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# Health beliefs and HIV risk among employees : a comparative study.

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# Health beliefs and HIV risk among employees: A comparative study

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Research report submitted to the Department of Psychology in the Faculty of Humanities, University of the Witwatersrand, Johannesburg, in partial fulfilment for the requirement of the Degree of Master of Arts in Industrial Psychology.

SUPERVISOR: DR. CALVIN GWANDURE

## Declaration

I hereby declare that this dissertation is my own unaided work. It is being submitted for the Degree of Master of Arts to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other university.

_____

Bongiwe Busisiwe Mncube

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## Abstract

The aim of this study was to investigate and compare health beliefs among employees. The study looked at the African Traditional Model and the Medical Model in relation to HIV risk among employees in the Eastern Cape, South Africa. The study sample was made up of 96 participants, all African, and predominately female. The study established employees` health beliefs by asking them to indicate their health beliefs on the Biographical Questionnaire provided in the study. HIV risk among employees was assessed through the use of HIV Risk-Taking Behaviour Scale (HRBS), Attitude to Condom Use, a sub-scale of the Sexual Risks Scale (SRSA) and Sexual Risk Cognitions Questionnaire (SRCQ). A comparison of HIV risk between the two groups of employees was achieved by performing ANOVA. In addition, the study conducted secondary analyses using correlations to establish relationships between variables. The results obtained in this study showed a statistically significant difference in HIV risk between employees who believed in the African Traditional Model and those who believed in the Medical Model in HIV prevention. Secondary correlational analyses between variables showed a significant, negative relationship between participants` attitude toward condom use and their sexual risk cognitions. The results indicated that employees who had a positive attitude towards condom use reported low sexual risk cognitions towards unsafe behaviour. In contrast, employees who had a negative attitude towards condom use showed high sexual cognitions towards unsafe sexual behaviours. Directions for future studies could focus on education and training strategies to reduce negative health beliefs among employees in the fight against HIV and AIDS in South Africa.



**Key Words:** health beliefs, African Traditional Model, Medical Model, HIV risk, employees, Eastern Cape, South Africa

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## List of Abbreviations

AIDS- Acquired Immunodeficiency Syndrome

ASSA- Actuarial Society of South Africa

WHO- World Health Organisation

STIs- sexually transmitted infections

SADHS- South African Demographic and Health Survey

ANOVA- Analysis of Variance

# Chapter One:

# Introduction

## 1.1 Introduction

The South African society is greatly affected by the HIV and AIDS pandemic. The number of HIV infections have increased in South Africa, from an estimated 4,10 million people in 2001 to an estimated 5.24 million in 2010 (Statistics South Africa, 2010). This raises concerns for business as an infected workforce is likely to be absent from work due to illness and impact on productivity (Rosen, Vincent, MacLeod, Fox, Thea & Simon, 2004). Those people that are in turn affected by the pandemic still have to take time off work to care for their families and siblings. Thus the HIV pandemic is beyond being just a social issue, but now threatens businesses and the economy at large. However, even though there has been great talk about the impact of HIV and AIDS on business, there has been minimal research done on the actual costs of HIV to business (Dickinson& Stevens, 2005; Rosen, Feeley, Connelly & Simon, 2007). HIV costs are not immediate, as a person might take anything between 5-10 years before they start being affected by the illness. But this does not mean that there will be no implications, thus it is required that business plans in accordance by finding efficient intervention programmes for their environments. It is also important to highlight that even though there have been several companies responding to this threat via their HIV and AIDS programmes, take up has been minimal (George & Quinlan, 2008; Rosen et al., 2007). Scott (2009) pointed out that any intervention within the area HIV risk behaviour has to be in line with a person's cultural health beliefs. Thus, in order to address the spread of HIV and AIDS transmission within the African context, it is therefore important to understand the employee risk behaviours within the African context and the beliefs that are associated with HIV and AIDS risk behaviour. Scott (2009) pointed out that for health educators to fully understand health seeking behaviours and HIV risk

behaviours, in particularly Africa, it is critical to understand the context that shapes the decisions regarding these behaviours, the cultural beliefs towards risk behaviours and the social influences. In the African context, there has been numerous research done on cultural practices or beliefs which might influence HIV risk behaviours. To mention a few within the scope of this study, in South Africa, attitudes towards condom use have been greatly shaped by the way condoms were introduced into the health care system. Condoms were introduced alongside the "HIV and AIDS" pandemic, which was during the Apartheid era. The common view among Black people then, was that all of this was just another instrument by the Apartheid government to keep Black people in check (Liddell, Giles & Rae, 2008; Scott 2009). Polygamy is another widely practiced tradition in Africa and has brought a lot of debate in the research sphere in media andin countries` health millennium goals of the 21st century. There is debate around polygamy as traditionally conceived or concurrent multiple sexual partners as responsible for the spread of HIV and AIDS in Africa(Oluga, Kiragu, Mohamed & Walli, 2010). Research as far back as the 1980sindicated the link between alcohol, drugs and sexual behaviour (Robertson & Plant, 1988). Most of the studies on HIV and AIDS risk point to alcohol and drug useas related to sexual risk behaviours in several populations in sub-Saharan Africa and around the world (Kalichman, Simbayi, Kaufman, Cain & Jooste, 2007). Alcohol use is often associated with sexual risks in Southern Africa, and of particular importance is the social setting of this consumption (Kalichman, Simbayi, Kaufman, Cain & Jooste, 2007). In Africa, it becomes evident that alcohol use and engaging in sexual risk behaviour is much more than an individual act, but highly elevated and influenced by the social aspects of drinking and engaging in HIV risk behaviour ((Morojele, Kachieng'a, Mokoko, Nkoko, Parry, Nkowane, Moshia & Saxena, 2006). It is therefore evident that risk behaviours and the spread of HIV and AIDS need to be understood within their cultural practices in order to come up with more meaningful interventions in South Africa, regionally and overseas.

## 1.2 Rationale of the Study

Acquired Immunodeficiency Syndrome (AIDS) is considered to be one of the major health threats of the 21st century.HIV and AIDS has spread at an alarming rate throughout the world. The public health authorities in South Africa have recognised it as a serious health problem with the potential for extensive morbidity and mortality. The South African society is greatly affected by the AIDS pandemic and the impact that the disease has on the workplace cannot be ignored.

The reason why it is important to understand health models in HIV and AIDS prevention in Africa is that cultural contexts influence health behaviour. Behaviour, particularly health behaviour, occurs in the context of cultures (Sodi & Bojuwoye, 2011).In Sub-Saharan Africa, the two dominant health beliefs are the African Traditional Model and the Medical Model. These health models tend to guide people` s health decisions and help-seeking behaviours. In practice,the African Traditional Model places great emphasise on ancestral spirits and their intervention in people's lives. Traditional healing and traditional rituals and rites are practised to mark important phases and events in people` s lives and these are observed as a way of life. Thus, to make any meaning of health or healthcare for an individual,this has to be positioned within their cultural beliefs(Sodi& Bojuwoye, 2011).

In South Africa, long before the period of colonisation and the arrival of western doctors, most people if not all, had been relying on traditional medicines and traditional healers for primary health care (Biko, 1978; Edwards, 2011). Richter (2003) explains that colonial powers and structures have played an overpowering role in changing the cultural landscape and practices of their patients. The

colonialists in an effort to completely destroy the structures that had been built in the African society and to impose their imperialism with an unsettling totality, turned to the past of the oppressed people, distorted, disfigured and destroyed the African culture (Biko, 1978). Indigenous therapeutic practices were thus never mentioned within colonial manuals or laws (Airhihenbuwa, 1995). Medical beliefs and practices of most non-European people were considered primitive, savage, and barbaric (Biko, 1978). They were also considered not as medicine, but magic, religious customs referred to as superstition, or witchcraft (Airhihenbuwa, 1995). These laws sought only to establish European-modelled institutions regardless of what may have pre-or-co-existed in African society (Airhihenbuwa, 1995). As a result, laws were promulgated to criminalise the practice of traditional medicine. This is evident in the various pieces of legislation, such as the Witchcraft Suppression Act of 1957 and the Witchcraft Suppression Amendment Act of 1970, which explicitly prohibited diviners from practising their trade as early as 1891 in colonial Natal. The marginalisation of African culture proceeded even after colonialism. The apartheid government oppressed and excluded traditional healers from mainstream healthcare systems (Mvundlela, 2006). Most people then became acculturated into western culture and the significant of healing systems began to be eroded (Mvundlela, 2006). However, the South African government in the last few years have started to acknowledge the growing body of traditional healing and their impact on the South African community. This was evident with the passing of the Traditional Health Practitioners Act in 2007 to sanction traditional healing practices in South Africa. Peltzer, Mngqundaniso and Petros (2006) pointed out that for as long as Traditional Healers are well trained, for example in HIV treatments etc., there is great opportunity for partnering with the Western health practitioners in terms of referrals and them contributing greatly to health treatment in South Africa.

Regardless of the deemed supremacy of a health view, people through the years have been accustomed to these practices and these inform the health behaviours and risk behaviours thereof in society. Thus, it becomes imperative to explore the degree to which these cultural beliefs influence HIV risk and health behaviour in order to fully understand the kind of interventions that are required to combat the fight against HIV and AIDS. Thus, the current study seeks not to argue about whether or not the African Traditional Model or the Medical Model is superior, progressive, right or wrong. The paper seeks to highlight the importance of these health views with particular focus on HIV risk among employees.

The present study therefore sought to assess employees` health beliefs and HIV risk. The study also sought to compare levels of HIV risk between employees who believed in the African Traditional Model and employees who believed in the Medical Model.

In order to achieve the above mentioned aims of the study, the research report is structured as follows: Chapter 2 presents Literature Review, Chapter 3 Methodology, Chapter 4 Results and Chapter 5 Discussion and Conclusion. Chapter 1 looks at HIV and AIDS in the workplace, HIV risk behaviours in the African context and attitude to condom use. The chapter then progresses to look at practices informed by the different health beliefs such as polygamy and substance abuse and associated effects on sexual risk behaviour. Finally, the chapter discusses sexual risk cognitions and how that exposes individuals to HIV risk. In presenting this literature and previous research findings, the writer sought to provide a critical evaluation of all the arguments presented.

# Chapter Two:

# Literature Review

## 2.1 Introduction

This chapter will discuss the literature and research relating to HIV risk for the South African workplace, health beliefs and risk behaviour, with particular focus on attitude to condom use,substance abuse, traditional practices such as polygamy and circumcisionwithin the context of sexual risk behaviour. A cultural perspective to health and HIV risk is discussed, with focus on the Western health model and the African Traditional model of health and illness.

## 2.2 The impact of HIV and AIDS in South African organisations

The HIV epidemic has great impact on society and very much on the economy as human capital is at risk and affected. The estimated impact on the South African economy has been between 0.5% and 2.6% (Gow & Grant, 2010). In a study amongst a few companies from South Africa, Uganda, Kenya, Zambia, Ethopia and Rwanda, the estimated impact of HIV on these companies was between 1% and 2% (Rosen, Feeley, Connelly & Simon, 2007). However caution needs to be exercised on these findings as there could have been other organisational costs which the study could not measure. One of South Africa's gold mining companies, Harmony, had predicted in 2005 that 30% of its workforce was infected with HIV and this would cost them 7.5%of their total labour cost in the next 15 years (Ellis, 2007). AngloGold on the other hand had already spent approximately R14, 62 million by the year 2004 on intervention programmes. It is important to note that there are varying impacts of this epidemic on business, depending on the sector and the type of people it employs. The mining sector is the hardest hit sector in Africa with highest HIV prevalence amongst its mineworkers. These

employees are mostly unskilled, live away from home and thus get exposed to sex workers (Ellis, 2007). Secondary to this sector has been the Manufacturing and Transport sectors, also highly composed of migrant labourers, thus increasing HIV risk (Ellis, 2007). Research has found that it is these impacted sectors that have been responding to this epidemic through HIV and AIDS programmes (Ellis, 2007; Rosen, Feeley, Connelly & Simon, 2007; George & Quinlan, 2008).

Business is usually impacted on two levels with the case of HIV infections; these include direct and indirect costs (Gow & George, 2011). Direct costs usually refer to direct, bottom line and obviously measurable costs which would reflect on the income statement. These may include benefits packages such as pension funds, funeral expenses, and medical aidorhealth insurance. Recruiting new employees on a constant basis is a direct cost to the employer as advertising and interviewing are costly(Stevens, 2001). Training new staff is also costly as this may include pre-employment education and training costs, in-service and on-the job training costs, salary while new employee comes up to speed (Stevens, 2001). Indirect costs refer to costs that are not obvious and which can be difficult to calculate (Stevens, 2001; Gow & George, 2011). These may refer to absenteeism due to sick leave or leave to care for dependents with AIDS or funeral leave(Stevens, 2001). Morbidity on the job is also a critical factor which relates to reduced performance of employees due to HIV and AIDS sickness on the job.

Kramer of Metropolitan Life (2001, p.g.5; cited in Stevens, 2001) estimated the indirect costs of HIV and AIDS to the workplace (see Table 2.2.1 below). He further estimated that indirect costs could

add a further 10% to the remuneration budget of a typical manufacturing company in 2005 and 15% in 2010.

***Table 2.2.1: Breakdown of indirect costs (Kramer, 2001; cited in Stevens, 2001, p.g.5)***

| **Source of cost** | **Percentage** |
|---|---|
| Loss in turnover/profit | 45% |
| Management and labour meetings | 20% |
| Recruitment and training | 10% |
| Legal costs | 10% |
| Sick and compassionate leave | 10% |
| Motivation/Productivity loss | 5% |

The study findings are in agreement with Rosen, Vincent, MacLeod, Fox, Thea and Simon (2004) who conducted a study amongst six organisations in South Africa and Botswana. They found that indirect and direct costs of HIV and AIDS to companies are determined by numerous factors with the greatest contributor being employee turnover. The reason for this is that those employees who were ultimately terminated because of AIDS took between 11 and 68 more days of paid sick leave in their final year of service than employees who were still in the workforce. Rosen et al. (2007) found that infected employees took between 18 and 50 days more. Those that attended work produced substantially less. This is supported by the reviews obtained from supervisors who reported that employees who had died or taken disability retirement because of AIDS were 22-63% less productive in their final year of service (Rosen et al., 2004). Supervisors also reported spending an average of 7-25 days of their own time in work for each affected employee's last year of service (Rosen et al., 2004). In South Africa, despite companies having introduced interventions in the workplace, there has been minimal take up by staff on these programmes (Ellis, 2007; Rosen et al., 2007; George & Quinlan, 2008). There has been varying reviews on potential reasons, stemming from stigma on HIV,

lack of knowledge about the programmes, social barriers such as influence of others in decision, and design of the programmes, that is, accessibility and unfriendly treatment (George & Quinlan, 2008). This finding suggests that some work is still required within organisations in creating relevant, effective and successful intervention programmes.

## 2.3 Medical Model : Approach to health and illness

The Medical model to health and illness is based on the premise that the individual determines their health behaviour, which is highly influenced by the individual's perceived threat of the illness and thus would determine the behaviour or action to counteract this threat (Conner and Norman, 2005). The individual would then evaluate the seriousness of the threat, the benefits of engaging in that particular health behaviour and evaluate against the costs. There could also be other influences from either the mass media or people's advises that may shape the decision and one's health motivation, that is, the value one places on their own health are other contributing influences to health-seeking behaviour (Ogden, 2007). Thus, the medical model adopts a rational approach to health-seeking behaviour, where an individual perceives threat; he/she would than engage in behaviour to counteract this threat.

### 2.3.1Medical modelof health and illness

HIV risk behaviouris a concept that features a lot in discourses about HIV and AIDS.Rhodes (1997) highlights that the two distinctive approaches in understanding risk behaviour in relation to the

individual is that of individual versus the social view. In regards to the individualistic view, risk behaviour has been conceptualised as a product of individual cognition, decisions and associated actions (Rhodes, 1997). These theories of behaviour that have been applied in trying to understand HIV risk behaviours include, the Health Belief Model (Conner & Norman, 2005); the Theory of Reasoned Action and its updated version, the Theory of Planned Behaviour (Terry, Gallios & McCarmish, 1993); and the Social Cognitive Learning Theory (Conner & Noman, 2005). The common ideology around these theories is that a person's behaviour is highly determined or influenced by their beliefs and subjective evaluations (Eaton, Flisher & Aaro, 2003). The Western model to the understanding of risk behaviour has also been underpinned by the KABP model, which is based on the premise that once knowledge is shared, this should have an impact and change the person's attitude, behaviour and practice (Liddell, Giles & Rae (2008). Eaton, Flisher and Aaro (2003) argue that in understanding HIV risk behaviour in the South African context is a bit complex and thus not as simplistic as captured by these models. They point out that these theories have gained more success in the Western contexts in which they were designed, with behaviour being more predictive in the subjects covered (Eaton et al., 2003). Salovey and Rothman (2003) also pointed out that there has been a challenge with the predictive theories when it comes to explaining risk behaviours such as having sex without condoms or contraception when pregnancy is not desired, drunk- driving, or substance abuse. McMillan and Worth (2011) therefore pointed out that creating awareness and sharing knowledge on risk behaviours does not necessarily translate into change in behaviour and practice. They argued that there are greater forces which the KABP model has not considered, the social and cultural influences (McMillan & Worth, 2011). In agreement, Scott (2009) pointed out that to fully understand health-seeking behaviours and risk behaviours, particularly in Africa, it is critical to understand the context that shapes the decisions regarding these behaviours, the

cultural beliefs towards risk behaviours and the social influences. The element of culture has also seen a lot of reviews amongst study findings of Scott (2009) and also pointed out by Airhihenbuwa (1995).

## 2.4 African Traditional Model: Approach to health and illness

The African traditional model approaches issues of health and illness holistically, by taking into account the individual's physical, mental and social well-being (Edwards, 2011). Traditional healers as part of the African culture believe that people are products of the extended community, therefore they enquire into every aspect of a patient's life activities, focusing on the behaviours that would be most likely to aggravate conflict with others (Hewson, 1998). This is based on the premise that harmonised environmental relationships between people and the ancestors promote health, as the spirit of the individual would be at peace and balance is thus regained (Edwards, 2011).It is therefore important to note that in any attempt to restore a person's health, it becomes critical to understand their cultural and social realities (Sodi & Bojuwoye, 2011).

### 2.4.1 African Traditional Model and HIV risk behaviours

Culture has been defined as a system of values that influence and determine a society's judgement, perception, communication and behaviour (Airhihenbuwa, 1995). Cultural beliefs on risk behaviours in Africa have been argued to be quite complex. There are several reports produced in Africa which indicate factors that are perceived to influence risk behaviour such as non-condom use and the perpetuation of HIV risk through unequal sexual power dynamics between men and women (Pettifor, Measham, Rees & Padian, 2004; Maharaj & Cleland, 2005; Scott, 2009; Maree, 2010), substance

abuse such as alcohol and sex (Halpern-Felsher, Millstein & Ellen, 1996; McKirnan, Ostrow & Hope, 1996), traditional practices such as polygamy (Delius & Glaser, 2004; Feldman, 2008; Saddiq, Tolhurst, Lallo & Theobald, 2010), the practice of circumcision(Connolly, Simbayi, Shanmugam & Nqeketo, 2008) and the use of traditional healers(Oluga, Kiragu, Mohamed & Walli, 2010). These cultural beliefs will now be discussed in more detail.

### 2.4.2 African Traditional perspective oncondom use

Condoms are widely recognised as a highly effective method for pregnancy prevention and protection against HIV infection or sexually transmitted infections (STIs). However such knowledge seems not to be sufficient, as there still seems to be a huge lack of acceptance of condoms and condom use (Maharaj & Cleland, 2004). In the South African Black culture, fertility is an important aspect. There is high pressure placed on couples after marriage to quickly procreate, or at times prior to marriage, for the woman to prove her fertility in order for the man to marry her (Scott, 2009). This therefore makes the use of condoms challenging as it prevents this key cultural objective and thus was seen as an act by the White government to halt procreation and growth in the Black societies. In a study by Eaton et al. (2003), they reviewed published and unpublished reports on factors perpetuating unsafe sexual behaviour between the periods 1990 – 2000 in South Africa, research findings indicated that South African youths share in this fertility argument. Young Black men desire to prove their virility by fathering children. Similarly, the females would be under pressure to prove their love and fertility by conceiving (Eaton et al., 2003).

Negative attitudes toward condoms by some African males in South Africa have permeated the African way of life. Condoms are perceived as a threat to cultural values such as fertility,sexual intercourse and reproduction (Lidell, Giles & Rae, 2008; Scott, 2009; McMillan & Worth, 2011).This has been found to be more evident amongst married couples or people in committed relationships or cohabiting as condoms are seen more applicable and relevant to non-exclusive relationships (McMillan & Worth, 2011). In an exploration of this myth, research has focused on attitude towards condoms amongst married/cohabiting partners and those in casual relationships. Research findings indicated that there has been a steady increase in condom use amongst casual relationships as opposed to married or cohabiting partners (Maharaj & Cleland, 2004; Scott, 2009). This study finding is well aligned with research amongst casual partners where condom use is seen to be more acceptable than in marital unions (Maharaj & Cleland, 2004; McMillan & Worth, 2011).The issue of trust amongst marital or long term relationships in these instances is evident. Both men and women in these long–term relationships indicate that by asking the other partner to use condoms, this is perceived as one's own admission of infidelity or is usually perceived as an accusation on the other partner (Eaton et al., 2003; Maharaj & Cleland, 2004). In the same study done by Maharaj and Cleland (2004, p.120), a respondent indicated "If my regular partner gives me a condom, I cannot accept it. This means she is a prostitute". This response is well aligned with Scott's (2009) findings that in South Africa, condom use is more associated with sex-workers and not in private sex relationships. Amongst sex workers, sex is seen as dirty and impersonal as it occurs with clients whereas in private sex lives, there is a sharp contrast of cleanliness and trustworthiness, thus there is no need for condom use. However a study by Bolton, Mackay, and Schneider (2010, p.91) suggested that adulthood is therefore characterised by a pattern of "serial monogamy", meaning that for those individuals that are not married, they engage in a single sexual relationship at a time, and over time, this results in a series of

monogamous relationships. In that study it was found that condom use was prevalent at the beginning of relationships. After a period of time, due to perceived levels of trust, faithfulness and commitment, the use of condoms was then discontinued. A key concern raised in that study finding was that all the risk sexual behaviours were mostly "perceived" and not necessarily discussed or ascertained in the relationship. The women interviewed also lacked knowledge of their partner's sexual history before they actually discontinued the condom use. Thus, the "assumption" of monogamy clearly plays a critical role in the discontinuation of condom use and is highly shaped by the "trust" factor (Bolton, Mackay & Schneider, 2010, p102).

Other concerns raised against the use of condoms in research done in Africa include the tendency of condom breakage during intercourse. This is therefore perceived as an ineffective prevention strategy against HIV transmission (Scott, 2009). Among the urban youth or modern girls who do not wish to conceive early, it is also reported that some of them still perceive condoms to be less reliable in prevention, and would rather rely on hormonal contraceptives than use condoms in contraception (Eaton et al., 2003). This therefore means that even in instances where people wish to use a form of contraceptive, there is still a negative attitude towards condoms as an alternative contraceptive method. There have been fears of condoms breaking or getting stuck inside the woman (Scott, 2009), inhibiting the enjoyment and pleasure of sex, and preventing the cultural value and importance of flesh-to flesh intercourse (Scott, 2009). In the study by Eaton et al. (2003) on South African youth, it was found that young men and some women indicated that they liked sex to be "skin-on-skin". This is also aligned to the comment made by some young men that "condoms waste sperms" and also participants felt that too many condoms are required for many rounds of sex (Eaton et al., 2003, p.158). In Uganda, there is also a belief that condoms could get stuck in the woman and may thus

result in serious illness. Namibian findings have indicated that there are myths that men put holes on condoms, thus making them unsafe. Condoms are also perceived as a cause of diseases, and having sex with a condom is not having "real sex" (Scott, 2009). Whether these myths are true or not, Scott (2009) argues that there is no understanding of effective prevention strategies, without understanding these socio-cultural beliefs or myths and how they shape decisions in the use of condoms.

### 2.4.3 African Traditional perspective on polygamy and risk behaviour

Polygamy is a widely practised tradition in African countries such as South Africa, Swaziland, Nigeria, Kenya, Ghana, Tanzania and Zambia to name a few. This practice has brought a lot of debate in the research sphere, in media and also in countries and amongst cultures that do not share this worldview. Polygamy is considered as another HIV risk behaviour that can spread HIV and AIDS in Africa (Oluga et al., 2010). The idea behind this is that polygamy is a demonstration of gender imbalance between couples (Saddiq, Tolhurst, Lallo & Theobald, 2010). It is argued that with the greater number of women, and the rate of depletion amongst men in unnatural deaths such as war and other dangerous activities, this would result in a number of women never finding a partner, which increases the risk of married men cheating (Saddiq et al., 2010). Also, the Muslim society, particularly in Nigeria, felt that there were too many women in their society, and if they are not taken care through marital relationships, they would be living as commercial sex workers (Saddiq et al., 2010). Thus to curb all of this from happening, the tradition of polygamy is promoted in Africa and the Middle East. However, Delius and Glaser (2004) argue that polygamy is in fact an act of power and wealth, more than the gender imbalance reasoning often given. The argument dates back to pre-colonial times and looks at cultural behaviours of different South African tribes. They found that

chiefs and kings then, and other wealthy men in the communities would practise polygamy, whilst others stuck to one wife or no wife at all if they did not have cattle. A common notion that can be identified in most studies around this subject is that of gender inequalities (Eaton et al., 2003; Delius & Glaser, 2004; Scott, 2009). Males in patriarchal societies, especially so in Africa, the Middle East and Asia, tend to dominate women in the negotiation for safer sex thus making women more vulnerable to HIV infection(Pettifor et al., 2004). Condom use within marriages remains a difficult topic in African societies. In communities such as Maiduguri in Nigeria, indicate that Islam does not condone the use of condoms in marriages due to the immoral connotations associated with condoms and also the controversy surrounding conception. Popular interpretations of religions, including African Traditional Religion, suggest that any form of sexual negotiation within marriage for a woman is inappropriate (Saddiq et al., 2010). Data from Sub-Saharan Africa and Nigeria indicates that a married women's greatest risk of contracting HIV is from their sexual relationships with their husbands. Within the South African context women's susceptibility to HIV infection is increased by the cultural view that men are expected and are encouraged to have more than a single partner, whilst women are expected to be monogamous and not to question their partners (Pettifor et al., 2004).Oluga et al. (2010) further added that the way in which culture has supported this practise of polygamy is problematic in the fight against HIV infections.These findings therefore suggest that women are still highly at risk when it comes to HIV infections, due to all these cultural and societal imbalances.

However, it is important to note that research done around this tradition, has been inconclusive and inconsistent in proving relations between the practice of polygamy and HIV transmission (Saddiq et al., 2010). In a study done in Kenya, it was found that HIV occurrence was more prevalent in monogamous relationships (Edward, 1994; cited in Saddiq et al., 2010). In another study done in

Ghana, the contrary was found in that in communities that reported higher levels of polygamy, lower levels of HIV incidence were found (Oppong, 1995; cited in Saddiq et al., 2010). These opposing views have continued in studies done in Zambia and Kenya (Clark, 2004 cited in Saddiq et al., 2010). Thus, some have pointed out that the cultural practice, polygamy, in fact limits the risk of HIV transmission. One of the reasons given by a Muslim participant in Nigeria is that "Polygamy prevents men from going after women outside in case of problems like the illness of one of the wives and this reduces the chances of getting and spreading the disease" (Saddiq et al., 2010, p.g. 148). This point is a reflection of the other reasons given to support polygamy, as it is seen as an act of curbing men's extra-marital sexual desires and therefore prevents the spread of HIV as it is perceived that the men will not engage in promiscuous behaviour.

In the South African context, great debate surfaced following President Jacob Zuma's marriage to his third wife, Tobeka Madiba Zuma on the 4th January 2010. President Jacob Zuma is a proud Zulu man, which is one of the South African cultures that practices and has embraced polygamy. Jacob Zuma has had a history of polygamy with five wives, one whom he has divorced and the other is deceased. It is interesting to note the diverse opinions that rose regarding this matter in the media. The British tabloid, "Mail Online" had the following statement to describe Zuma's inaugural state visit to Britain: "As a polygamist who has fathered more than 20 children, both in and out of wedlock, he was always going to cause a stir on his inaugural state visit" (English, 2010).This statement was in response to Zuma's statement to "the British" when questioned about his polygamous relationships. The President had responded by stating: "When the British came to our country they said everything we did was barbaric, was wrong, inferior in whatever way" (English, 2010). Zuma pointed out that it is no one's right to judge another man's culture. However it seems that this is not the message that

was received by the British. Instead, the reporter pointed out that Zuma's attack actually caused huge embarrassment as he did not comply with the expected royal etiquette. In the article, it is clear that there is confusion about the practise and also a judgement on the practise as this is often referred to as the "President's colourful life" (English, 2010).

In other media reports in the US, the Wall Street Journal (published April, 2009) and the Los Angeles Times (published January, 2010) pointed out concerns regarding the manifestation of gender inequality when it comes to the practise. Both tabloids pointed out that the President had defeated the country's commitment to gender equality in promoting the culture of male dominance (Allen,2009).

When looking at media reports within Africa, there seems to be contesting views on this matter. The Sunday Times which is a South African publication, targeting middle to upper class citizens, pointed out that Zuma's admission to this practise was an embarrassment to the African National Congress (the current ruling party in South African politics). The report further indicated that, to well-educated Africans, this was a "shameful sign of his cultural backwardness" as it only appealed to the "poor less educated followers" (Johnson, 2009). On other African tabloid, called the Sub – Saharan affairs stated that the South African president was clearly admired and voted for by poor South Africans because poor people are the only ones who perceive this practise as a sign of power (Phillips, 2010). On the contrary, the Reuters Africa News took a more positive stance towards the announcement of his marriage to the third wife. It was highlighted that the President is a man who respects tradition, and also it is well within his constitutional right to practice polygamy(Sibeko, 2010).

The above media reports both in Africa and the Western regions indicate that there are strong views towards the tradition of polygamy in the different countries. Also, within states and amongst different classes of people, there seems to be diverse opinions towards this practise. It can be observed that African cultural values and traditional practises are open to scrutiny in HIV prevention and risk reduction initiatives. Although lay people often think that African culture is unchanging and fixed, reports in the media seem to suggest that there might be a degree of change in attitude towards polygamy and that more South Africans are becoming aware of the HIV risks associated with multiple sexual partners. This is in agreement with Feldman (2008) that culture is not stagnant but does change or adapt slightly to fit the context, and people's actions at that point in time. Thus, there needs to be a critical reflection on the role that culture plays in reducing HIV risk. There also needs to be a reflection on the abuse of culture by individuals resulting in HIV vulnerability of the husband and his wives in a polygamous relationship. The challenges confronting the South African society in dealing with marriage traditions in the context of HIV risk need to be discussed. High HIV risk behaviours can be manifested when men try to justify the practise or expectation of having multiple sexual partners by making reference to African traditions or culture (Feldman, 2008).

### 2.4.4Substance abuse and risk behaviours in Africa

There have been numerous studies done globally to determine the link between substance abuse and sexual risk behaviours. Research as far back as in the 1980s indicates that the link between alcohol, drugs and sexual behaviour is not new (Robertson & Plant, 1988). It has been repeatedly shown that alcohol use is related to sexual risk behaviours in several populations, especially those reported to have the highest rates of HIV infections (Kalichman et al., 2007). This phenomenon has been

reported in countries such as the USA, Italy, Spain and Scotland (Robertson & Plant, 1988). More studies have also indicated the phenomenon to exist greatly in sub-Saharan Africa (Kalichman et al., 2007) in countries such as Zimbabwe, Tanzania, Kenya, Zambia, South Africa, and Central African Republic (Fritz, Woelk, Basset, McFarland, Routh, Tobaiwa & Stall, 2002; Kalichman et al., 2007). This paper will therefore evaluate the sub-Saharan context.

Southern Africa is greatly impacted by the HIV and AIDS pandemic (Kalichman, Simbayi, Vermaak, Jooste & Cain, 2008). Like many parts of the world, HIV transmission is elevated within the context of substance abuse (Kalichman, Simbayi, Vermaak, Jooste & Cain, 2008). Alcohol is the most commonly consumed alcoholic substance in Southern Africa, and it is believed South Africa is one of the countries with the highest alcohol consumption in the world (Kalichman et al., 2007). Alcohol use is often associated with sexual risks in Southern Africa, and of particular importance is the social setting of this consumption (Kalichman et al., 2007). In Africa, it becomes evident that alcohol use and engaging in sexual risk behaviour is much more than an individual act, but highly elevated and influenced by the social aspects.

In a study conducted in Gauteng, South Africa, "weekend drinking" was analysed which has been identified as a form of "risky drinking" (Morojele et al., 2006). The study was conducted in a suburban area, and a township area, just outside the limits of Gauteng. The township area comprised of 250 liquor outlets in 2002. Purposive sampling was used and the research methodology used included informant interviews, observations, focus groups and in-depth interviews. Observations took place at four bars in the city, two shebeens, and one tavern in the township. These happened at peak

hours (Morojele et al., 2006). The study findings complemented studies conducted in Africa that have found a strong relationship between alcohol use and sexual risk behaviours.

Alcohol serving establishments, such as taverns, beer halls, shebeens and private homes where alcoholic beverages are sold and served were found to be the places where sex partners meet. Shebeens were reported to rarely have condoms available to their customers, with 92% of all these establishments never having had condoms available (Kalichman et al., 2008). Similarly most men indicated in the study that they would not risk carrying condoms when they are out at these venues, in the fear of being questioned by their regular partners or spouses (Morojele et al., 2006). These results suggest that condom use in these establishments therefore is very low. Many of the people reported that alcohol consumption would make them more flirtatious, and they become less scared to reveal their sexual desires. Most of the men in the study also indicated that they sometimes drink to be able to propose sex to women and these are usually casual partners. These findings correlate with those of the study findings done in Cape Town and Harare respectively (Fritz et al., 2002; Kalichman et al., 2008). Similarly in a study done in Botswana, it was found that most men and women drink regularly before sex. This would then lead to sexual risk behaviours such as engaging in unprotected sex, having multiple partners, and paying for sex (Weiser, Leiter, Heisler, McFarland, Percy–de Korte, DeMonner, Tlou, Phaladze, Lacopino,& Bangsberg, 2006). Maluleke (2010) in his research conducted in Limpopo, South Africa, found that alcohol abuse before sexual intercourse was very high amongst unmarried people (65%), and from this sample approximately 73.1% of these respondents had sex without a condom. The study also obtained a correlation between the use of alcohol and multiple partners. These findings therefore suggest that substance abuse, especially within these social settings, give rise to greater risk to unprotected sex, and also involvement with multiple partners, thus increasing the HIV risk infection or transmission rate.

### 2.4.5 The practice of circumcision and risk behaviours in Africa

There has been numerous research done, indicating that male circumcision is one way of reducing HIV infections amongst males (Connolly, Simbayi, Shanmugam & Nqeketo, 2008). There have been over 35 observational studies done in Sub-Saharan Africa to support this finding, with a reported 60% approximated reduction in HIV risk (Bailey, Egesah & Rosenberg, 2008). Circumcision is seen as relatively simple and not a complicated procedure, as long as it is conducted by a trained practitioner, in a secure sterile environment. However numerous research in Africa has shown that this is not always the case, as in some South African cultures such as Xhosa and Ndebele, the practice forms part of initiation into manhood, and is thus done later on in life and not at birth. This places risk as these cultural practices at times take place in unsterile environments (Connolly et al. 2008).Common issues within the cultural view that arise are that of hygiene factors in the execution of the practise (Bailey, Egesah & Rosenberg, 2008) and the use of unsterile instruments by traditional healers (Oluga et al., 2010).

## 2.5 Non-condom use and HIVrisk behaviours

The 1998 South African Demographic and Health Survey (SADHS) for adults 15 years and older found that of the sexually active women, only 22% had ever used a condom and only 8% had used a condom during their last sexual encounter (Peltzer, 2003).Maharaj and Cleland (2005) in their study found that 77% of couples reported not to use condoms. The WHO/UNAIDS (2000) reported that only 23% of men aged 15 to 49 years in the Northern Province in South Africa had ever used a

condom. In rural South African communities, it was found that only 14% of men had ever used condoms (Peltzer, 2003). In an urban black adult community Peltzer (1999) found that more than 15% were not aware that condoms offer protection against STIs/ AIDS. In that study it was shown that 35.9% of the sample reported never having used condoms (Peltzer, 2003). Among Black and White South Africans, Peltzer (1999) found that about 25% of the sexually active sample (28.6% Blacks and 18.9% Whites) reported never having used condoms. About 55% of the whole sample reported never using condoms, 20% always, 12% regularly, and 13% irregularly during the preceding three months to the study (Peltzer, 2003).

In the study conducted by Peltzer (2003) amongst community members of Phalaborwa, South Africa, the main objective of this research was to study behavioural patterns in relation to risk-taking behaviour and HIV and AIDS.The sample consisted of participants aged 25-49 years. A representative sample of 398 adults was obtained (Peltzer, 2003). Research findings indicated that a great number of men and women reported that they had a non-regular sexual partner, followed by those who had more than one regular sexual partner, and those who had a commercial sex partner in the last 12 months. These findings are in accordance with those found in other African countries. Peltzer (2003) reported that in rural Senegal, 28% of men and 27% of women declared having had at least one casual sexual partner in the previous 12 months (Peltzer, 2003). In rural Uganda, it was found that 15% of the interviewed men said they had had casual sex during the previous year, as opposed to only 2% of women. This is a rather low percentage as compared to other African settings (Peltzer, 2003). Men were also found to have more regular and non-regular sexual partners, but there seem to be no difference between genders in terms of commercial sex partners and lack of consistent condom use with these partners (Peltzer, 2003). This finding corresponds to a study among female

sex workers in the Limpopo Province where 14.3% reported they did not use a condom with their last paying client and two-thirds did not use a condom with their last non-paying partner (Peltzer, 2003). Similar risk behaviours with sex workers are found in studies in other African countries.

## 2.5 Sexual Risk Cognitions

In an attempt to understand sexual risk behaviour and other related risk behaviours, a cognitive approach to this understanding is explored. This is based on the premise that at times people are aware of risk behaviours and their implications, however even with this knowledge, it is still evident that risk behaviours continue to increase (Gerrard, Gibbons, Benthin & Hessling, 1996). In his work, Nelson, Simoni, Pearson and Walters (2011) described those people that engage in risk behaviours despite knowing the potential dangers as needing to justify this behaviour to themselves in order to engage in the behaviour. He termed these self justifications as 'cognitions', which are beliefs, attitudes, thoughts, judgements, inferences, values and other issues relating to the behaviour at hand (Gold, 1991; cited in Nelson, Simoni, Pearson & Walters, 2011, p.370). The theory posits that these justifications occur at the "heat of the moment", whilst emotions are aroused, and thus rational thought is affected. This then results in justifications which may allow the desired behaviour to occur, even though the risk or danger to the behaviour is known (Nelson, Simoni, Pearson & Walters, 2011). The theory also suggests that in times where there is no rush, or what he referred to as "in the cold light of day", there is less pressure on the individual, thus rational thought is elevated, and would therefore reduce the likelihood of risky or unsafe behaviours (Dilley, McFarland, Woods, Sabatino, Lihatsh, Adler, Swig & Dark, 2002). Gerrard, Gibbons, Benthin and Hessling(1996) also pointed out from a clinical research point of view that at times people deny their vulnerability towards a risky or

dangerous behaviour to alleviate anxiety over the potential risks. This suggests that people then engage in risky behaviour by denying the possibility of negative consequences or at times avoiding the consequences, so not having to think about it (Gerrard et al., 1996).

In the study conducted by Dilley et al. (2002) amongst a sample of gay men in San Francisco, it was found that out of all the self justifications to engage in unsafe behaviour, the most common single justification was *I want to have unprotected sex because it feels good,* endorsed by 76% of the participants. Overall the items relating to condoms reducing sexual pleasure obtained the highest level of endorsement (89.5%) and were the most strongly held negative attitudes. Dilley et al. (2002) highlighted that negative attitudes towards condom use are not new and to change this view has been a great challenge.

**2.7Summary**

The current chapter discussed the impact of HIV risk on the South African workforce and highlighted the importance for relevant and effective preventative programmes for the workplace. HIV risk behaviour was then defined in view of the different traditional models. The Medical model to health-seeking behaviour was looked at with the explanation provided by social cognition theories, which argue that a person's attitudes towards behaviour determine the health or risk behaviour. However Scott (2009) in light of the African perspective pointed out that HIV riskbehaviour is influenced greatly by the social and setting too. He further argued that the South African context is far more complex and therefore it is critical to understand the context that shapes behaviour and the cultural beliefs. When looking at the African context in terms of risk behaviour, concepts such as attitudes

towards condom use were discussed, and also African views on reproduction and the role of condoms in this regard. Other risky behaviours include substance abuse and traditional practices like polygamy, traditional healing and the traditional practise of circumcision. Substance abuse specifically alcohol is the most commonly used substance in South Africa and is usually associated with sexual risk behaviour. Alcohol is greatly consumed in social settings such as taverns, shebeens, private homes and beer halls. These places in a way are special gathering spots for weekend drinking, and most research findings have indicated that people find themselves to be quite flirtatious in these settings. This chapter then proceeded to discuss sexual risk cognitions. Gold (1991) defines this as self-justification thoughts that people engage in to reason out of engaging in sexual risk behaviour. This paper therefore looked at the cognitive approach to risky sexual behaviour and the African traditional perspective.The literature highlighted in this chapter, therefore gives insight into previous research done within the area of HIV risk behaviour within the African traditional model and Western health model with the aim to inform effective preventative programmes for the South African workplace.

## 2.8 Aim of the Study

The aim of the study was to compare HIV risk between two groups of employees with differing beliefs on health and illness. The study sought to asses HIV risk among employees who reported that they believed in African traditional values of health and illness and employees who indicated that they believed in the Medical model in relation to their health and illness. In particular, the study compared the HIV risk profiles of the two groups with reference to attitude to condom use and sexual risk cognitions.

## 2.9 Research Question

Is there a difference in HIV risk between employees who reported that they believed in the African traditional model of health and illness and employees who reported that they believed in the medical model of health and illness?

In order to answer the research question, the study tested hypotheses relating to HIV- risk taking behaviour, attitude to condom use and sexual risk cognitions.

## 2.10 Hypotheses

1. There is no difference in HIV risk, with particular reference to HIV risk-taking behaviour, between employees who believe in the African traditional model of health and illness and employees who believe in the medical model of health and illness.
2. There is no difference in HIV risk, with particular reference to attitude to condom use, between employees who believe in the African traditional model of health and illness and employees who believe in the medical model of health and illness.
3. There is no difference in HIV risk, with particular reference to sexual risk cognitions, between employees who believe in the African traditional model of health and illness and employees who believe in the medical model of health and illness.

# Chapter Three:

# Research Methodology

## 3.1 Introduction

This chapter aims to outline the research methods used in the present study to investigate health beliefs and self-reported responses to HIV risk behaviours among employees. A discussion is provided under the current chapter, describing the design of the study and why such a design was found appropriate for this study. This is followed by a discussion outlining the biographical composition of the sample, the instruments used in collecting data and how this answered the research question. The procedure is then outlined, which illustrates exactly how the sample was selected and how the data was collected. Finally, the chapter discusses data analysis techniques employed and the assumptions for such analysis.

## 3.2 Research design

The aim of the present study was to investigate whether or not there were differences in HIV risk between employees who reported that they believed in the African traditional model of health and illness and employees who believed in the medical model of health and illness. The study sought to compare HIV risk between the two groups with particular focus on HIV risk-taking behaviour, attitude to condom use and sexual risk cognitions. In view of this, the present study was a cross-sectional comparative study in which the risk behaviour of two groups of employees was compared. The design of this study was non-experimental in that there was no manipulation or control of the independent variable (Rosenthal & Rosnow, 1996). In this study, the researcher had neither control nor influence over participants` health beliefs. The design was cross-sectional in the sense that the population under investigation was assessed in a single time frame and in one place to measure participants` current health beliefs (Rosenthal & Rosnow, 1996). The research design was quantitative

in that participants' responses on the questionnaires were scored on a likert-type scale to allow for statistical analysis (Babbie & Mouton, 2003).

### 3.3 Sample

The selection of the sample was based on non-probability (random) convenience sampling method. This implies that the researcher selected samples or groups that were convenient or easy to get (Neuman, 1997). The sample consisted of 96 participants drawn from the Eastern Cape, in a small rural town of Qumbu. Employees of Qumbu Health Centre and those of Siyakhanyisa HIV and AIDS Support Group (NGO) participated in the study. These two institutions work closely together and they are located in close proximity. Both organisations are served by one doctor. All the participants were African, with a great majority being female (66.7%). The large percentage of females in both organisations was hugely attributable to the fact that both institutions had more women than male employees. In this sample, 55.2% of the participants fell within the 31-49 age group. The greater majority of the sample were single (46.9%) while (37.5%) of the sample were married. Recent literature has presented that lower end employees are more susceptible to HIV risk due to the lack of information or at times due to the type of jobs that they are in, for example mineworkers (Ellis, 2007; Maluleke, 2010). However the financial services sector was found to be greatly affected on their skilled workers. This is because this sector employs largely skilled labourers (Ellis, 2007). This study therefore decided to the whole employee base, from unskilled to management level of the organisation, to evaluate the risk and understand if there is a difference on impact amongst the employment levels. Most research have also found HIV risk to exist in both men and women (Maharaj & Cleland, 2005; Maluleke, 2010; Bogart et al. 2011)and thus it is important to evaluate

HIV risk amongst both groups. Most of the participants were unskilled (33.3%), while 25% were skilled. Management level employees constituted 11.5% of the sample and with 12.5% on a professional level. The remaining 17.7% occupied clerical positions. Positions at the clinic ranged from cleaners, admininstrative staff, assistant nurses, nurses, and senior nurses.

A significant number of participants had difficulties reading or writing in English. A few also needed assistance in interpreting some of the questions. The researcher had to assist some of the participants to complete the questionnaires. The prevalent language in this community is isiXhosa, and the researcher was able to relate with participants in their language. The respondents answered the questionnaires in the researcher's presence, but the researcher did not look at the responses. All the questionnaires were answered in English. All the three questionnaires including the biographical questionnaire were written in English.

### 3.4 Measuring Instruments

All the measuring instruments used in this study were self-report measures. The use of self-report measures in assessing psychological characteristics is based on the assumption that the best way of finding out about an individual is to ask that person direct questions (Breakwell, Hammond & Fife-Schaw, 2000). Rosenthal and Rosnow (2008) highlighted that researchers believe that the best way to get a person to open up about their own experiences, ways of thinking and behaviours is through self-report techniques. Behaviours that cannot be directly observed such as sexual behaviour are then measured through these self report measures to gain some form of information (Whitley, 2002). Questionnaires tend to be popular in social surveys because of their ease of administration and they

can be used to assess a limitless range of psychological characteristics (Breakwell, Hammond & Fife-Shaw, 2000). However, questionnaires are often criticised as research tools owing to the problem of response bias. There may be many reasons for response bias or inaccurate responses. Respondents may deliberately attempt to present an image of themselves which might not be true. They can fake good responses or they can develop an in-built tendency of providing a response set or answering that is socially desirable (Breakwell et al., 2000). Greater challenges also come into play when asking about socially undesirable behaviours or beliefs. In these instances, people may censor what they feel to present themselves in a more positive light (Whitley, 2002). Thus in analysing the responses, the researcher took these important assumptions into account, which will be elaborated on under the limitations of the study. All the questionnaires were administered in English.

### 3.4.1 Biographical Questionnaire

The biographical questionnaire developed for the purpose of this study consisted of questions about the individual (see Appendix D). The questionnaire items required participant information relating to: gender, race, age, marital status, employment category, and health model preference (African Traditional Model or Medical Model). The researcher felt that all these demographic variables were relevant to the study of health beliefs and health habits of participants in the context of HIV and AIDS.

### 3.4.2 HIV Risk–Taking Behaviour Scale

This self-report instrument was used to measure HIV risk behaviour with particular emphasis on HIV risk-taking behaviours such as intravenous drug use. The questionnaire was developed by Darke, Hall, Heather, Ward and Wodak (1991). It consists of eleven items and the scale was first established for

use on intravenous drug users as high levels of HIV transmissions were found among this group through needle sharing and sexual relations (Ward, Darke & Hall, 1990). The scale includes two subscales which measure needle use behaviour and sexual behaviour. The scale has previously been used in South African research by Chimbetete and Gwandure (2011). Chimbetete and Gwandure (2011) used the scale amongst employees drawn from two companies in Johannesburg from the automotive industry. The scale was used as part of the research to determine HIV risk behaviours amongst the employees and it produced a Cronbach's alpha of .70 (Chimbetete& Gwandure, 2011). Behaviours that are investigated in relation to needle use include: injection frequency; number of episodes of injecting with borrowed equipment, number of people who had used a needle before the subject, number of episodes of lending used equipment to others, cleaning of equipment, and the use of bleach as a cleansing agent. Sexual behaviours that were measured include: number of sexual partners, condom use with regular partner(s), condom use with casual partners, condom use in paid sex, and participation in anal sex (Ward, Darke & Hall, 1990, p.4). These variables are common in the study of risk behaviours and HIV and AIDS.

Respondents were asked to choose one option that applies to them most, and to place a cross in the appropriate box next to the answer. For each question respondents were given six alternatives with a score range of 0 to 5. The distribution of scores was as follows: *Option 1* = 0 points, *Option 2* = 1 point, *Option 3*= 2 points, *Option4* = 3 points, *Option 5* = 4 points; *Option 6* = 5 points. The subscales would then be totalled, providing a Drug use sub-total which indicates the level of risk due to drug taking and the Sexual behaviour sub-total indicating the level of risk associated with unsafe sex (Ward, Darke & Hall, 1990). The total score was therefore calculated by adding up both these total scores, with the scale range from 0 (no or extremely low risk) to 55 (extremely high risk). The

higher the score, the higher the degree of risk taking, and therefore greater risk in contracting and passing on HIV (Ward et al., 1990).

Darke et al. (1991) used the instrument on 175 participants (*n*=175) from Australia, with ages ranging from 18 – 42. The instrument had an internal consistency or reliability of 0.70. Although this is not an extremely high value, Katz (1999) does suggest that a score of 0.70 is acceptable. This therefore indicated that each part of the test was consistent with all other parts of the test (Breakwell et al., 2000). The internal consistency reliability of the scale strengthens its utility as an assessment device or indicator of HIV risk behaviour.

### 3.4.3 Attitude to Condom Use Scale

The Attitude to Condom Use Scale was used to assess participants' attitudes towards safer sexual practices. This is a subscale taken from the Sexual Risks Scale developed by DeHart and Birkimer (1997). The scale has been used in a number of studies in South Africa (Chimbetete& Gwandure, 2011; Maharaj & Cleland, 2010). The scale produced a reliability score of 0.91. This scale can be used independent of the larger scale (DeHart & Birkimer, 1997). The total scale comprises of 38 items with six subscales measuring attitudes about safer sex, normative beliefs, intention to practise safer sex, expectations about the feasibility of safe sex, perceived susceptibility to HIV and AIDS, and substance abuse (DeHart & Birkimer, 1997). For the purpose of this study, 13 item subscale measuring attitude to condom use and safer sexual practices was used Questions asked in this test centred around the pleasure domain – meaning the perceived impact of condoms on sexual pleasure. The scale also measures constructs such as those including the easiness of using a condom; and overall opinion of condom use in one's sexual interactions.

The participants were asked to rate the statements on a 5-point likert-type scale, ranging from 1-Strongly disagree to 5 – Strongly agree. Items 1,3,5,6,7,8,9,11 and 12 were reverse scored. The total score was calculated by adding up all the scores, with a low score indicating negative attitude towards condom use or unsafe sexual practices. A higher score indicated a more positive attitude towards condoms. DeHart and Birkimer (1997) used the total scale among college students to assess all the dimensions measured. The Attitude to condom use subscale produced an internal consistency reliability of 0.88, with the whole scale scoring 0.86. For the purposes of the current study, the instrument produced a Cronbach's alpha of 0.95. According to Rosenthal and Rosnow (1996), a Cronbach alpha of 0.85 is an indication of a reliable psychological test. This is a high level of reliability, which indicates that items of the scale are related (Teka, 2004).

### 3.4.4 Sexual Risk Cognitions Questionnaire

The Sexual Risk Cognitions questionnaire assesses the type and frequency of cognitions related to unsafe sex practices (Shah, Thornton & Burgess, 1997). The scale was first assessed on a sample based in London, during the Gay Pride initiative. The sample therefore consisted of men who have sex with men (70%). The total sample had 353 respondents, whose age range was from 18 years old to 71 years old. The average age was 33 years. Items on the scale centre around beliefs and self-statements related to non-condom use. In South Africa, the questionnaire has been used in a number of research, with more recent reporting Chimbetete and Gwandure (2011) and this produced an internal reliability of 0.91.

Items on the scale were rated on a 5 point likert-type scale, ranging from 1 – Never had thought; to 5 – Very frequently had thought. Respondents were asked to assess occurrence of HIV risk thoughts and practices in the previous months and in their sexual history. The total score was calculated by adding up all the scores, with a low score indicating low cognitions towards HIV risk sexual behaviours and high scores indicating high cognitions towards unsafe behaviour (Shah, Thornton & Burgess, 1997). For analyses, low sexual risk cognitions are indicated by mean score of </= 2 and high sexual risk cognitions are indicated by a mean =/>3 (Nelson et al., 2011). In this study, the scale had a Cronbach's alpha of 0.95 (Internal consistency reliability) and was found suitable for the purpose of this study.

**3.5 Procedure**

The study was conducted in a rural town of Qumbu, located in the Eastern Cape. Two institutions were used for the purposes of this study, the Qumbu Health Centre and the Siyakhanyisa HIV and AIDS Support Group (NGO). The Qumbu Health Centre provides health care support to the community of Qumbu whilst the NGO offers group support to people living with HIV and AIDS, Tuberculosis, Sexually Transmitted Infections and seeks to eradicate poverty within the community. The centre focuses on core elements such as skills development, voluntary counselling and testing, HIV and AIDS community education, and wellness management. The Siyakhanyisa NGO operates within the Mhlontlo Municipality, which covers vast areas within the Eastern Cape Province such as Lalili, Debeza, Mphumaze, Moyobe, Ncemeni and many more.

Before the study began, the researcher obtained ethics clearance from the University of the Witwatersrand. The researcher got permission to conduct the research in the two organisations from the authority that runs the two organisations. Data were collected concurrently at both institutions for a week following same procedures of data collection at both institutions. The research objective was explained to the authorities managing the two organisations. The study objective was then shared with all prospective participants at the two organisations. The fact that all participants were aware of what the research entailed, this made it easier for the researcher and participants to work together with ease. All the participants were asked for their informed consent before participating in the study. All participants were told that participation was not compulsory. In agreement to this, the researcher would first enquire about the preferred language of speech (English or Zulu) for the participant, as the researcher was proficient in these two languages. The researcher did not speak isiXhosa, but because this language is within the Nguni clan, it was easy for the researcher and the participants to understand one another. The preferred language of communication was thereafter the medium that was used to explain the study and the set of questionnaires. However it is important to note that all questionnaires were in English, so once the clarity was provided to participants, questions were still completed in the English language. The researcher approached all these people during working hours at both organisations.

The researcher firstly explained to the participants the nature of the study and the fact that their responses would be confidential. It was clearly explained that this was a research conducted by the researcher and not the organisation, thus the institutions would never have access to the raw data, except for the executive summary. The researcher also informed participants that no identifying information was required of them, thus guaranteeing anonymity. Participants were thereafter taken

through all questionnaires by the researcher explaining exactly how to complete the questionnaires. Prior to completing the questionnaires, the researcher explained to participants what the African Traditional Model of health and illness meant and the health-seeking behaviours associated with it. The researcher also explained what the Medical Model to health and illness meant and the associated health-seeking behaviours. After going through the explanations, participants were able to choose a model that best described their health-seeking behaviours between the two health models presented. Their chosen health model on the biographical questionnaire assisted the researcher to categorise participants as either believing in ``African Traditional Model`` or ``Medical Model``. The African Traditional Model of health and illness was explained as health-seeking behaviours that generally involved beliefs in culture, traditional healing, traditional medicine, participating in traditional rituals, and engaging in health habits that were based on traditional values. The Medical Model of health and illness was explained as health beliefs that were based on medical science and practises that were independent of traditional beliefs. This belief is shown in help-seeking behaviours such as the visiting of health care centres such as clinics and hospitals and the consultation of psychologists for mental health issues. This comes with a strong belief in western methods of healing and utilisation of medical services and products (Caldwell, Caldwell & Quiggin, 1989). Each participant was then asked to indicate their health belief by choosing between African Traditional Model and the Medical Model. It was also explained to participants that by choosing between the two options that did not mean there were no participants whose health beliefs vacillated in-between. These two health categories were broadly defined as general health preference models that would enable the researcher to categorise participants` general health behaviours. All respondents were thereafter invited to participate in the study and they all made their selection without hesitation.

Some of the participants asked that they complete the questionnaires with the help of the researcher or whilst the researcher was explaining the contents of the questionnaires. In such a circumstance, the researcher made sure that participants` responses were kept confidential. Where the researcher assisted the participant to complete responses for the candidates, the completed questionnaire would thereafter be placed in the sealed box immediately. Those who wished to complete later or return the next day were accommodated. A sealed box was placed at the administrative office. This was also indicated on the first page of the information sheet. Participants were shown the sealed box that was visible at the admin offices. Respondents were asked to drop their completed questionnaires inside this box. The researcher collected completed questionnaires every day.

### 3.6 Statistical Analysis

#### 3.6.1 ANOVA

The aim of this study was to investigate differences in HIV risk between employees who believed in the African Traditional Model of health and illness and employees who believed in the Medical Model of health and illness. The study assessed differences in participant risk profiles as measured on HIV risk-taking, attitude to condom use and sexual risk cognition scales. The HIV risk profiles of the two groups were compared using ANOVA.

Rosenthal and Rosnow (2008) define Analysis of Variance (ANOVA) as a statistical technique used to test for differences in the means of two or more groups. In order to conduct an ANOVA, three assumptions need to be met. The sample sizes and variance must be nearly equal; secondly the

samples must be independent of one another. This means that subjects must be randomly sampled and independent from one another. Lastly, samples must have a normal distribution (McCall, 1970). In this study, One-way ANOVA was conducted to analyse the data. This is an analysis of variance in which the groups are defined on only one independent variable (Rosenthal & Rosnow, 1996).

### 3.7 Conclusion

This chapter outlined the descriptive quantitative survey design that was used in this study to collect data. Non-probability convenience sampling method was used to select research participants. A total of 96 respondents participated in the study which was conducted in the Eastern Cape, in a small rural town of Qumbu. Employees of Qumbu Health Centre and those of Siyakhanyisa HIV/AIDS Support Group (NGO) participated in the study. All the participants were African, with a greater majority being female. All participants were informed fully about their rights in relation to participating or choosing not to participate in the study. Participants indicated their preferred model of health before completing the questionnaires that were used to assess HIV risk. Participants who experienced difficulties completing the questionnaires were assisted by the researcher to complete the questionnaires. The current chapter also presented the methodology aspects of the study. Finally, this chapter highlighted the statistical analysis procedures that were employed to analyse the collected data.

# Chapter Four:

# Results

## 4.1 Introduction

This chapter presents the results of the study. The first part will present the demographic characteristics of the sample. Thereafter, instrument reliabilities showing Cronbach's alpha as a measure of internal consistency and principal components analysis to show dimensionality of the used scales will be presented. Finally, the chapter presents hypotheses that were tested using ANOVA. Furthermore, secondary analyses focusing on correlations among variables were performed in order to establish associations between variables that were used to assess HIV risk among participants.

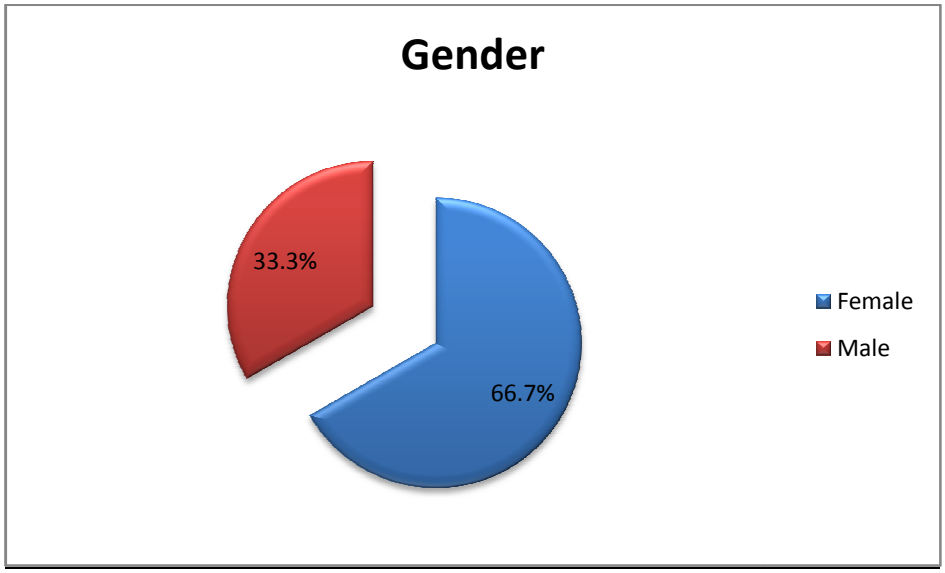
## 4.2 Demographic characteristics and health beliefs of the respondents

The sample consisted of 96 respondents who were recruited in a small rural town of Qumbu in Transkei. All 96 respondents reported their race as being African, and the homogeneity of the sample in this respect was considered to be due to the area where the sample was drawn. The demographic characteristics of the sample are displayed in Charts 4.2. The results showed that (66.7%) of the respondents were females and 32 (33.3%) were males. The largest age group was the 31-49 age group which constituted 55.2% of the sample. This was followed by the 18-30 age group, which constituted 29.2% of the study sample, whilst only a minority (15.6%) of the respondents were 55 years of age or older. The majority of the sample reported their marital status either as being single (46.9%) or married (37.5%). Approximately, half of the respondents worked in low level jobs, with the majority of the sample being unskilled, followed by skilled workers and those occupying clerical positions. A few of the participants were in professional and management levels, put a percentage. Finally, as reported on the Biographical Questionnaire, 56.3% of the sample indicated that they believed in the

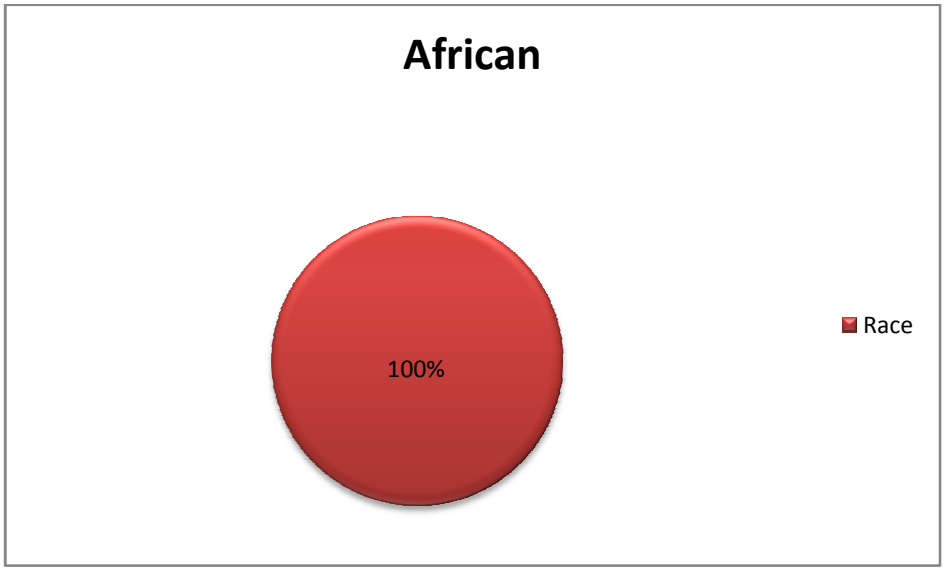
Medical Model of health and illness while 43.7% believed in the African Traditional Model of health and illness.

***Charts 4.2: Demographic characteristics and health beliefs of the respondents***

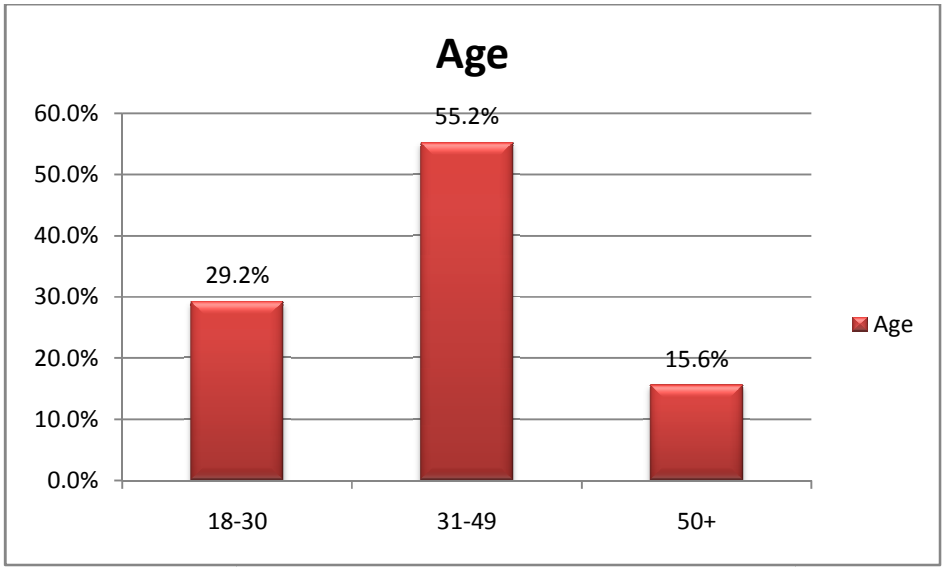
***a) Gender***



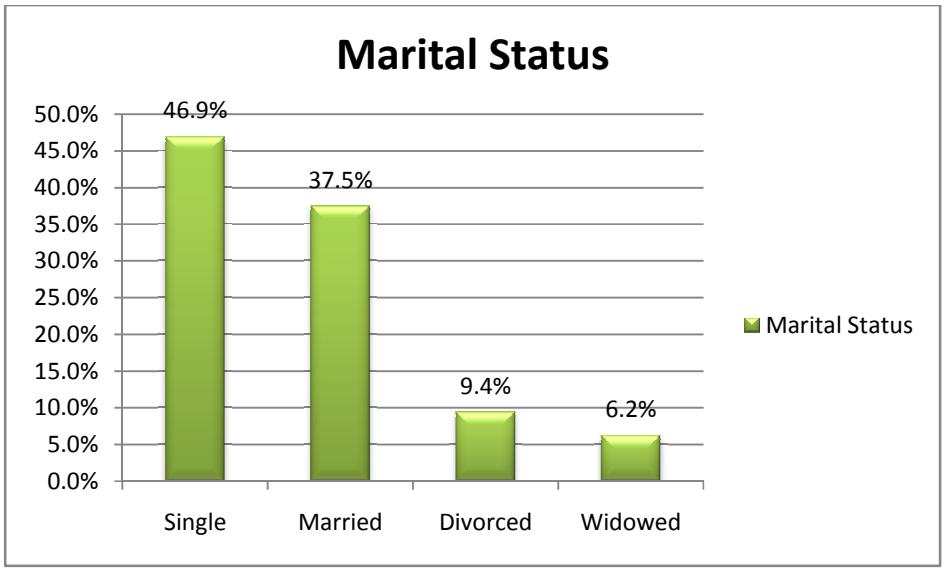

***b) Race***



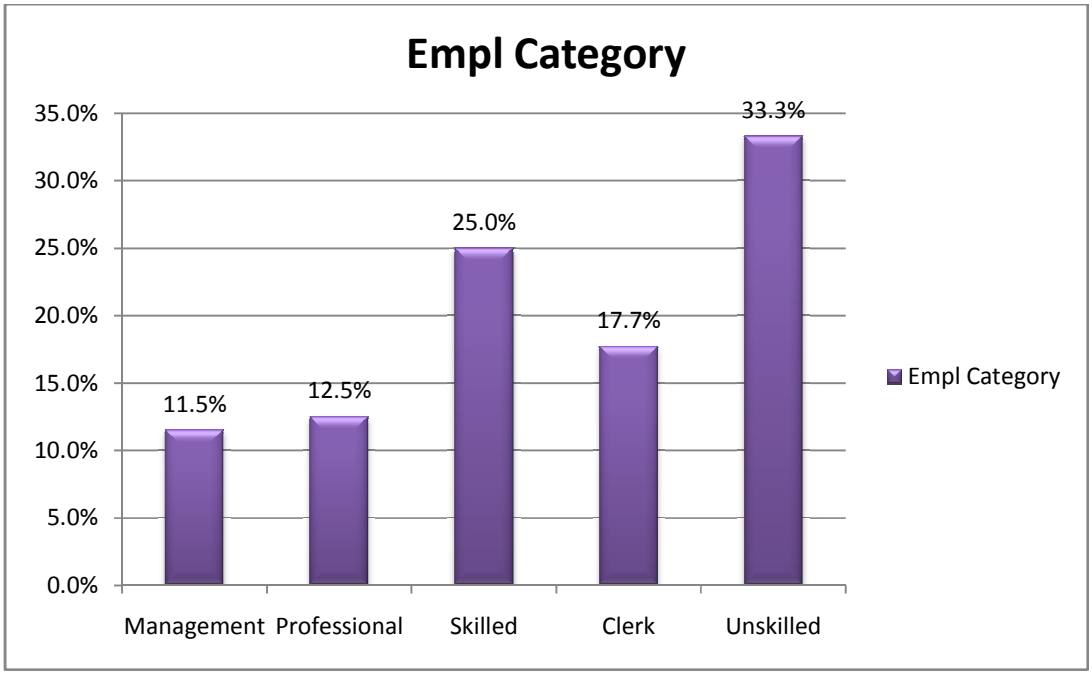
*c) Age*



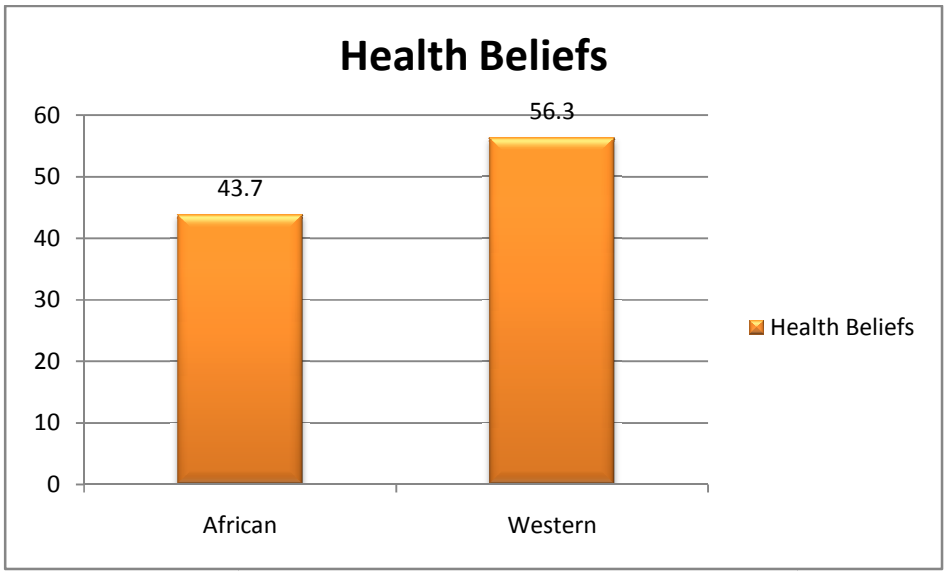

*d) Marital Status*



### *e) Employment Category*




### *f) Health Beliefs*



## 4.3 Reliability of the Measuring Instruments

To assess the extent of measurement error associated with the usedscales their reliabilities were tested using Cronbach's alpha (see Table 4.3). Participants' responses on the HIV Risk-Taking Behaviour scale indicated that less than 1% of the sample responded positively to the first component of the questionnaire measuring needle use behaviour. Thus, as the sample did not contain a sufficient number of intravenous drug users, six items (items 1-6) were omitted and internal consistency was re-analysed for the remaining scale containing five items measuring sexual risk. Cronbach's alpha of 0.50 which indicated low scale reliability, and consequently, the HIV Risk Taking Behaviour scale as a whole was omitted from further analyses. The Cronbach's alpha of Attitude to Condom Use scale calculated in this study was 0.95 which indicated a high internal consistency. The Sexual Risk Cognitions scale had a Cronbach's alpha of 0.95 which showed high internal consistency.

**Table 4.3.** ***Cronbach's alpha values for the measurement scales.***

| **Scale** | **No. of subjects** | **No. of items** | **Cronbach Alpha** |
|---|---|---|---|
| HIV Risk taking behaviour scale | 96 | 5 | 0.50 |
| Attitude to Condom Use scale | 96 | 38 | 0.95 |
| Sexual Cognitions Questionnaire | 96 | 22 | 0.95 |

## 4.4 Principal Components Analysis

### *4.4.1 Principal components analysis as a statistical technique to assess scale dimensionality*

Principal components analysis was performed for Attitude to Condom Use scale and the Sexual Cognitions Questionnaire to test for the assumed unidimensionality of each scale. Unidimensionality refers to the scale items relating to a single dimension of a measured construct (Field, 2005). Principal

components analysis establishes the scale dimensionality by exploring the intercorrelations between variables and identifying clusters of variables that correlate highly with each other (Field, 2005). Once components have been extracted from the dataset the solution is rotated to increase the interpretability and utility of the solution without mathematically changing the inter-item correlations (Tabachnick & Fidell, 2007). Varimax, which is the most commonly used rotation technique and recommended as a default option, maximises the variance of the loadings within components, that is, the correlations between the scale items and components (Tabachnick & Fidell, 2007).

The decision upon the number of components to be retained for further analyses depends on observation of eigenvalues which reflect the amount of variance explained by each component (Field, 2005). According to Kaiser (1960, in Tabachnick & Fidell, 2007, p. 633) all components with eigenvalues greater than 1 should be retained as this indicates a substantial amount of variance accountable by the component. Alternatively, a scree plot, which is a visual representation of the eigenvalues, can be used as criteria for deciding upon the number of components to be retained. A substantial drop in the scree plot line between components reflects the relative importance of the components (Field, 2005). Further consideration in the number of components to be retained relates to the practical utility and meaningfulness of the component solution. As Field (2005) and Tabachnick and Fidell (2007) point out, researcher's discretion and knowledge about the theoretical and practical characteristics of the constructs being measured should guide the decision making process as much as does the mathematically derived component structure.

### *4.4.2 Assumptions of principal components analysis*

Principal components analysis has certain assumptions that must be met so that the obtained component solution is reliable. Tabachnick and Fidell (2007) recommend that the dataset should not contain missing values, and there should be several sizeable correlations between variables that exceed +/-.30 but not >.90 which might indicate multicollinearity. Multicollinearity refers to extremely high correlations between variables which makes them redundant. As a consequence, separate components could not be detected using principal components analysis (Tabachnick & Fidell, 2007). The current dataset met these criteria as there were no missing data, and Pearson's Product Moment Correlation coefficients showed that there were significant statistical relationships between the items both within Attitude to Condom Use scale and within Sexual Risk Cognitions scale (see Appendix H & I). Multicollinearity was not present in the data. Tabachnick and Fidell (2007) further suggest that for principal components analysis normality of the variables is not required although it may enhance the analysis. To test for normality histograms were plotted for each item in the two questionnaires. It was found that the responses for each item on the Attitude to Condom Use scale and the Sexual Risk cognitions questionnaire were normally distributed, or had only minor deviations from normality. Having met these assumptions the only limitation of principal components analysis for the current dataset was a small sample size. Comrey and Lee (1992, cited in Tabachnick & Fidell, 2007, p. 613) give as a guide sample size of 50 as very poor, 100 as poor, 200 as fair and 300 as good. Therefore, with a sample size of 96 in the current study the results of principal components analysis must be interpreted with caution.

### *4.4.3 Principal components analysis for the Attitude to Condom Use Scale*

Two components with eigenvalues greater than 1 were extracted, and Varimax rotation was used to increase the interpretability of the component solution. As can be seen in Table 4.4.3 (a), component 1 explained 64.5% and component 2 explained 29.6% of the variance. Although both extractions were based in Kaiser's criteria of having eigenvalues higher than 1, difference in the amount of variance explained was substantial between the two components. This was also visually evident in scree plot where there was a sizeable drop after the first component indicating the greater importance of the first component compared to the second one. As a result, one-component solution was retained, which explained 64.5% of the variance. This decision was further supported by the observation that in one-component solution all items' component loadings exceeded .32, which indicates substantial contribution of the item in explaining variation in the data -the higher the component loadings are the more the variable is a pure measure of the component (Tabachnick & Fidell, 2007). Eigenvalues and variance explained, as well as component loadings can be seen in Tables 4.4.3 (b) and (c), respectively.

***Table 4.4.3 (a). Principal Components Analysis on Attitude to Condom Use scale***

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 8.384 | 64.490 | 64.490 | 8.384 | 64.490 | 64.490 | 7.079 | 54.457 | 54.457 |
| 2 | 1.251 | 9.625 | 74.115 | 1.251 | 9.625 | 74.115 | 2.556 | 19.658 | 74.115 |
| 3 | .718 | 5.521 | 79.636 | | | | | | |
| 4 | .540 | 4.155 | 83.790 | | | | | | |
| 5 | .435 | 3.346 | 87.137 | | | | | | |
| 6 | .369 | 2.838 | 89.974 | | | | | | |
| 7 | .354 | 2.725 | 92.699 | | | | | | |
| 8 | .253 | 1.945 | 94.644 | | | | | | |
| 9 | .217 | 1.671 | 96.316 | | | | | | |
| 10 | .187 | 1.437 | 97.752 | | | | | | |
| 11 | .123 | .945 | 98.697 | | | | | | |
| 12 | .097 | .746 | 99.443 | | | | | | |
| 13 | .072 | .557 | 100.000 | | | | | | |

***Table 4.4.3 (b). Principal Components Analysis on Attitude to Condom Use scale – One component solution***

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 8.384 | 64.490 | 64.490 | 8.384 | 64.490 | 64.490 |
| 2 | 1.251 | 9.625 | 74.115 | | | |
| 3 | .718 | 5.521 | 79.636 | | | |
| 4 | .540 | 4.155 | 83.790 | | | |
| 5 | .435 | 3.346 | 87.137 | | | |
| 6 | .369 | 2.838 | 89.974 | | | |
| 7 | .354 | 2.725 | 92.699 | | | |
| 8 | .253 | 1.945 | 94.644 | | | |
| 9 | .217 | 1.671 | 96.316 | | | |
| 10 | .187 | 1.437 | 97.752 | | | |
| 11 | .123 | .945 | 98.697 | | | |
| 12 | .097 | .746 | 99.443 | | | |
| 13 | .072 | .557 | 100.000 | | | |

***Table 4.4.3 ©. Component Matrix: Loading on One Component***

| | Component |
|---|---|
| | 1 |
| CondomUse1 | .790 |
| CondomUse2 | .572 |
| CondomUse3 | .858 |
| CondomUse4 | .508 |
| CondomUse5 | .892 |
| CondomUse6 | .888 |
| CondomUse7 | .886 |
| CondomUse8 | .830 |
| CondomUse9 | .907 |
| CondomUse10 | .566 |
| CondomUse11 | .848 |
| CondomUse12 | .876 |
| CondomUse13 | .865 |

### *4.4.4 Principal Components Analysis for the Sexual Risk Cognitions Questionnaire*

Four components were extracted by principal components analysis and rotated by Varimax. Eigenvalues and variance explained can be seen in Table 4.4.4 (a). The first component explained majority of the variance (49.8%) followed by 10.9% by component 2, and 4.8% and 4.7% by components 3 and 4, respectively. The four component solution did not support the claimed unidimensionality of the Sexual Risk Cognitions questionnaire and thus, the scale items and their component loadings were explored further. It was noted that items that loaded on the first component

were related to other people and their perceptions on the participant when acting in a certain manner. The items loading on component 2, instead, related to the opinions and judgments about the self. However, due to the substantial decrease in the amount of variation explained by component 2 compared to component 1, one-component solution was considered to be a feasible approach and to be retained. This was further supported by the observation that for the one-component solution all items' component loadings exceeded .32 indicating that the items were measuring the same component (Tabachnick & Fidell, 2007).

***Table 4.4.4 (a). Principal Components Analysis on Sexual Risk Cognitions Questionnaire***

| | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Loadings | | |
|---|---|---|---|---|---|---|---|---|---|
| Component | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 10.947 | 49.759 | 49.759 | 10.947 | 49.759 | 49.759 | 6.250 | 28.407 | 28.407 |
| 2 | 2.403 | 10.922 | 60.681 | 2.403 | 10.922 | 60.681 | 5.513 | 25.061 | 53.468 |
| 3 | 1.055 | 4.796 | 65.477 | 1.055 | 4.796 | 65.477 | 2.066 | 9.392 | 62.859 |
| 4 | 1.033 | 4.695 | 70.171 | 1.033 | 4.695 | 70.171 | 1.609 | 7.312 | 70.171 |
| 5 | .871 | 3.958 | 74.130 | | | | | | |
| 6 | .736 | 3.343 | 77.473 | | | | | | |
| 7 | .657 | 2.985 | 80.458 | | | | | | |
| 8 | .558 | 2.536 | 82.994 | | | | | | |
| 9 | .533 | 2.423 | 85.417 | | | | | | |
| 10 | .471 | 2.139 | 87.556 | | | | | | |
| 11 | .456 | 2.075 | 89.631 | | | | | | |
| 12 | .386 | 1.757 | 91.387 | | | | | | |
| 13 | .319 | 1.449 | 92.837 | | | | | | |
| 14 | .303 | 1.379 | 94.216 | | | | | | |
| 15 | .249 | 1.134 | 95.350 | | | | | | |
| 16 | .218 | .992 | 96.342 | | | | | | |
| 17 | .172 | .784 | 97.126 | | | | | | |
| 18 | .162 | .735 | 97.861 | | | | | | |
| 19 | .144 | .653 | 98.514 | | | | | | |
| 20 | .123 | .561 | 99.075 | | | | | | |
| 21 | .108 | .491 | 99.566 | | | | | | |
| 22 | .096 | .434 | 100.000 | | | | | | |

***Table 4.4.4 (b) Principal Components Analysis on Sexual Risk Cognitions Questionnaire – One component solution***

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 10.947 | 49.759 | 49.759 | 10.947 | 49.759 | 49.759 |
| 2 | 2.403 | 10.922 | 60.681 | | | |
| 3 | 1.055 | 4.796 | 65.477 | | | |
| 4 | 1.033 | 4.695 | 70.171 | | | |
| 5 | .871 | 3.958 | 74.130 | | | |
| 6 | .736 | 3.343 | 77.473 | | | |
| 7 | .657 | 2.985 | 80.458 | | | |
| 8 | .558 | 2.536 | 82.994 | | | |
| 9 | .533 | 2.423 | 85.417 | | | |
| 10 | .471 | 2.139 | 87.556 | | | |
| 11 | .456 | 2.075 | 89.631 | | | |
| 12 | .386 | 1.757 | 91.387 | | | |
| 13 | .319 | 1.449 | 92.837 | | | |
| 14 | .303 | 1.379 | 94.216 | | | |
| 15 | .249 | 1.134 | 95.350 | | | |
| 16 | .218 | .992 | 96.342 | | | |
| 17 | .172 | .784 | 97.126 | | | |
| 18 | .162 | .735 | 97.861 | | | |
| 19 | .144 | .653 | 98.514 | | | |
| 20 | .123 | .561 | 99.075 | | | |
| 21 | .108 | .491 | 99.566 | | | |
| 22 | .096 | .434 | 100.000 | | | |

***Table 4.4.4 ©. Component Matrix: Loading on One Component***

| | Component |
|---|---|
| | 1 |
| Sexual Cognition1 | .754 |
| Sexual Cognition2 | .810 |
| Sexual Cognition3 | .578 |
| Sexual Cognition4 | .786 |
| Sexual Cognition5 | .683 |
| Sexual Cognition6 | .757 |
| Sexual Cognition7 | .809 |
| Sexual Cognition8 | .702 |
| Sexual Cognition9 | .517 |
| Sexual Cognition10 | .701 |
| Sexual Cognition11 | .424 |
| Sexual Cognition12 | .738 |
| Sexual Cognition13 | .743 |
| Sexual Cognition14 | .657 |
| Sexual Cognition15 | .332 |
| Sexual Cognition16 | .812 |
| Sexual Cognition17 | .572 |
| Sexual Cognition18 | .750 |
| Sexual Cognition19 | .713 |
| Sexual Cognition20 | .745 |
| Sexual Cognition21 | .875 |
| Sexual Cognition22 | .792 |

### 4.5 Average Scores for analysis

The scores for the two scales were averaged to produce Mean scores. These scores were then used for the Correlation and ANOVA analysis. Below are the Mean scores for both scales.

***Table 4.5 (a). Mean Scores***

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Mean Condom Use | 3.2204 | 1.20358 | 96 |
| Mean Sexual Cognition | 2.4981 | 1.02139 | 96 |

The means for each scale item for both scales was also analysed. On the sexual risk cognitions questionnaire, item 4 and 21 produced the highest scores with highest mean scores of 3. This meant that participants "Occasionally had thought" of the following self justifications for not using condoms or engaging in unprotected sex. Item 4 stated*If I suggest using a condom he/she will suspect that I have been unsafe* and item 21 stated*Sex is more exciting without a condom.* The lowest scoring item was number 11 with a mean score of 1.56 suggesting that participants had never thought or very occasionally had thought of the particular justification for engaging in unprotected sex. The item stated*I have very little to look forward to in life, so there is no point in practising safer sex.* These findings are consistent with previous research by Dilley et al. (2002) where the findings indicated that 76% of the study sample endorsed the common thought of *I want to have unprotected sex because it feels good.* In more recent study by Nelson et al (2011), it was also found that the most endorsed common thought was that of *I enjoy sex without a condom,* indicated by 56% of the participants. Dilley et al. (2002) also pointed out that participants consistently replied negative to items that expressed favourable attitudes towards being HIV infected. The item least scoring in that research stated *I want to become infected so that I'll feel more part of the community".* Even though the current study is not centrally asking about HIV, the lowest scoring question was structured in a

favourable manner towards unprotected sex, thus it seems the same principles apply in this case of risky behaviour too.Thus the current study findings are consistent with previous findings on common risk cognitions that impact on HIV risk taking behaviour.

On the attitude to condom use scale, the highest scoring item 2 stated*People can get same pleasure from "safe" sex as from unprotected sex.* This finding suggests that people are positive about the view that both safe sex and unprotected sex hold equal pleasure domains. The lowest scoring item 12 stated*The sensory aspects (smell, touch etc.) of condoms make them unpleasant.* This suggests that the sensory aspect of the condom has minimal impact on the employee's attitudes towards condom use.

**4.6 Correlations**

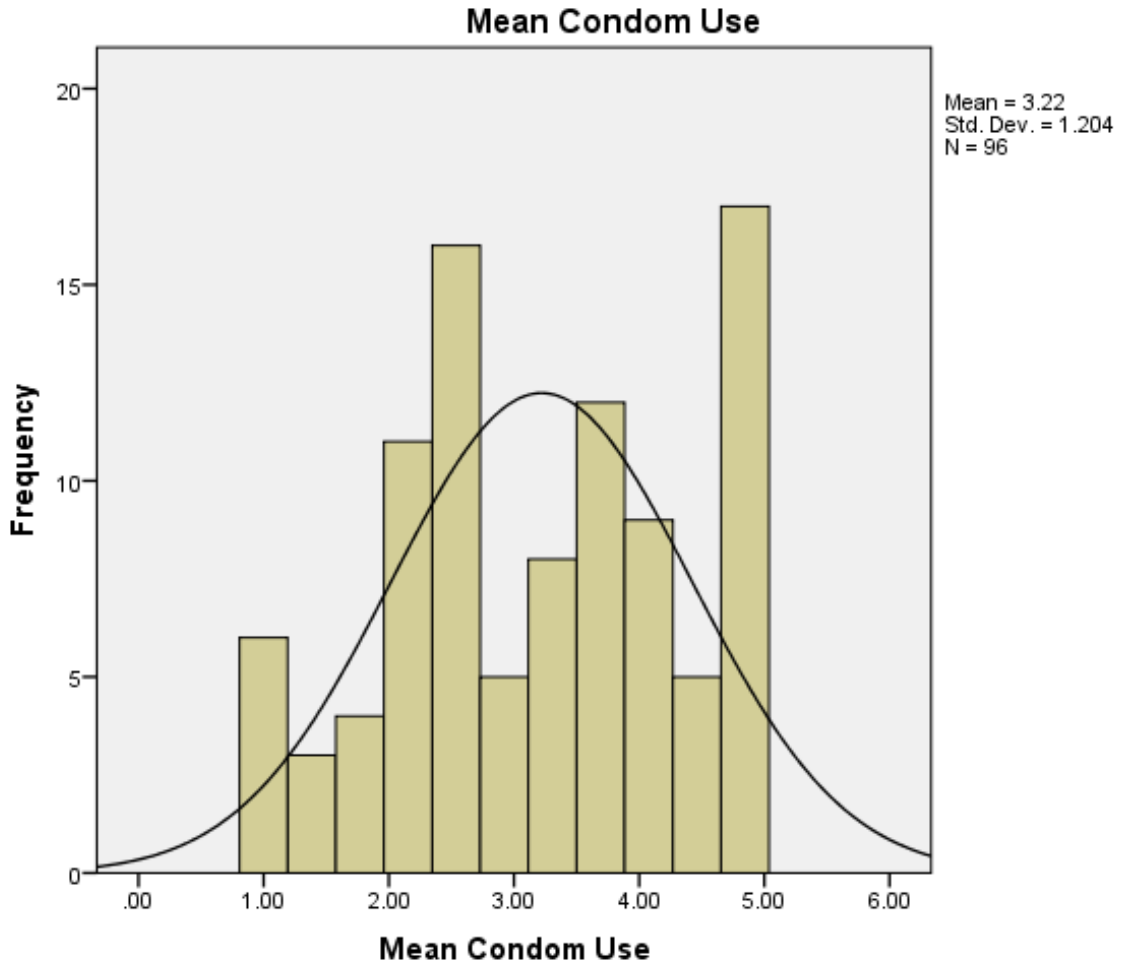
To test the relationship between attitude to condom use and sexual risk cognitions, a correlation was conducted. Runyon (1984) pointed out that in order to express quantitatively the extent to which two variables are related, it is necessary to calculate a correlation coefficient. A correlation coefficient is defined as "degree of relation between variables" (Rosnow & Rosenthal, 1996, p.404). Correlation only suggests the association between two variables but not necessarily causality (Howell, 1999).

The correlation coefficient utilised in the current study is the Pearson's Product-Moment Correlation Coefficient *(Pearson r).* The Pearson's r can take a value between +1.00 and -1.00 (Rosenthal & Rosnow, 1996). A value of 0.00 means that there is no linear relationship between

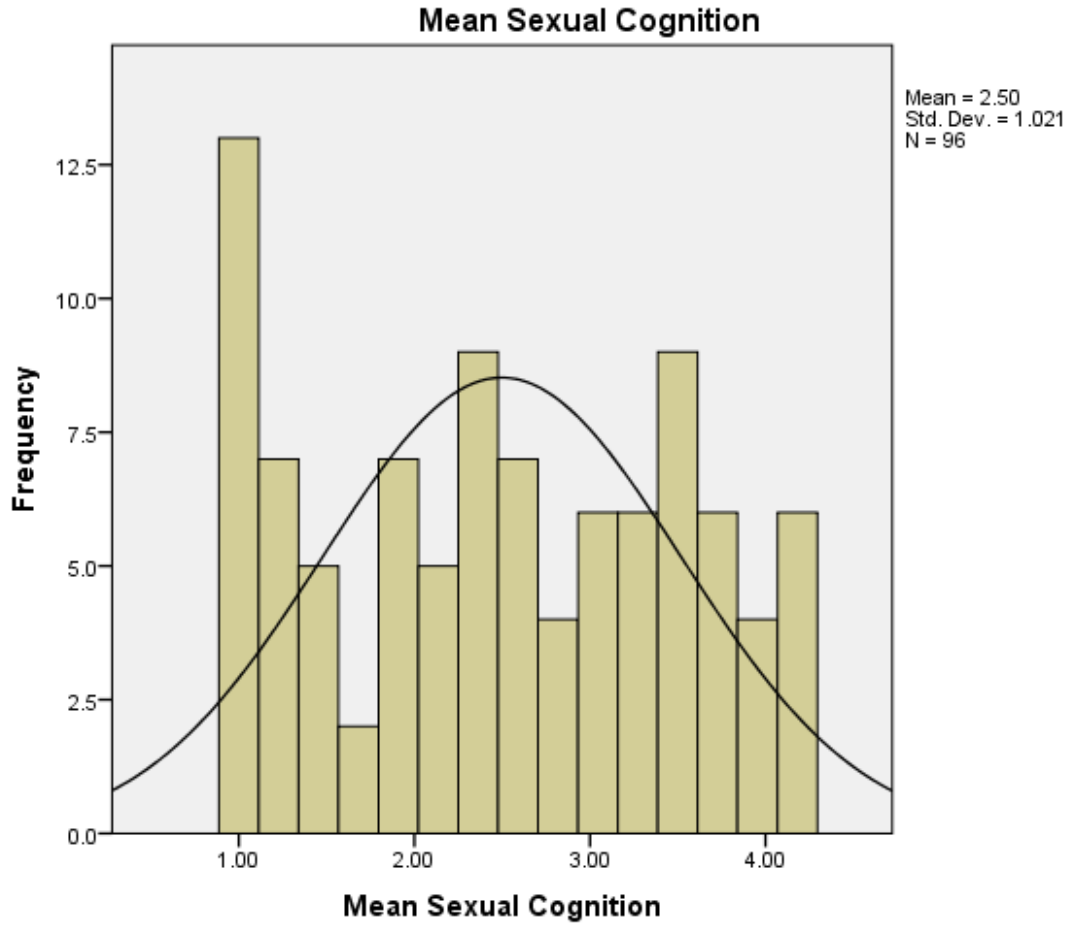
two variables, and a value of +/- 1.00 means that there is a perfect linear relationship. Thus, the closer the coefficient is to 1.00, whether it is positive or negative, the stronger is the relationship. Furthermore, positive correlation indicates that the values on both variables of interest change to the same direction while negative correlation indicates inverse relationship (Rosenthal & Rosnow, 1996).

The assumptions to be met in running a Pearson correlation include, normal distribution of scores, interval level of data, and a linear relationship between the variables. To test for normality histograms were plotted for both scales. It was found that the responses for each item on the Attitude to Condom Use scale and the Sexual Risk Cognitions questionnaire were normally distributed, or had only minor deviations from normality (see Figure 1-2). A linear relationship was found between both health groups on both scales (see Appendix J & K). This suggests that a linear relationship does exist between the variables.

*Figure 1. Histogram – Attitude to Condom Use score distribution*



– ***Figure 2. Histogram – Sexual Risk Cognition score distribution***




The analysis showed that there was a significant, negative relationship between the participants' attitude to condom use and their sexual risk cognitions (r=-.75, p<.001). This indicates that employees who have a positive attitude towards condom use report low sexual cognitions towards unsafe behaviour. Likewise, those with negative attitude towards condom use have high sexual cognitions towards unsafe behaviour. However, it should be noted that the causal direction of the two variables cannot be established by correlational analysis.

***Table 4.6 (a). Relationship between Attitude to Condom Use and Sexual Risk Cognitions***

| | | Mean Condom Use | Mean Sexual Cognition |
|---|---|---|---|
| Mean Condom Use | Pearson Correlation | 1 | -.753** |
| | Sig. (2-tailed) | | .000 |
| | N | 96 | 96 |
| Mean Sexual Cognition | Pearson Correlation | -.753** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 96 | 96 |

Note: **Indicates significant correlation at p<0.001 level.

## 4.7 1-WayANOVA to test the group differences in attitude to condom use and sexual risk cognitions

### *4.7.1 ANOVA as a statistics technique analysing group differences*

Howell (1999) defines the Analysis of Variance (ANOVA) as a statistical technique used to test for differences in the means of several groups. To conduct an ANOVA, three assumptions need to be met. Sample sizes and variances must be nearly equal, samples must be independent of one another and they must have normal distributions (McCall, 1970).The current study was composed of two groups, those who believed in the African Traditional Model of health and illness and those who believed in the Medical model (Western beliefs) of health and illness. The sample sizes for both groups were relatively equal, with 42 in African Traditional Model group and 54 in the Medical Model (Western beliefs) group (see table 4.7 (a) & b). Non-significant results of Levene's test for Attitude to Condom Use and Sexual Risk Cognitions indicated that the variances were homogenous. The sample was also

independent of one another, and the responses were normally distributed (see Figures 1 and 2 above), and thus having met these assumptions, the parametric analysis was conducted.

### 4.7.2 Descriptive Statistics

Tables 4.7 (a) and 4.7 (b) display means, standard deviations, confidence intervals and minimum and maximum scores for Attitude to Condom Use and Sexual Risk Cognitions scales within each health belief group.

**Table 4.7 (a).** ***Descriptives – Mean Condom Use***

| | N | Mean | Std. Deviation | Std. Error | Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Bound | Bound | | |
| African | 42 | 2.6282 | 1.17362 | .18109 | 2.2625 | 2.9939 | 1.00 | 5.00 |
| Western | 54 | 3.6809 | 1.01835 | .13858 | 3.4030 | 3.9589 | 1.00 | 5.00 |
| Total | 96 | 3.2204 | 1.20358 | .12284 | 2.9765 | 3.4642 | 1.00 | 5.00 |

***Table 4.7 (b). Descriptives – Mean Sexual Risk Cognitions***

| | N | Mean | Std. Deviation | Std. Error | Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Bound | Bound | | |
| African | 42 | 3.0314 | .96838 | .14942 | 2.7296 | 3.3332 | 1.00 | 4.27 |
| Western | 54 | 2.0833 | .86247 | .11737 | 1.8479 | 2.3187 | 1.00 | 4.09 |
| Total | 96 | 2.4981 | 1.02139 | .10424 | 2.2912 | 2.7051 | 1.00 | 4.27 |

### 4.7.3. ANOVA Results

The One-Way Analysis of Variance (ANOVA) was performed to test any group differences that may exist between those with African versus Western health beliefs with regards to their sexual risk cognitions and attitude towards condom use. As can be seen from Table 4.7 ©, there was a significant difference between the two groups in terms of their sexual risk cognitions ($F=25.63$; $p<.001$). The African Traditional health group also produced a mean score of 3.03, suggesting

high risk sexual cognitions, as this indicated on average *occasionally, frequently, or very frequently* have had self-justifying thoughts to engage in sexual risk behaviour. This suggests that employees who believed in the African Traditional Model of health and illness experience higher sexual risk cognitions that were associated with risk sexual behaviour than employees who believed in the Medical Model, that is, Western beliefs about health and illness.

**Table 4.7 ©. Group differences - Sexual risk cognitions**

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 21.234 | 1 | 21.234 | 25.632 | .000 |
| Within Groups | 77.873 | 94 | .828 | | |
| Total | 99.107 | 95 | | | |

Significant difference was also found between the two groups in their attitudes towards condom use (F=22.08; p<.001) (see Table 4.7 (d). This finding suggests that in comparison to those with African health beliefs, employees with Western belief report more positive attitude towards condom use.

**Table 4.7 (d). Group differences – Attitude to Condom Use**

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 26.181 | 1 | 26.181 | 22.085 | .000 |
| Within Groups | 111.436 | 94 | 1.185 | | |
| Total | 137.617 | 95 | | | |

## 4.8 Conclusion

The current chapter has communicated the research findings of the study. The Attitude to Condom Use scale and Sexual Risk Cognitions scale produced very high reliabilities, indicating that the items of the scales were related to each other and that the respondents were consistent in their responses. However, HIV Risk-Taking Behaviour scale was omitted from further analyses due to low Cronbach's alpha. Principal components analyses were run to test unidimensionality of Attitude to Condom Use and Sexual Risk Cognitions scales, and consequently, one-component solutions were adopted for both scales. The responses for each item on the two scales were averaged and the mean scores were used in the further analyses. Assumptions of parametric tests were checked prior to analysing correlations and group differences between the two health belief groups. Parametric assumptions were met as the two health belief groups were approximately of equal size, their scores on Attitude to Condom Use Scale and Sexual Risk Cognitions Scale were approximately normally distributed, the scores were linearly related and variances between groups were homogeneous. Pearson's r found a significant, negative correlation between attitude towards condom use and sexual risk cognitions, indicating that employees with positive attitude towards condom use experience low cognitions towards unsafe behaviour. The ANOVA results were also found to be significant. The results suggested that employees who believed in the African Traditional Model of health and illness experienced higher sexual risk cognitions as compared to those who believed in the Medical Model of health and illness. The results showed that employees who believed in African health beliefs were more prone to experience cognitions of unsafe sexual behaviour. The findings also suggest that employees who believed in Western methods of HIV prevention reported more positive attitudes towards condom use than employees who believed in the African Traditional Model of health and illness. From these scores and

analysis, it is evident that employees who believed in African traditional methods of HIV prevention showed greater HIV risk profiles and reported more unsafe sexual behaviours than employees who believed in the Medical Model of HIV prevention. The key findings of this study will be elaborated on in the next chapter which will discuss the findings of the research in more detail.

# Chapter Five:

# Discussion

## 5.1 Introduction

The purpose of this research was to examine whether or not there was a difference in HIV risk between the two groups of employees in the Eastern Cape. The study investigated HIV risk between the two groups with respect to HIV risk-taking behaviour, attitude to condom use and sexual risk cognitions. However, the HIV Risk-Taking Scale was discarded because it showed low internal consistency or low Cronbach alpha. This means this chapter will discuss the results relating to attitudes towards condoms and sexual risk cognitions among employees in this study. The study proceeded to perform ANOVA on data collected from administering the Attitude to Condom Use Scale and the Sexual Risk Cognitions Questionnaire to establish HIV risk between the two groups. The study wanted to compare HIV risk in the group that believed in the African Traditional Model and the group that believed in the Medical Model of health and illness. The discussion will explain and relate findings to literature and theory as presented in Chapter 2 of this research report. Lastly, limitations of the study will be outlined.

## 5.2 Difference between groups in their attitudes towards condom use

Analysis of variance (ANOVA) indicated that there was a significant difference between the two groups in their attitudes towards condom use. The findings suggest that participants who believed in the African Traditional Model of health and illness showed a negative attitude towards condoms whilst the participants who believed in the Medical Model reported a positive attitude towards condom use. The findings are consistent with the study findings of Bogart et al. (2011). They found

that African men and women who believed in witchcraft were more vulnerable to HIV infection. These values associated with African traditional beliefs on health and illness tends to relate disease and illness to witchcraft, ancestors, and supernatural powers that are deemed to protect an individual from HIV infection (Bogart et al., 2011).Research indicates that individuals who hold such fatalistic health beliefs are in fact less likely to protect themselves from HIV or engage in HIV preventative measures (Bogart et al., 2011). In another study by Kalichman and Simbayi (2004) conducted in a township in Cape Town, South Africa, it was found that individuals who held traditional health beliefs were more likely to report that they had never used a condom or used condoms less or inconsistently. In another study, it was found that more people in South Africa are living with HIV, with the majority being Black South Africans. The greatest contributors to this ever-spreading epidemic has been found to be unprotected sex combined with concurrent sexual relationships which are largely acceptable amongst some black South Africans (Karim, 2001; Bogart et al. 2011).

Bogart et al. (2011) points out that in South Africa, the historical context of apartheid and issues of racism against Black South Africans have greatly aggravated the misconceptions around condom use and other HIV preventative measures. HIV and AIDS has been seen by Black South Africans as another way that White people are trying to control them by distributing contaminated condoms to poor Africans in South Africa (Bogart et al., 2011). The research findings of this study are therefore consistent with previous research findings on the negative attitude of some Black South Africans towards condom use. The results cast a dark shadow on the prospects of health educators succeeding, in the short-term, in reducing HIV risk beliefs and behaviours among the majority population with African traditional values that might be in conflict with HIV prevention strategies. The findings highlight a great concern and the need to address cultural myths that might impact negatively to the

practice of safe sex and to have effective HIV preventive measures in South African workplaces that addresses these issues and takes into account these different worldviews.

### 5.3 Difference between groups in their sexual risk cognitions

The ANOVA test found a significant difference in HIV risk with respect to sexual risk cognitions between participants who believed in the African Traditional Model of health and illness and those who believed in the Medical Model of health and illness. The findings suggest that participants who believed in the African Traditional Model reported higher sexual risk cognitions. This shows that this group was more vulnerable to HIV infection. Participants` responses showed that the group was more likely to engage in unprotected sex that could result in HIV infection, as this is consistent with previous findings that sexual risk cognitions play a very important part in sexual risk-taking (Nelson et al., 2011). The results showed that participants who believed in the Medical Model in HIV prevention showed low sexual risk cognitions. This could mean that such a group heeded to health communication on HIV risks and such people are more likely to engage in health-protective behaviours (Nelson et al., 2011). The cognitions of people who believed in the Medical Model were positive about safer sex and the use of condoms. Sexual risk cognitions are self-justifying thoughts, attitudes, behaviours, values, judgements, inferences and risk sexual behaviours that emanate from distorted thinking about safer sex (Nelson, et al., 2011). This explains why some people continue to engage in risky sexual behaviours even though they know the consequences of their behaviour. These justifications are used to make one feel better when they engage in the HIV risk behaviours (Nelson et al., 2011).The findings of this study are interesting in the sense that participants in this study who

believed in the African Traditional Model of health and illness showed that they were more likely to engage in sexual risk behaviours even if they knew that many people in the Eastern Cape were living with HIV and many had died of AIDS.It can be observed that HIV risk could be attributed to denial or cognitive escape (not having to think about the risk) and sexual risk cognitions (McKirnan et al., 1996) among the group that believed in the African Traditional Model. It is evident from this study that risk compensation was low and participants in the African Traditional Model group did not adjust their sexual behaviours in response to the HIV threat that requires everyone to be more cautious in their sexual relations. Participants with traditional beliefs tended to value non-rational sexual decisions and emotional states that influenced the desire to have sex without condoms or ``flesh-to-flesh`` sex (McKirnan et al., 1996). This suggests that the cultural and social influence on HIV risk behaviour cannot be ignored.

In relation to the African Traditional Model of health and illness, literature has highlighted that there are several beliefs and myths that African people hold which in fact would determine whether or not they would use condoms in their sexual relations. Maharaj and Cleland (2004) highlighted in their study amongst African married and cohabiting couples in KwaZulu Natal that both genders felt that asking to use a condom was equivalent to admitting one's own infidelity or accusing the other partner of being unfaithful. The view that condoms promote promiscuity in relationships is another contributor to the minimal usage of condoms and it is an indication of sexual risk cognitions that are embedded in some of the thoughts and practices of the African culture. A respondent was quoted in one study saying "If my regular partner gives me a condom, I cannot accept it. This means she is a prostitute" (Maharaj & Cleland, 2004, pg. 120). As a result, among participants who believed in the African Traditional Model, it was more likely that women who suggested using protection in their

relationships were seen as prostitutes or deemed unfaithful. The common theme that came out of that study was that condom use was strongly related to lack of trust (Scott, 2009). So this means that the guiding sexual risk cognitions were based upon a false sense of trust for engaging in unprotected sex (Bolton et al., 2010). In the African context, male promiscuity seems acceptable (Scott, 2009; Oluga et al., 2010). This is a form of sexual risk cognition because those men will be vulnerable to HIV infection and they will in turn infect their own spouses (Oluga et al., 2010) if the practise is not stopped and is used to justify promiscuous behaviour. Thus, the current study findings highlight a concern around cultural myths and some cultural beliefs that have shaped the risk cognitions of the people within this worldview, and influence their sexual risk behaviours. For the South African workforce, this suggests that the diverse health beliefs and myths need to be taken into account in the education around HIV risk, to address the currently held cognitions that shape behaviour.

### 5.4 Limitations of the study

The current study had several limitations which are important to note and to be considered for future research. The first limitation of the study is the chosen research design. The current study was quantitative in nature. Due to the sensitivity of the topic at hand, an in depth analysis is required to greatly understand the aspects of the different health beliefs that influence risk behaviour. This concern was also raised by Bluen and Fullagar (1986), who criticised psychological research in South Africa for its over-reliance on quantitative empirical research and survey methods. They emphasise the need for more qualitative research and less restriction on depth of focus (Odesnik, 1988). Future research should therefore adopt a qualitative approach when focussing on a sensitive area such as HIV and AIDS and also in looking at peoples' health beliefs.

Secondly, the measuring instruments that were used in the study were self-report questionnaires. This brings into concern issues of response bias on the part of the respondents as they could have provided answers that they consider to be socially desirable or faking good (Nelson et al., 2011). Social desirability is defined as the tendency to respond to an item in a socially acceptable manner (Katz, 1999). However, Rosenthal and Rosnow (1996) claim that ensuring confidentiality can control for this. Although this might be so, for the current research, despite the fact that confidentiality and anonymity were guaranteed, people still hold some form of stigma's towards certain health beliefs or risk behaviours, and because this study was conductedin a public place and amongst groups of people, some people might have chosen to represent themselves in socially desirable ways.

The third limitation relates to one of the measuring instrument chosen for this study. The responses to the HIV Risk-Taking Behaviour Scale indicated that less than 1% of the sample responded positively to the first component of the questionnaire measuring needle use behaviour. Thus, as the sample did not contain a sufficient number of intravenous drug users, six items (items 1-6) were omitted and internal consistency was re-analysed for the remaining scale containing five items measuring sexual risk. The scale then produced a low reliability, and consequently, the HIV Risk-Taking behaviour scale as a whole was omitted from further analyses. This meant that only results from the sexual risk cognitions questionnaire and attitude towards condom use scale only could be interpreted.

The fourth limitation relates to the sample obtained for the study. There was a low response rate for the current research. Contributing factors include the fact that the issue of HIV and AIDS and risk behaviours is sensitive in nature. Due to convenience sampling, the sample was made up of African

participants only, from a rural area. These factors therefore limit the generalisability of the study findings beyond the specific sample.

The fifth limitation of the study is around the language used in the Questionnaire, which was the English language. A great number of the participants preferred isiXhosa and thus the researcher had to assist in providing clarity where required. This could have impacted the way the respondents answered in the presence of the researcher.

The last limitation of the study is the fact that the research was conducted at two health care organisations. The weakness inherent in combining samples from different branches of the organisation is that it is difficult to control for possible confounding variables peculiar to each branch of the organisation.

### 5.5 Recommendations for future research

Based on the findings of the current study and the limitations and implications discussed above, a few areas for future research have been identified.

Future research could adopt a qualitative approach in conducting the same study or building on the current study. This is advised as the researcher felt that a lot of information obtained whilst at the organisation could not be used due to the adopted quantitative approach. The area of HIV and AIDS is a sensitive area, but nonetheless, people are willing to talk about it. There exist diverse interpretations and understandings of HIV and AIDS, traditional health beliefs, risk behaviours and

attitudes towards preventative measures. In conversations with participants, they also provided reasons why they use and do not use condoms and their views on health beliefs. This type of information would be insightful to any study that looked to interpret beyond the questionnaire findings but also in-depth understandings and reasons provided by individuals. This wealth of knowledge could contribute to the adaptation of more relevant and effective HIV and AIDS programmes in the workplace, with a view of the different health beliefs.

In adopting a qualitative approach, future research should also seek to find a more representative sample as certain groups were under-represented in the current study. For example, the sample could have included Whites, Indians, Coloureds and the Chinese.

Future research should also consider doing the research within different parts of the country across different areas. This means that future research could look into conducting the research across South African organisations, for more representative findings.

Lastly, future research needs to explore the concept of sexual risk cognitions within the realm of culture and the impact thereof. This could lend insight into the dominant risk cognitions amongst people that share the same worldview, and thus could be of benefit to the design of intervention programmes that are able to address these shared risk cognitions.

**5.6Conclusion**

Despite the identified limitations of the research, the study had several important findings. The study found that there is a significant, negative relationship between the participants' attitude to condom use

and their sexual risk cognitions. This indicates that employees who had a positive attitude towards condom use reported low sexual cognitions towards unsafe behaviour. Likewise, those with negative attitude towards condom use had high sexual risk cognitions towards unsafe behaviour. The second finding showed a significant difference between the two groups in their attitudes towards condom use. The findings suggest that employees who believed in the African Traditional Model were less positive towards condom use whilst employees who believed in the Medical Model reported a more positive attitude towards condom use. The last finding showed a significant difference between the Western and African health beliefs in regard to their sexual risk cognitions. It was shown in this study that the group that believed in African health beliefs reported higher sexual risk cognitions and thus were more prone to experiencing self-justifying thoughts when engaging in unprotected sex. With this finding, the study has successfully indicated that sexual risk cognitions do play a role in HIV risk behaviour. The study has also successfully indicated that sexual risk cognitions can be influenced by different health views, thus there is a need to fully understand the impact of culture on sexual risk cognitions. This would give a sense into the dominant cultural views that impact on sexual risk cognitions and in turn influence HIV risk behaviours.

For the purpose of this study, it was concluded that health beliefs influenced HIV risk behaviours. The implications of the findings are that the South African workforce should be exposed to effective HIV prevention interventions that incorporate different perspectives of HIV risk beyond the Medical model to health seeking behaviour. The socio-political context greatly shapes peoples' health-seeking behaviours and HIV risk behaviours as argued by Scott (2009)& McMillan and Worth (2011) and thus HIV interventions in the workplace need to be as representative and relevant for effective measures against the fight of HIV and AIDS in the workplace.

It can be concluded from this study that some African traditional health beliefs discourage the use of condoms. Some cultural beliefs encourage multiple sexual partnerships which could be abused by individuals with sexual risk cognitions to have irresponsible or promiscuous sexual relationships. Polygamy as traditionally or religiously practised does not allow extramarital relationships outside the marriage; hence some societies in Africa, the Middle East and Asia have polygamous marriages but HIV prevalence in those relationships are reportedly low (Saddiq et al., 2010). It is argued in this study that sexual risk cognitions and not polygamy could make individuals more vulnerable to HIV infection. These sexual risk cognitions could be evident in unmarried people such as teenagers, young adults, and old people. The sexual risk cognitions could be evident in young couples and old couples in monogamous marriages and partnerships. The findings suggest that more employees should be encouraged to use condoms and to have positive sexual cognitions in their relationships. A number of limitations have also been highlighted in the study, which should be taken into account as they tend to limit the generalisability of the study findings. Directions for further research should focus on improving health beliefs through education and training programmes that focus on condom use and positive sexual cognitions in HIV risk reduction among employees in South Africa.

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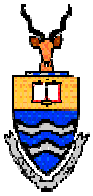
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## Appendix A: Participant Information Sheet (Questionnaire Based Research)



UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

School of Human and Community Development
*Private Bag 3, Wits 2050, Johannesburg, South Africa*
*Tel: (011) 717-4500 Fax: (011) 717-4559*
*Email: 018lucy@muse.wits.ac.za*

Hi,

My name is **Bongiwe Mncube**, and I am conducting research for the purposes of obtaining a Masters in Industrial psychology degree at the University of the Witwatersrand. The aim of the study is to investigate the influence of health beliefs on HIV and AIDS risk behaviours among employees. The study will explore risk behaviours between two groups: those of an African traditional belief and Western belief. I would like to invite you to participate in this study.

Participation in this research will entail completing four questionnaires. All these questionnaires will take approximately 20 minutes to complete. Participation is voluntary, and no one will be advantaged or disadvantaged in any way for choosing to complete or not complete the questionnaires.Participants will not be required to disclose their HIV and AIDS status nor will they be tested. While questions are asked about your personal circumstances, no identifying information, such as your name or I.D. number, is asked for, and as such you will remain anonymous. Your completed questionnaires will only be made available to the researcher and the supervisor only. Your responses will only be looked at in relation to all other responses, thus confidentiality is assured.

If you choose to participate in the study **please complete the questionnaires as carefully as possible. Once you have answered the questionnaires, please place your response in the sealed box provided at the main desk.** Submitting your questionnaire will be considered as consent to participate in the study. I will collect your responses at regular intervals. This will ensure that no one will have access to the completed questionnaires, and will ensure your confidentiality. The research data will be held in care of the supervisor.

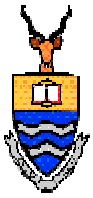
Thank you for your time.

Kind Regards,

Bongiwe Mncube
Researcher
bongiwe_mncube@yahoo.com

Mr. Calvin Gwandure
Supervisor
gwandurec@umthombo.wits.ac.za

## Appendix B: Participant Information Sheet for the Organisation



UNIVERSITY
OF THE
WITWATERSRAND,
JOHANNESBURG

School of Human and Community Development
*Private Bag 3, Wits 2050, Johannesburg, South Africa*
*Tel: (011) 717-4500 Fax: (011) 717-4559*
*Email: 018lucy@muse.wits.ac.za*

Dear Sir/Madam

My name is Bongiwe Mncube, and I am conducting research for the purposes of obtaining a Masters in Industrial psychology degree at the University of the Witwatersrand. The aim of the study is to investigate the influence of health beliefs on HIV and AIDS risk behaviours among employees. The study will explore risk behaviours between two groups: those of an African traditional belief and Western belief. I am interested in conducting this research study at your organisation.

The researcher kindly requests that you grant her permission to distribute questionnaires directly to your employees. Participation will entail completing four questionnaires. These include a biographical questionnaire, Attitude to Condom Use scale measuring an individual's attitude towards condom use, the Sexual Risk Cognitions questionnaire which assesses a person's cognitive thoughts in engaging in unsafe sex. The last questionnaire which is the HIV risk-taking behaviour scale measures HIV and AIDS risk behaviours. These questionnaires will take approximately 20 minutes to complete. The questionnaires will be placed at central points within the Centre for easy access for all members. All respondents will be asked to complete the questionnaire and thereafter place the completed questionnaires in the sealed box to be placed at the main desk or secretary's office. I will collect responses at regular intervals. This will ensure that no one will have access to the completed questionnaires, and will ensure the confidentiality of all participants. Employees will not be coerced in any way to participate in the study. Participants will also be informed that no one will be advantaged or disadvantaged in any way for choosing to complete or not complete the questionnaire. Participants will not be required to disclose their HIV and AIDS status nor will they be tested. While questions are asked about their personal circumstances, no identifying information, such as their name or I.D. number, is asked for, and as such they will remain anonymous. The completed questionnaire will only be made available to the researcher and the supervisor only. Responses will only be looked at in relation to all other responses. This means that feedback that will be reported will be in the form of group responses and not individual responses. Participants will also be informed that submitting their questionnaires will be considered as consent to participate in the study. In completing the study, the researcher will also provide an executive summary to the organisation. This summary will only highlight key findings of the research study. This means that no individual responses will be identified in the summary, nor made available to the organisation, thus confidentiality is assured. This summary will also be made available in the form of hardcopies to all members of the Centre. Taking into account that the study is of a sensitive nature, the researcher will inform all participants of possible counselling centres to access should they need them. The research data will be held in care of the supervisor.

Thank you for your time. This research will contribute both to a larger body of knowledge on health beliefs and their influence on HIV and AIDS risk behaviours.

Kind Regards,

_____ _____
Bongiwe Mncube Mr. Calvin Gwandure
Researcher Supervisor
bongiwe_mncube@yahoo.comgwandurec@umthombo.wits.ac.za

## Appendix C : Consent Form (Organisation)

Please complete the slip below, which the researcher will collect from you.

This letter confirms that I, Dr./Mr/Mrs/Ms _____,
grant Bongiwe Mncube full permission to conduct research in this organisation.

Signature: _____

Position: _____

Date: _____

## Appendix D: Biographical Questionnaire

### Biographical Questionnaire

**Instructions**

- Do not put your name on this form
- Please indicate the following by using a cross:

**1.1 Gender**

Female ☐ Male ☐

**1.2 Race**

Black ☐ White ☐ Indian ☐ Coloured ☐ Other ☐

**1.3 Marital Status**

Single ☐ Married ☐ Divorced ☐

**1.4 Please indicate your age group:**

18 – 30 ☐ 31 - 49 ☐ 50 + ☐

**1.5 Please indicate your employment category:**

| | |
|---|---|
| Management (junior, middle, senior) | |
| Professional | |
| Skilled | |

| | |
|---|---|
| Clerk | |
| Unskilled (Elementary) | |

**1.5 Please indicate your preference:**

African health tradition ☐ Western health tradition ☐

## Appendix E: HIV Risk- taking Behaviour Scale

Darke, Hall, Heather, Ward & Wodak (1991)

**HIV Risk- taking Behaviour Scale**

**NOTE:**

- Do not put your name on this form.
- Your answers are private.
- Please take your time, answer carefully and honestly.

**Instructions**

For each question you are given **six** alternatives: Please place a cross next to the answer that applies to you most.

**For example: How many times have you had sex in the last month**

| | |
|---|---|
| Not at all | |
| Less than twice | **X** |
| More than once a week | |
| 3-4 times a week | |
| 6-7 times a week | |

1. How many times have you hit up (i.e. injected any drugs) in the last month?

| | |
|---|---|
| Hasn't hit up | |
| Once a week or less | |
| More than once a week (but less than once a day) | |
| Once a day | |
| 2-3 times a day | |

| | |
|---|---|
| More than 3 times a day | |

2. How many times in the last month have you used a needle after someone else had already used it?

| | |
|---|---|
| No times | |
| One time | |
| Two times | |
| 3-5 times | |
| 6-10 times | |
| More than 10 times | |

3. How many different people have used a needle before you in the last month?

| | |
|---|---|
| None | |
| One person | |
| Two people | |
| 3-5 people | |
| 6-10 people | |
| More than 10 people | |

4. How many times in the last month has someone used a needle after you have used it?

| | |
|---|---|
| No times | |
| One time | |
| Two times | |
| 3-5 times | |
| 6-10 times | |

| | |
|---|---|
| More than 10 times | |

5. How often, in the last month, have you cleaned needles before re-using them?

| | |
|---|---|
| Does not re-use | |
| Every time | |
| Often | |
| Sometimes | |
| Rarely | |
| Never | |

6. Before using needles again, how often in the last month did you use bleach to clean them?

| | |
|---|---|
| Does not re-use | |
| Every time | |
| Often | |
| Sometimes | |
| Rarely | |
| Never | |

7. How many people, including clients, have you had sex with in the last month?

| | |
|---|---|
| None | |
| One person | |
| Two people | |
| 3-5 people | |
| 6-10 people | |

| | |
|---|---|
| More than 10 people | |

8. How often have you used condoms when having sex with your regular partner(s) in the last month?

| | |
|---|---|
| No regular partner/ no penetrative sex | |
| Every time | |
| Often | |
| Sometimes | |
| Rarely | |
| Never | |

9. How often have you used condoms when you had sex with casual partners?

| | |
|---|---|
| No casual partners/ no penetrative sex | |
| Every time | |
| Often | |
| Sometimes | |
| Rarely | |
| Never | |

10. How often have you used condoms when you have been paid for sex in the last month?

| | |
|---|---|
| No paid sex/ no penetrative sex | |
| Every time | |
| Often | |
| Sometimes | |

| | |
|---|---|
| Rarely | |
| Never | |

11. How many times did you have anal sex in the last month?

| | |
|---|---|
| No times | |
| One time | |
| Two times | |
| 3-5 times | |
| 6-10 times | |
| More than 10 times | |

## Appendix F: Attitude to Condom Use Scale

DeHart & Birkimer (1997)

## Attitude to Condom Use Scale

### Instructions:

Please indicate using a tick to each statement below. Only one response is applicable.

**1-** Strongly Disagree ; **2** – Disagree ; **3** – Neutral ; **4** – Agree ; **5**- Strongly Agree

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| It is a hassle to use condoms | | | | | |
| People can get the same pleasure from "safer" sex as from unprotected sex | | | | | |
| Using condoms interrupts sex play | | | | | |
| The proper use of a condom could enhance sexual pleasure | | | | | |
| Condoms are irritating | | | | | |
| I think "safer" sex would get boring fast | | | | | |
| "Safer" sex reduces the mental pleasure of sex. | | | | | |
| The idea of using a condom doesn't appeal to me | | | | | |
| Condoms ruin the natural sex act | | | | | |
| Generally, I am in favor of using condoms | | | | | |
| Condoms interfere with romance | | | | | |
| The sensory aspects (smell, touch, etc.) of condoms make them unpleasant | | | | | |
| With condoms, you can't really "give yourself over" to your partner | | | | | |

## Appendix G: Sexual Risk Cognitions Questionnaire

Shah, Thornton & Burgess (1997)

### Sexual Risk Cognitions Questionnaire

### Instructions:

Please indicate using a tick to each statement below. Only one response is applicable.

- **I have considered not using a condom because**:

**1**-Never had thought; **2** – Very occasionally had thought; **3** – Occasionally had thought; **4** – Frequently had thought; **5**- Very frequently had thought

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| I want to show him/her that he/she is somebody special. | | | | | |
| He/she will respect me more if we don't use a condom. | | | | | |
| I feel pressured by him/her not to use a condom. | | | | | |
| If I suggest using a condom he/she will suspect that I have been unsafe. | | | | | |
| I've had unsafe sex so many times so why bother being safe now. | | | | | |
| He/she is the same HIV status as me so it doesn't matter. | | | | | |
| I enjoy sex more without a condom. | | | | | |
| He/she may reject me if I suggest using a condom. | | | | | |
| He/I will withdraw before ejaculation and this will be safe. | | | | | |
| My wishing to use a condom would suggest to him/her that I think he/she may have been promiscuous. | | | | | |
| I have very little to look forward to in life, so there is no point in practicing safer sex. | | | | | |
| We get so far sometimes that it's not worth using a condom. | | | | | |
| He/she may get angry/upset if I suggest using a condom. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| He/I may lose erection if a condom is used. | | | | | |
| Unsafe sex is just one of life's many risks. | | | | | |
| He/she will like me more if we don't use a condom. | | | | | |
| Most of the time I'm careful, it won't matter just this once. | | | | | |
| If I say I want to use a condom he/she may think I have doubts about how safe he/she has been in the past. | | | | | |
| I think he/she doesn't want to use a condom so we don't. | | | | | |
| If I suggest using a condom he/she may think that I have been promiscuous. | | | | | |
| Sex is more exciting without a condom. | | | | | |
| I've already had unsafe sex with him/her, what's the point of using a condom this time. | | | | | |

**The End! Thank you for your time ☺**

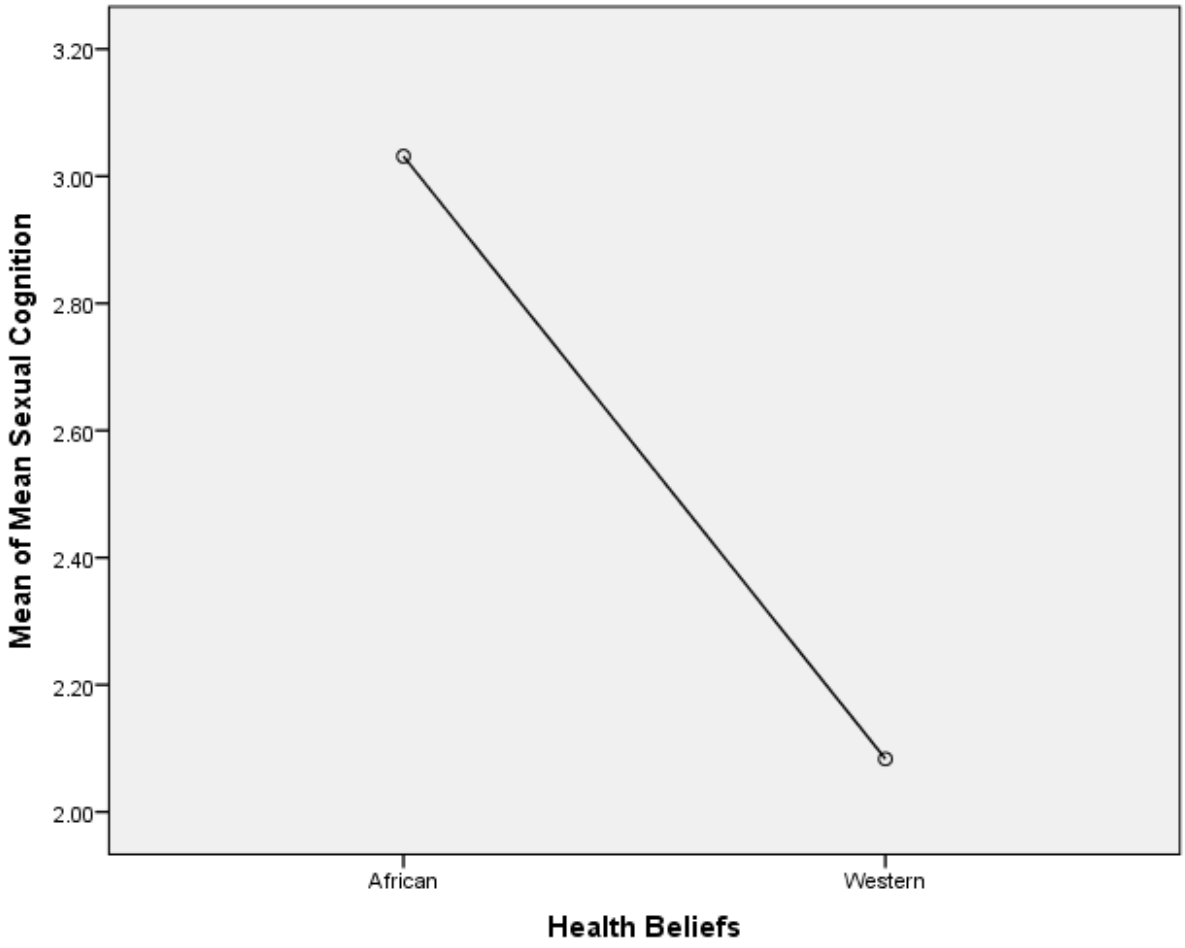
# Appendix H: Correlation report on the items of the Sexual Risk Cognitions Questionnaire

| | | Sexual Cognition 1 | Sexual Cognition 2 | Sexual Cognition 3 | Sexual Cognition 4 | Sexual Cognition 5 | Sexual Cognition 6 | Sexual Cognition 7 | Sexual Cognition 8 | Sexual Cognition 9 | Sexual Cognition 10 | Sexual Cognition 11 | Sexual Cognition 12 | Sexual Cognition 13 | Sexual Cognition 14 | Sexual Cognition 15 | Sexual Cognition 16 | Sexual Cognition 17 | Sexual Cognition 18 | Sexual Cognition 19 | Sexual Cognition 20 | Sexual Cognition 21 | Sexual Cognition 22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sexual Cognition 1 | Pearson Correlation | 1 | .646** | .357** | .568** | .527** | .591** | .621** | .523** | .397** | .521** | .328** | .592** | .483** | .467** | .206* | .608** | .392** | .474** | .400** | .460** | .688** | .587** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .001 | .000 | .000 | .000 | .045 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 2 | Pearson Correlation | .646** | 1 | .414** | .561** | .561** | .665** | .615** | .507** | .492** | .527** | .416** | .637** | .451** | .666** | .332** | .774** | .542** | .497** | .440** | .475** | .638** | .577** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 3 | Pearson Correlation | .357** | .414** | 1 | .591** | .219* | .307** | .439** | .601** | .277** | .467** | .135 | .352** | .522** | .355** | .029 | .339** | .087 | .494** | .546** | .514** | .445** | .314** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .032 | .002 | .000 | .000 | .006 | .000 | .191 | .000 | .000 | .000 | .781 | .001 | .401 | .000 | .000 | .000 | .000 | .002 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 4 | Pearson Correlation | .568** | .561** | .591** | 1 | .488** | .444** | .615** | .593** | .290** | .678** | .168 | .467** | .672** | .416** | .256* | .489** | .306** | .720** | .594** | .753** | .727** | .483** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 | .000 | .000 | .000 | .004 | .000 | .101 | .000 | .000 | .000 | .012 | .000 | .002 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 5 | Pearson Correlation | .527** | .561** | .219* | .488** | 1 | .698** | .504** | .311** | .407** | .438** | .328** | .568** | .356** | .391** | .310** | .519** | .346** | .463** | .361** | .371** | .664** | .619** |
| | Sig. (2-tailed) | .000 | .000 | .032 | .000 | | .000 | .000 | .002 | .000 | .000 | .001 | .000 | .000 | .000 | .002 | .000 | .001 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 6 | Pearson Correlation | .591** | .665** | .307** | .444** | .698** | 1 | .637** | .521** | .412** | .473** | .411** | .592** | .416** | .537** | .209* | .596** | .480** | .478** | .373** | .394** | .648** | .669** |
| | Sig. (2-tailed) | .000 | .000 | .002 | .000 | .000 | | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .041 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 7 | Pearson Correlation | .621** | .615** | .439** | .615** | .504** | .637** | 1 | .603** | .316** | .540** | .248* | .580** | .570** | .432** | .159 | .617** | .433** | .589** | .562** | .643** | .745** | .681** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | | .000 | .002 | .000 | .015 | .000 | .000 | .000 | .121 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 8 | Pearson Correlation | .523** | .507** | .601** | .593** | .311** | .521** | .603** | 1 | .389** | .605** | .174 | .454** | .637** | .347** | .013 | .477** | .291** | .575** | .508** | .542** | .497** | .432** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .002 | .000 | .000 | | .000 | .000 | .090 | .000 | .000 | .001 | .903 | .000 | .004 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 9 | Pearson Correlation | .397** | .492** | .277** | .290** | .407** | .412** | .316** | .389** | 1 | .316** | .518** | .478** | .212* | .402** | .270** | .437** | .377** | .142 | .302** | .138 | .360** | .409** |
| | Sig. (2-tailed) | .000 | .000 | .006 | .004 | .000 | .000 | .002 | .000 | | .002 | .000 | .000 | .038 | .000 | .008 | .000 | .000 | .169 | .003 | .179 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 10 | Pearson Correlation | .521** | .527** | .467** | .678** | .438** | .473** | .540** | .605** | .316** | 1 | .067 | .368** | .617** | .332** | .035 | .406** | .195 | .619** | .614** | .648** | .593** | .418** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .002 | | .514 | .000 | .000 | .001 | .733 | .000 | .057 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 11 | Pearson Correlation | .328** | .416** | .135 | .168 | .328** | .411** | .248* | .174 | .518** | .067 | 1 | .373** | .138 | .341** | .279** | .447** | .470** | .214* | .143 | .127 | .364** | .318** |
| | Sig. (2-tailed) | .001 | .000 | .191 | .101 | .001 | .000 | .015 | .090 | .000 | .514 | | .000 | .180 | .001 | .006 | .000 | .000 | .037 | .165 | .217 | .000 | .002 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 12 | Pearson Correlation | .592** | .637** | .352** | .467** | .568** | .592** | .580** | .454** | .478** | .368** | .373** | 1 | .462** | .501** | .267** | .606** | .583** | .306** | .406** | .378** | .658** | .708** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | .000 | .000 | .008 | .000 | .000 | .002 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 13 | Pearson Correlation | .483** | .451** | .522** | .672** | .356** | .416** | .570** | .637** | .212* | .617** | .138 | .462** | 1 | .465** | .209* | .561** | .216* | .705** | .627** | .674** | .636** | .548** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .038 | .000 | .180 | .000 | | .000 | .041 | .000 | .035 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 14 | Pearson Correlation | .467** | .666** | .355** | .416** | .391** | .537** | .432** | .347** | .402** | .332** | .341** | .501** | .465** | 1 | .409** | .692** | .293** | .350** | .416** | .333** | .537** | .514** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .001 | .000 | .001 | .001 | .000 | .000 | | .000 | .000 | .004 | .000 | .000 | .001 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 15 | Pearson Correlation | .206* | .332** | .029 | .256* | .310** | .209* | .159 | .013 | .270** | .035 | .279** | .267** | .209* | .409** | 1 | .360** | .294** | .090 | .213* | .128 | .258* | .310** |
| | Sig. (2-tailed) | .045 | .001 | .781 | .012 | .002 | .041 | .121 | .903 | .008 | .733 | .006 | .008 | .041 | .000 | | .000 | .004 | .381 | .038 | .215 | .011 | .002 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 16 | Pearson Correlation | .608** | .774** | .339** | .489** | .519** | .596** | .617** | .477** | .437** | .406** | .447** | .606** | .561** | .692** | .360** | 1 | .598** | .565** | .513** | .510** | .641** | .704** |
| | Sig. (2-tailed) | .000 | .000 | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 17 | Pearson Correlation | .392** | .542** | .087 | .306** | .346** | .480** | .433** | .291** | .377** | .195 | .470** | .583** | .216* | .293** | .294** | .598** | 1 | .342** | .313** | .396** | .476** | .534** |
| | Sig. (2-tailed) | .000 | .000 | .401 | .002 | .001 | .000 | .000 | .004 | .000 | .057 | .000 | .000 | .035 | .004 | .004 | .000 | | .001 | .002 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 18 | Pearson Correlation | .474** | .497** | .494** | .720** | .463** | .478** | .589** | .575** | .142 | .619** | .214* | .306** | .705** | .350** | .090 | .565** | .342** | 1 | .641** | .817** | .663** | .481** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .169 | .000 | .037 | .002 | .000 | .000 | .381 | .000 | .001 | | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 19 | Pearson Correlation | .400** | .440** | .546** | .594** | .361** | .373** | .562** | .508** | .302** | .614** | .143 | .406** | .627** | .416** | .213* | .513** | .313** | .641** | 1 | .686** | .612** | .542** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .003 | .000 | .165 | .000 | .000 | .000 | .038 | .000 | .002 | .000 | | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 20 | Pearson Correlation | .460** | .475** | .514** | .753** | .371** | .394** | .643** | .542** | .138 | .648** | .127 | .378** | .674** | .333** | .128 | .510** | .396** | .817** | .686** | 1 | .665** | .493** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .179 | .000 | .217 | .000 | .000 | .001 | .215 | .000 | .000 | .000 | .000 | | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 21 | Pearson Correlation | .688** | .638** | .445** | .727** | .664** | .648** | .745** | .497** | .360** | .593** | .364** | .658** | .636** | .537** | .258* | .641** | .476** | .663** | .612** | .665** | 1 | .717** |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .011 | .000 | .000 | .000 | .000 | .000 | | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Sexual Cognition 22 | Pearson Correlation | .587** | .577** | .314** | .483** | .619** | .669** | .681** | .432** | .409** | .418** | .318** | .708** | .548** | .514** | .310** | .704** | .534** | .481** | .542** | .493** | .717** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .002 | .000 | .000 | .000 | .002 | .000 | .000 | .000 | .000 | .000 | .000 | |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |

## Appendix I: Correlation report on the items of the Attitude to Condom Use scale

| | | Condom Use1 | CondomUse2 | CondomUse3 | Condom Use4 | Condom Use5 | CondomUse6 | CondomUse7 | CondomUse8 | CondomUse9 | CondomUse10 | CondomUse11 | CondomUse12 | CondomUse13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Condom Use1 | Pearson Correlatio | 1 | .279** | .643** | .258* | .732** | .662** | .676** | .703** | .704** | .378** | .696** | .667** | .625** |
| | Sig. (2- | | .006 | .000 | .011 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use2 | Pearson Correlatio | .279** | 1 | .538** | .500** | .370** | .423** | .465** | .406** | .441** | .384** | .425** | .481** | .501** |
| | Sig. (2- | .006 | | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use3 | Pearson Correlatio | .643** | .538** | 1 | .322** | .799** | .712** | .831** | .629** | .768** | .427** | .703** | .708** | .693** |
| | Sig. (2- | .000 | .000 | | .001 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use4 | Pearson Correlatio | .258* | .500** | .322** | 1 | .350** | .340** | .443** | .347** | .368** | .583** | .393** | .369** | .422** |
| | Sig. (2- | .011 | .000 | .001 | | .000 | .001 | .000 | .001 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use5 | Pearson Correlatio | .732** | .370** | .799** | .350** | 1 | .797** | .775** | .666** | .838** | .492** | .797** | .733** | .731** |
| | Sig. (2- | .000 | .000 | .000 | .000 | | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use6 | Pearson Correlatio | .662** | .423** | .712** | .340** | .797** | 1 | .730** | .790** | .834** | .453** | .686** | .818** | .789** |
| | Sig. (2- | .000 | .000 | .000 | .001 | .000 | | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use7 | Pearson Correlatio | .676** | .465** | .831** | .443** | .775** | .730** | 1 | .675** | .845** | .421** | .719** | .766** | .709** |
| | Sig. (2- | .000 | .000 | .000 | .000 | .000 | .000 | | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use8 | Pearson Correlatio | .703** | .406** | .629** | .347** | .666** | .790** | .675** | 1 | .769** | .409** | .612** | .704** | .772** |
| | Sig. (2- | .000 | .000 | .000 | .001 | .000 | .000 | .000 | | .000 | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use9 | Pearson Correlatio | .704** | .441** | .768** | .368** | .838** | .834** | .845** | .769** | 1 | .469** | .757** | .737** | .712** |
| | Sig. (2- | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | .000 | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use10 | Pearson Correlatio | .378** | .384** | .427** | .583** | .492** | .453** | .421** | .409** | .469** | 1 | .427** | .399** | .358** |
| | Sig. (2- | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | .000 | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use11 | Pearson Correlatio | .696** | .425** | .703** | .393** | .797** | .686** | .719** | .612** | .757** | .427** | 1 | .739** | .722** |
| | Sig. (2- | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | .000 | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use12 | Pearson Correlatio | .667** | .481** | .708** | .369** | .733** | .818** | .766** | .704** | .737** | .399** | .739** | 1 | .819** |
| | Sig. (2- | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | | .000 |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Condom Use13 | Pearson Correlatio | .625** | .501** | .693** | .422** | .731** | .789** | .709** | .772** | .712** | .358** | .722** | .819** | 1 |
| | Sig. (2- | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | |
| | N | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 | 96 |

## Appendix J: Scatterplot - Sexual Risk Cognitions



## Appendix K: Scatterplot - Attitude to Condom Use

