0.95 - 1.02	0.41
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.46	0.23 - 0.93	0.03
Attitudes discouraging MSP			
Negative attitudes	Ref		
Positive attitudes	0.26	0.15 - 0.44	<0.001
Exposed to HIV communication programmes			
No	Ref		
Yes	5.42	1.20 - 24.54	0.03
Self-reported HIV status			
HIV negative	Ref		
HIV positive	2.53	1.31 - 4.88	<0.01

5.5.2 Multiple sexual partners in the past month

5.5.2.1 The relationship between alcohol and multiple sexual partners in the past month among males

Two stepwise backwards logistic regressions of MSP in the past month among males were modelled while adjusting for age and cohabitation status.

Binge drinking

Effect modification between binge drinking and self-efficacy for resisting MSP was present. When this was added into the model, attitudes discouraging MSP and knowing one's HIV status were significantly associated with MSP in the past month.

Table 35 shows that the interaction between binge drinking and self-efficacy was positively associated with MSP. Males with low self-efficacy for resisting MSP but who did not binge drink were fourteen times more likely to have had MSP in the past month (AOR 14.16, 95% CI 4.70 – 42.69) than those with high self-efficacy and who did not binge drink. Males who had high self-efficacy for

resisting MSP and who reported binge drinking were about seven times more likely to have had MSP in the past month (AOR 6.56, 95% CI 2.33 - 18.42). Those with low self-efficacy and who were classified as binge drinkers were twelve times more likely to have had more than one sexual partner in the month prior to the survey (AOR 12.14, 95% CI 4.31 - 34.19).

Those with attitudes which discouraged MSP were 70% less likely (AOR 0.30, 95% CI 0.20 - 0.45) to have had MSP in the past month. Males who reported knowing their HIV status were 36% less likely to report having more than one sexual partner in the month preceding the survey (AOR 0.64, 95% CI 0.45 - 0.91)

Table 35: Multivariate logistic regression results for MSP in the past month and binge drinking among males (n=1008, p<0.001)

Characteristics	AOR	95% CI	P value
Binge drinking and self-efficacy for resisting MSP			
High self-efficacy and no binge drinking	Ref		
Low self-efficacy and no binge drinking	14.16	4.70 - 42.69	<0.001
High self-efficacy and binge drinking	6.56	2.33 - 18.42	<0.001
Low self-efficacy and binge drinking	12.14	4.31 - 34.19	<0.001
Age	0.99	0.97 - 1.01	0.30
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.89	0.57 - 1.38	0.59
Attitudes discouraging MSP			
Negative attitudes	Ref		
Positive attitudes	0.30	0.20 - 0.45	<0.001
Knows HIV status			
No	Ref		
Yes	0.64	0.45 - 0.91	0.01

Frequency of drinking in the past month

Effect modification between drinking in the previous month and self-efficacy for resisting MSP was present. When this was added to the model, attitudes discouraging MSP and knowing one's HIV status were significantly associated with MSP in the past month.

Table 36 shows that the interaction between drinking in the previous month and self-efficacy was positively associated with MSP. Males with low self-efficacy for resisting MSP but who drank once in the previous month or not at all were three and a half times more likely to have had MSP in the past month (AOR 3.57, 95% CI 1.97 - 6.48) than those with high self-efficacy who drank once in the previous month or not at all. Males with high self-efficacy for resisting MSP and who reported drinking once a week or more in the previous month were twice as likely to have had MSP in the past month (AOR 1.97, 95% CI 1.13 - 3.43). Those with low self-efficacy and who drank once a week or more in the previous month were four times more likely to have had more than one sexual partner in the month prior to the survey (AOR 3.99, 95% CI 2.32 - 6.85).

Those with attitudes which discouraged MSP were 69% less likely (AOR 0.31, 95% CI 0.21 - 0.46) to have had MSP in the past month. Males who reported knowing their HIV status were 35% less likely to report having more than one sexual partner in the month preceding the survey (AOR 0.65, 95% CI 0.46 - 0.92)

Table 36: Multivariate logistic regression results for MSP in the past month and drinking in the previous month among males (n=1,010, p<0.001)

Characteristics	AOR	95% CI	P value
Frequency of drinking in the previous month and self-efficacy for resisting MSP			
High self-efficacy and drinking once a month or not at all in the past month	Ref		
Low self-efficacy and drinking once a month or not at all in the past month	3.57	1.97 - 6.48	<0.001
High self-efficacy and drinking once a week or more in the past month	1.97	1.13 - 3.43	0.02
Low self-efficacy and drinking once a week or more in the past month	3.99	2.32 - 6.85	<0.001
Age	0.99	0.97 - 1.01	0.28
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.85	0.54 - 1.32	0.47
Attitudes discouraging MSP			
Negative attitudes	Ref		
Positive attitudes	0.31	0.21 - 0.46	<0.001
Knows HIV status			
No	Ref		
Yes	0.65	0.46 - 0.92	0.02

5.5.2.2 The relationship between alcohol and multiple sexual partners in the past month among females

Two stepwise backwards logistic regressions of MSP in the past month among females was modelled while adjusting for age and cohabitation status.

Binge drinking

Table 37 shows the results for the final model for MSP in the past month and binge drinking. Females who were binge drinkers were twice as likely to have MSP in the past month (AOR 1.79, 95% CI 1.03 - 3.10). Females who had attitudes which discouraged MSP were 74% less likely (AOR 0.26, 95% CI 0.15 - 0.45) to report having MSP in the past month.

Table 37: Multivariate logistic regression results for MSP in the past month and binge drinking among females (n=807, p<0.001)

Characteristics	AOR	95% CI	P value
Binge drinking			
No	Ref		
Yes	1.79	1.03 - 3.10	0.04
Age	0.98	0.98 - 1.01	0.21
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.87	0.47 - 1.61	0.66
Attitudes discouraging MSP			
Negative attitudes	Ref		
Positive attitudes	0.26	0.15 - 0.45	<0.001

Frequency of drinking in the past month

When frequency of alcohol consumption was included in the model for MSP in the past month, attitudes discouraging MSP and frequency of drinking in the previous months were significantly associated with MSP in the past month.

Table 38 shows that there was a dose response relationship between frequency of drinking and MSP in the past month. Females who drank more frequently were more likely to have had more than one sexual partner in the past month. For example, those for drank almost every day were about seven times more likely to have had MSP in the past month than those who never drank (AOR 6.67, 95% CI 1.92 - 23.19). Females with attitudes which discouraged MSP were 73% less likely to have MSP in the past month (AOR 0.27, 95% CI 0.15 - 0.47) than those with attitudes supporting MSP.

Table 38: Multivariate logistic regression results for MSP in the past month and frequency of drinking in the previous month among females (*n=808, p<0.001*)

Characteristics	AOR	95% CI	P value
Frequency of drinking in the past month			
Never	Ref		
At least once a month	1.77	0.84 - 3.71	0.13
At least once a week	3.33	1.61 - 6.85	0.00
Several times per week	2.60	1.04 - 6.46	0.04
Almost every day	6.67	1.92 - 23.19	0.00
Age	0.97	0.94 - 1.01	0.10
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.87	0.47 - 1.60	0.65
Attitudes discouraging MSP			
Negative attitudes	Ref		
Positive attitudes	0.27	0.15 - 0.47	<0.001

5.5.3 Transactional sex

5.5.3.1 The relationship between alcohol and transactional sex with any sex partner in the past 12 months among males

Two stepwise backwards logistic regressions of transactional sex among males were modelled while adjusting for age and cohabitation status. Transactional sex for males was defined as having *given money or gifts in exchange for sex* with any sex partner in the past 12 months.

Binge drinking

When adding binge drinking into the model predicting transactional sex among males, the following variables were significantly associated with giving money or gifts for sex: binge drinking, cohabitation, educational attainment, employment status, food security, violence, knowledge of HIV prevention methods and knowing one's HIV status (table 39).

Binge drinking was significantly associated with exchange of gifts or money for sex among males ($p<0.05$). Males who were binge drinkers were one-and- a-half times more likely to have engaged in transactional sex (AOR: 1.53, 95% CI 1.01 - 2.33) than those who were not.

Cohabitation was significantly associated with transactional sex. Those who lived with their sexual partner were 37% less likely to have exchanged gifts/money for sex than males who did not live with their sexual partner (AOR 0.63, 95% CI 0.41 - 0.98).

Males who had completed matric or tertiary studies were twice as likely (AOR 2.14, 95% CI 1.00 - 4.59) to have engaged in transactional sex compared with those who had no or low level of schooling. Employed males were 1.8 times more likely to have paid for sex with gits/money (AOR 1.80, 95% CI 1.22 - 2.66) than unemployed males. Males who were food secure were less likely (AOR 0.36, 95% CI 0.23 - 0.55) than their counterparts who experienced food insecurity to have had a transactional sexual relationship.

Males with high levels of HIV prevention knowledge were significantly more likely to have provided money/gifts in exchange for sex than those with low knowledge levels. Those who knew their HIV status were 47% less likely to report transactional sex (AOR 0.53, 95% CI 0.38 - 0.76) than those who did not know their status. Males who had been involved in a physical fight were more likely to report transactional sex (AOR 1.61, 95% CI 1.06 - 2.44) than those who were not.

Table 39: Multivariate logistic regression results for transactional sex with any sex partner in the past 12 months and binge drinking among males (*n=1,294, p<0.001*)

Characteristics	AOR	95% CI	P value
Binge drinking			
No	Ref		
Yes	1.53	1.01 - 2.33	p<0.05
Age	1.02	1.00 - 1.04	0.06
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.63	0.41 - 0.98	0.04
Education			
No schooling/primary schooling	Ref		
Up to Grade 11	1.60	0.75 - 3.39	0.22
Matric/tertiary	2.14	1.00 - 4.59	<0.05
Employment status			
Unemployed	Ref		
Employed	1.80	1.22 - 2.66	<0.01
Student	0.57	0.25 - 1.33	0.20
Settlement type			
Rural	Ref		
Urban	1.04	0.71 - 1.55	0.83
Food security			
Food insecure	Ref		
Food secure	0.36	0.23 - 0.55	<0.001
Knowledge of HIV prevention methods			
No/low knowledge	Ref		
Medium knowledge	1.03	0.63 - 1.70	0.90
High knowledge	1.63	1.00 - 2.66	<0.05
Knows HIV status			
No	Ref		
Yes	0.53	0.38 - 0.76	<0.001
Been in a physical fight			
No	Ref		
Yes	1.61	1.06 - 2.44	0.03

Frequency of drinking in the past month

The results for the final model for providing gifts or money in exchange for sex and frequency of drinking in the past month are shown in table 40 below. Frequency of drinking in the past month,

cohabitation, education, employment, food security, knowledge of prevention methods and knowing ones' HIV status were significantly associated with transactional sex among males.

Frequency of drinking in the past month was significantly associated with exchanging gifts or money for sex among males. Those who drank almost every day in the preceding month were nearly three times as likely to have engaged in transactional sex (AOR 2.78, 95% CI 1.22 - 6.29) than those who had not drunk in the last month.

Cohabitation was significantly associated with transactional sex. Those who lived with their sexual partner were 36% less likely to have exchanged gifts/money for sex (AOR 0.64, 95% CI 0.42 - 1.00) than males who did not live with their sexual partner.

Males who had completed matric or tertiary studies were twice as likely (AOR 2.23, 95% CI 1.04 - 4.79) to have engaged in transactional sex as compared with those who had no, or a low, level of schooling. Employed males were 1.8 times more likely to have paid for sex with gits/money (AOR 1.80, 95% CI 1.22 - 2.66) than unemployed males. Those who were food secure were less likely (AOR 0.37, 95% CI 0.24 - 0.57) than males who experienced food insecurity to have provided money or gifts in exchange for sex.

Males with high levels of HIV prevention knowledge were significantly more likely to have provided money/gifts in exchange for sex than those with low knowledge levels. Those who knew their HIV status were 45% less likely to report transactional sex (AOR 0.55, 95% CI 0.39 - 0.78) than those who did not know their status.

Table 40: Multivariate logistic regression results for transactional sex with any sex partner in the past 12 months and frequency of drinking in the previous month among males (*n=1,299, p<0.001*)

Characteristics	AOR	95% CI	P value
Frequency of drinking in the past month			
Never	Ref		
At least once a month	0.89	0.48 - 1.63	0.71
At least once a week	1.22	0.69 - 2.16	0.50
Several times per week	1.56	0.85 - 2.85	0.15
Almost every day	2.78	1.22 - 6.29	0.01
Age	1.02	0.99 - 1.04	0.13
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.64	0.42 - 1.00	<0.05
Education			
No schooling/primary schooling	Ref		
Up to Grade 11	1.71	0.80 - 3.65	0.16
Matric/tertiary	2.23	1.04 - 4.79	0.04
Employment status			
Unemployed	Ref		
Employed	1.80	1.22 - 2.66	<0.01
Student	0.58	0.25 - 1.36	0.21

Characteristics	AOR	95% CI	P value
Settlement type			
Rural	Ref		
Urban	0.97	0.66 - 1.43	0.87
Food security			
Food insecure	Ref		
Food secure	0.37	0.24 - 0.57	<0.001
Knowledge of HIV prevention methods			
No/low knowledge	Ref		
Medium knowledge	1.11	0.68 - 1.83	0.68
High knowledge	1.72	1.05 - 2.82	0.03
Knows HIV status			
No	Ref		
Yes	0.55	0.39 - 0.78	<0.00
Been in a physical fight			
No	Ref		
Yes	1.50	0.98 - 2.27	0.06

5.5.3.2 The relationship between alcohol and transactional sex with any sex partner in the past 12 months among females

One stepwise backwards logistic regression of transactional sex among females was modelled while adjusting for age and cohabitation status. Transactional sex for females was defined as having *received money or gifts in exchange for sex* with any sex partner in the past 12 months.

Binge drinking

When adding binge drinking into the model predicting transactional sex among females, the following variables were significantly associated with receiving money or gifts for sex: binge drinking, and knowledge of HIV prevention methods.

Binge drinking was significantly associated with receiving gifts or money for sex in exchange for sex among females ($p<0.01$). Females classified as binge drinkers were three times more likely to have engaged in transactional sex (AOR 3.10, 95% CI 1.45 - 6.62) compared with those who were not.

Table 41 shows that females who had high levels of HIV prevention methods were three times more likely (AOR 3.42, 95% CI 1.24 - 9.47) to have had transactional sex in the past 12 months than those with low levels of knowledge.

Table 41: Multivariate logistic regression results for transactional sex with any sex partner in the past 12 months and binge drinking among females (*n=703, p<0.001*)

Characteristics	AOR	95% CI	P value
Binge drinking			
No	Ref		
Yes	3.10	1.45 - 6.62	<0.01
Age	1.00	0.97 - 1.04	0.81
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.72	0.32 - 1.59	0.41
Settlement type			
Rural	Ref		
Urban	0.66	0.31 - 1.38	0.27
Food security			
Food insecure	Ref		
Food secure	0.64	0.28 - 1.46	0.29
Knowledge of HIV prevention methods			
No/low knowledge	Ref		
Medium knowledge	1.25	0.42 - 3.76	0.69
High knowledge	3.42	1.24 - 9.47	0.02
Self-reported HIV status			
HIV negative	Ref		
HIV positive	2.01	0.87 - 4.63	0.10
Been in a physical fight			
No	Ref		
Yes	2.21	0.97 - 5.04	0.06

5.5.4 Age-disparate sex

5.5.4.1 The relationship between alcohol and age-disparate sex with any sex partner in the past 12 months among males

Two stepwise backwards logistic regressions of age-disparate sex among males were modelled while adjusting for age and cohabitation status. Age-disparate sex for males was defined as having any sex partner in the past 12 months who was *five or more years younger* than themselves.

Binge drinking

The results for the final model for age-disparate sex and binge drinking are shown in table 42 below. Binge drinking, age, cohabitation and employment status were significantly associated with age-disparate sex among males.

Binge drinking was significantly associated with age-disparate sex among males (p=0.01). Male binge drinkers were 1.4 times more likely (AOR 1.44, 95% CI 1.09 - 1.89) to have had a sex partner five or more years younger than themselves in the previous 12 months.

For each additional year in age there was a 9% increase in the likelihood of age-disparate sex (AOR 1.09, 95% CI 1.08 - 1.11). Cohabitation was negatively associated with age-disparate sex, with males who lived with their sexual partners being 56% less likely (AOR 0.44, 95% CI 0.33 - 0.60) to have a younger sex partner. In terms of employment status, table 42 shows that males who were students were less likely to have a younger sexual partner (AOR 0.28, 95% CI 0.15 - 0.55) compared to males who were unemployed.

Table 42: Multivariate logistic regression results for age-disparate sex with any sex partner in the past 12 months and binge drinking among males (*n=1,330, p<0.001*)

Characteristics	AOR	95% CI	P value
Binge drinking			
No	Ref		
Yes	1.44	1.09 - 1.89	0.01
Age	1.09	1.08 - 1.11	<0.001
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.44	0.33 - 0.60	<0.001
Employment			
Unemployed	Ref		
Employed	1.11	0.86 - 1.44	0.44
Student	0.28	0.15 - 0.55	<0.001
Exposed to HIV communication programmes			
No	Ref		
Yes	1.11	0.80 - 1.54	0.54

Frequency of drinking in the past month

Table 43 shows the results for the final model for providing gifts or money in exchange for sex and frequency of drinking in the past month. Frequency of drinking in the past month, age, cohabitation and employment status were significantly associated with age-disparate sex among males.

Frequency of drinking in the past month was significantly associated with age-disparate sex among males. Males who drank several times per week in the last month were one-and-a-half times (AOR 1.52, 95% CI 1.02 - 2.26) more likely to have had age-disparate sex than those who did not drink at all in the previous month.

For each additional year in age there was a 9% increase in the likelihood of age-disparate sex (AOR 1.09, 95% CI 1.07 - 1.11). Cohabitation was negatively associated with age-disparate sex, with males who lived with their sexual partners being 54% less likely (AOR 0.46, 95% CI 0.34 - 0.63) to have a younger sex partner.

Males who were students were 70% less likely to have a younger sexual partner (AOR 0.30, 95% CI 0.15 - 0.59) compared with males who were unemployed.

Table 43: Multivariate logistic regression results for age-disparate sex with any sex partner in the past 12 months and frequency of drinking in the previous month among males (*n=1,334, p<0.001*)

Characteristics	AOR	95% CI	P value
Frequency of drinking in the past month			
Never	Ref		
At least once a month	0.74	0.50 - 1.09	0.12
At least once a week	0.83	0.57 - 1.21	0.33
Several times per week	1.52	1.02 - 2.26	0.04
Almost every day	1.84	0.96 - 3.53	0.07
Age	1.09	1.07 - 1.11	<0.001
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.46	0.34 - 0.63	<0.001
Employment			
Unemployed	Ref		
Employed	1.14	0.88 - 1.48	0.32
Student	0.30	0.15 - 0.59	<0.001
Exposed to HIV communication programmes			
No	Ref		
Yes	1.17	0.84 - 1.64	0.35

5.5.5 Condom use

5.5.5.1 The relationship between alcohol and condom use at last sex among males

Frequency of drinking in the past month

The results for the final model for condom use at last sex and frequency of drinking in the past month are shown in table 44 below.

Frequency of drinking in the previous month was significantly associated with condom use at last sex among males. Those who reported drinking at least once a week in the past month were 50% less likely to have used a condom at last sex (AOR 0.50, 95% CI 0.30 - 0.82) than those who had not drunk

in the past month. Males who drank several times per week in the last month were 48% less likely to have used a condom at last sex (AOR 0.52, 95% CI 0.31 - 0.91).

Age, cohabitation status, education, exposure to HCPs, knowing one's HIV status, attitudes towards condom use and self-efficacy for condom use were significantly associated with condom use at last sex among males.

For each additional year in age there was a 3% decrease in the likelihood of using a condom at last sex (AOR: 0.97, 95% CI 0.95 - 0.99). Males who lived with their sexual partner were 72% less likely to have used a condom at last sex (AOR 0.28, 95% CI 0.19 - 0.41) than those who did not.

Males who had matric/tertiary education were twice as likely to have used a condom the last time they had sex (AOR 2.20, 95% CI 1.04 - 4.68) than those with no schooling or primary school only. Having been exposed to at least one HCP in the 12 months preceding the survey was positively associated with condom use (AOR 1.90, 95% CI 1.10 - 3.30).

Males who had favourable attitudes towards condom use were one-and-a-half times more likely (AOR 1.57, 95% CI 1.12 - 2.19) to report using a condom at last sex than those holding negative attitudes towards condom use. Similarly, those with high self-efficacy for condom use, were 1.7 times more likely (AOR: 1.65, 95% CI 1.03 - 2.63) to have used a condom the last time they had sex.

Table 44: Multivariate logistic regression results for condom use at last sex and frequency of drinking in the previous month among males (*n=712, p<0.001*)

Characteristics	AOR	95% CI	P value
Frequency of drinking in the past month			
Never	Ref		
At least once a month	0.67	0.40 - 1.11	0.12
At least once a week	0.50	0.30 - 0.82	<0.01
Several times per week	0.52	0.31 - 0.91	0.02
Almost every day	0.41	0.14 - 1.20	0.10
Age	0.97	0.95 - 0.99	<0.01
Cohabitation			
Not cohabiting	Ref		
Cohabiting	0.28	0.19 - 0.41	<0.001
Education			
No schooling/primary schooling	Ref		
Up to Grade 11	2.03	0.95 - 4.32	0.07
Matric/tertiary	2.20	1.04 - 4.68	0.04
Attitudes encouraging condom use			
Negative attitudes	Ref		
Positive attitudes	1.57	1.12 - 2.19	<0.01
Self-efficacy for condom use			
Low	Ref		
High	1.65	1.03 - 2.63	0.04

Characteristics	AOR	95% CI	P value
Exposed to HIV communication programmes			
No	Ref		
Yes	1.90	1.10 - 3.30	0.02
Self-reported HIV status			
HIV negative	Ref		
HIV positive	2.54	1.32 - 4.87	<0.01
Been in a physical fight			
No	Ref		
Yes	0.78	0.50 - 1.23	0.29

Chapter 6: Discussion

This study aimed to test the hypotheses that multiple dimensions of alcohol use were associated with various risky sexual behaviours among adult males and females in South Africa. Results support the hypotheses that, for males, binge drinking and frequency of drinking in the past month increased risky sexual behaviour including MSP in the past 12 months, MSP in the past month, providing money/gifts in exchange for sex and having a sex partner five or more years younger than themselves. Frequency of drinking in the past month decreased the likelihood of condom use at last sex. There was no support for the hypothesis that alcohol dependence increased risky sexual behaviour among males. For females, results supported the hypotheses that alcohol dependence, binge drinking and frequency of drinking increased risky sexual behaviour. However, this was true for some risky sexual behaviours. Among females, alcohol dependence only increased the likelihood of receiving money/gifts in exchange for sex and frequency of drinking in the past month only increased the likelihood of having MSP in the past month. Female binge drinkers were more likely to have MSP in the past 12 months, MSP in the past month, and engage in transactional sex but there was no relationship between binge drinking and age-disparate sex or condom use at last sex.

6.1 Non-drinking

This study found high levels of reported non-drinking with only 37.20% of all respondents reporting lifetime drinking and fewer respondents (25.28%) reporting current (past month) drinking. This is consistent with other estimates of current drinking in South Africa which range from 20% - 30% across different surveys (2, 48, 49, 51). Sexually active respondents were more likely to report lifetime drinking (43.25%) and current drinking (32.35%).

There are a number of potential explanations for these high levels of non-drinking. WHO suggests that the cost of alcohol is likely to be a barrier to drinking in countries where many people are poor (154). Since the average household income in South Africa is about R100,000 (≈$10,00) per annum, this is likely to be a factor in South Africa, especially outside of the Western Cape and Gauteng, where the average household income is higher than in other provinces (155). Other potential reason for non-drinking suggested by literature include: social norms restricting drinking, bad drinking experiences and religion (156).

6.2 Hazardous and harmful drinking

Although the majority of respondents did not drink, those who did displayed high levels of hazardous drinking. Just under half of the drinkers reported having a drink at least once a week or more in the past month and nearly a third reported being drunk at least once a week in the past month. There was no difference between sexually active and all respondents.

About 70% of all male drinkers were classified as binge drinkers, while just over half of females were. Prevalence of binge drinking was even higher among sexually active drinkers. These findings are

consistent with other household surveys in South Africa which have found that individuals who drink alcohol report heavy amounts of drinking, with rates of hazardous drinking among the highest in the world (63).

In terms of harmful drinking, just less than 40% of lifetime drinkers were alcohol dependent. Sexually active respondents were as likely as all respondents to be classified as alcohol dependent.

There are a number of potential reasons for why hazardous drinking is so high among lifetime drinkers in South Africa – one of which is the historical context of alcohol use in South Africa. Traditionally, indigenous people brewed their own alcohol which was consumed at social gatherings but with the arrival of European settlers, alcohol was traded for labour and goods and was later used to manage and control the workforce (63). In the Western Cape and the Northern Cape, the 'dop' system was used as a means of exercising control. Farm workers were paid part of their wages in alcohol, usually wine. Although this has been illegal since the early 1960s, the 'dop' system was practised on some farms until quite recently (157). Alcohol was also used to control labour in the mining sector (158). Under apartheid, access to alcohol for black Africans was controlled by legislation. This led to the proliferation of small-scale, illegal alcohol-serving establishments (shebeens) as a form of resistance against the oppressive system (63). Mager (2004) argues that the apartheid policies which resulted in illicit alcohol dealing, created a social environment where excessive alcohol use increased and new and harmful meanings of socially acceptable drinking were created (158).

Another potential reason why hazardous alcohol use is high may be the lack of awareness around responsible or sensible drinking relative to non-drinking. In neighbouring Namibia, LeBeau and Yoder (2009) found that the concept of moderate drinking was not one which was commonly understood, with few people understanding the difference between non-drinking and responsible drinking (159). This may well be the case in South Africa too.

6.3 Differences in drinking patterns by sex

Building and extending other research conducted nationally (61), this study found that males were more likely to drink than females. Half of all males and a quarter of females had ever drunk alcohol.

Current (past month) drinking was also higher among males with 34.35% of males reporting current drinking, which is lower than the prevalence of 41.5% found in secondary analysis of the 2008 SABSSM survey (61). Prevalence of female current drinkers was consistent with the 2008 SABSSM survey at about 17% (61). When restricted to sexually active respondents, a similar pattern was seen, with more sexually active males reporting lifetime and current drinking than their female counterparts.

Not only were males more likely to drink alcohol, but they were also more likely to drink at hazardous and harmful levels. Males were more likely to be alcohol dependent and to binge drink than females. More males reported drinking frequently in the past month and were twice as likely as female drinkers to report being drunk in the past month.

Historically, alcohol consumption has been predominately socially acceptable for males and is, in some societies, a symbolic indicator of gender roles and norms (160). Reasons for drinking can also be related to social constructs of gender (160).

For males in sub-Saharan Africa, drinking is a recreational activity which usually takes place in alcohol-serving establishments (11, 67, 161). These establishments are considered as the male domain and are associated with masculinity (162). Drinking is seen as an opportunity for males to relax, socialise and pass the time (11) and symbolises independence and freedom from domestic responsibilities (161). In addition, drinking is interconnected with males' conception of adult masculinity (162) and is seen to heighten masculinity (161, 163).

Across a number of countries, prevalence of heavy drinking episodes is higher among males. Males also tend to consume higher quantities of alcohol (164). Heavy drinking and having a high alcohol tolerance is also related to a sense of shared masculinity (11).

Although this study found that male drinking was more common, over half of sexually active female drinkers, equating to roughly 1.5 million females, were classified as binge drinkers. This is consistent with other studies which found that although a relatively low percentage of females drink, those who do drink do so at high risk levels (28).

These high levels of binge drinking among females may be partly explained by the growing body of research which shows that female drinking is often related to defiance of gender norms (161) and an increased sense of agency (165). A number of studies have described the socially-scripted phenomenon which occurs in taverns. It is common place for males to buy females drinks and it is mutually understood that this is likely to end in sex (110, 159, 165). Qualitative studies have revealed that alcohol is a common and desired form of currency in transactional relationships (37, 104). Some females demonstrated increased agency by participating in the transactional sex dynamic (83, 165).

6.4 Identifying hazardous drinkers

This study has described the characteristics of lifetime, current and binge drinkers in South Africa. Since, those who binge drink have double the risk of acquiring HIV compared with non-binge drinkers (4), identifying the characteristics of binge drinkers is most helpful from an HIV programming perspective.

For males, binge drinkers were more likely to: be aged between 25-34 years; have completed Grade 11 or matric; be employed and live in urban areas. These findings are not surprising. Males who fit this profile are likely to have money to spend on alcohol. They were also more likely to be single or not married but in a steady relationship.

For females, binge drinking was highest among those aged 16-24 years, followed by those aged 25-34 years. Female binge drinkers were more likely to: be single or not married but in a steady relationship; have a matric; be unemployed; and live in urban areas.

Characteristics of male and female binge drinkers were broadly similar. However, male binge drinkers were more likely to be older and employed and therefore wealthier. Female binge drinkers were more likely to be unemployed and younger. Given the fact that alcohol is often used as currency in transactional sex (110), there is the potential for poorer females to engage in transactional sex with males who have disposable income. In addition, it is possible that these relationships may be age-disparate too. As described in chapter 2, these behaviours are both risk factors for HIV, particularly for younger females.

6.5 Risky sexual behaviour

This study found relatively low percentages of risky sexual behaviour. However when weighted to the population, a substantial number of adult South Africans engaged in practises placing them at high risk for HIV infection.

Some 12.55% of sexually active respondents, or 2.2 million adults, had more than one sexual partner in the past 12 months. Prevalence of MSP was slightly higher than rates seen across different surveys (9.3% SABSSM II 2005; 9.3% SABSSM III 2008; and 11.4% NCS 2009) (2, 23, 51). As in other studies males were more likely to report MSP in the past year (18.79%) than females (6.72%).

Nearly 10% (8.96%) of sexually active respondents, or approximately 1.2 million adults, had more than one sexual partner in the past month. This is higher than findings from other surveys (5.4% NCS 2006; 4.9% NCS 2009) (23, 166). More males (13.57%) reported MSP in the month preceding the survey than females (5.01%).

This study found that fewer than 10% of sexually active respondents gave or received money/gifts in exchange for sex. Nine percent of sexually active males reported giving money/gifts in exchange for sex. Consistent with other studies (37), 6% of sexually active females reported that they had recently engaged in transactional sex. However, this rate is substantially lower than that found among females attending antenatal clinics in Soweto (21.1%) (84). This discrepancy may be because the NCS was a national survey whereas Dunkle and colleagues' study (2004) was only conducted in one province.

Age-disparate relationships were fairly common. Some 38.41% of sexually active males reported having a sexual partner five or more years younger than themselves. Forty one percent of females reported having a sexual partner five or more years older than themselves.

Forty seven percent of sexually active respondents reported using a condom the last time they had sex. Forty nine percent of males reported condom use at last sex and 45% of females did. These findings are lower for both sexes than rates reported in the SABSSM III 2008 survey (64.6% and 60.4% respectively) (2). They are slightly higher for both sexes than rates found in the NCS 2009 (43.3% for males and 39.8% for females) (23).

6.6 Alcohol use and risky sexual behaviour

The relationship between alcohol use and risky sexual behaviour has been well documented (7, 37, 100, 111).

This study extends the literature by:

1. Using multiple and more nuanced measures of alcohol use - alcohol dependence, binge drinking and frequency of drinking in the past month - to examine the relationship between alcohol use and risky sexual behaviour;
2. Describing the interaction between ideational factors and alcohol use, and risky sexual behaviour; and
3. Investigating the relationship between alcohol use and risky sexual behaviour in the general population.

6.6.1 Alcohol dependence and risky sexual behaviour

This study examined the relationship between alcohol dependence and risky sexual behaviours among males and females. For males, no significant relationship between alcohol dependence and any of the outcome variables was present. For females, the only significant relationship ($p<0.05$) between alcohol dependence and any of the outcome variables was for receiving money/gifts in exchange for sex (data not shown). Controlling for socio-demographic characteristics, ideational factors, exposure to HCPs, knowledge of HIV status and violence, alcohol dependent females were twice as likely (AOR 2.02, 95% CI 1.13 - 4.28) to have received money/gifts in exchange for sex with any of their sex partners in the past 12 months, than females who drank but were not alcohol dependent.

The complete absence of any significant relationship between alcohol dependence and risky sexual behaviour among males warrants further examination. One explanation may be that chronic alcoholism can cause sexual dysfunction (167) making it unlikely that alcohol dependent males will engage in sex. Another explanation may be the low libido experienced in alcoholics (168), making it less likely that they would engage in sex.

A further explanation for this finding, and one which is also relevant for females, is the effect of chronic alcohol use and addiction on cognitive function, including memory (169). It is possible that the lack of findings may be due to recall bias (see limitations). However, the fact that a relationship between transactional sex and alcohol dependence among females was found makes this explanation unlikely.

The relationship between alcohol dependence and transactional sex among females is worth further consideration. In a study undertaken with patrons of alcohol-serving establishments in Cape Town, Pitpitan and colleagues (2013) found that females who traded sex were more likely to be alcohol

dependent[i]. Viewed together, these findings suggest that the relationship between alcohol dependence and transactional sex may be bi-directional, which is what Townsend and colleagues propose in their model outlining how alcohol use and transactional sex are linked to risky sexual behaviour (110).

6.6.2 Hazardous drinking and risky sexual behaviour

A conceptual model describing the relationship between hazardous drinking (binge drinking and frequency of drinking in the past month) and risky sexual behaviour has been proposed (figure 1). According to this model, socio-demographic characteristics and ideational factors have an independent effect of risky sexual behaviour. Hazardous drinking also influences risky sexual behaviour. The model proposes that there is a bi-directional relationship between hazardous drinking and ideational factors.

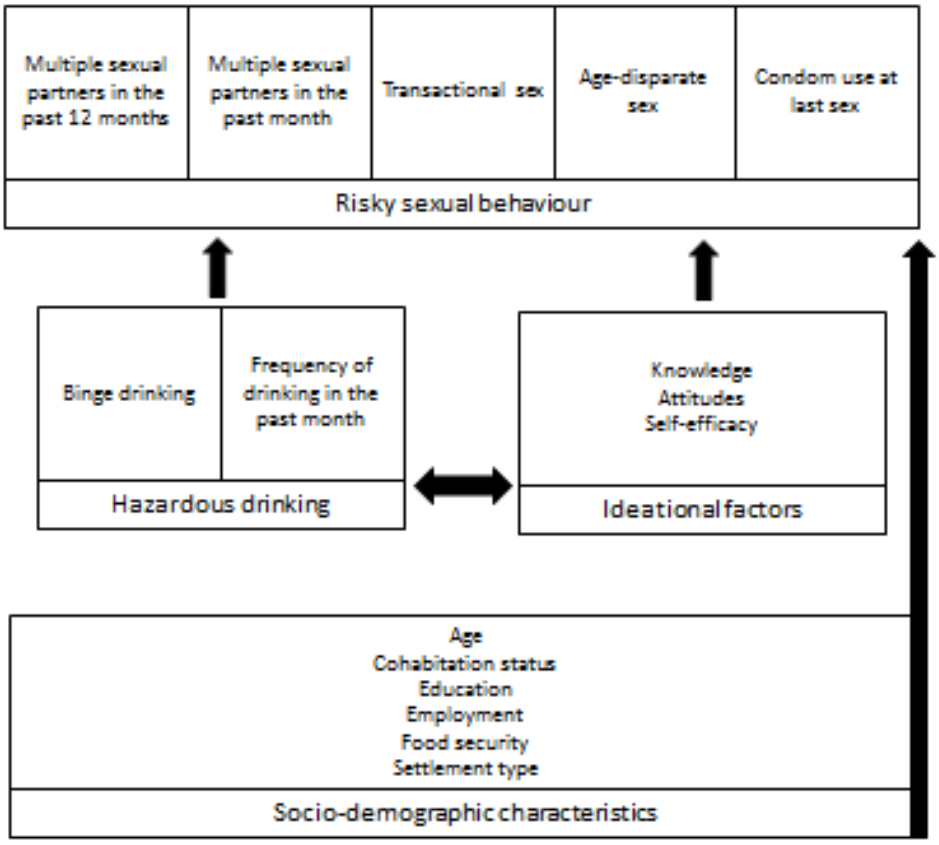

Figure 1: The relationship between hazardous drinking and risky sexual behaviour based on the results of this study

[i] In Pitpitan et al's study (2013) the term problem drinking was used to characterise those who answered "yes" to at least two items of the CAGE questionnaire. This is the same measure used in this study, where the term alcohol dependence is used to describe individuals with a CAGE score of two or more.

Unlike other studies which found that the effects of alcohol on risky sexual behaviour were generally similar in males and females (9, 12, 100), this study found that the specific relationship between alcohol use and risky sexual behaviour differed by sex as well as by the type of drinking behaviour and the specific risky sexual behaviour. It is worth noting that while there was support for the hypotheses that hazardous drinking increased risky sexual behaviour for both males and females, hazardous drinking had an impact on far fewer risky sexual behaviours among females. Further research is probably needed to explain this phenomenon, but this may be partially explained by the fact that alcohol-serving establishments play a critical role in linking alcohol use and risky sexual behaviour (12); and females are less likely to visit these than males.

Because the relationships between hazardous drinking and risky sexual behaviour differed by sex, two separate models, one for males and one for females, describing these are presented below.

6.6.2.1 The relationship between hazardous drinking and risky sexual behaviour among males

Figure 2 shows that for males, a relationship was found between binge drinking and MSP in the past 12 months, MSP in the past month, transactional sex (giving) and age-disparate sex (having a partner five or more years younger) while controlling for age, cohabitation and other socio-demographic, ideational and behavioural factors. Males who drank more frequently in the past month (regardless of the amount) also were more likely to engage in MSP, both in the past 12 months and in the past month, transactional sex and age-disparate sex, and less likely to report using condoms at last sex. It appears that for males, binge drinking and frequency of drinking in the past month were similar in terms of increasing specific risky sexual behaviours. Binge drinking affected all examined risky sexual behaviours except for condom use and frequency of drinking affected all five outcomes.

Binge drinkers were twice as likely to report MSP in the past 12 months. This study also found that the more frequently males drank in the past month the more likely they were to have had MSP in the previous year. Binge drinking and frequency of drinking were also associated with MSP in the past month.

Binge drinking predicted MSP in the past month. However, the effect of drinking was modified by self-efficacy for resisting MSP. The results, in fact, are somewhat surprising in that it appears that low self-efficacy for resisting MSP was an even larger predictor of reporting MSP than binge drinking alone. However, those with low self-efficacy for resisting MSP and who were binge drinkers were 12 times more likely to report MSP in the past month. Even those with high self-efficacy to resist MSP but who were binge drinkers were more than six times more likely to have had more than one sexual partner in the past month.

Drinking frequency in the past month was associated with MSP in the past month. This effect was modified by self-efficacy for resisting MSP. Males most likely to have MSP in the previous month were those with low self-efficacy for resisting MSP and who drank frequently in the past month with an adjusted odds ratio of nearly four. Those with low self-efficacy but who did not drink frequently in the previous month were more than three times more likely to report MSP. Males who did not

drink frequently in the past month but who had low self-efficacy for resisting MSP were nearly twice as likely as those with high self-efficacy and infrequent past month drinking to report MSP.

Binge drinkers were more likely to have provided money/gifts in exchange for sex. Similarly, the more frequently males had drunk in the past month the more likely they were to have engaged in transactional sex.

Males who were binge drinkers were more likely to have a sexual partner five or more years younger than themselves. There was also a relationship between frequency of drinking and age-disparate sex, with those who drank several times per week and almost every day being more likely to have any sexual partner five or more years younger than themselves.

There was no relationship between binge drinking and condom use at last sex among males. However, those who drank more frequently in the previous month were less likely to have used a condom at last sex. The more frequently males drank, the less likely they were to have used a condom at last sex.

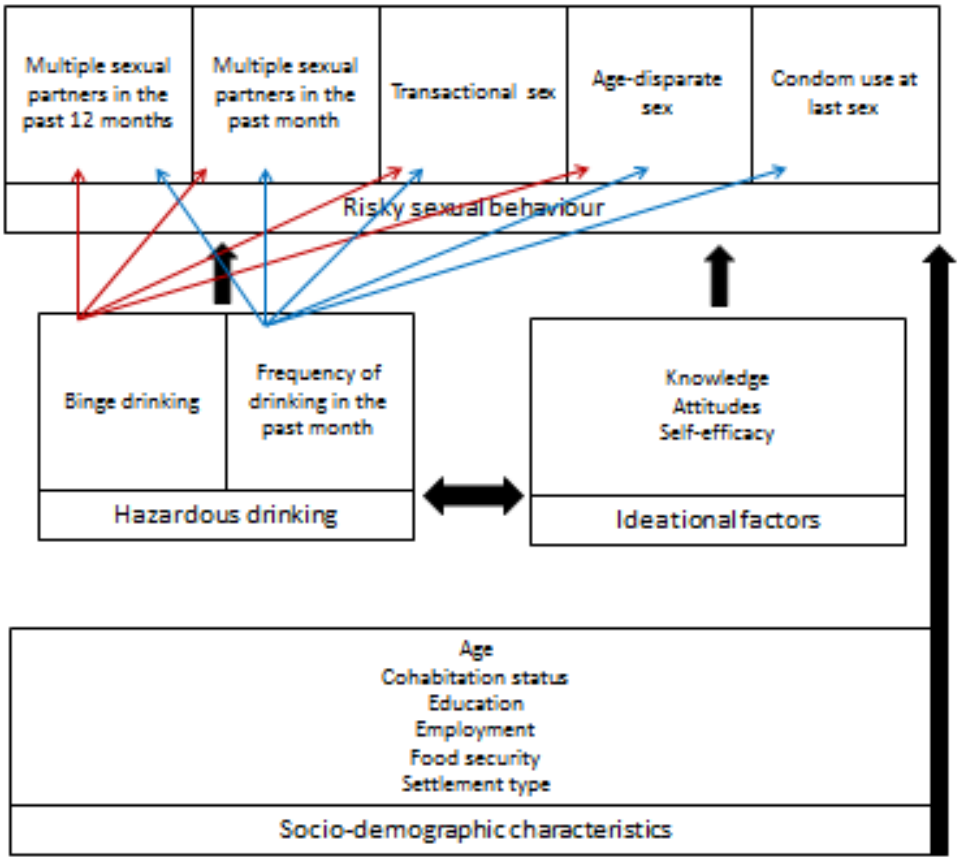

Figure 2: The relationship between hazardous drinking and risky sexual behaviour among males based on the results of this study

6.6.2.2 The relationship between hazardous drinking and risky sexual behaviour among females

For females, fewer relationships between alcohol and risky sexual behaviour were found than for males. Figure 3 shows that a relationship was found between binge drinking and MSP in the past 12 months, MSP in the past month and transactional sex (receiving) while controlling for age, cohabitation and other socio-demographic-ideational and behavioural factors. Females who drank more frequently in the past month (regardless of the amount) were more likely to have MSP in the past month. It appears that for females, binge drinking was more likely to impact on multiple risky sexual behaviours in comparison to frequency of drinking in the past month which was only related to MSP in the past month. There was a relationship between binge drinking and MSP in the past twelve months. However, the effect of binge drinking was modified by self-efficacy for resisting MSP. The results are somewhat surprising - it appears that low self-efficacy for resisting MSP was an even larger predictor of having MSP than binge drinking. However, those with low self-efficacy for resisting MSP and who were binge drinkers, were five times more likely to have MSP in the past year. Even those with high self-efficacy but who were binge drinkers were nearly four times more likely to have had more than one sexual partner in the past 12 months. There was no relationship between frequency of drinking and MSP in the past year among females.

Binge drinking and frequency of drinking in the previous month also predicted MSP in the past month. Binge drinkers were 1.8 times more likely to have MSP in the last month. In addition, the more frequently females drank, the more likely there were to have had MSP in the last month.

Binge drinkers were three times more likely to have received money/gifts in exchange for sex. There was no relationship between frequency of drinking in the past month and transactional sex among females.

For females there was no relationship between binge drinking or frequency of drinking in the past month and age-disparate sex. There was also no relationship between binge drinking or frequency of drinking in the past month and condom use at last sex among females. This finding differs from that of Chersich et al (2007) (100) and may be because this study was undertaken in the general population as opposed to with high-risk drinkers only. Another explanation may be that type of sexual partner was not controlled for. Other research has found that in event-level analysis, such as in this study, alcohol use was not related to condom use when partner type was not controlled for (170). This is supported by a meta-analysis of event level studies which found that drinking was unrelated to use of condoms in sexual encounters (171). Cooper and Orcutt (2000) propose that when sexual partner type is not controlled for, it may act as a suppressor variable and mask the relationship between alcohol use and condom use (170).

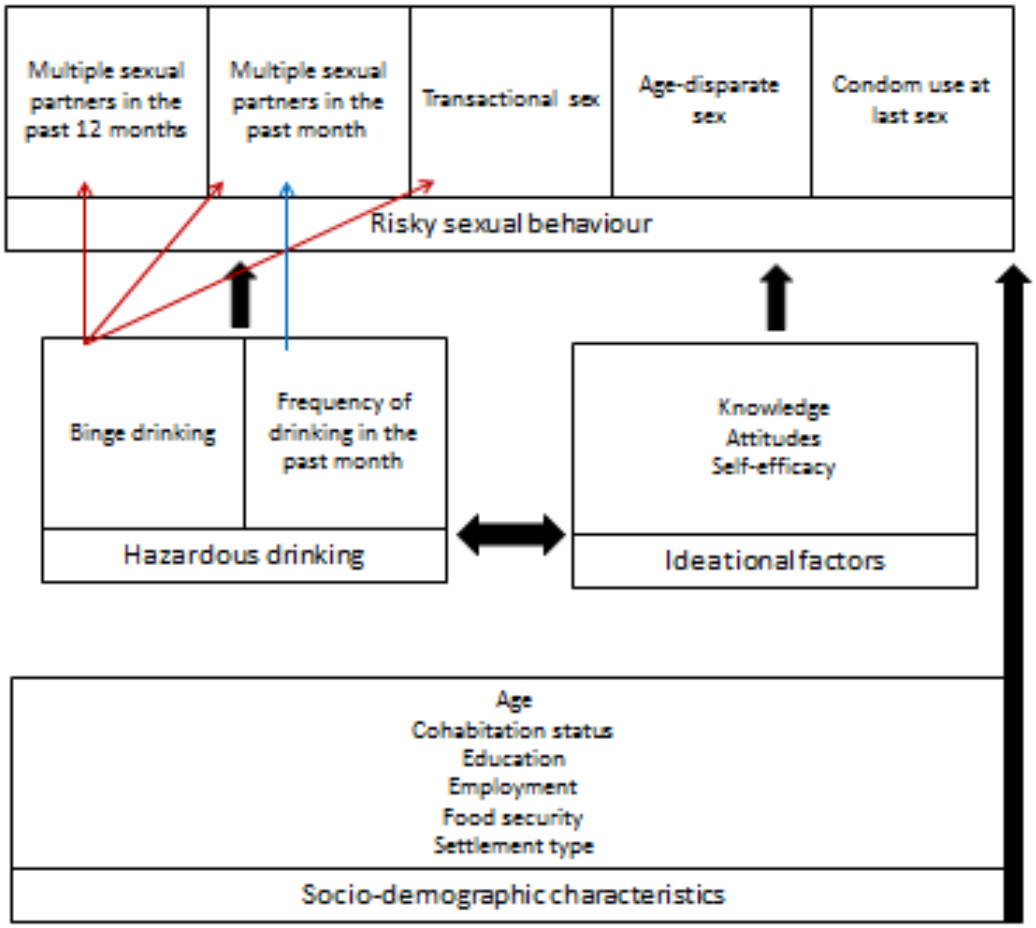

Figure 3: The relationship between hazardous drinking and risky sexual behaviour among females based on the results of this study

6.7 Self-efficacy and hazardous alcohol use

An important finding from this study is the interaction between self-efficacy for resisting MSP and alcohol use. There appears to be little published data on the interplay between self-efficacy for resisting MSP, alcohol use and having more than one sexual partner. Research has primarily focused on the complex interaction between self-efficacy for condom use, alcohol use and condom use (172, 173).

This study suggests that the interaction between alcohol and self-efficacy for resisting MSP is key. It is unclear why this is the case and caution should be exercised in interpreting the results as the confidence internals are wide. However, it seems that interventions which focus on alcohol reduction as a strategy to reduce MSP, without addressing self-efficacy for resisting MSP, are unlikely to be as effective.

6.8 The drinking environment facilitates risky sexual behaviour

The social dynamics of alcohol use tend to centre around places where people drink and socialise, including taverns, beer halls and informal drinking establishments (12). In southern Africa drinking at these venues is commonplace (11). This study found that a relatively small proportion of all respondents (16.15%) had visited a drinking establishment in the month prior to the survey. However, this equates to about 2.2 million adults. Visiting an alcohol-serving establishment was more common among sexually active respondents.

Males were three times more likely to have visited a drinking establishment in the past month than females. This is consistent with literature which suggests that drinking establishments are the male domain (162). Literature suggests that traditionally, public drinking among females in sub-Saharan Africa is frowned upon (161, 162, 174) and takes place only under male supervision (161) or in private at home (160, 162).

Morojele et al (2006) state that, for men, drinking with their peers seems to foster a sense of identity and feeling of companionship. Drinking was encouraged and condoned by age-mates and heavy drinking is seen as masculine (11). This was apparent in this study with nearly three quarters of males reporting binge drinking the last time they visited a drinking establishment. Binge drinking was not limited to males though – two thirds of females had four or more drinks the last time they visited a drinking establishment.

In South Africa, many people report meeting their new sexual partners at drinking establishments (12, 112). This study found that nearly fifth of sexually active respondents said they had sex with someone they met for the first time at their last visit to a drinking establishment. More males reported this (19.17%) than females (15.04%). This finding is not unexpected as a wide body of qualitative research has described the implicit agreement between males and females of provision of alcohol in exchange for sex (110, 161, 165).

6.9 Limitations

The results of this study should be interpreted in light of its limitations. The NCS was cross sectional, limiting causal conclusions between alcohol and risky sexual behaviour (100) because measurement of exposure and effect occur simultaneously (175).

There was a 17% survey non-response rate. Non-responders included ineligible households, households where no-one was at home, and refusals. Given that limited information is available on the socio-demographic characteristics of individual non-responders, it is difficult to know if non-responders biased the results of this study (132).

The study relied on self-reported data for both alcohol consumption and risky sexual behaviours. Alcohol measures in particular are subject to recall bias and underestimation (176) (100) . In addition, as respondents were interviewed in a multi-component household survey, it is possible that they under-reported alcohol use, particularly in females (27). This study aimed to address

alcohol-related recall bias by including questions asking for data over reasonable intervals of time as suggested by (111). Number of sexual partners commonly are reported to be over-reported by males and under-reported by females (177).

Social desirability bias - the tendency to deny socially unacceptable actions and to admit to socially desirable ones - may also have occurred (178). Under-reporting of risky sexual behaviours is common (178) and this may have led to an underestimate of MSP, transactional sex and age-disparate sex and an overestimate in condom use at last sex. Female drinking is often disapproved of and stigmatised in many African communities (27, 174). In addition, females experience increased stigma in relation to heavy drinking (179) and this may have led females to underreport alcohol consumption. Coldrion et al (2008) suggest that males may be willing to report alcohol consumption, but they may under-report negative behaviours such as feelings of guilt due to alcohol (101).

Measurement bias may also have been present in that some of the variables may not have correctly measured what they were supposed to (175). The NCS questionnaire asked respondents who drank: "How often do you have (for men) five or more and (for women) four or more drinks on one occasion?". This question did not include a timeframe, such as "considering all types of alcoholic beverages, how many times during the past 30 days did you have [5 (for men)/ 4 (for women)] or more drinks on one occasion?" (43), which is necessary to quantify frequency of binge drinking "to differentiate "binge drinking" from "alcoholism" or "alcohol dependence" " (55).

In addition, this study did not make use of AUDIT which the STRIVE Working Group on Alcohol and HIV recommends (34). Not only does this make it difficult to compare to other studies in South Africa but literature suggests that structured instruments, like AUDIT, generally perform better than quantity-frequency questions (44). Finally, it is likely that measurement of transactional sex in the NCS was incomplete. A more complete definition would have included alcohol and/or drugs as well as gifts and/or money as in Pitpitan and colleagues' study (2013) where participants were asked: "Has someone given you money, alcohol, drugs or a place to stay in exchange for sex in the past 4 months?" (37).

Finally, there is a concern about temporal disparity of associating alcohol use in the last month with risky sexual behaviours in the past year (MSP, transactional sex and age-disparate sex).

Chapter 7: Conclusions and Recommendations

Given the significance and prevalence of both HIV and alcohol in South Africa, this study comprehensively sought to investigate the relationship between alcohol use and risky sexual behaviour. Therefore, multiple dimensions of drinking including, alcohol dependence, binge drinking and frequency of drinking in the past month, were examined.

While many males and females in South Africa reported non-drinking, those who did frequently reported high levels of hazardous drinking. Males were more likely to drink and to display hazardous drinking patterns than females.

Prevalence of risky sexual behaviour, including MSP in the past year and in the past month, transactional sex, age-disparate sex and condom use were mostly consistent with other studies in South Africa that investigated risky sexual behaviour. Males were more likely to report MSP, both in the past year and in the past month, than females. Males were more likely to have provided money/gifts in exchange for sex and females were more likely to report receiving money/gifts in exchange for sex. Similarly, more males reported having a sex partner five or more years younger than themselves while females were more likely to report having a sex partner five or more years older than themselves. Males were more likely to report having used a condom at last sex.

This study found relationships between alcohol use and risky sexual behaviour for both males and females. For males, binge drinking was associated with: MSP in the past 12 months, MSP in the past month, providing gifts/money in exchange for sex, and having a sexual partner five or more years younger than themselves. Frequency of drinking in the previous month was associated with: MSP in the past 12 months, MSP in the past month, providing gifts/money in exchange for sex, having a sexual partner five or more years younger than themselves, and condom use at last sex. For females, binge drinking was associated with: MSP in the past 12 months, MSP in the past month, and receiving money/gifts in exchange for sex. Frequency of drinking was associated with MSP in the past month. For both males and females, interaction between alcohol and self-efficacy for resisting MSP was present.

Results also suggest that the drinking environment facilitates high-risk sexual encounters and that respondents drank heavily when they frequented alcohol-serving establishments. This was true for both males and females.

Overall, this study has described the patterns and prevalence of alcohol use and risky sexual behaviour in the general population in South Africa. It has also provided new insights into the complex relationship between these two phenomena and compared them between adult males and females. This information can be used to design and implement future interventions to address this important risk factor for HIV. Recommendations are discussed below.

7.1 Multi-faceted interventions at different levels

Effective interventions aimed at modifying behaviour around alcohol use may have considerable impact on the HIV epidemic in South Africa (9). As this study demonstrates, the relationship between alcohol and risky sexual behaviour is complex so HIV prevention and alcohol reduction interventions should be targeted on a number of levels including: individual, social and structural (8, 61).

Figure 4 below depicts an adapted version of the social-ecological model which is used to frame recommended interventions at different levels.

Figure 4: Social-ecological model for reducing hazardous alcohol use and risky sexual behaviour

7.1.1 Individual levels interventions

One way to implement individual-level interventions is through the health sector response. Alcohol and risky sexual behaviour interventions could relatively easily be incorporated into primary health care settings. For example, it has been suggested that counselling about alcohol use should be part of HIV counselling and testing (101). Another example is health care workers treating individuals for STIs screening patients for alcohol problems (41) and referring them accordingly.

Brief interventions include a range of strategies including screening, brief advice, referral to specialist support, counselling and brief motivational interviewing (27). Hazardous drinkers are less likely to practice risk reduction skills (180) and brief interventions are one way to address this. In addition, there is promising evidence to support this in South Africa (137). However, as Fritz (2009)

points out, brief interventions are labour intensive and may be most appropriate for those in need of personalised intervention such as sex workers, their clients and people attending STI clinics (13).

In order to reach individuals with relevant information efficiently, mass media may be a more appropriate vehicle. Public health campaigns, stressing the relationship between alcohol and HIV through risky sexual behaviour (5) could be implemented with good results. Research has consistently demonstrated that those exposed to HIV communication programmes have improved knowledge, attitudes and self-efficacy in relation to risky sexual behaviour, as well as reductions in risky sexual behaviours (23, 115, 152).

This study found high levels of hazardous drinking among drinkers, suggesting the need for improving awareness and understanding of excessive vs responsible alcohol use. The South African Department of Health has produced food-based dietary guidelines which include a section on sensible drinking (181). These guidelines define sensible drinking as: no more than three standard drinks a day for males and no more than two standard drinks a day for females. Examples of standard drinks are provided (181). Although these guidelines have been questioned by public health practitioners (182) and changes have been suggested (183), raising awareness of these guidelines and promoting responsible alcohol consumption could longer-term decrease risky sexual behaviour. There is a need to ensure that terms like excessive and responsible drinking do not remain abstract and are well understood by South Africans.

However, this study has demonstrated that the relationship between alcohol use and risky sexual behaviour is complex and that ideational factors such as self-efficacy for resisting MSP are also of importance. Interventions focused on raising awareness alone are likely to be ineffectual.

In addition, this study suggests that males and females should have tailored interventions as the patterns and prevalence of alcohol use, risky sexual behaviour and the relationship between the two, vary by sex. Potential gender-specific strategies are discussed below.

Interventions for males

Males are more likely to drink and to do so at risky levels. Although drinking is more pervasive in males than in females, a large number of males do not actually drink. This “positive deviance” could be reinforced by mass media showing this fact. As male drinking is not stigmatised like female drinking, a campaign specifically targeting males and focusing on alcohol and risky sexual behaviour is worth considering. This campaign could address the social norms and target alcohol outcome expectancies among males (107). Part of the campaign could involve social role modelling and making use of well-known males to promote responsible alcohol use and safer sexual behaviour.

Males are less likely to access health care services (184-186) and reaching males with alcohol and safer sex messaging is likely to be more difficult through this route. Incorporating alcohol messaging into existing HIV workplace programmes and campaigns which reach males, such as Brothers for Life (187), may be better alternatives.

Findings from this study clearly show that the role of self-efficacy in resisting MSP among males also needs to be addressed. Interventions which aim to improve self-efficacy, in conjunction with safer drinking practices could have a potentially large impact on this risky sexual behaviour. This could be

particularly effective if coupled with changing alcohol outcome expectancies and addressing the concept of masculinity in relation to drinking.

Interventions for females

This study has demonstrated that although it is not as common as among males, many females do drink and do so at hazardous levels. The Women's CoOp - an empowerment-based HIV intervention designed to reduce sexual risk behaviour, substance use and victimisation – showed promising results when used in both individual and group formats. A small randomised trial conducted in the Western Cape showed that in the short-term, participants displayed large decreases in self-reported alcohol use and positive changes in sexual behaviours (188). This approach could be adapted rolled out with females at a community level.

Another method for engaging females is peer education. Peer educators, trained in all issues relating to risky sexual behaviour, the ways in which it can be reduced and the role that alcohol plays in fuelling the epidemic, could support their peers. In addition, peer educators should be introduced to the concepts of social identity, empowerment and social capital to encourage positive gender norms which in turn will support HIV prevention behaviours (189).

Specific messages for females would be the relationship between alcohol and MSP and transactional sex as found in this study. Sex in exchange for alcohol is reported to be common (110) and this is a particular content area which should be discussed with females. Interventions should aim to improve female self-efficacy for refusing alcohol in exchange for sex or, at least, in negotiating safer sex within these high risk relationships. In addition, this study found that binge drinking increases multiple risky sexual behaviours for females. Female-targeted messaging should focus particularly on binge drinking and its related risks.

Because of the stigma of female drinking (174), it may be more difficult to identify female hazardous drinkers. Innovative strategies to do so may need to be employed. For example, counsellors, community health workers and peer educators could be taught the simple mnemonic CAGE. Although this questionnaire is not the best screening method for hazardous drinkers, it is simple and easy to remember, and may enable those working with females to identify those most at risk. Counsellors could then use this as a basis on which to engage females who may be reluctant to speak about their drinking. The other advantage of using CAGE is that the questions move the discussion toward the behavioural effects of drinking rather than towards an isolated number of drinks per day (190).

7.1.2 Place-based and community interventions

A fifth of sexually active respondents frequented an alcohol-serving establishment in the past month and 18% had sex with someone they met there for the first time. Lewis et al (2005) state that the appropriateness of alcohol establishments as venues for HIV prevention activities depends on the percentage of people who visit these places regularly and whether or not they represent a higher risk group relative to the general population (111). Evidence from this study supports using a place-based approach to reach individuals at the time of risky behaviour.

Buy-in from owners would be critical to the success of place-based interventions. Encouragingly, research in Zimbabwe found that managers of beer halls welcomed the idea of HIV prevention interventions in their venues (10). In addition, research from the Philippines has shown that intervening with owners and managers of alcohol-serving establishments can increase risk reduction among female sex workers over and above individual behaviour change interventions (140).

Action at a community level to reduce the harmful use of alcohol (141) is also a promising strategy. This could include community mobilisation, and working with local stakeholders in order to create safer drinking spaces and a supportive environment for safe drinking (142). Community members could work with owners of places where alcohol is served to make them safer according to the ten-point plan developed by Soul City. The ten criteria include: not selling to intoxicated people, minors, or visibly pregnant women; selling food and non-alcoholic drinks, and making water available; improving lighting, security, and sanitation; displaying safe sex messages and providing condoms; and complying with liquor licence opening and closing times (143).

Advocacy is a powerful tool to influence public opinion and would be an essential component of a multi-level intervention. At a community level, advocacy could be undertaken with relevant district level departments, for example the Departments of Health and Trade & Industry. Advocacy would put the issue of alcohol-serving establishments as a place where risky sexual behaviour is initiated on the table. Potential solutions include licensing drinking establishments through the departments mentioned above, having specific operating hours and creating safe drinking environments in terms of the ten point plan mentioned earlier. Political buy-in and support would be essential for successful implementation.

7.1.3 Societal levels interventions

Although the findings of this study do not provide adequate evidence for societal level interventions, it is widely acknowledged that individual behaviour change does not occur in a vacuum and an enabling environment is needed to support individual changes relevant to HIV prevention (191). Kalichman (2010) states: “Models of HIV risk reduction focused on the individual may be insufficient for reducing alcohol-related HIV risks because they do not address social, structural/environmental, and contextual influences on behavior” p.191 (192). It is clear that interventions at a structural level are needed in order to facilitate individual behaviour change. Some structural interventions which have been suggested include: reducing the availability of alcohol; addressing the marketing of alcoholic beverages; pricing policies; regulating the drinking context (109); limiting alcohol licences and increased taxes on alcohol (107).

7.2 Focusing efforts where they will have most impact

This study found that it is not harmful alcohol use (alcohol dependence) that is a risk factor for risky sexual behaviour but hazardous alcohol use (binge drinking and frequency of drinking in the past month). It has been suggested that addressing harmful drinking, together with interventions to

reduce risky sexual behaviour has potential to reduce HIV transmission (13). However, this study suggests that interventions should be orientated to those who drink at hazardous rather than harmful levels. This is in line with the recommendation made by Fisher et al (2007) - that prevention efforts should focus on individuals most likely to experience alcohol problems such as frequent and heavy drinkers (9). While this study did not examine the predictors of hazardous alcohol use, findings suggest that male binge drinkers were more likely to: be younger, have completed Grade 12 or matric; be employed and live in urban areas. They were also more likely to be single or not married but in a steady relationship. For females, binge drinking was highest among those aged 16-24 years, followed by those aged 25-34 years. Female binge drinkers were more likely to: be single or not married but in a steady relationship; have a matric; be unemployed and live in urban areas. Directing interventions towards these individuals may result in a more efficient intervention, although further research to better identify target groups may be needed.

South Africa's NSP defines people who abuse alcohol as a key population for targeted HIV prevention interventions p.26 (145). However, this definition appears to be broad with the NSP referring to both alcohol abuse and heaving drinking. Based on the findings from this study, it may be helpful to consult with the South African National AIDS Council (SANAC) to better define which drinkers are most at risk and to focus programming accordingly.

7.3 Further research

This research has demonstrated the patterns and prevalence of alcohol use in the general population in South Africa. It is clear that lifetime drinking and hazardous drinking extends beyond high-risk groups which have previously been examined. However, in order to for HIV prevention and safer alcohol use programming to be effective, it is necessary to understand who these hazardous drinkers are. Further research to better to explore the socio-demographic and psychographic characteristics of hazardous drinkers is needed for targeted programming.

Second, the differences in the relationship between alcohol use and risky sexual behaviour between males and females needs to be further explored. Qualitative research may help to explore why these relationships differ.

Thirdly, the interaction between self-efficacy for resisting MSP and alcohol is of interest and has implications for alcohol-related HIV prevention programming. This phenomenon needs to be more fully explored.

Studies which have reported on the alcohol-attributable burden of disease in South Africa have not included the increased risk of HIV transmission (16). The findings from this study highlight the relationship between alcohol use and risky sexual behaviour which increases an individual's risk of acquiring HIV, and support the need for future alcohol-related burden of disease studies to include the increased risk of HIV transmission.

Finally, some of the suggested recommendations could be piloted and evaluated to determine their effectiveness and feasibility for scale up.

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Appendix A: Edited Questionnaire including Items for this Analysis Only

THIRD NATIONAL COMMUNICATIONS SURVEY– 2012
ENGLISH VERSION

QUESTIONNAIRE NUMBER

GEOGRAPHIC INFORMATION
THIS SECTION IS NOT TO BE ASKED OF THE RESPONDENT

A. Province	1=Eastern Cape 2=Free State 3=Gauteng 4=KwaZulu-Natal 5=Limpopo	6= Mpumalanga 7= North West 8= Northern Cape 9= Western Cape		B. PSU/ Small Area number	
C. Locale or settlement type	1 = Urban formal (built up or city area) 2 = Urban informal 3 = Peri-urban (mostly informal/ small holding) 4 = Tribal settlement 5 = Farming			D. Dominant housing type in AREA	1 = Formal housing 2 = Mostly formal housing 3 = Mostly informal housing 4 = Squatter housing/ impoverished area 5 = Traditional housing 6 = Hostels 66= Other (Specify)
E. Area name				F. Household roster number	
K. Name of fieldworker				L. Date of interview *(dd/mm/yy)*	
M. Name of team leader					

A1. The respondent is in the room with no others present except for the interviewer.	1=Yes 2=No	
A2. I have read the individual information sheet, statement of confidentiality and informed consent form	1=Yes 2=No	
A3. If the participant agreed to participate, did he/she sign the consent form?	1=Yes 2=No	
A4. If the participant is 16 or 17 years old, did his/her guardian sign the parental consent/assent form?	1=Yes 2=No	
A5. Has the participant retained a copy of the information sheet?	1=Yes 2=No	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

SECTION 1: DEMOGRAPHICS

1.1	Sex of the respondent	1= Male 2= Female	
1.2	Race of the respondent	1= Black 2= Coloured 3= White 4= Indian 66= Other (specify)	
1.3	PRESENT age of the respondent today	Years: _____	
1.13	What is your marital status? (Marital status referring to legal, traditional or common-law) [ONE RESPONSE ONLY]	1 = Single 2 = Not married or living together but in a steady sexual relationship lasting more than 3 months 3 = Not married, but living with sexual partner/boyfriend/girlfriend 4 = Married, living with husband/wife 5 = Married, NOT living with husband/wife 6 = Divorced/Widowed 66= Other (specify)	
1.14	What is your present employment status? [ONE RESPONSE ONLY]	1 = Unemployed, not looking for work 2 = Unemployed, looking for work 3 = Informal work (such as making things for sale, selling things or providing a service) 4 = Employed full-time [40 or more hours a week] 5 = Employed part-time [less than 40 hours a week] 6 = Full-time student / pupil / learner at SCHOOL 7 = Full-time student at COLLEGE / TECHNIKON / UNIVERSITY 8 = Pensioner 9 = Living on disability or other grant 66= Other (specify)	
1.15	What is the HIGHEST grade of education you have completed? [ONE RESPONSE ONLY]	18 = No schooling 1 = grade 1 2 = grade 2 3 = grade 3 4 = grade 4 5 = grade 5 6 = grade 6 7 = grade 7 (Standard 5) 8 = grade 8 9 = grade 9 10 = grade 10 11 = grade 11 (Standard 9) 12 = grade 12 (Standard 10 / Matric) 13 =Diploma, certificate after Matric) 14 = one to three years of university 15 = Bachelor's degree from a University 16 = Post graduate degree (eg. Honours, Masters) 17 =Doctoral degree (PhD) 66= Other (specify)	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

1.16	In the PAST 12 MONTHS, how often have you gone without the following: [READ OUT LOUD]		
1.16.4	In the PAST 12 MONTHS, how often have you gone without enough food to eat? [READ OUT]	1=Often 2=Sometimes 3=Rarely 4=Never	

SECTION 2: SEXUAL BEHAVIOURS AND PRACTICES

Now I am going to ask you some questions about sex. The answers you give are very important for helping to design better HIV & AIDS campaigns for your community and we appreciate your help. We know that some people have had sexual intercourse and some have sexual intercourse with more than one person. Please feel comfortable to answer questions honestly; you will not be judged and there is no right or wrong answer. Your answers are confidential and will not be known by anyone else.

2.1 ☛	Have you ever had sex with anyone? (that is to say when the penis was in the vagina/anus)	1 = Yes ➧ SKIP TO Q2.3 2 = No ➧ SKIP TO Q2.2 88 = Refused to answer ➧ SKIP TO SECTION 3	
2.5	Did you use a condom the first time you had sex with someone?	1 = Yes 2 = No 88 = Refused to answer	
2.6 ☛	Have you had sex with anyone within the Past 12 months? (that is to say when the penis was in vagina/anus)	1 = Yes ➧ SKIP TO Q2.8 2 = No 88 = Refused to answer ➧ SKIP TO SECTION 3	
2.8	I would like to ask you a few questions about the person that you most recently had sex with. We do not need to know who she/he is, so let's just use his/her initials: INSTRUCTION: NEED TO REPEAT DEFINITION TO ENSURE SEX TOOK PLACE [***ONLY ASK IF HAD VAGINAL OR ANAL SEX***]		
2.8.1	Let's identify the last person you had sex with by calling this person by their initials. What letters should we use for this person?	_____ Initials	
2.8.2	How old is she/he now? PROBE FOR ESTIMATE	_____ Age in Years	
2.8.8	In the past year did you give this person gifts or money in order to have sex with him/her? [MULTIPLE ANSWERS]	1 = No 2 = Yes, money 3 = Yes, gifts	
2.8.9	In the past year did you receive gifts or money from this person in order to have sex with him/her? [MULTIPLE ANSWERS]	1 = No 2 = Yes, money 3 = Yes, gifts	
2.8.13	Did you use a condom the last time you had sex with this person?	1 = Yes 2 = No 88 = Refused to answer	

[INTERVIEWER: BEFORE ASKING ABOUT ANY ADDITIONAL SEXUAL PARTNERS, READ THE FOLLOWING]

We would also like to know about other people that you have had sex with in the last 12 months. Please give me the initials of the person you had sex with before _____ [initials of last person]

☛Filter: If respondent has not had sex with anyone other than the partner listed in 2.8.1In the past 12 months, skip to q2.11

96 do not know, 97 not applicable, 98 refused to answer 99 missing

2.11b	**Overall, how many DIFFERENT PEOPLE did you have sex with in THE PAST 12 MONTHS (including your spouse or live-in partner)?** WRITE NUMBER BUT DON'T RESTRICT. (CANNOT BE LOWER THAN THE NUMBER OF SEXUAL PARTNERS REPORTED IN THE SEXUAL CALENDAR]	*Write in Number:* **98 = Do not know** **88 = Refused to answer**
2.13	**How many DIFFERENT PEOPLE have you had sex with in THE PAST MONTH (including your spouse or live-in partner) ?** WRITE NUMBER BUT DON'T RESTRICT.(CANNOT BE HIGHER THAN Q2.11)	*Write in Number:* **98 = Do not know** **88 = Refused to answer**

SECTION 3: HIV KNOWLEDGE, ATTITUDES AND PERCEIVED RISK

Interviewer read out loud: I am now going to ask you a little more about what you think of HIV and AIDS. Some of these questions are about your personal experiences, but please remember that we are asking these questions so that in the future we can give people the health information they need.

3.6	**Can you tell me all the ways that you know that HIV infection can be prevented?** **[MULTIPLE RESPONSES possible]** Probe: What else?	**0 = It can't be prevented** **1 = Using condoms** **2 = Sticking to one sex partner** **3 = Being faithful to one sex partner who is also faithful to you** **4 = Reducing number of sex partners** **5 = Abstaining from sex** **6 = Avoiding contact with blood** **7 = Using drugs to prevent HIV transmission from mother to child** **8 = Male circumcision (as an HIV prevention method)** **9 = Microbicides (gel/ring inserted into the vagina to prevent HIV infection)** **10 = Prep (taking ARVs to prevent HIV infection)** **55= Other (specify)** **98 = I don't know**	

SECTION 4: ATTITUDES & SOCIAL NORMS FOR FAITHFULNESS AND MCP

Interviewer read out loud: These questions will be about condoms and relationships. There are no right or wrong answers, only people's opinions. We would like to know which opinions you agree or disagree with.

How much do you agree with the following statements?
READ OUT ALL

4.1	**(Men) Men are afraid that his wife/girlfriend will turn him down if he suggests using a condom.** **[READ OUT]** **(Women) Women are afraid that her husband/boyfriend will turn her down if she suggests using a condom.** **[READ OUT]**	**1 = Strongly disagree** **2 = Somewhat disagree** **3 = Somewhat agree** **4 = Strongly agree**	
4.2	**If someone ever has trouble putting on a condom, they will be embarrassed to try to use a condom again.** **[READ OUT]**	**1 = Strongly disagree** **2 = Somewhat disagree** **3 = Somewhat agree** **4 = Strongly agree**	
4.3	**Men who use condoms with their wives are opening the door for her to have sex with other men.** **[READ OUT]**	**1 = Strongly disagree** **2 = Somewhat disagree** **3 = Somewhat agree** **4 = Strongly agree**	
4.4	**Using a condom will make your partner think you don't trust him/her.** **[READ OUT]**	**1 = Strongly disagree** **2 = Somewhat disagree** **3 = Somewhat agree** **4 = Strongly agree**	

4.5	When you use a condom you can't get enough pleasure. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.6	If you wait to have sex you will find the right person for yourself. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.7	If you have good communication with your partner, you can be sexually satisfied with one person. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.8	When a relationship ends, you should wait a few months and do not rush into a new sexual relationship. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.8.1	I don't really feel a tie with anyone I have sex with. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.8.2	I need someone else to fill the gap in case I ever break up with my main partner. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.8.3	Now and then, I go to someone else besides my main partner because the sex is so good. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.8.4	It's ok to have sex with others as long as your main partner does not find out. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.9	If I find out my partner was having sex with someone else, I would leave him/her. [READ OUT]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
4.9a	Most of my friends brag about how many people they are having sex with.	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
Now please tell me how sure are you that you can do any of the following. How sure are you that you can:			
4.10	Resist the temptation of having sex with anyone else besides your main sex partner. [READ OUT]	1 = Not sure at all 2 = Somewhat sure 3 = Very sure 4 = Completely sure 98 = Don't know	
4.11	Remain with one sexual partner even if your friends make fun of you? [READ OUT]	1 = Not sure at all 2 = Somewhat sure 3 = Very sure 4 = Completely sure 98 = Don't know	
4.12	Say no when friends invite you to go out looking for new people to have sex with. [READ OUT]	1 = Not sure at all 2 = Somewhat sure 3 = Very sure 4 = Completely sure 98= Don't know	
4.13	Avoid having sex if you have been drinking too much. [READ OUT]	1 = Not sure at all 2 = Somewhat sure 3 = Very sure 4 = Completely sure 98 = Don't know	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

4.14	End a relationship if you suspect he/she is having sex with someone else. [READ OUT]	1 = Not sure at all 2 = Somewhat sure 3 = Very sure 4 = Completely sure 98 = Don't know	

SECTION 5: CONDOM SELF-EFFICACY

	How much do you agree with the following statements about yourself? [READ OUT ALL]		
5.1	Sometimes in the morning after having sex without a condom I think 'my God, what did I do?" [READ OUT 1 to 4]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
5.2	I can use a condom even when I have too much to drink. [READ OUT 1 to 4]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
5.3	I can refuse to have sex if someone I like refuses to use a condom. [READ OUT 1 to 4]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
5.4	I can buy a condom without feeling embarrassed. [READ OUT 1 to 4]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
5.5	[MEN] I am confident that I can put a condom on correctly. [READ OUT 1 to 4] [WOMEN] I am confident that I can correctly put a condom on a man when having sex with him? [READ OUT 1 to 4]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	
5.6	[WOMEN] I am confident that the man that I have sex with can put a condom on correctly. [READ OUT 1 to 4]	1 = Strongly disagree 2 = Somewhat disagree 3 = Somewhat agree 4 = Strongly agree	

SECTION 7: HIV COUNSELLING AND TESTING (HCT)

Interviewer read out loud: These questions will be about HIV counselling and testing.			
7.1 ☛	Have you ever been tested for HIV?	1= Yes 2= No ➡ SKIP TO Q7.9 98 = Refused to answer ➡ SKIP TO Q7.9	
7.11 ☛	Do you know your HIV status?	1 = Yes 2 = No ➡ SKIP TO Q7.15	
7.12 ☛	Would you be comfortable telling me your status? If not, I will skip this question.	1 = Yes 2 = No ➡ SKIP TO Q7.15	
7.13 ☛	What is your HIV status?	1 = HIV positive 2 = HIV negative ➡ SKIP TO Q7.15 3 = Did not want to answer question ➡ SKIP TO Q7.15	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

SECTION 9: ALCOHOL USE

Interviewer read out loud: I would now like to ask you some questions about alcohol use			
9.1 ☛	Have you ever had an alcoholic drink?	1= Yes 2= No ➡ SKIP TO Q9.2 88 = Refused to answer ➡ SKIP TO Q9.2	
9.1.1	During the PAST MONTH, how many times did you have an alcoholic drink? [READ OUT 1 to 5]	1= Never 2= Almost every day 3= Several times per week 4= At least once a week 5= At least once a month 88 = Refused to answer	
9.1.2a	How often do you have (*for men*) five or more and (*for women*) four or more drinks on one occasion? [READ OUT] 1 to 6	1 = Never 2 = Hardly ever 3 = Less than once a month 4 = A few times a month 5 = Almost every week 6 = Almost every day 88 = Refused to answer	
9.1.2b	During the past month, how many times have you been drunk? [READ OUT 1 to 5]	1= Never 2= Almost every day 3= Several times per week 4= At least once a week 5= At least once a month 88 = Refused to answer	
9.1.4	Have you ever felt you should cut down on your drinking?	1= Yes 2= No 88 = Refused to answer	
9.1.6	Have people *annoyed* you by criticizing your drinking	1= Yes 2= No 88 = Refused to answer	
9.1.7	Have you ever felt bad or *guilty* about your drinking?	1= Yes 2= No 88 = Refused to answer	
9.1.8	Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (*eye-opener*)	1= Yes 2= No 88 = Refused to answer	
9.2	In the PAST MONTH, have you been to a chebeen, bar, tavern and/or nightclub where alcohol was served?	1= Yes 2= No ➡ SKIP TO Q9.3 88 = Refused to answer ➡ SKIP TO Q9.3	
9.2.1	The last time that you went to a chebeen, bar, tavern and/or nightclub, did you have (*for men*) five or more (*for women*) four or more alcoholic drinks?	1= Yes 2= No 3 = Don't drink 88 = Refused to answer	
9.2.2	The last time that you went to a chebeen, bar tavern and/or nightclub did you end up having sex with someone that you met there for the first time?	1= Yes 2= No 3 = Not had sexual intercourse 88 = Refused to answer	

SECTION 10: PROGRAMME EXPOSURE

10.2 INTERSEXIONS

10.2.1	Have you ever seen this programme on television? [show pic 10.2.1 : still from most recognizable scene]	1 = Yes 2 = No ➡ SKIP TO Q. 10.2.3	
10.2.2	What is the name of this programme?	1=Intersexions 55= Other..... 98 Don't know	
10.2.3	In the past 12 months have you watched Intersexions drama on television?	1 = Yes 2 = No ➡ SKIP TO Q. 10.2.15	
10.2.4	What does the term, "Intersexions", mean to you? [MULTIPLE ANSWERS] Probe: What else?	1. Having sex with more than one person puts you in a sexual network with many other people. 2. Being in a sexual network increases your risk of getting infected with HIV. 3. Know who else your lover has had sex with. 4. Examine your own behaviour for risk of HIV 5. Be honest about your sexual relationships 55 Other: _____ 98. Don't know	
10.2.5	Please tell me which of the following stories (story lines) in Intersexions that you remember watching. [READ OUT LOUD] [MULTIPLE ANSWERS] Probe: What else?	1 = Beginning episode about Mandisa & Kabelo's wedding 2 = Relationships among Sylvia, Ntando & Mr. Molefe 3 = The player, DJ Mo, Boitumelo, & Thami 4 = Duma, the truck driver, and Zamo 5 = The romance between Buhle & Muzi 6 = When Thami is in prison 7 = The story of Ruth &Dec 8 = Ntombi & Vukani, learning to live while HIV positive 9 = The funeral & graveyard scene of DJ Mo 10 = At the end when Mandisa walks away from Kabelo	
10.2.6	About how many of the 26 episodes of Intersexions did you watch on TV?	1 = 1 to 6 2 = 7 to 12 3 = 13-18 4 = 19-25 5 = All 26 episodes	
10.2.7	When people watch dramas on television, sometimes there's a character that they care about more than others. They really want to watch the next episode to see what happens to that character. Which character in Intersexions did you most care about in this way?	1 = No one ➡ SKIP TO Q10.2.8 2 = DJ Mo (the DJ who is a womanizer and dies of AIDS) 3 = Mandisa (the newly married wife who discovers that her ex-(DJ Mo) is dying of AIDS 4 = Kabelo (the newly married	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

	[ONE ANSWER ONLY] [IF CANNOT REMEMBER ANY NAME, THEN READ OUT THE LIST OF NAMES]	husband who discovers that his wife never told him about his ex who is dying of AIDS) 5 = Charisse (Mandisa's friend) 6 = Sylvia (the school girl who falls pregnant by Mr Molete and later has a relationship with his son .....) 7 = Charlie (the young chef who has a drunken one-night-stand) 8 = Amy (the young woman who has a drunken one-night-stand with Charlie and later has an affair with her best friend's boyfriend) 9 = Jake (as bisexual man who has a relationship with Shaan and then Ruth) 10 = Duma (The truck driver who has many partners ..... 11 = Zamo (Duma's wife who 12 = Ntombi (the girl who goes away to the city and comes back dying of AIDS and starts ARVs) 13 = Buhle (the young rural girl who falls in love with Muzi) 14= Muzi (the young rural man who falls in love with Buhle and woos her to "jump" the line) 55 = Other (specify)	
10.2.8	After what happened to _____ [REPEAT NAME MENTIONED IN 10.2.7], what do you think was the main lesson that he/she learned? What else? [MULTIPLE ANSWERS] Probe: What else?	1 = Know who your lover's lovers are. 2 = Find out if you're in a sexual network. 3 = Being in a sexual network increases risk of getting HIV. 4 = Know someone 's sexual history before having sex. 5 = Get tested for HIV. 6 = Ask people you have sex with to get tested for HIV. 7 = Talk openly and honestly about your sex relationships. 8 = The truth will always come out, so stick to one sex partner. 9 = Use condoms every time you have sex. 10 = Do not have sex after drinking too much alcohol. 11 = You can stay with a person who is HIV positive (infected) and still live a happy life. 55 = Others: _____	
10.2.10 ☞	Did you watch episode 28, the documentary review of the series, in which the HIV virus speaks to the audience?	1 = Yes 2 = No ➡ SKIP TO Q. 10.2.12	
10.2.11	How scared were you about what the virus said about HIV in intersexions? [READ OUT]	1 = Not scared at all 2 = Not very much 3 = Somewhat 4 = Very much 5 = Totally scared	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

10.2.12	Who did you talk to about what you saw on Intersexions? Anyone else? [PROBE] [MULTIPLE ANSWERS] Probe: What else?	1 = No one 2 = Someone I'm having sex with 3 = Friend (s) 4 = Coworker 4 = A brother or sister 5 = A son 6 = A daughter 7 = Other family members 8 = Other: _____	
10.2.13	Did you ask or encourage anyone you know to watch Intersexions?	1 = Yes 2 = No	
10.2.15 ☞	During season 1 of the series, did you ever listen to an Intersexions talk show on radio?	1 = Yes 2 = No ➔ SKIP TO Q. 10.2.17	
NOTE: IF RESPONDENTS ANSWERED NO TO BOTH q10.2.1, 10.2.3 AND q10.2.15 THEN SKIP TO SECTION 10.3			
10.2.16	How many of the 28 episodes of Intersexions did you listen to on radio?	1 = 1 to 6 2 = 7 to 12 3 = 13-18 4 = 19-25 5 = All 28 episodes	
10.2.17	Can you complete the following slogan: Do you know who your lovers.....	1 – "... lovers have slept with? 2 = Dont know	

10.3 4PLAY: SEX TIPS FOR GIRLS

10.3.1	Have you ever seen this programme on television? [show pic 10.3.1: still from most recognizable scene]	1 = Yes 2 = No ☐ SKIP TO 10.3.1.2	
10.3.1.1	What is the name of the programme?	1= 4Play/Sex Tips for Girls → 55 =Other (Specify) 98= Don't know	
10.3.1.2	In the past 12 months have you watched 4Play: Sex Tips for Girls on television?	1 = Yes 2 = No ☐ SKIP SECTION 10.4	
10.3.2	How many episodes of 4Play: Sex Tips for Girls did you watch on TV?	1 = 1 to 6 2 = 7 to 12 3 = 13-18 4 = 19-25 5 = All 28 episodes	
10.3.3	Of all the characters in the drama, which one did you care about most?	1 = Noma (Hairdresser and single parent to teenager) 2 = Nox (Housewife with 2 kids, suspects husband of cheating and subsequently has an HIV test) 3 = Danny (Hard-partying stylist with many sexual partners; subsequently gets TB) 4 = Amira (Naïve, ambitious singer involved in an abusive relationship with poet Tshepiso. Through the breakup she regains her spirit to find fame and fortune) 5 = None 55 = Other (specify)	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

10.3.4	After what happened to Noma, what do you think is the main lesson that she learned? PROBE: What else? [MULTIPLE ANSWERS]	1 = You don't need to have sex when you first meet a guy to keep from losing him. 2 = You should not have sex with someone until it feels right for you. 3 = You should not stay with a man who does not see the relationship the same way you do. 98= Don't know	
10.3.5	After what happened to Nox, what do you think is the main lesson that she learned? PROBE: What else? [MULTIPLE ANSWERS]	1 = Anyone can get infected with HIV regardless of their economic status and race. 2 = People who are HIV positive can live a normal life 3 = Even if one partner is faithful if the other one cheats you can get infected with HIV 4 = There are support groups that will help people live with HIV. 55 = Others (Specify) _____ 98= Don't know	
10.3.6	After what happened to Danny, what do you think is the main lesson that she learned? PROBE: What else? [MULTIPLE ANSWERS]	1 = Drinking too much can lead to having too many sex partners. 2 = Drinking too much can make you forget about using condoms. 3 = Too much drinking can increase your risk for HIV 4 = Too much drinking can increase risk for other diseases such as TB55 = Others: _____ 98 = Don't know	
10.3.7	After what happened to Amira, what do you think is the main lesson that she learned? PROBE: What else? [MULTIPLE ANSWERS]	1 = Women should not neglect themselves in order to be loved by a man. 2 = Women need to achievetheir own dreams. 3 = Men who really care about you will help you achieve your own goals. 55= Others: _____ 98 = Don't know	

10.4 BROTHERS FOR LIFE

10.4.1 ☞	In the past 12 months have you seen this logo? *[Show pic 10.4.1* BROTHERS FOR LIFE *logo]*	1 = Yes 2 = No → SKIP TO 10.4.3	
10.4.2	What does this logo stand for (represent)?	1 = Brothers for Life 55 = Others: (specify) 98 = Don't know	
10.4.3	Can you tell me all the places where you have heard about or seen BROTHERS FOR LIFE?	0 = Never heard of it - SKIP to q10.4.8 1 = Television 2 = Radio	

	[PROBE for MULTIPLE answers]	3 = Community Radio 4 = Posters 5 = Pamphlets, booklets 6 = Community event 7 = School 8 = Friend or relative 9 = From an HIV & AIDS organisation 10 = Clinic or hospital 11 = Billboards 12=Internet 13= Daily Sun newspaper 14 = Don't remember 66= Other (specify)	
10.4.4	What personalities from Brothers for Life can you name? [PROBE for MULTIPLE answers]	1 = Patrick Shai 2 = Teko Modise 3 = John Smit 4 = Graeme Smith 5 = Patrice Evra 6 = Ryan Giggs 7 = Lionel Messi 8= John Kani 8= Trevor Noah 10= Matthew Booth 55= Other (specify) 88= Don't know	
10.4.5	What does it mean to you to be a BROTHER FOR LIFE? [PROBE for MULTIPLE answers]	1 = To take responsibility for your actions 2 = To take care of your family 3 = To be a good man 4 = To respect women 5 = Not to hit women 6 = To have only one partner 7 = Not to drink a lot 8 = To make informed choices 98 = Don't know 66= Other (specify)	
10.4.6	In the past 12 months have you seen this advert on television? [show pic 10.4.8 still photo from the Manifesto advert]	1= Yes 2= No → SKIP TO 10.4.8 98= Don't know → SKIP TO 10.4.8	
10.4.7	What is the main message that this advert is trying to tell you? [PROBE for MULTIPLE answers]	1= There is a new man in South Africa 2= It is possible to be a good man 3= A responsible man supports his partner and children 4= Alcohol can reduce one's ability to protect himself from HIV 5= A man must not hit or abuse his partner 6= A man must take care of his health 66= Other (specify) 98= Don't know	
10.4.8	In the past 12 months have you seen this advert on television? [show pic 10.4.8: still photo from one of the World Cup adverts]	1= Yes 2= No → SKIP TO10.4.10 98= Don't know → SKIP TO10.4.10	
10.4.9	What is the main message that this advert is trying to tell? [PROBE for MULTIPLE answers]	1= There is a new man in South Africa 2= It is possible to be a good man 3= A man with one sexual partner protects himself from HIV 4= A responsible man supports his partner and children 5= Alcohol can reduce one's ability to protect himself from HIV 6= A man must not hit or abuse his	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

		partner 66= Other (specify) 98= Don't know	
10.4.11	In the past 12 months have you seen this advert on television? [show pic 10.4.11: still photo from the Patrick Shai advert]	1=Yes 2= No → SKIP TO 10.4.13 98= Don't know 10.4.13	
10.4.12	What is the main message that this advert is trying to tell? [PROBE for MULTIPLE answers]	1= A man must not hit or abuse his partner 2= Abuse affects the whole family 3= It is possible for a person who is abusive to stop and change 66= Other (specify) 98= Don't know	
10.4.13	Please complete the following slogan "There is a new man..."	1 = in South Africa 2 = unable to complete	
10.4.14	Please complete the following slogan "Yenza Kahle, Do..."	1 = the right thing 2 = unable to complete	
10.4.15	Please complete the following slogan "I am that man, and you..."	1 = are my brother 2 = unable to complete	

10.5 SCRUTINIZE TV SPOTS

10.5.1 ☛	In the past 12 months have you seen this on television, *[Show pic 10.5.1: Scrutinize]*	1 = Yes 2 = No ➧ SKIP TO Q. 10.5.3	
10.5.2	In these TV spots, what does the term "SCRUTINIZE" mean to you? [Multiple responses possible] Probe: What else?	1 = See if your own sex behavior is risky. 2 = Win the battle against HIV 3 = Get tested for HIV 4 = Get your sex partner tested for HIV. 5 = Use condoms every time you have sex 6 = Only have one sexual partner at a time 7 = Too many sex partners can get you infected with HIV 8 = Don't have sex if you've been drinking too much to use a condom. 9 = Sugar daddies and mamies can give you HIV. 66 = Other (specify) 98= Don't know	
10.5.3 ☛	In the past 12 months have you seen this on television? *[Show pic 10.5.3: the Makhwapheni "sex network scene]*	1 = Yes 2 = No ➧ SKIP TO Q. 10.5.6	
10.5.4	In this TV spot, what does the small round character with the white eyes in the upper right corner represent? [Multiple answers] Probe: What else?	1 = HIV & AIDS virus 2 = HIV infected sex partner 66= Other (specify) 98= Don't know	
10.5.5	What does the network of circles above the couples mean? Probe: What else? [Multiple answers]	1 = Many partners can increase HIV infections very fast 2 = Your sex partner may be having sex with many other people that you don't know about 3 = Only takes one HIV infected partner to infect many others. (if they're all linked together) 4 = Stick to one sex partner to protect yourself from HIV 5 = Always use a condom. 66= Other (specify) 98= Don't know	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

10.5.6 ☞	In the past 12 months have you seen this animated spot on television? *[Show picture 10.5.6: thescreen grab with image of SA –]*	1 = Yes 2 = No ➧ SKIP TO Q. 10.5.8	
10.5.7	What is the main message that this spot is trying to tell? [Multiple answers] Probe: What else?	1 =Having more than one sexual partner can increase your risk of HIV . 2 =HIV is more easily transmitted in the first six weeks after infection.3 =Keep to one sexual partner Test for HIV to know your status . 3 5 = Always use a condom. 55= Other (specify) 98= Don't know	
10.5.8 ☞	In the past 12 months have you seen this animated spot on television? *[Show picture 10.5.8: the scene with the plot of the 2-6 week acute infectious period for HIV: undercover lover]*	1 = Yes 2 = No ☐ SKIP TO Q.10.5.10	
10.5.9	What is the main message that this spot is trying to tell you? [Multiple answers] Probe: What else?	1 = Wait more than 6 weeks before having sex with anyone for the first time (protects you from HIV). 2= You can get HIV more easily during the first 6 weeks after a person you have had sex with first gets infected. 3 = Get tested for HIV before having sex with anyone for the first time. 4 = Ask your partner to get tested for HIV before you have sex with them for the first time. 5 = Get tested often for HIV if you have many sex partners. 6 = Always use a condom. 55= Other (specify) 98= Don't know	
10.5.10	Please complete the following slogan "Flip HIV to ..." [Correct answer: "HIVICTORY"]	1 = "HIVICTORY" 2 = Unable to complete	
10.5.11	Please complete the following slogan "Undercover lover can bring..." [Correct answer: "you HIV from another"]	1 = "you HIV from another." 2 = Unable to complete	
10.5.13	Please complete the following slogan "If the playa is too drunk, don't... [Correct answer: "put him in the game"]	1 = "put him in the game." 2 = Unable to complete	

10.6 Soul City

10.6.1	Have you ever watched Soul City TV?	1 = Yes 2 = No → ☐ SKIP TO Q10.6.7	
10.6.2 ☞	In the past 12 months have you watched Soul City Television	1 = Yes 2 = No → ☐ SKIP TO Q10.6.7	
10.6.3	How many episodes of Soul City did you watch in the past 12 months?	1= 1 only 2= 2-5 3 = 6 or more	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

10.6.4	**Have you ever talked to your sexual partner about what you saw on Soul City TV?**	**1 = Yes** **2 = No** **3 = I have no sexual partner**	
10.6.5	**Have you ever talked to your peers or friends about what you saw on Soul City TV?**	**1 = Yes** **2 = No**	
10.6.6	**Have you ever talked to your children about what you saw on Soul CityTV?**	**1 = Yes** **2 = No** **3 = I have no children**	
10.6.7	**Have you participated or followed SoulCity or SoulCityitsReal on Facebook?**	1. Yes 2. No	
10.6.8	**Have you participated or followed SoulCity or SoulCityitsReal on twitter?**	1.Yes 2.No	
10.6.9	**Have you participated or followed SoulCity or SoulCityitsReal on Young Africa Live?**	1.Yes 2.No	
10.6.10	**Have you ever listened to Soul City radio drama or Soul City radio talk shows?**	1 = Yes 2 = No ➡ **SKIP TO 10.6.14**	
10.6.11	**In the past 12 months, have you listened to Soul City Talk shows on community radio?**	1 = Yes 2 = No ➡ **SKIP TO 10.6.14**	
10.6.12	**How many times did you listen to Soul City talk shows on community radio in the past 12 months?**	1= 1 only 2 = 2-5 3 = 6 or more	
10.6.13	**Did you discuss what you heard on Soul City Radio with anyone?**	1 = Yes 2 = No	
10.6.14	**Have you watched "Love Stories in a Time of HIV and AIDS" - a series of films from different countries in Southern Africa?** **(IF NO PROCEED IN ANY CASE WITH QUESTION**	1 = Yes 2 = No 96 = Don't know	
10.6.15	**If Yes, which of the following films/stories did you watch?** **If No, do you recall seeing any of the following TV films/stories ...?** **(READ OUT RESPONSES)** **(MORE THAN ONE ANSWER POSSIBLE)**	1. **Umshato-The wedding** (a South African story on a bride discovering on her wedding day that her husband to be has not been truthful to her) 2. **When the music stops** (A Zambian film about a church deacon cheating on his wife)..... 3. **Big house, small house** (A Zimbabwean story on a man taking on a second wife) ..... 4. **Travelling man** (A story from Lesotho about a man neglecting his wife and children in pursuit of a girlfriend).....	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

		6. After the honeymoon (A Malawian story on a the problems that a newlywed couple faces)..... 6. Chaguo-the Choice (A story from Tanzania about how a couple is affected by the influence that the man experiences from his friends)..... 7.Bloodlines (A story from Swaziland about a father who realises that he is unable to save his son life because of his own past behaviour)..... 8.Second chances (A story from Botswana about a university student who gets involved in a risky affair with an older man)..... 9.Against the odds (A Namibian story on how an orphaned girl experiences the advances of an older man..... 10 Betrayed (A Mozambican film about a couple who decide to be honest about the secret affairs they have been having)..... 11 None of them ..... 12Don't remember	
10.6.16	Have you ever talked to anyone about the things you have seen in any of these films?	Yes..... No ➧ SKIP TO q10.6.18 ..... Don't remember ➧ SKIP TO q10.6.18	
10.6.17	If Yes, to whom have you talked about the things that you have seen in the films? [MORE THAN ONE ANSWER POSSIBLE]	1 =Sexual partner(s)..... 2=Friend(s) ..... 3=My children ..... 4=Others in my family..... 5=People in my community ..... 55=Other [specify]	
10.6.18	Please complete the following slogans? "Talk, respect..." [Correct answer : protect]	1 = "protect" 2 = not able to complete	
10.6.19	PhuzaWize : Drink safe. .... [Correct answer : Live safe]	1 = "Live safe" 2 = not able to complete	
10.6.20	Have you heard of OneLove?	1 = Yes 2 = No	
10.6.21 ➧	In the past 12 months, have you seen this? [Show pic 10.6.21: OneLove logo]	1 = Yes 2 = No ➧ SKIP TO Q10.6.23 only if q10.6.20 was also No.	
10.6.22	Can you tell me all the places where you heard about or seen OneLove? [PROBE for MULTIPLE answers.]	1 = Television 2 = Radio 3 = Community Radio 4 = Posters 5 = Pamphlets, booklets 6 = Community event 7 = School	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

		8 = Friend or relative 9 = From an HIV and AIDS organization 10 = Clinic or hospital 11 = Billboards 12 = Don't remember 66 Other (specify)	
10.6.23 ☛	In the past 12 months, have you seen this logo? [Show pic 10.6.23: PhuzaWize logo]	1 = Yes 2 = No ➡ SKIP TO Q10.6.25	
10.6.24	Can you tell me all the places where you heard about or seen PhuzaWize? [PROBE for MULTIPLE answers.]	1 = Television 2 = Radio 3 = Community Radio 4 = Posters 5 = Pamphlets, booklets 6 = Community event 7 = School 8 = Friend or relative 9 = From an HIV and AIDS organization 10 = Clinic or hospital 11 = Billboards 12 = Don't remember 66 Other (specify)	
10.6.25	Have you read any of the following booklets in the past 12 months? [Show booklets: pics 10.6.25] [multiple answers]	0 = Never read 1 = Phuza wize Campaign Book 2 = Relationship Book 3 = SoulSex 4 = HIV-Free babies 5 = OneLove booklet 6 = Alcohol and you 7 = Parenting and alcohol 8.=Circumcision for Life	
10.6.26 ☛	In the past 12 months have you watched any episodes of Soul Buddyz television?	1 = Yes 2 = No ➡ SKIP TO Q10.6.28	
10.6.27	How many episodes did you watch? (13 in total)	Write number:_____	
10.6.28	Have you ever talked to your children about what you saw on Soul Buddyz Television?	1 = Yes 2 = No 3 = I have no children	
10.6.29	Have you ever belonged to a Soul Buddyz Club?	1 = Yes 2 = No	
10.6.30	Have you participated in a Soul City Onelove community dialogue about HIV prevention?	1 = Yes 2 = No	

10.7 loveLife

10.7.1 ☛	Have you read any editions of UNCUT in the last 12 months? [SHOW Pic 10.7.1:UNCUT PICTURE]	1= Yes 2= No ➡ SKIP TO Q10.7.8	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

10.7.2	How many editions of UNCUT have you read in the past 12 months?	1= 1 2 = 2 3 = 3 4 = 4 5 = 5 8 = 8	
10.7.3	What do you like about UNCUT? [More than one response possible] Probe: What else?	0 = Nothing 1 = to get information about sex 2 = to get information about relationships 3 = to get information about HIV 4 = to get information on teenage pregnancy 5 = news about fashion 6 = stories about sport 7 = stories about popular youth culture 8 = hearing other young people's voices 9 = the pictures 10 = the book, CD, and DVD reviews 11 = the puzzles and games 12 = the pull-out poster 13 = to access opportunities such as competitions and learnerships 66 = other (please specify)	
10.7.4	Where do you usually get your copy of UNCUT? [More than one response possible] Probe: What else?	1 = it comes with the newspaper 2 = I get it from the loveLife clinic/franchise/Y-Centre/Outlet 3 = From my parent/guardian/older relative 4 = From my teacher 5 = From my peers/friends 66 = Other (please specify)	
10.7.5	Did you discuss what you read with anyone?	1= Yes 2= No	
10.7.6☛	Have you listened to a loveLife talk show on the radio in the last 12 months?	1= Yes 2= No ✱ SKIP TO Q10.7.10	
10.7.7	On which radio stations have you listened to loveLife radio talk shows?	1 = Ukhozi FM 2 = Umhlobo Wenene 3 = Diphalaphala 4 = Ligwalagwala 5 = Thobela FM 6 = Lesedi FM 7 = Kaya FM 8 = YFM 66 = Other (please specify)	
10.7.8	How often do you listen to loveLife talk shows on the radio?	0 = Never 1 = Once a week 2 = Once a month 3 = Once or twice a year	
10.7.9	Have you ever discussed what you heard on radio with anyone?	1= Yes 2= No	
10.7.10 ☛	Have you listened to an episode of the Foxy Chix drama series in the last 12 months?	1= Yes 2= No ✱ SKIP TO Q10.7.14	
10.7.11	Which of the following best describes how you listen to stories of the Foxy Chix? [READ OUT LOUD] [ONLY ONE RESPONSE POSSIBLE]	1 = I tune into the radio specifically to hear them 2 = I download the stories from the website or from MYMobi 3 = Whenever I happen to be listening to the radio 4 = I see/hear the stories but they don't interest me 8 = I don't know anything about the Foxy	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

		Chix ➧ SKIP TO Q10.7.14	
10.7.12	The main message of Foxy Chix is..... [Multiple answers possible] Probe: What else?	1 = friends provide a refuge and protection 2 = friends look out for one another and give each other strength 3 = friends make you complete 4 = friends can speak about sex openly 5 = friends help me to make better decisions 6 = even though I am part of a group I can confidently express my opinion 98= Don't know	
10.7.13	Which Foxy Chix character do you like the most?	1 = Noni 2 = S'boh 3 = Jazz 4 = I don't like them 5 = I don't know their names	
10.7.14 ☞	Have you watched any episode of "Make your Move" on TV in the last 12 months?	1= Yes 2= No ➧ SKIP TO Q10.7.18	
10.7.15	How many episodes of "Make your move"did you watch?	1 = 1-3 episodes 2 = 4-6 episodes 3 = 7-10 episodes 4 = 11-13 episodes	
10.7.16	What is the main message of "Make Your Move" TV Programme? [ONE ANSWER ONLY] [READ OUT]	1 = Young people can take charge of their lives and make positive moves from difficult situations 2 = If you don't have money or a job then it is very hard to make your move 3 = If you want to make your move then you need loveLife to help you 66 = Other: please specify 98= Don't know	
10.7.17	Have you ever talked to anybody about what you saw on Make Your Move TV Programme?	1= Yes 2= No	
10.7.18	Have you ever watched an episode of loveLife's documentary series "I am Mzansi"?	1= Yes 2= No	
10.7.19 ☞	Have you heard of MYMcta in the last 12 months?	1= Yes 2= No ➧ SKIP TO Q10.7.23	
10.7.20	Do you use MYMcta on your cell phone?	1= Yes 2= No ➧ SKIP TO Q10.7.23	
10.7.21	What made you download MYMcta onto your cell phone?	1 = I saw it on Make Your Move TV Programme 2 = I read about it in UNCUT 3 = I heard about it on the radio 4 = A friend talked to me about it 5 = A loveLife groundBREAKER or mpintshi encouraged me 6 = At a loveLife event they showed me how to do it 98= Don't know	
10.7.22	What do you use MYMcta for?	1 = to chat with my friends 2 = to share my opinion in a forum or poll 3 = to access information about opportunities 4 = to access information on sex, sexuality,	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

		and relationships 5 = to get advice from Mizz B 66 = Other: please specify	
10.7.23 ☞	In the past 12 months have you heard or seen the phrase "nakanjani" associated with loveLife?	1= Yes 2= No ➧ SKIP TO Q10.7.26	
10.7.24	Where did you hear or see this phrase? [Multiple answers possible] Probe: What else?	1 = Radio 2 = TV 3 = UNCUT 4 = Twitter 5 = Facebook 6 = MYMzia 7 = From a loveLife groundBREAKER or Mpintshi 8 = Billboards 55 = Other (please specify)	
10.7.25	What does "Nakanjani" mean to you? Probe: What else?	1 = No matter what, I am going to make my move 2 = I will succeed at all costs 3 = There is no way young people can make it in the world today 4 = Other: please specify 98= Don't know	
10.7.26 ☞	Have you participated in a loveLife programme in the past 12 months?	1= Yes 2= No ➧ SKIP TO Q10.7.28	
10.7.27	Which loveLife programmes have you participated in, in the past 12 months? MULTIPLE ANSWERS	0 = Don't know 1 = Motivation 2 = Guide 2 ACTION 3 = lovingLife 4 = Making My Move / Make Your Move 5 = loveLife Debating 6 = Centre Stage / Performing Arts / Culloha Factory 7 = Body Yo / Healthy Sexuality / Million Voices Initiative 8 = Cyber Yo 9 = loveLife Games 10 = loveLife Youth Festivals 11 = Radio Yo 12 = Sports 13 = Ultimate Frisbee 14 = Ultimate Dance 66 = Other (specify)	
10.7.28	Have you ever called the loveLife Call Centre's Youth line?	1= Yes 2= No	
10.7.29	Have you ever called the loveLife Call Centre's Parent line?	1= Yes 2= No	
10.7.30	Have you ever sent a Plz Call Me to loveLife?	1= Yes 2= No	
10.7.31	IF answered YES to question 28, 29 or 30: How did you feel about your conversation with the loveLife Call Centre?	1 = I got the help I needed 2 = I did not get the help I needed 3 = I am not sure	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

10.8 Siyayinqoba Beat it!

10.8.1 ☞	In the past 12 months have you heard of "Siyayinqoba Beat it!"?	1 = Yes 2 = No ➡SKIP TO 10.8.4	
10.8.2	Can you tell me all the places where you have heard about or seen "Siyayinqoba Beat it!"? [[PROBE for MULTIPLE answers.] Probe: What else?	1 = Don't remember 1 = Television 2 = Radio 3 = Train Posters 4 = Newspapers 5 = From an HIV & AIDS organisation 6 = From a clinic or hospital 7 = Billboards 8 = In taxi ranks and/or train stations 9=Branded taxis 10= Web or mobile media 66= Other (specify)	
10.8.3	In the past 12 months have you watched any episodes of Siyayinqoba Beat it! on television?	1 = Yes 2 = No	
10.8.4	In the past 12 months have you seen this logo? *[Show picture 10.8.4: Siyayinqoba Beat it! logo –]*	1 = Yes 2 = No	
10.8.5	In the past 12 months have you seen this newspaper advert? *[Show picture 10.8.5: Siyayinqoba Beat it! newspaper advert]*	1 = Yes 2 = No	
10.8.6	In the past 12 months have you seen this train poster? *[Show picture 10.8.6: Siyayinqoba Beat it! newspaper advert–]*	1 = Yes 2 = No	
10.8.7	In the past 12 months have you seen this? *[Show picture 10.8.7: Siyayinqoba Beat it! Branded Condom]*	1 = Yes 2 = No	
10.8.8	In the past 12 months have you seen this? *[Show picture 10.8.8: Siyayinqoba Beat it! information pamphlets]*	1 = Yes 2 = No	
10.8.9	Can you complete the following slogan? "Protect yourself…." [Correct answer: Protect yourself. Protect others]	1 = Able to complete 2 = Unable to complete	

10.10 iLife RADIO DRAMA

10.10.1	In the past 12 months have you listened to the iLife drama on the radio?	1 = Yes 2 = No ➡SKIP TO SECTION 10.11	
10.10.2	On which community radio station did you listen to this drama?	List radio stations	
10.10.3	How many episodes of I-Life did you listen to on radio?	1 = 1 2 = 2-3 (a few) 3 = 2-6 (less than half) 4 = 7 or more (more than half) 5 = All or almost all episodes	
10.10.4	Which characters did you care about the most on I_Life?	1 = None 2 = Dima 3 = Thobi 4 = Sindile 5 = Wellie 6 =Simba 7 = Lucy 8=Mmathapelo 66= Other (specify)	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

10.10.5	Of all the characters in the drama, which one did you not like/dislike the most?	1 = None 2 = Dima 3 = Thobi 4 = Sindile 5 = Wellie 6 =Simba 7 = Lucy 8=Mmathapelo 66= Other (specify)	
10.10.6	What do you think were the drama's main messages and lessons? [Multiple answer] Probe: What else?	1 = PMTCT 2 = Treatment adherance 3 = HIV counselling and testing 4 =Gender issues 5 = Condom use 6 = Multiple sexual partnerships 66 = Other (specify)	
10.10.7	In the past 12 months did you ever participated in an I-Life Listener's Association discussion your local community radio station?	1=Yes 2=No	

10.11 Other Programmes

10.11.1	In the past 12 months, have you seen the government's "I am responsible" campaign?	1 = Yes 2 = No	

SECTION 11: VIOLENCE & ABUSE

Interviewer read out loud: I would now like to ask you some questions about violence			
11.1	Have you been in a physical fight in the past year?	1 = Yes 2 = No → SKIP TO Q11.2	

96 do not know, 97 not applicable, 98 refused to answer 99 missing

Appendix B: Ethical Approval for Primary Study

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON MEDICAL)
R14/49 Johnson

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER H110701**
PROJECT TITLE	The 3rd HIV National Communication Survey
INVESTIGATOR(S)	Dr S Johnson
SCHOOL/DEPARTMENT	Health and Development Africa
DATE CONSIDERED	15 July 2011
DECISION OF THE COMMITTEE	Approved Unconditionally
EXPIRY DATE	31 July 2013

DATE 12 October 2011 **CHAIRPERSON** (Professor R Thornton)

cc; N/A

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 completion of a yearly progress report.**

Signature **Date** 27 / 10 / 2011

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

Appendix C: Letter of Permission (Principle Investigator)

Health & Development Africa

Health and Development Africa (Pty) Ltd
A member of the Mott Macdonald Group
Physical address:-
Mott MacDonald House,
359 Rivonia Boulevard,
Rivonia, Johannesburg, 2128
South Africa

+27-87 310 5000 *telephone*
+27-11-87 310 5198 *facsimile*

4 September, 2013

To Whom It May Concern,

RE: Permission to use the Third National HIV Communication Survey data for Master of Science in Medicine by Dissertation – Sarah Magni

This letter serves to confirm my willingness, as the Principle Investigator of the National HIV Communication Survey (NCS), for Sarah Magni to use the data from NCS for her MSc by research at the School of Public Health, University of the Witwatersrand.

Sarah proposes to investigate "The relationship between alcohol and risky sexual behaviour". I believe that her research has high potential to improve the science base.

Yours sincerely,

Dr Saul Johnson
Managing Director
Health and Development Africa
+27 87 310 5000
saul.johnson@hda.co.za

Health and Development (Proprietary) Limited
Registered in South Africa no. 2002/007074/07
Part of the Mott MacDonald

Appendix D: Letter of Permission (NCS Steering Committee)

JOHNS HOPKINS
Health and Education in South Africa

Association incorporated under Section 21
Registration number: 2004/027886/08
Vat reg. no. 4890219837
053-199-NPO

Block D, Equity Park, 257 Brooklyn Road
Brooklyn, Pretoria, South Africa. 0011
Telephone: (+27) (12) 366-9300
Fax: (+27) (12) 366-9301

15 August, 2013

To Whom It May Concern,

RE: Permission to use the Third National HIV Communication Survey data for Master of Science in Medicine by Dissertation – Sarah Magni

This letter serves to confirm my willingness, on behalf of the National HIV Communication Survey steering committee, for Sarah Magni to use the data from the Third National HIV Communication Survey for her MSc by research at the School of Public Health, University of the Witwatersrand.

Sarah proposes to investigate "The relationship between alcohol and risky sexual behaviour". The steering committee believes that her research has high potential to improve the science base.

Yours sincerely,

Mr Richard Delate
Managing Director
Johns Hopkins Health and Education in South Africa
+27 12 316 9000
richard@jhuccp.co.za

Appendix E: Ethical Approval for Secondary Study

R14/49 Ms Sarah Magni

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M130965

NAME: (Principal Investigator)	Ms Sarah Magni
DEPARTMENT:	Public Health Health and Development Africa, Johannesburg
PROJECT TITLE:	The Relationship between Alcohol and Risky Sexual Behaviour
DATE CONSIDERED:	27/09/2013
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr Nicola Christofides & Dr Renay Weiner
APPROVED BY:	Professor PE Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	30/09/2013

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

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

I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report.**

Principal Investigator Signature

Date 7 / 10 / 2013

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES