

**Perceptions of undergraduate students of University of KwaZulu-Natal  
regarding HIV counselling and testing in the year 2012**

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## **ABSTRACT**

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South Africa has one of the highest prevalence of HIV infections in the world. Sexual transmission is the primary mode of transmission across the country's population. Misinformation about AIDS, negative attitudes to HIV testing and AIDS' stigmatizing beliefs represent potential barriers to seeking HIV testing. Youth between 15-24 years have the greatest risk of HIV infection but only 37% of students at the University of KwaZulu-Natal (UKZN) had undertaken HIV counselling and testing (HCT) according to the HEAIDS (2008) report. Prevention of HIV and behaviour change includes knowledge about, and adequacy of, HIV counselling and testing (HCT) resources on campuses. The aim of this study was to investigate students' perceptions about HCT at UKZN and make recommendations regarding improvements. An observational, analytical, cross-sectional study of UKZN undergraduate students on the five campuses was conducted. Participants completed anonymous self-administered questionnaires.

Of 965 surveyed students, 663 (71%) had tested for HIV among whom 545 (58%) were females and 501(52%) were 20-25 years. Fear of positive results, perceived low risk of acquiring the infection and having confidence in his/her partner influenced student HIV testing behaviour ( $p < 0.001$ ). A significant difference was also found in positive attitudes towards HCT on campus between people who had tested (median score 20) and people who had not tested (median score 18) ( $p < 0.05$ ). Since one third of students at UKZN had not tested for HIV, HCT at UKZN needs to be advertised more effectively so as to increase HIV testing by students on campuses.

## DECLARATION

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I .....**Rashmi Venugopala**..... declare that

- I. The research reported in this dissertation, except where otherwise indicated, is my original research.
- II. This dissertation has not been submitted for any degree or examination at any other university.
- III. This dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
- IV. This dissertation does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
  - a) their words have been re-written but the general information attributed to them has been referenced;
  - b) where their exact words have been used, their writing has been placed inside quotation marks, and referenced.

This dissertation does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the dissertation and in the References sections

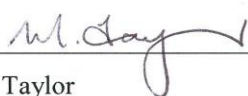


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## ACRONYMS AND ABBREVIATIONS

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ABC	:	Abstinence, Being faithful and Condomising
AIDS	:	Acquired Immunodeficiency Syndrome
ANC	:	Antenatal Clinic
ART	:	Anti-retroviral treatment
ELISA	:	Enzyme linked immune-adsorbent assay
HCT	:	HIV Counselling and Testing
HEAIDS	:	Higher Education HIV/AIDS Programme
HIV	:	Human Immunodeficiency Virus
HSRC	:	Human Sciences Research Council
HTML	:	HyperText Markup Language
MTCT	:	Mother to Child Transmission
SPSS	:	Statistical Package for the Social Sciences
UKZN	:	University of KwaZulu-Natal
UNAIDS	:	Joint United Nations Programme on HIV and AIDS
VCT	:	Voluntary Counselling and Testing

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# 1. INTRODUCTION

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## 1.1 Background

The spread of HIV in the African continent is a humanitarian crisis (1). This has led to efforts involving both financial and logistical commitments from many different countries and organizations (2). The prevention of new infections requires the prevention of transmission of HIV from one individual to another. Reducing stigma would also contribute to reduce the transmission (3). An explicit focus on HIV prevention would require changes in behaviour to prevent future HIV infections and reduce the need for ART (anti-retroviral treatment) as there is currently no vaccine available for the disease (3).

Globally an estimated 34 million people are living with HIV/AIDS (4). Southern African countries are the hardest hit with sub-Saharan Africa being home to the largest number of people living with HIV/AIDS (4). An epidemic has been experienced by post-apartheid South Africa with 5.7 million South African citizens infected with HIV (4, 5). During the first decade of democracy in South Africa, the prevalence of HIV among adults rose from less than 3% to 18% (6). According to the Joint United Nations Programme on HIV and AIDS (UNAIDS), some of the highest prevalence rates among antenatal clinic (ANC) attendees can be found among pregnant women of Southern Africa (7). HIV prevalence among 15-24 year old pregnant women is defined as the percentage of pregnant women aged 15-24 whose blood samples test positive for HIV (7). With the exception of Angola, countries in southern Africa have the highest HIV prevalence rates among antenatal clinic attendees (ANC) aged 15-24 years varying from 17.4% to 39.4% (8). The 2011 National Antenatal Sentinel HIV Prevalence Survey states that the prevalence among pregnant women attending state clinics in South Africa was found to be 29.5% (5). Even though there is good news that HIV prevalence rates have stabilized over the past six years the prevalence rates remain high (5).

In South Africa, the province of KwaZulu-Natal is the worst affected by the epidemic. The HIV prevalence rate among ANC attendees in the province of KwaZulu-Natal is 37.4% when compared to the neighbouring province of Gauteng where it is 28.7% (5). In South Africa, child and maternal mortality has risen since the 1990s (3, 7). Mother to child transmission (MTCT) has been the leading cause of HIV infection in children and accounts for the majority of HIV transmissions in children in developing countries and more than 90% of children living with HIV acquired the infection during pregnancy, birth or breastfeeding (9). AIDS is the largest cause of maternal mortality in South Africa and also accounted for 35% deaths in children younger than five years (10) .

The HIV prevalence estimate is the most important indicator used to provide empirical evidence when monitoring the prevalence of new infections (5). The HIV prevalence rate among adults in South Africa is 17.8% when compared to Zimbabwe where the adult prevalence rate is 15.3% (5). The prevalence rates among Zimbabweans are lower than among South Africans and this has been attributed to increased condom use (11). The annual HIV incidence among South African women aged 15-24 years was 2.2% in 2005-2008 (7, 12). Prevalence rates in districts in South Africa are heterogeneous with respect to the epidemic with prevalence rates ranging from a high of 46.1% in 2011 in Gert Sibande in Mpumalanga, followed by Ugu and Mkhanyakude in KZN which recorded 41.7% and 41.1% respectively (5).

In sub-Saharan Africa, HIV is mainly spread through heterosexual intercourse. Young people in the sexually active age group bear the brunt of the HIV epidemic (13, 14). The sexual behaviour of youth in South Africa according to various studies conducted greatly predisposes them to HIV infection. The Human Sciences Research Council (HSRC) studies have revealed that many young people aged between 15-24 years had already engaged in penetrative sex and that the median age for the first sexual encounter was 17 years (15, 16). Studies have shown

that 27.2% of males and 6.0% of females had multiple partners over a 12 month period (15, 16). Several studies have shown that the epidemic is related to high levels of multiple sexual partners combined with inconsistent condom use, which affect the sexual networks formed which ultimately have fuelled the HIV epidemic (13, 15, 17).

Young people suffer more from HIV/AIDS, but the epidemic among young people remains largely invisible both to the youth and to the society as a whole. People in the age group of 15-25 years carry the virus for years without realizing the fact and thus become the reason for the spread of the epidemic in the broader population (18). Especially in sub-Saharan Africa and in nearly 20 sub-Saharan countries an estimated 5% or more of young women in the age group of 15-24 are infected with HIV (19, 20). The epidemic also spreads as a result of men choosing younger sexual partners as men believe that younger girls are not affected by the virus (16). There is also a mistaken belief among some men that having sex with a virgin can cure AIDS (16, 21, 22). This is one of many reasons leading to the fact that women feature more prominently in HIV prevalence statistics compared to men in African countries (23). Women are found to be more vulnerable to the disease and this could be attributed to gender disparities, poverty, cultural and sexual norms, lack of education and sexual violence (9, 22, 24-26). Studies have found that women are more susceptible to HIV-1 because of hormonal changes, vaginal microbial ecology and physiology, and a higher prevalence of sexually transmitted diseases (25, 26).

HIV counselling and testing (HCT) is a public health initiative aimed at primarily diagnosing HIV infections, and also encouraging HIV transmission reducing behaviour through counselling (27). High quality HIV counselling and testing is focused on promoting sexual behaviours that minimize the risk of acquiring and transmitting infections and includes the following elements, personalized risk assessments, support for positive changes already made, clarification of critical misconceptions, negotiated achievable behaviour change steps,

flexibility in the HIV prevention approach, and opportunity to build skills, and use of clear language to explain test results (28-30).

Studies have shown that knowing one's HIV status is beneficial for prevention and timely treatment (4, 9). For example the pre and post-test counselling received during HIV testing is crucial for providing HIV risk reduction knowledge (31). An individual who is already infected with HIV has the opportunity of starting antiretroviral treatment early before he/she becomes symptomatic (31). Further he/she can use safe injecting drug practices and/or condoms to protect partners from HIV infection (31). Additionally pregnant women can prevent vertical transmission of HIV to their unborn children from 15-40% to 1-2% or less by receiving appropriate treatment throughout pregnancy or during labor (32, 33). The newborn can also receive treatment for six months following delivery (33).

Although recognizing the critical role that HCT can play in the spread of HIV infections, it is not necessarily predictable that persons who test for HIV who receive a negative result will then adopt safe behaviour. In a Canadian longitudinal cohort study by Ryder *et al.* that was aimed at understanding whether repeat negative testing reinforced continuing unsafe behaviours, it was found that repeat testing may result in confusion and false beliefs of being immune to HIV (30). Despite such debates HCT retains importance as an unequivocal part of HIV prevention approaches (30).

HIV counselling and testing is recognized as an important and effective strategy for both prevention and care (31, 34). Thus it is said to be an important tool for prevention and treatment and in the control of the spread of the epidemic. These findings have boosted interest and support for HIV counselling and testing, as a valuable component in the control of HIV/AIDS pandemic (29).

## **1.2 Problem Statement**

The estimated 1.3 million people who died from HIV-related illnesses in sub-Saharan Africa comprised 72% of the global total of 1.8 million deaths attributable to the epidemic (7, 12). According to the South African Department of Health Study, KwaZulu-Natal was among the provinces that recorded the highest HIV prevalence with 15.8% for the years 2002-2008 and this was higher than the national average of 10.9% (5). UNAIDS 2010 reported that young people in the age group of 15 to 24 years showed gradually improving knowledge of HIV and AIDS, but still fell short of global targets for comprehensive knowledge set in 2001(7). This definitely has to be improved and for this to be possible more interventions targeting young people are needed. According to UNAIDS 2010, young people in some parts of the developing world still lack knowledge, and often lack the tools such as accessible HCT facilities, and affordable health care to practise HIV-risk reduction strategies (7).

HIV counselling and testing is an important component of access to comprehensive, essential and quality health care (34). HIV counselling and testing means testing an individual for HIV voluntarily with the individual's permission, where such testing includes counselling before and after the test (34). Detection of HIV infection at an earlier stage helps a person to get information and counselling regarding how to live positively with the virus, and also helps a person to get treated earlier and more effectively, thus increasing the person's chances of leading a healthier life (29, 35). HIV counselling and testing centres are present on the campuses of UKZN to assist students to determine their HIV status. The test for HIV determines whether the student is infected (HIV seropositive) or uninfected (HIV seronegative). Since HIV infection can be latent or invisible for up to 10 years, many HIV positive people can be unaware of their status for many years before the visible symptoms appear (31).



According to HEAIDS (Higher Education HIV and AIDS Program) 2008, the key indicators following a test conducted, showed that only 37% of students at the University of KwaZulu-Natal had ever taken up HIV counselling and testing (36). Early diagnosis of HIV infection has many benefits for the individual and the society (35, 37). Avoidance of HIV counselling and testing for different reasons reduces the opportunity for prevention of transmission of HIV and promoting the health of the individual (3). There is thus a need to investigate whether there has been an increase in HIV testing among UKZN students and the factors that discourage students from getting tested on campus.

### **1.3 Research Question**

What are the reasons for avoidance of HIV counselling and testing among students of UKZN in the year 2012?

### **1.4 Aims and Objectives**

**Aim of study** - To determine the reasons for avoidance of HIV counselling and testing (HCT) among students of University of KwaZulu-Natal in the year 2012.

#### **Specific objectives**

- To determine whether students have tested for HIV
- To determine the knowledge of students regarding HCT
- To investigate students' awareness and utilization of HCT resources on campus
- To identify the factors affecting their willingness to get tested for HIV
- To identify the attitudes of students towards HCT
- To make recommendations to improve HCT uptake on campus

## **1.5 Significance of the Study**

Early diagnosis of HIV infection has many benefits for the individual and the society. Avoidance of HIV counselling and testing due to different reasons reduces the opportunity for prevention of transmission of HIV and promoting the health of the individual (28). Young people between the ages of 15-29 have the greatest risk of HIV infection (7). Prevention and behaviour change currently remains the most feasible and important intervention in the fight against HIV/AIDS. The recommendations from this study hopefully may result in more students benefitting from HCT resources on campuses and result in fewer HIV infections which would also help in reducing state expenditure on ART (Anti-retroviral Treatment).

## **1.6 Outline of the Study**

In this chapter the background and rationale for conducting the study was introduced. In chapter 2, the relevant literature regarding HCT will be discussed regarding the process and role of HCT, the efficacy of HCT in bringing about behaviour change, HCT research at the university level amongst different population groups and the benefits of testing at the university level that have been explored in past studies of HCT. The third chapter will outline the research methodology of the study pertaining to the study design and research questions, sampling, and development of the questionnaire, data collection and data analysis. The ethical requirements that were adhered to in the study will also be reported. In the fourth chapter the results of the data analysis will be presented including the demographic profile of the sample, descriptive statistics and association between variables. The fifth chapter is a discussion of the results comparing other studies. This chapter will summarize the study and discuss its limitations. The concluding chapter will look into recommendations for future interventions and research that can be conducted on campus in the future.

## **2. LITERATURE REVIEW**

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### **2.1 Introduction**

Africa is home to around two-thirds (about 25 million) of HIV infected individuals globally (38). Sub-Saharan Africa takes the brunt of the HIV pandemic as studies have shown that 70% of all HIV infected people in the world were living in sub-Saharan Africa and this region is home to less than 10% of the world's population (38). Adult HIV infections in Africa are mostly acquired heterosexually with the mother-to-child transmission being the most common method of transmitting the infection in children (7, 39, 40). Other modes of transmission such as blood transfusions and intravenous drug usage have a lesser contribution to the spread of infection compared to the heterosexual route. The worst affected regions in the world are in Eastern and Southern Africa (4, 7).

### **2.2 Youth and HIV**

Sexually transmitted infections (STIs) are considered to be the most common diseases in the world and affect both developed and developing countries (41). It has been estimated by the Center for Disease Control and Prevention that teenagers have the highest occurrence of STIs (42). Young people between the age group of 15-24 have the highest reported cases of STIs (41, 42). Students at the level of University are more prone to sexual experimentation and unsafe sexual practices (43). They also are more prone to engage in premarital sex, oral sex and abortion and this can be attributed to the changing trends among youth across the globe with the development of more liberal attitudes about sexual practices (44). These practices make students more prone to sexually transmitted infections and unwanted pregnancies (44). Studies in the past point towards the fact that youth in South Africa have the greatest risk of HIV infection (4, 45). Studies conducted by the HSRC have shown that youth aged between 15-24 years have the greatest risk of HIV infection in the country as 57.9% of young people in this age range had already engaged in penetrative sex (16, 46). Other similar studies conducted

have shown that in South Africa, males aged between 13 to 26 years were sexually active thus making them more prone to sexually transmitted infections (15, 46-48). The studies have also shown that about 27.2% of males studied had indicated that they had had multiple sexual partners in the previous 12 months and a significant number of these males had never used condoms (15). Programs in the past aimed at abstinence have not brought about the desired changes in the risky sexual behaviour of students. In a study conducted by Magnani *et al.*, youth aged 14-24 from several population subgroups in KZN (n=2222) were subjected to a full coverage life skills education programme in 1999. When interviewed subsequently in 2001, no consistent effects were observed on age at sexual initiation, secondary abstinence or partnering behaviours among these youth.

The pandemic has had greater impact on women in South Africa. Around 56% of those infected with HIV are women with the age group of 15 to 34 year olds being the highest affected (49). Traditionally, African cultures have been patriarchal and it is also known that they have been oppressive to women (50). This can be one of the reasons for the increased prevalence among women of this disease. Even recently women aged 25 to 29 continue to record very high levels (33%) of HIV prevalence (5). The percentage of female teenagers who have sex with older men has also contributed to this HIV problem (22). Bringing about changes in sexual behaviour of youth needs a multidimensional approach and is complicated due to a lot of associated factors including cultural issues, stigmas, attitudes and traditions (42, 51). In a study conducted by Macintyre *et al.*, 2,716 adolescents in South Africa aged 14-22 were interviewed to study their HIV risk perception. This study concluded that a greater understanding of the connection of adolescents to their communities and adults in their life is needed and programmes targeting them should incorporate these into their design (42).

### **2.3 HIV counselling and testing**

Health services though play a more crucial and direct role in detection and treatment of HIV infection (34, 52). HIV counselling and testing is a service provided to people who wish to know their HIV status (53). HIV testing can be a very traumatic experience for the people who are undergoing the test and also for their near and dear ones (54). The counselling process that accompanies the testing helps the person undergoing the testing to deal with the process and the results of the testing. The process of HIV counselling and testing has been researched in the past with respect to its efficacy (55). HIV counselling and testing is a voluntary service and the person volunteers for the testing and counselling process and thus a lot of studies have been conducted with regard to the motivating factors for an individual taking the test and the efficacy of the whole testing process (55).

### **2.4 Rationale for HCT**

HIV counselling and testing is a combination of two activities i.e. counselling and testing (56). The counselling part is a confidential dialogue between the client and care provider enabling the client to cope with personal issues and stress related to HIV and AIDS (57). Thus HIV counselling and testing (HCT) provides an opportunity for an individual to access prevention, counselling and if necessary referral to care and support services (31). The main rationale is that knowing one's serostatus (whether seropositive or seronegative) allows people to alter their behaviour (31). HCT thus aims to promote and sustain behaviour change, prevention and stigma reduction by facilitating early referral if seropositive to care and support services including access to anti-retroviral treatment (ART), prevention of mother to child transmission (PMTCT), sexually transmitted infections (STI) treatment, preventive therapy for diseases, contraceptive advice, acceptance and coping with one's serostatus and referral to peer and social groups such as HIV support groups (31).

## **2.5 Process of HIV counselling and testing (HCT)**

HIV counselling and testing has been shown to be an effective preventive strategy against HIV/AIDS. It is a public health strategy aimed at interventions and education regarding facts related to how the disease is transmitted and what are the measures that can be adopted in order to reduce the risk of getting infected or infecting others. HIV counselling and testing is a process where an individual learns of his or her HIV status and also learns about methods and measures that need to be adopted in order to cope with the testing process and the results obtained from the testing (31). HIV counselling and testing can be either facility-based (General clinic, Antenatal clinic, etc.) or community-based (workplace, schools and colleges, home-based, social events etc.). It can be either client initiated or provider initiated but the client ultimately has the choice of going in for HIV testing. HIV counselling and testing is provided by health care providers (doctors and nurses), and trained counsellors (58).

HIV counselling and testing has the following three phases

1. Pre-test counselling
2. HIV testing
3. Post-test counselling

### **2.5.1 Pre-test counselling**

It is the phase in which the individual receives counselling before undergoing the HIV testing. Informed consent is a prerequisite before the person undergoes counselling and testing. The person undergoing testing is asked the reasons for testing. Past history regarding sexual history, drug abuse, sexual abuse etc. is enquired about. People coming in for testing are either referred by health professionals or volunteer for the testing process. So before testing the individual undergoing the testing is advised regarding the possible outcomes of the testing and the coping measures involved (31, 59).

### **2.5.2 HIV testing**

Testing for HIV is done by testing for the presence of antibodies for HIV. Rapid HIV tests are usually employed where the test results are made available within 15-20 minutes. Sensitivity (99%) and specificity (98%) of rapid tests are comparable to those of Enzyme Immunoassays (EIAs) (31). Sensitivity is the probability that the test result will be reactive if the specimen is a true positive. Specificity is the probability that the test result will be negative if the specimen is a true negative (31). Enzyme linked immune-adsorbent assay (ELISA) is a test in which the sample of blood is sent to a laboratory and the results are available in one to 3 weeks (31).

### **2.5.3 Post-test counselling**

This is the counselling that is directed towards helping the individual cope with the test results. The counselling is provided for both positive and negative results. In case of a negative result this aspect of the counselling encourages the individual who has been exposed to a risk in the recent past to come back for testing after three to six months as the body may not show antibodies during this period which is known as the window period. Individuals who have tested negative are encouraged to maintain their negative status by practising preventive measures and taught about risk reduction behaviours. Individuals who test positive are advised regarding antiretroviral treatment, diet and proper nutrition and about prevention and treatment of opportunistic infections. Individuals are also encouraged to bring in their partners or spouses for testing. They are counselled regarding measures to prevent transmitting the virus to others. Individuals are further counselled regarding participating in support groups and undergoing future counselling to be able to live a long and healthy life (31).

From the above processes involved, it can be seen that HIV counselling and testing plays a very important role as a preventive measure, helps in promoting positive health behaviour, offers psychological and emotional support to an individual and helps in reducing stigma associated with the disease (60). It also provides options to prevent MTCT (mother to child

transmission) in women (60) and this offers benefits to women who undergo HIV counselling and testing prior to or during pregnancy

1. The knowledge facilitates early counselling and treatment
2. The testing allows opportunities for measures to prevent transmission to the child that can occur during pregnancy, during birth or during breast feeding.
3. The diagnosis helps in treatment and follow up of the child if HIV positive
4. The knowledge also helps the woman take precautions to prevent transmission to her sex partners.

## **2.6 University of KwaZulu-Natal HIV/AIDS programme**

The support unit for the UKZN HIV/AIDS programme is located at the Westville campus of UKZN and has offices on each campus of UKZN. The programme reports to the University AIDS Committee and this in turn reports to the University council and Senate. The five campuses have five Voluntary Counselling and testing (VCT) counsellors and five HIV/AIDS coordinators who are responsible for the programme along with various other stake holders. The unit on each campus works closely with the campus community of staff and students for prevention, support and treatment (61).

The University has a strict confidentiality policy in place which states that no staff or student can be compelled to reveal their HIV status and any disclosure of positive HIV status will be treated with strict confidentiality and no employee will be discriminated or victimized based on their HIV status. The university provides information, education and communication material relating to HIV and AIDS to the students and staff through the HIV/AIDS support units. All new staff and students are invited to participate in awareness campaigns relating to HIV/AIDS during orientation and induction days. The academic programme at the university includes modules and or courses about HIV and AIDS that is provided to all students irrespective of their field of study in order to raise awareness (61).



HIV counselling and testing facilities on campuses provide the following (61):

- All staff and students can access the HIV counselling and testing facilities on campuses.
- All infected staff and students not on medical aid will have access to the wellness program run by the campus clinics.
- HIV positive staff and students will be referred to local health facilities for on-going treatment
- Support groups are in place for infected or affected members of the university community
- Counselling and post-exposure prophylaxis is provided at campus clinics to rape survivors and people who become accidentally exposed to the risk of HIV in their occupational environments (61, 62).

## **2.7 The importance of HIV counselling and testing**

Studies done in Kenya, Tanzania and Trinidad supported the benefits of VCT (voluntary counselling and testing) (63). In this study 3120 individuals and 586 couples participated. Participants in this study were assigned to two groups: a group that received VCT and a group that received health information. The follow up assessments of this study determined that the group assigned to VCT reported significantly reduced sexual risk behaviour. Thus the public health implications of HIV counselling and testing can be similar to and better than other interventions like free condom distribution and health information to reduce HIV-1 related risk behaviour (63). Voluntary counselling and testing (VCT) is client-initiated (persons attending health care facilities) as opposed to HIV counselling and testing (HCT) which can also be provider-initiated (health care providers) to encourage more people to participate but is still required to be voluntary (31).

Krabbendam, Kuijper, Wolffers and Drew conducted a study on HIV infected women in Zimbabwe and found that HIV counselling and testing helps in averting psychosocial problems and reducing suicides related to the stigma associated with the disease. The study found that more than one counselling session was effective as a single session did not help as the women attending one session did not remember all that was advised (64). Thus counselling and support groups (HIV support groups), played a very important role as a tool in countering the effects of HIV infection. HIV support groups encourage positive living with the infection and disease and also provide continuous counselling to the affected individual (64). Studies conducted by Sweat *et al.*, in two African countries (Kenya and Tanzania) found that VCT was cost effective in averting HIV-1 infections. The cost of VCT was estimated for a hypothetical cohort of 10, 000 people seeking VCT in urban east Africa. The results were modelled from a randomized controlled trial for VCT in Tanzania and Kenya. The study found that VCT was highly cost effective in reducing state expenditure spent on control of the disease in urban east African settings (65).

The effectiveness of HIV counselling and testing depends on young people volunteering to test for HIV (66). Various challenges are related to young people undergoing testing for HIV such as stigma, lack of social support, confidentiality, information and knowledge of testing facilities for HIV (67). Boswell and Baggaley recommend that a clinic which is ‘youth friendly is more effective in encouraging youth to undergo HIV counselling and testing (67). Youth friendly clinics according to Boswell and Baggaley need to include aspects that would encourage young people to go in for HIV testing and need to specifically target youth in their prevention and care strategies.

Cohen, Scribner and Farley *et al.*, and Coovadia *et al.*, in 2000 stressed the importance of factors influencing the uptake of HIV counselling and testing which need to be improved and reinforced like policies, laws and testing services (68, 69). Cohen *et al.*, in their study reported

that human behaviour is influenced by consumer products, physical structures, social structures and policies and media and cultural messages. They believed that providing suitable environmental and structural conditions like easily accessible preventive measures, education and better transport facilities prevents high-risk behaviour in humans (68). Coovadia has reported that VCT services have a positive impact in a conducive social and economic environment like accessible health services and effective and timely health education (69).

A study by Gimenez-Garcia *et al.*, analyzed risk behaviours and attitudes towards HIV transmission among 840 young people in Mexico and Spain. The study found that there were differences in risk behaviour profiles of young people depending on their attitudes and origin and reported that in order to reduce HIV transmission cultural differences and perceptions of young people need to be understood first (70).

Premarital sexual behaviours of Botswana adolescents were examined for determinants of HIV transmission by Chilisa *et al.*, and anonymous self-reported questionnaires were administered to 1,054 pupils between 10 and 18 years in order to determine factors associated with premarital sex intentions. The study recommends health education based on environmental and cultural norms in order to reduce risk behaviour with regard to HIV/AIDS (71).

A cross-sectional questionnaire based survey among law undergraduates in Anambra state, Nigeria found that the most common sources of information for VCT were electronic media, church and print media. This study recommended that public health education, awareness programmes and VCT centres are important in bringing about positive changes in risky sexual behaviour of young people (71).

Heeren *et al.*, (2007) reported that South African university students had their first sexual intercourse at a younger age when compared to American university students and were also more likely to be forced into sexual intercourse (72). The study had 411 undergraduate

students as participants, 160 from Pennsylvania in the United States and 251 from the Eastern Cape Province in South Africa who completed anonymous self-administered questionnaires. The study reported that South African students were more likely to have sex with multiple partners. University students in South Africa are thus at a higher risk of HIV infection when compared to university students in the United States. The study found that the predicted condom use and predicted intention to use condoms was stronger in American students compared to South African students(72).

In a large scale study of 600 first year tertiary education students, all randomly selected, conducted in 2004 by Peltzer *et al.*, in South India, South Africa and the USA, students reported fear of a positive result as a barrier hindering HIV testing. The study consisted of 200 students from Limpopo province in South Africa, 200 students from Pondicherry, South India and 200 first year students from San Francisco, USA. The students ranged between the ages of 17 to 42 years. Questionnaires were given to them seeking information on biographic data, sexual behaviour and attitudes and HIV testing behaviour. The results showed almost one fifth of the American and South African participants and only 10% of Indian students had been sexually active in the past 12 months. It was also reported that American students compared to South African and Indian students were more positive towards HIV testing and this was attributed to the strong presence of programmes on education and prevention related to HIV/AIDS in the US (73).

The key indicators for the University of KwaZulu-Natal, according to HEAIDS 2008 (Higher Education HIV and AIDS Program), indicated that only 37% of students at the university have ever been tested and the mean HIV prevalence for university students was reportedly 2.4%. The cross-sectional study population at UKZN consisted of a total of 1593 students, 116 academic staff and 129 administrative/service staff (36). Around a third of students and around half to three quarters of staff reported ever being tested for HIV.

Gengiah (2005) probed the various psychosocial and sociodemographic factors influencing HIV testing behaviour of students at UKZN (74). The study was conducted at UKZN with 200 first year psychology students. A questionnaire that measured willingness to test for HIV and various psychosocial and sociodemographic factors affecting VCT uptake was administered to the group. Perceived social stigma, personal fear, social support and knowledge of VCT services were associated with willingness to test. This study suggested that future studies needed to be done to focus on the relationship between ART (anti-retroviral treatment) availability and attitudes of students to testing. One of the other suggestions arising from this study was that campus based VCT facilities needed to be advertised more as it would positively impact HIV testing behaviour (74).

Moodley (2007) conducted a survey with 400 students and also held focus group discussions with 19 students from each of the Westville and Howard campuses at the University of KwaZulu-Natal (75). The study explored their perceptions regarding the ABC preventive strategy for HIV/AIDS. The opinion of students regarding the ABC strategy (abstinence, being faithful and condomising) was investigated. In this survey it was found that 59% of the participating students in the survey found the ABC strategy effective whereas the students in the focus group discussions did not find this strategy effective (75).

Mulwo, (2008) examined how students at three universities, University of KwaZulu-Natal, University of Zululand and Durban University of Technology make sense of cultural meanings offered by HIV prevention messages (76). The first stage involved a questionnaire survey of 1400 students to understand how students access HIV prevention campaigns and the nature of their responses both in terms of their perceptions and behavioural modifications. The second stage involved in-depth interviews with 24 students drawn from across the seven campuses. The findings of the study illustrated that university students find the mass media, especially television programs with an entertainment aspect more useful in learning about HIV prevention

campaigns. The study concluded that VCT campaigns may not necessarily lead to behaviour change since individual perceptions of VCT may differ. The study suggested that more emphasis should be put on analysis of the mediation processes that are involved in HIV prevention campaigns (76).

A study by Ndaborora in 2009 in which a total of 335 respondents participated, focused on factors that influenced the utilization of existing HIV/AIDS prevention methods amongst students of UKZN residing at selected campuses. Four residences within the selected campuses were randomly selected and participants were conveniently selected from each of the sampled residences. The findings of the study indicated that the students were still engaging in unprotected sex and that the prevention methods most commonly used were VCT and condoms (77).

The above studies indicate the need for further information concerning attitudes of young people towards HIV counselling and testing as this is one of the most important steps in the fight against the epidemic. The studies mentioned in this review of literature have pointed to the fact that there is a need to investigate the perceptions of young people regarding HIV counselling and testing. The purpose of this study was therefore to see whether there has been a change in the HIV testing behaviour of students. This study aimed to determine how students perceive voluntary testing facilities on the UKZN campuses and the reasons why students avoid testing and counselling.

## **2.8 Theoretical framework**

This section focuses on theories that work as a framework to support this study and looks at theoretical concepts that may influence an individual's decision to behave in a particular manner. A theoretical framework as defined by LoBiondo-Wood and Haber (1990) is a frame of reference for subsequent definitions of variables, research designs, interpretation and generalizations (78, 79). This study has a theoretical framework comprised of two

components, namely, Health Belief Model and Social Cognitive Theory. These theories attempt to explain and predict health behaviour by focusing on attitudes of individuals and environmental factors that act as influences (80). Psychosocial theories have application in predicting risky sexual behaviour with regards to HIV (80). Cognitive theories of behaviour have greatly helped in studying factors that help prevent HIV transmission (79).

Cognitive theories assume that an individual will seek out to reduce his/her chances of infection by adopting different strategies, for example, utilizing health services and condom use (81). It is a well-researched fact that a combination of both cognitive and environmental factors help in reducing risky health behaviours (81).

### **2.8.1 Social cognitive theory**

Also referred to as social learning theory, this theory provides a framework for understanding, predicting and changing human behaviour (81). Behaviour of an individual is influenced by social, personal and environmental factors (82). This theory was proposed by Bandura who stated that learning is a result of an interaction between the environment, the individual's internal events and the individual response to a situation (83).

A person's thoughts and previous experiences help in determining how he/she behaves in a particular situation (84). Interaction between the environment and an individual is constantly determining the aspects of the environment and in turn the behaviour of the individual is modified by the environment (83). Thus the factors; environment, people and behaviour are constantly influencing each other. Environment refers to both social and physical environments, with examples of social environment being family, friends and colleagues, and examples of physical environments being the size of a room and ambient temperature (84).

Health seeking behaviour and gender roles are social aspects involving both individual and environmental factors which ultimately influence the sexual health of a person (84). This

theory can thus be used to promote positive health seeking behaviours and reduce risky sexual behaviour in individuals and it also helps in understanding how a comprehensive approach to understanding and predicting individual sexual behaviours can be made and how positive changes can be brought about (84).

Thus in summarizing the application of the social cognitive theory to the study it can be said that knowledge of risks and benefits to health helps in bringing about changes in behaviour. If young people do not understand that the sexual health habits that they have, may put them into risk of HIV infection and AIDS disease, they will not bring about changes in their habits. Personal efficacy which influences goals and aspirations should be strong to bring about change in a person's behaviour. This ultimately motivates an individual to act in a particular situation related to health. Environmental and social factors like health services can be made more efficient and accessible to influence an individual's personal efficacy (81, 84).

### **2.8.2 Health Belief Model**

This model is the most widely used model to explore health behaviours in diverse populations (85). This model explains why individuals may accept or reject positive behaviours or adopt preventative health measures. The Health Belief Model was developed in the 1950s by social psychologists Rosenstock, Godfrey, Hochbaum, Kegeles and Leventhal at the U.S. Public Health Service in order to understand the failure of people to adopt preventative measures for disease prevention in spite of their apparent risk (86). The model proposes that people accept health promotion messages or preventative measures; if the person involved understands the risk of developing a particular disease, if the person believes that the barriers to reach ideal health state can be overcome and if the person believes that the behaviour change will result in a positive health state (85).

The presence of a perceived threat is the first motivating factor for a person to adopt a behaviour. The chance that an individual will act depends on perceived difficulties and



benefits associated with the change in behaviour. This model assumes that if an individual perceives that there is a benefit in adopting a particular type of behaviour this will result in the individual adopting the behaviour permanently (87). If susceptibility and severity are both a clear and present danger, people who have put off a particular type of behaviour change due to fear of change, lack of knowledge, lack of understanding or fear of barriers, will finally adopt the behaviour change if they believe that the benefits outweighs the negatives and they can realistically accomplish the changes in behaviour (87).

### **2.8.3 Application of the theories to the study**

Applying both the Social Cognitive Theory and the Health Belief Model, the principal investigator was interested in understanding the knowledge, attitudes and perceptions of students of UKZN regarding HIV counselling and testing. Both these theories work in tandem in trying to understand the individual, behaviour and changes in behaviour which are influenced by a number of factors like age, sex, environmental, psychosocial and economic factors (87).

Young people and the decisions they make with regards to their health and sexual preferences do not exist in isolation with their psyche but are influenced by the social structures that they function in and the influences of their physical environment (87). The Health Belief Model and the Social Cognitive theories help in understanding what ultimately influences the self-efficacy of young people when they determine the sexual health practices that they need to adapt for a positive effect on their health, and prevent them from acquiring sexually transmitted infections. Thus behavioural theories help to understand and predict behaviour of young people in various situations (87).

### **3. METHODOLOGY**

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#### **3.1 Type of research**

A cross sectional and analytical study was conducted, using a self-administered, structured questionnaire. Survey methods are the most useful when information is needed regarding the perceptions, attitudes and behaviours of a large group of people (88, 89).

#### **3.2 Study Design**

A cross-sectional survey design was employed. The design had a descriptive component and an analytical component.

#### **3.3 Study Area**

The research was conducted on the five campuses of the University of KwaZulu-Natal (UKZN). UKZN is situated in the province of KwaZulu-Natal which is most affected by HIV and therefore the university aims to make a difference to the problem of HIV and AIDS within the university and the broader community through its core competencies of teaching, learning, service and research (62). The university has five campuses namely Edgewood, Howard College, Nelson R Mandela School of Medicine, Pietermaritzburg and Westville. UKZN is based on a college model with four colleges. The College of Agriculture, Engineering and Science, the College of Health Sciences, the College of Humanities, the College of Law and Management Studies (62).

#### **3.4 Study Population**

The population that the study targeted was all the undergraduate students of the University of KwaZulu-Natal. A population is a group of individual persons, objects or items from which samples are taken for measurement. A representative sample of the entire campus population was needed. There were 41295 students registered at UKZN during the year 2012 with 32490

undergraduates and 8634 postgraduates (62). Undergraduate students were the main target of the study as the study concentrated on the age group of 18 to 24 years. UNAIDS 2010 has reported that the young people in this age range were most susceptible to the disease and most undergraduate students fall within this age range (7).

### **3.5 Selection of Participants**

#### **3.5.1 Inclusion criteria**

- Undergraduate students studying on the five different campuses of the University of KwaZulu-Natal
- Willingness to participate and sign informed consent

#### **3.5.2 Exclusion Criteria**

- Since this study was interested in targeting students in the age range of 18 to 24 years the study included only undergraduate students since most undergraduate students fall within this range. Most of the post graduate students fall outside this age range and so they were excluded from the study.
- Refusal to participate and sign informed consent

### **3.6 Sample Size**

The process of selecting a suitable representative part from the population is defined as sampling (89). Sampling is the process of selecting units (e.g. people, organizations) from a population of interest so that by studying the sample the results can be fairly generalized to the population of interest (89, 90).

In descriptive and cross-sectional studies the aim of the study is to describe some characteristics of a population. The sample should therefore be representative of the study population. If done properly, sampling is in fact more cost-efficient in getting the information we want than studying everyone (90, 91).

There are two types of sampling methods; they are random and non-random sampling. Random sampling is a specific selection technique which can ensure that the sample is representative, since each individual in the study population has an equal probability of being included in the sample (89). While the researcher controls the sampling process, he or she has no control over exactly which individuals are selected. In the end, whether an individual is selected or not is determined purely by chance and not by the choice of the investigator (91, 92).

As a result of the huge student population, a non-random sampling method was used for this study. Volunteer sampling was used for this study. In the volunteer sampling method people take part in a study in response to an advertisement or campaign and are not selected according to a sampling method.

The sample size was determined based on the advice of the statistician Mrs Tonya Esterhuizen. All undergraduate students studying on the five different campuses of UKZN were invited to participate in the study. The sample size was calculated based on the assumption that the HIV testing prevalence among UKZN students is 37% (36). For a 6% precision level (worst acceptable result of 40%) with 95% confidence, a sample size of 965 from a population size of 32490 students was required. At least a 3% response rate was required to obtain 965 samples.

The questionnaire was sent to all undergraduate students through groupwise mail which is the main network system for the students of UKZN. Lime Survey which is a web tool for creating surveys was used for preparing and administering questionnaire. Lime Survey provides three options for distributing surveys, a survey link, Bob mail and HTML code. The survey link distribution helped me to do an anonymous survey. The questionnaire was sent out to all undergraduate students on groupwise mail using the survey link.

### **3.7 Data Collection Instrument**

A self-administered questionnaire was used for collecting the data needed for the study. It was a structured questionnaire utilizing psychological, social and economic factors as these variables are associated with the intention to test for HIV (93). The questionnaire was used as the most appropriate method of collecting data because of the advantages it provides when compared with other types of instruments like telephone survey, mail, etc.,. The advantages of a questionnaire is that it is practical in obtaining large amounts of information from a large number of people in a short period of time, more cost effective, can be analysed more scientifically and administered either by the researcher or by other people with limited effect on its validity and reliability (93). The questionnaire used for this study was developed after reviewing literature and the questions asked of UKZN students in previous studies.

#### **3.7.1 Pilot Study**

Pre-testing is an important process in data collection because it gives a clear understanding of possible problems with the questionnaire and provides the researcher a chance to refine the questions so that the respondents have no problems in answering them (89, 94). A pre-test of the questionnaire can reveal ambiguities, poorly worded questions and unclear choices (94). It also indicates whether or not the instructions to the respondents are clear (94, 95). In terms of the present study, the questionnaire was kept short and to the point to avoid complexity and ambiguity. The study was first piloted using 20 students from the Medical School. In the pilot testing, respondents were asked to give their comments regarding clarity, language, length and the appropriateness of the questions asked in terms of embarrassment and understanding for the general student population. The pilot study helped in refining the research instrument, relevance of the questions regarding the intended objectives and effectiveness in communicating with the respondents. When the participating students had completed the questionnaire they were asked to give their opinion regarding the usefulness of the

questionnaire and the problems encountered when filling the questionnaire. The reaction of the respondents helped in determining any changes that needed to be implemented in the questionnaire.

### **3.7.2 Data Collection Process**

The response rate was poor over the groupwise mail with just 149 responses over a period of 10 months even after repeat advertising. The survey was advertised over groupwise mail twice every week over the 10 month period. As a result of the poor response, the manual method of distributing questionnaires was utilized for obtaining the responses. Maximum efforts were made towards obtaining a representative sample of the population. Students were approached at libraries, canteens, computer LANs, lecture halls, residences and other such places across all five campuses so as to obtain a representative sample. The questionnaire took between 5 to 15 minutes to complete. No names or identification appeared on the questionnaire. The process was continued until 965 responses were obtained. The whole process of data collection done manually took two months to be completed. The research was done in accordance with the approved protocol. The data were captured in Microsoft Excel and stored using SPSS (Statistical Package for the Social Sciences) version 21. The data were accessed only by the researcher. Analysis was performed only after careful checking and data cleaning.

### **3.7.3 Validity and reliability**

Validity in the study refers to the ability to measure what it sets out to measure and to the accuracy of the information. Essentially validity tells us whether an instrument measures or describes what it is supposed to measure or describe. Reliability refers to the accuracy of the instrument, which requires elimination of bias from the interviewer aspect. Piloting the questionnaire essentially aims to remove this kind of bias.

### **3.7.4 Questionnaire design**

The questionnaire was divided into seven sections and consisted of a total of 51 questions. The questionnaire is provided in the appendix.

The first section concentrated on socio-demographic details and had seven questions. These dealt with the campus where the student studied, the age, sex, marital status, the student status (local/international), student category (full-time or part-time studies) and residence status (lives in UKZN residences/does not live in UKZN residences).

The second section concentrated on information sources and knowledge regarding HIV/AIDS. This section had 12 questions of which 10 elicited the knowledge with a series of multiple choice questions to avoid guesswork. The respondents were asked to indicate the extent to which they agree with the statements, on a pre-determined Likert scale (strongly disagree, disagree, agree, strongly agree, neutral).

The third section consisting of five questions concentrated on sexual experiences and a binary option (yes/no) was offered. A nominal response (no specific order) was elicited in one question. Factors like being sexually active and protective measures used during sex were determined.

The fourth section concentrated on factors affecting the willingness to undergo HIV counselling and testing. This section had five statements with Likert scale answers. Factors affecting willingness like family support, partner confidence, fear of testing and cost factor of testing were included.

The fifth section dealt with information sources and knowledge of HIV counselling and testing. This section had five statements with Likert scale answers.

The sixth section looked at knowledge and utilization of HCT facilities on campus and the factors that encouraged them or discouraged them from undergoing testing on campus like confidentiality, peer pressure, visibility and accessibility of the testing facility, knowledge regarding the wellness program and post exposure prophylaxis.

The seventh section dealt with experiences during the process of HIV counselling and testing on campuses and had six statements with Likert scale answers and looked at the supportiveness of the nurses and counsellors at the testing facility, the waiting time, testing process and overall experience.

### **3.8 Data analysis and presentation**

Since the purpose of gathering data is to solve a research problem, the collected data must be analysed. Raw data was first entered into Microsoft Excel, in which descriptive analysis was carried out and presented in the form of bar graphs, pie charts and tables. Data analysis was done through the use of the SPSS version 21.0 (SPSS Inc., Chicago, Illinois) assisted by the statistician.

Categorical variables were summarized and presented in the form of frequency tables, graphs and pie charts. Frequencies and percentages were used for easier reading and comparison of figures. Findings were presented in the form of tables. Knowledge scores were generated by summing together the correct responses to the knowledge questions. The attitude questions were scored by allocating points to the most positive attitudes. To compare the knowledge of HIV/AIDS, knowledge regarding HCT and attitude of students regarding HCT on campus with their testing behaviour, the scores for all the questions in the three relevant sections for each respondent were added together to get overall scores. The overall scores were checked to see if they were normally distributed. Since they were not normally distributed the non-parametric test (The Mann Whitney U test) was used to compare students' median scores with testing for HIV.



Pearson's Chi-square was used for investigating associates with HIV testing behaviour. The variables which were statistically significant were then entered into a General Linear Model to determine association with HIV testing behaviour to obtain results. For statistical significance  $p < 0.05$  was used.

### **3.9 Ethical considerations**

The following ethical considerations were undertaken to ensure that the rights of the participants were protected.

1. Permission was obtained from the appropriate University authorities before the administration of the questionnaires for both the pilot and the main study.
2. The Registrar of the university was approached for permission to access the undergraduate students (see Appendix).
3. Ethical approval for the study was obtained from the University of KwaZulu Natal Biomedical Research Ethics Committee.
4. Students were asked to read an informed consent form before signing and answering the questionnaire (see Appendix)
5. Students were instructed **not** to write their names or student numbers on the questionnaire.
6. The questionnaire assured students of the anonymity of answering the questionnaire

### **3.10 Summary**

This chapter focused on the research methodology used in the study. The sampling method used was discussed. The procedures adopted to collect and analyse data were presented and explained. The descriptive survey method was used to gather data, which was collected over a period of a year because both online and manual methods were used. Before the study was carried out, pre-testing was done to eliminate possible ambiguity and poorly worded questions.

The data collected were analysed using SPSS version 21. Finally the method was evaluated and the issues of validity and reliability of the data collection method were considered.

## **4. RESULTS**

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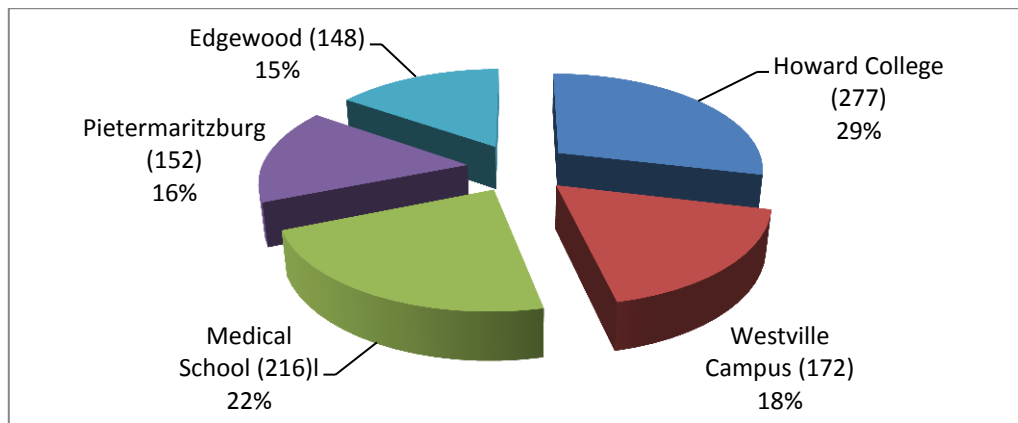
### **4.1 Introduction**

This chapter reports on the results of the study and describes the demographic profile of the respondents, the frequencies of responses and associations between the variables. The questionnaire used to collect the data was divided into seven sections. Section A determined biographical information about the student. Section B investigated their information sources and knowledge of HIV/AIDS and section C investigated their sexual behaviours. Section D investigated factors affecting their willingness to undergo HIV counselling and testing and section E investigated their information sources and knowledge of HIV counselling and testing. Section F explored their knowledge and utilization of HCT facilities on campuses and section G was an optional part of the questionnaire which investigated experiences during the process of HIV counselling and testing on campus and was answered by students only if they had actually utilized the facilities on campuses. The sample size comprised 965 student respondents.

### **4.2 Demographic profile of respondents**

#### **4.2.1 Number of respondents per campus**

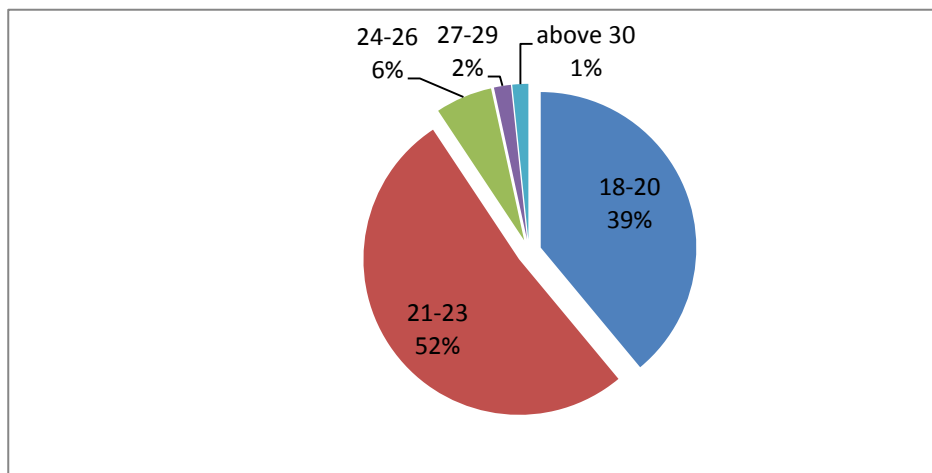
The percentage of respondents from each of the five UKZN campuses is illustrated in the figure below. The highest number (almost a third) of respondents came from the Howard college campus (n=277).



**Figure 1:** Number of UKZN student respondents per campus

#### 4.2.2 Age range of respondents

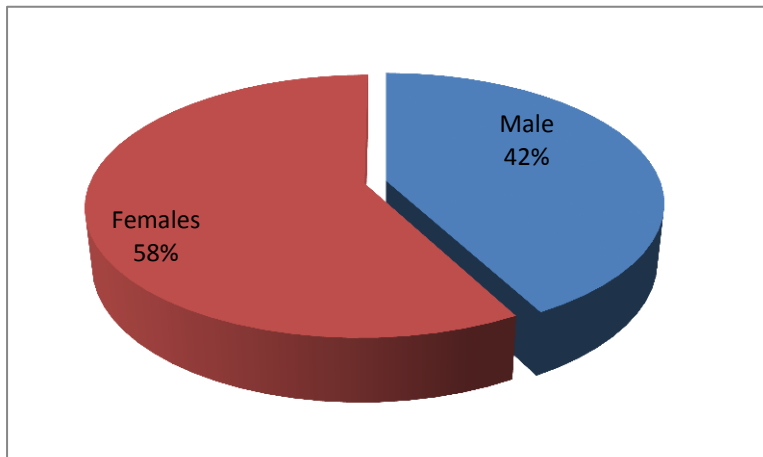
The age range of the respondents extended from 18 years to above 30 years. The majority of students were in the age range of 21-23 years ( $n=499$ ). The second largest number of students was in the age range of 18-20 years ( $n=376$ ). There were 57 students in the age range of 24 to 26 years, 17 students in the age range of 27-29 years and 16 students were above 30 years of age.



**Figure 2:** Age range of UKZN student respondents

### 4.2.3 Sex of respondents

There were 406 males and 559 females among the respondents.



**Figure 3:** Sex of Respondents (UKZN students)

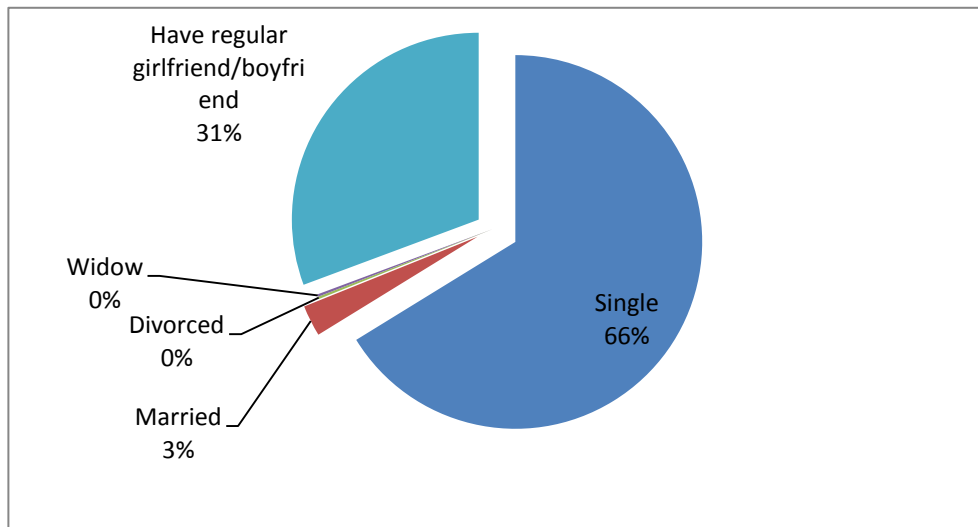
**Table 1:** Comparing sex and age range of respondents

Age (years)	Sex		Total (Percentage of total)
	Female	Male	
18-20	227 (23.5%)	149 (15.4%)	376 (39%)
21-23	300 (31.1%)	199 (20.6%)	499 (51.7%)
24-26	23 (2.4%)	34 (3.5%)	57 (5.9%)
27-29	7 (0.7%)	10 (1%)	17 (1.7%)
Above 30	7 (0.7%)	9 (0.9%)	16 (1.7%)
Total	564 (58.4%)	401 (41.6%)	965 (100%)

There were more females (n=300, 31.1%) than males (199, 20.6%) in the age range of 21-23 which included most respondents (n=499).

#### 4.2.4 Marital Status of Respondents

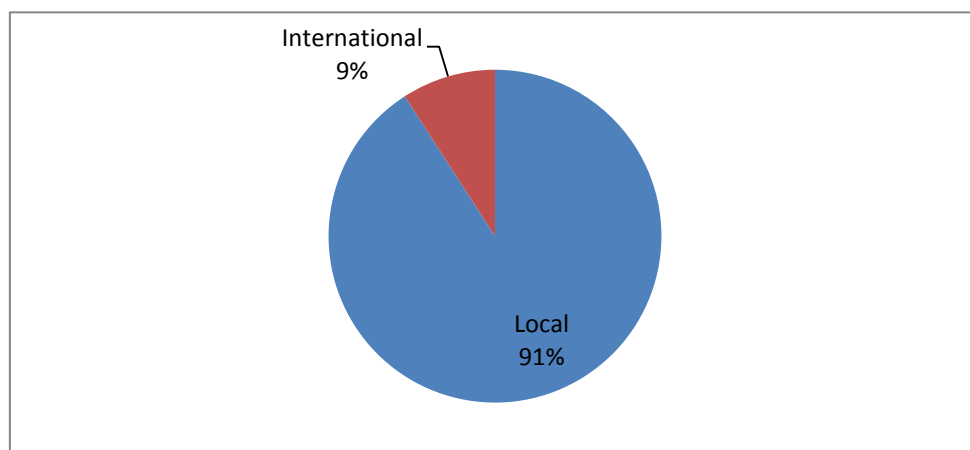
A majority of the students (66%) responding to the study reported that they were single (n=639). Two each reported as being divorced or widowed and 26 (3%) responded as being married. The number of students in a relationship (having a regular boyfriend or girlfriend) was 296 (31%).



**Figure 4:** Marital Status of Respondents (UKZN students)

#### 4.2.5 Nationality (Local/International)

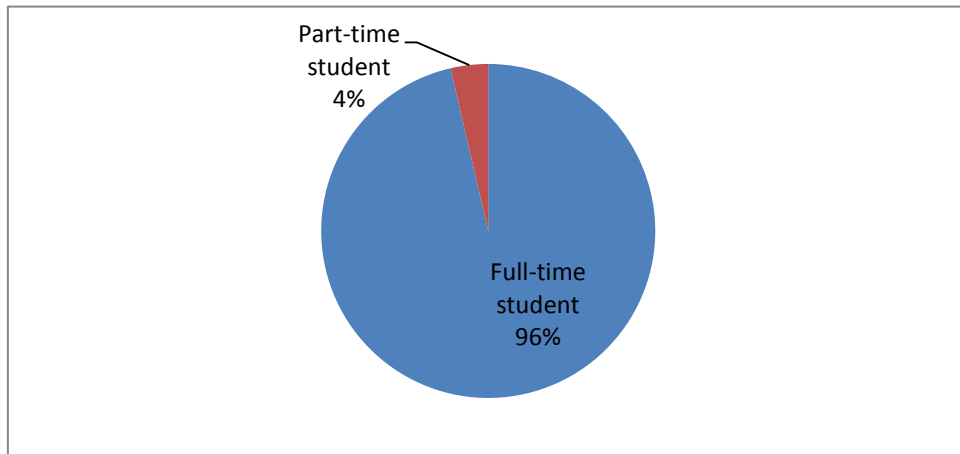
Of the students, 90% of the students (n=877) reported that they were South African citizens and under 10% of students (n=88) reported that they were of other nationalities.



**Figure 5:** Nationality of respondents (UKZN students)

#### 4.2.6 Student Category (Part-time student/Full-time student)

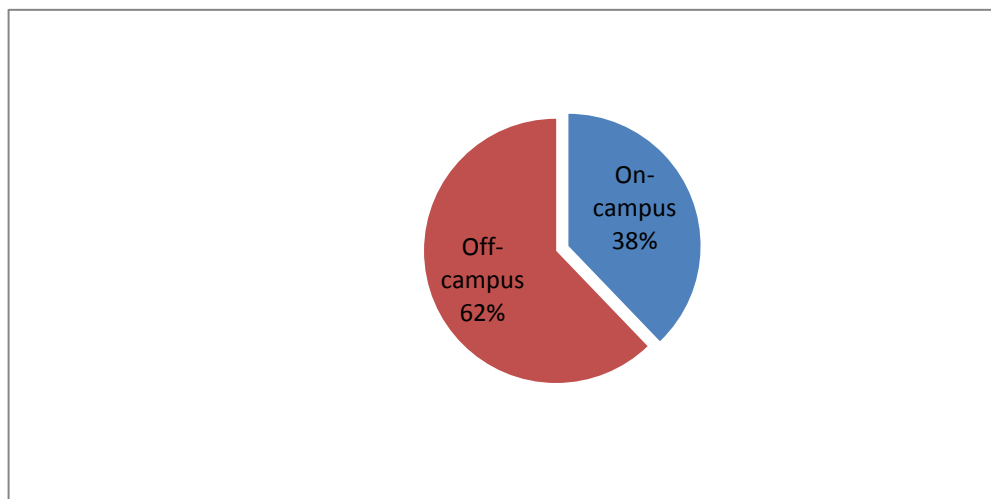
Most students (96%, n=930) reported that they were full-time students and 4% (n=35) were part-time students.



**Figure 6:** Student Category

#### 4.2.7 Residence status (On campus/ off campus)

Almost two thirds (n=600) of the students resided off campus. Around 21% of females resided on campus compared to 17% males.



**Figure 7:** Residence Status (On campus/off campus)

**Table 2:** Comparison of residence status and gender

<b>Gender</b>	<b>Residence status</b>		<b>Total</b>
	<b>On – campus</b>	<b>Off - campus</b>	
<b>Female</b>	200 (20.7%)	364 (37.7%)	564 (58.4%)
<b>Male</b>	165 (17.1%)	236 (24.5%)	401 (41.6%)
<b>Total</b>	365 (37.8%)	600 (62.2%)	965 (100%)

### 4.3 Students' Knowledge about HIV/AIDS

#### 4.3.1 Sources of information regarding HIV/AIDS

Students were asked about their most influential source of information regarding HIV/AIDS. As shown in the table below over half of the students 54% (n=526) indicated that the media (Television/radio/newspaper/magazines) were their prime source of information regarding HIV/AIDS. The other important source was Health Care providers (15.9%). One student did not answer this question.

**Table 3:** UKZN students' information sources about HIV/AIDS

<b>Sources of Knowledge regarding HIV/AIDS</b>	<b>Frequency</b>	<b>Total %</b>
Media	526	54.5%
Health Care Providers	153	15.9%
School	84	8.7%
Books/Journals	47	4.9%
University	34	3.5%
Family	33	3.4%
Internet	32	3.3%



Friends	29	3.0%
Others	15	1.6%
Religious Groups	11	1.1%
<b>Total</b>	<b>964</b>	<b>100%</b>

#### 4.3.2 Sources of information regarding HIV/AIDS on campus

This question looked at the sources of information regarding HIV/AIDS on the different campuses of UKZN that most influenced the student. Over a third of the students considered that the most influential source of information on campus was leaflets and information booklets but nearly a quarter of students (n=226) reported that class lectures were useful. One student did not respond to this question.

**Table 4:** UKZN Students' Sources of Information about HIV/AIDS on campus n=964

<b>Sources of Knowledge regarding HIV/AIDS on campus</b>	<b>Frequency</b>	<b>Percentage (% of total)</b>
Leaflets and information booklets	355	36.8%
Class Lectures	226	23.4%
Internet	181	18.8%
Posters	106	11.0%
Others	48	5.0%
Library Sources	29	3.0%
Campus Television	17	1.8%
Plays/Drama	2	0.2%
<b>Total</b>	<b>964</b>	<b>100%</b>

**Table 5: UKZN Students' knowledge and beliefs regarding HIV/AIDS**

Question	SA	A	D	SD	U	Total (% of total)
<b>HIV Transmission</b>						
<b>HIV can be transmitted through bodily fluids (blood, semen, vaginal fluids)</b>	777 (81%)	126 (13%)	6 (0.6%)	35 (3.4%)	20 (2%)	964 (100%)
<b>A HIV positive woman can transmit the virus to her foetus/unborn child</b>	478 (50.5%)	232 (24.5%)	94 (9.9%)	74 (7.8%)	68 (7.3%)	946 (100%)
<b>HIV can be transmitted from a mother to her child through breast milk</b>	433 (45%)	265 (28%)	97 (10%)	48 (5%)	121 (12%)	964 (100%)
<b>Sexual Risk Behaviour</b>						
<b>Oral sex can cause AIDS if partner is infected with HIV</b>	333 (35%)	272 (28%)	93 (10%)	62 (6%)	201 (21%)	961 (100%)
<b>A person can get HIV if he or she has sexual intercourse just once without a condom</b>	634 (66.4%)	186 (19.5%)	36 (4%)	50 (5.1%)	49 (5%)	955 (100%)
<b>A person with many sexual partners has an increased risk of HIV/AIDS</b>	775 (81.8%)	118 (12.4%)	12 (1.3%)	29 (3%)	14 (1.5%)	948 (100%)
<b>Sexually transmitted infections increase the risk of HIV/AIDS</b>	764 (80.9%)	124 (13.1%)	7 (0.7%)	14 (1.5%)	35 (3.8%)	944 (100%)
<b>Positive characteristics</b>						
<b>A person who is HIV infected can be treated and live a healthy life</b>	321 (34.3%)	510 (54.4%)	18 (1.9%)	16 (1.7%)	72 (7.7%)	937 (100%)
<b>I believe that both men and women are equally responsible for practicing safe sex methods</b>	781 (83.4%)	87 (9.4%)	14 (1.5%)	36 (3.8%)	18 (1.9%)	936 (100%)

\*SA-strongly agree, A-agree, D-disagree, SD-strongly disagree, U-unsure, M-missing, T-total

**HIV transmission:** For the statement, *HIV can be transmitted from one person to another person through bodily fluids (blood, semen, vaginal fluids)*, most of the students (94%) agreed/strongly agreed with the statement. There was less consensus (n=698, 73%) that an *HIV infected mother can transmit the disease through breast milk to her infant* and a quarter of the students disagreed or were unsure (n=266, 27%). Although most students (n=710, 75%) were aware that *a HIV positive woman could transmit the virus to her foetus/unborn child*, over a quarter of the respondents (n=236, 25%) disagreed or were unsure.

**Sexual Risk behaviour:** Nearly two thirds (n=605, 63%) of the students strongly agreed/agreed with the statement that *oral sex can cause AIDS if partner is infected with HIV*, and fewer than one third (n= 356, 37%) disagreed or were unsure. Most of the students (n=820, 85%) were aware of *the risk of HIV through unprotected sex from an infected partner* but nearly 14.1% (n=135) disagreed or were unsure. Most students strongly agreed/agreed (n=893, 94.2%) that *having multiple sexual partners increased a person's risk of HIV infection*. Over 90% of students (n=888, 94%) supported the statement that *sexually transmitted infections increase the risk of HIV/AIDS*.

**Positive characteristics:** Most students (n=831, 83.7%) agreed or strongly agreed with the positive statement that *a person who is HIV infected can be treated and live a healthy life*. Of the respondents 92.8% (n=868) strongly agreed/agreed that *both sexes had an equal responsibility to protect themselves during sex*. It was interesting to note that for this statement, males and females responded differently. Of the respondents, 473 (86.8%) females strongly agreed with this statement whereas only 308 (78.8%) males strongly agreed with this statement. This was statistically significant ( $p < 0.05$ ).

## 4.4 Sexual Experiences

This section of the questionnaire looked at the sexual experiences and the protective measures used during sex by the respondent.

**Table 6:** UKZN students' reported sexual behaviour and HIV testing behaviour

Question	Yes	No	Total
Have you ever had sex?	639 (68.4%)	295 (31.6%)	934 (100%)
Are you currently sexually active?	473 (50.6%)	461 (49.4%)	934 (100%)
Have you ever had a test for HIV	663 (71%)	271 (29%)	934 (100%)

More than half of the students (n=639, 68.4%) reported *having had sex* but half of the respondents (n=473, 50.6%) were currently sexually active at the time of answering the questionnaire. Of the total number of respondents 31 students (3%) did not respond to the question. When asked *about ever having had a test for HIV* around 71% (663) of the respondents said they had had a test for HIV, but 31 students did not answer this question.

**Table 7:** UKZN students' reported condom use at last sex

Have you ever had sex?	Did you use condom at last sex?			Total (% of total)
	Yes	No	Not applicable	
Yes	417 (45%)	209 (22.4%)	13 (1.4%)	639 (68.4%)
No	15 (1.6%)	41 (4.4%)	239(25.6%)	295 (31.6%)
Total	432 (46.3%)	250 (26.8%)	252 (27.0%)	934 (100%)

From the table we can see that 45% of sexually experienced students reported condom use at last sex.

**Table 8:** Comparing testing for HIV and sexual behaviour

<b>Have you ever had sex?</b>	<b>Have you ever had a test for HIV?</b>		<b>Total</b>	<b>P value*</b>
	<b>Yes</b>	<b>No</b>		
<b>Yes</b>	497 (77%)	142 (22%)	639 (68%)	P<0.001
<b>No</b>	166 (56%)	129 (44%)	295 (32%)	
<b>Total</b>	663 (71%)	271(29%)	934 (100%)	

\*Pearson's chi-square

Table 8 shows that three quarters of students (n=497, 77%) who had had sex had tested for HIV.

#### 4.5 Protective measures from contracting HIV

**Table 9:** UKZN Students' reported protective measures against contracting HIV

<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Condom</b>	421	45%
<b>Abstinence</b>	314	33.6%
<b>Being faithful to my partner</b>	179	19.2%
<b>Other</b>	9	1.0%
<b>No protection</b>	11	1.2%
<b>Total</b>	<b>934</b>	<b>100%</b>

When students were asked about protecting themselves during sex from contracting HIV, 421 (45%) students reported condom usage while a third of the students reported abstinence (n=314, 33.6%). Almost a fifth of students (n=179, 19.2%) relied on being faithful and were at risk of infection.

#### 4.6 Factors affecting willingness to undergo HIV counselling and testing

This section looked at psychological, economic and family influences on testing behaviour.

**Table 10:** UKZN students' reasons for not testing for HIV (n=932)

Question	Strongly agree	Agree	Disagree	Strongly disagree	Unsure	Total (% of total)
<b>Going for HIV counselling and testing might make others think that I have indulged in immoral behaviour</b>	100 (10.7%)	220 (23.6%)	201 (21.6%)	254 (27.3%)	157 (16.8%)	932 (100%)
<b>I am afraid testing for HIV would cost me money</b>	26 (2.8%)	17 (1.8%)	165 (17.7%)	691 (74.1%)	33 (3.5%)	932 (100%)
<b>My family would not support me if I had a positive result</b>	40 (4.3%)	40 (4.3%)	205 (22%)	437 (46.9%)	210 (22.5%)	932 (100%)
<b>My partner and I have confidence in each other. We don't need to undergo HIV testing</b>	54 (5.9%)	63 (6.9%)	214 (23%)	403 (43.2%)	198 (21%)	932 (100%)
<b>I don't want to get tested because I am afraid of the results</b>	70 (7.5%)	98 (10.2%)	195 (20.9%)	473 (50.8%)	96 (10.5%)	932 (100%)

Around a half of the students (n= 455, 48.9%) strongly disagreed/disagreed when asked if *going for HIV counselling and testing made others think they had indulged in immoral behaviour*. Of the respondents 91.8% (n=856) disagreed or disagreed strongly that *testing for HIV would cost them money*. Two thirds of the respondents (n=642, 68.9%) believed that their *family would support them if they had a positive result*. Of the respondents around 66.2% (n=617) disagreed and strongly disagreed with the statement *my partner and I have confidence in each other, we don't need to undergo HIV testing*. Over two thirds of the respondents

(n=668, 71.7%) reported that they were not *afraid of going for HIV testing*. Thirty three students (3%) did not answer this section.

#### 4.7 Information sources and knowledge of HIV counselling and testing

This section looked at the sources of information for students regarding HIV counselling and testing.

Question	Strongly agree	Agree	Disagree	Strongly disagree	Unsure	Total (% of total)
<b>HIV counselling and testing allows you to learn about your HIV status</b>	600 (64.4%)	248 (26.6%)	19 (2.1%)	18 (1.9%)	47 (5%)	932 (100%)
<b>HCT allows you to speak to a professional counsellor about how to cope with the process of testing</b>	472 (50.6%)	271 (29.1%)	37 (4%)	11 (1.2%)	141 (15.1%)	932 (100%)
<b>HCT allows you to speak to a professional counsellor regarding how to cope with being HIV positive</b>	429 (46%)	297 (31.9%)	32 (3.4%)	11 (1.2%)	163 (17.5%)	932 (100%)
<b>If a person is HIV positive, HCT counsels the person about how to prevent transmission of HIV from one person to another</b>	430 (46.1%)	317 (34%)	26 (2.8%)	10 (1.1%)	149 (16%)	932 (100%)
<b>HCT is a free service</b>	482 (51.8%)	231 (24.8%)	24 (2.6%)	7 (0.8%)	187 (20%)	932 (100%)

**Table 11:** UKZN students' perception about HIV counselling and testing (n=932)

There was awareness about the main purpose of HCT. More than three quarters of the respondents (n=848, 91%) agreed /strongly agreed with the statement that *going for HIV counselling and testing would help them learn about their HIV status*. Respondents (n=743, 79.7%) agreed/strongly agreed that a *professional counsellor at the HCT centre would help them cope with the process of HCT*. A similar proportion of the respondents 77.9% (n=726) agreed/strongly agreed that a *professional counsellor at the HCT centre would counsel them regarding how to cope if they test positive for HIV*. Of the respondents 80.1% (n=747) agreed that *HCT offers counselling regarding how to prevent transmission of HIV from one person to another*. Three quarter of the respondents (n=713, 76.6%) agreed/strongly agreed that *HCT is a free service*. Of the total of 965, 34 (3%) respondents did not answer this section of the questionnaire.

#### 4.8 Knowledge and utilization of HCT facilities on campus

This section focused on knowledge and stigmatizing beliefs of students regarding HIV counselling and testing facilities on different campuses of UKZN.

**Table 12:** UKZN students' awareness of HCT facilities on campuses and reasons for not testing (n=929)

Question	SA	A	D	SD	U	Total
<b>Knowledge of HCT facilities on campus</b>						
<b>I am aware of the HCT facilities available on campus</b>	330 (35%)	269 (29%)	111 (12%)	54 (6%)	165 (18%)	929 (100%)
<b>A requirement of HCT at UKZN is that it is confidential</b>	364 (39%)	289 (31%)	27 (3%)	20 (2%)	229 (25%)	929 (100%)
<b>I am aware that counselling and post-exposure prophylaxis will be provided at the campus clinics for</b>	173 (19%)	195 (21%)	134 (14%)	69 (7%)	358 (39%)	929 (100%)



rape survivors						
<hr/>						
<b>I am aware that counselling and post-exposure prophylaxis will be provided to people who become accidentally exposed to the risk of HIV in their occupational environment</b>	208	236	96	58	331	929
	(22%)	(26%)	(10%)	(6%)	(36%)	(100%)
<hr/>						
<b>I am aware that all infected students not on medical aid will have access to the wellness program run at the campus clinics</b>	191	237	109	52	340	929
	(21%)	(25%)	(12%)	(6%)	(36%)	(100%)
<hr/>						
<b>I am aware that HIV infected students will be referred to local health facilities for ongoing treatment</b>	211	266	107	35	310	929
	(23%)	(29%)	(11%)	(4%)	(33%)	(100%)
<hr/>						
Attitude related to testing for HIV on campus						
<hr/>						
<b>I don't want to get tested on campus because I am afraid that the people at the HCT services on campus might be people I know or people who recognize me</b>	66	128	203	357	175	929
	(7%)	(14%)	(22%)	(38%)	(19%)	(100%)
<hr/>						
<b>I am afraid about what my friends would think of me if I went in for HCT on campus</b>	51	104	264	386	124	929
	(6%)	(11%)	(28%)	(42%)	(13%)	(100%)
<hr/>						
<b>I don't want to get tested because I have never indulged in any kind of risky sexual behaviour in my life</b>	74	85	288	381	101	929
	(8%)	(9%)	(31%)	(41%)	(11%)	(100%)
<hr/>						
<b>I don't want to get tested because the testing clinic on campus is at a</b>	62	115	261	341	150	929
	(7%)	(12%)	(28%)	(37%)	(16%)	(100%)
<hr/>						

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**place where it is visible to everybody**

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**I don't want to test because I don't**

<b>believe that the counsellors or</b>	44	89	271	342	183	929
<b>members of the campus clinic will</b>	(5%)	(10%)	(29%)	(37%)	(19%)	(100%)
<b>keep my information confidential</b>						

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\*SA-strongly agree, A-agree, D-disagree, SD-strongly disagree, U-unsure, M-missing, T-total

**Knowledge of HCT facilities and benefits of testing on campus**

More than two thirds of the respondents (n=599, 64%) agreed/strongly agreed that they were *aware of HCT facilities on campuses of UKZN*. About two thirds (n=653, 70%) agreed / strongly agreed that the *HCT on campus is confidential*. More than a third of the students (n=368, 40%) knew that *UKZN provides post exposure prophylaxis to rape survivors* and nearly a half of the students (n=444, 48%) knew that *UKZN helps accidentally exposed victims in their occupational environment to get post exposure prophylaxis*. Under half of the respondents (n=428, 46%) were aware that *students not on medical aid had access to the wellness program run by campus clinics* and thus could access free treatment. Half of the respondents (n=477, 52%) knew that *HIV infected students would be referred to local health facilities for on-going treatment*.

**Attitude related to testing on campus**

More than half of the respondents *were not afraid of being recognized by someone they knew at the campus testing facility* (n=560). Around 16% (n=143) strongly agreed/agreed that *they were afraid of being recognized by friends when going in for HCT testing on campus*. More than two thirds of the students (n=669, 72%) believed that *they needed to go for testing as they believe they had indulged in risky sexual behaviour*. Around 19% students (n=177) strongly agreed/agreed that they felt the *testing clinic was at a place visible to everybody*. Only 133 (15%) students strongly agreed/agreed that *they were scared because they thought that the*

*clinic employees would reveal their HIV status to others.* Thirty six students (4%) did not answer this section of the questionnaire.

#### 4.9 Experiences during the process of HIV counselling and testing on campus

This section looked at the utilization of the HCT facilities on different campuses of UKZN and specified that this had to be answered only if students had utilized the facilities on campuses of UKZN. This section looked at the experiences of the students who had utilized the facilities.

**Table 13:** UKZN students' perception about HIV counselling and testing on campus

Question	SA	A	D	SD	U	Total (% of total)	M	Total
The counsellor was supportive	174 (26.4%)	186 (28.2%)	49 (7.4%)	16 (2.4%)	234 (35.5%)	659 (68.3%)	306 (31.7%)	965 (100%)
The nurses were supportive	158 (24.1%)	183 (27.9%)	46 (7.0%)	18 (2.7%)	250 (38.2%)	655 (67.9%)	310 (32.1%)	965 (100%)
The experience at the campus clinic provided me with all the information	166 (25.3%)	213 (32.5%)	51 (7.8%)	14 (2.1%)	211 (32.2%)	655 (67.9%)	310 (32.1%)	965 (100%)
The testing process was quick	179 (27.4%)	227 (34.8%)	42 (6.4%)	15 (2.3%)	190 (29.1%)	653 (67.7%)	312 (32.3%)	965 (100%)
I had to wait for a very long time for results	17 (2.6%)	35 (5.4%)	180 (27.6%)	243 (37.3%)	176 (27.0%)	651 (67.5%)	314 (32.5%)	965 (100%)
I had a very positive experience during the entire procedure	175 (26.9%)	192 (29.5%)	51 (7.8%)	14 (2.2%)	219 (33.6%)	651 (67.5%)	314 (32.5%)	965 (100%)

\*SA-Strongly agree, A-agree, D-disagree, SD- strongly disagree, U-unsure, M-missing

From the above table, it can be seen that more than a half (n=360, 54.6%) strongly agreed/agreed that *the counsellors at the HCT facilities on campus were supportive during the process*. Around 7% of the respondents disagreed/ strongly disagreed (n=65, 9.8%) with this statement. More than a half (n=341, 52%) also agreed/strongly agreed that *the nurses on campus were supportive during the process of HCT* and around 57.8% of the students (n=379) who had tested on campus agreed/strongly agreed that *the campus clinic provided them with good information regarding HCT*. More than a half of the students (n=406, 62.2%) testing on campus reported that *the testing process was quick and was thus efficient*. Around 8.7% of the students (n=52) testing on campus said they had to *wait a long time to get their results*. Further, it was interesting to note that around 56.4% of the students (n=367) strongly agreed /agreed with the statement that *the overall experience at the HCT facilities on campuses was positive*.

#### 4.10 Testing behaviour in relation to demographic characteristics

From the table below, it is evident that students' testing behaviour was influenced by factors relating to demographics.

**Table 14:** UKZN students' HIV testing behaviour and demographic characteristics

Variable		Tested for HIV	Not tested for HIV	P value *
Age (years)	18 – 20	234 (65%)	129 (36%)	0.001
	21 – 23	355 (73%)	131 (27%)	
	24 – 26	46 (85%)	8 (15%)	
	27 – 29	14 (88%)	2 (13%)	
	Above 30	14 (93%)	1 (7%)	
Sex	Female	393 (72%)	152 (28%)	0.370
	Male	270 (69%)	119 (31%)	

<b>Campus</b>	Howard	191 (73%)	71 (27%)	0.885
	Westville	112 (69%)	51 (31%)	
	Medical	150 (70%)	65 (30%)	
	Pietermaritzburg	105 (70%)	44 (30%)	
	Edgewood	104(72%)	40 (28%)	
<b>Residence</b>	On-campus	260 (74%)	92 (26%)	0.132
<b>Status</b>	Off-campus	403 (69%)	179 (31%)	
<b>Student Status</b>	Local	611 (72%)	238 (28%)	0.037
	International	52 (61%)	33 (39%)	

\*Pearson Chi-square

There were more respondents in the age range of 21-23 years, but it can be observed that over 88% of students in the age range of 27-29 years had tested for HIV when compared to the age range of 21-23 years (n=355, 73%). Even though there were just 15 respondents in the age range of above 30 years more people (n=14, 93%) had tested in this age range. There was an association between students' age and whether they had tested for HIV ( $p=0.001$ ). Testing behaviour was just marginally better in females (n=393, 72%) compared to males (n=270, 69%) and was similar across all the five campuses. Whether students were living on campus (n=260, 74%) or off campus (n=403, 69%) did not make a difference to their testing behaviour but more South African students (n= 611, 72%) had tested for HIV compared to international students (n=52, 61%  $p = 0.037$ ).

#### 4.11.1 Factors affecting the willingness to test

The factors affecting willingness to test (familial, social and economic) were compared with testing behaviour. The most significant factors affecting testing were fear of expensive testing

procedures ( $p=0.005$ ), fear of results ( $p=0.000$ ) and having confidence in one's partner ( $p=0.000$ ).

**Table 15:** Factors affecting UKZN students' willingness to test for HIV,  $n=935$

Factors affecting willingness to test	Tested for HIV					Not tested for HIV					*P value
	SA	A	D	SD	U	SA	A	D	SD	U	
Going for HIV counselling and testing might make others think that I have indulged in immoral behaviour	79 (9%)	149 (16%)	137 (15%)	186 (40%)	110 (70%)	21 (2%)	71 (8%)	64 (7%)	68 (7%)	47 (5%)	0.222
I am afraid testing for HIV would cost me money	21 (2.3%)	9 (1%)	103 (11%)	509 (55%)	19 (2%)	5 (0.5%)	8 (1%)	62 (7%)	182 (20%)	14 (2%)	0.005
My family would not support me if I had a positive result	30 (3%)	25 (3%)	149 (16%)	318 (34%)	139 (15%)	10 (1.1%)	15 (2%)	56 (6%)	15 (2%)	71 (8%)	0.286
My partner and I have confidence in each other, we do not need to undergo testing	30 (3%)	35 (4%)	163 (18%)	320 (34%)	113 (12%)	24 (3%)	28 (3%)	51 (6%)	83 (9%)	85 (10%)	0.000
I do not want to get tested because I am afraid of the results	34 (4%)	53 (6%)	152 (16%)	372 (40%)	50 (5%)	36 (4%)	45 (5%)	43 (5%)	101 (11%)	46 (5%)	0.000

SD – strongly agree, A – agree, A – disagree, SA – strongly disagree, U – unsure, \*P-Pearson’s chi-square

#### 4.11.2 Students’ knowledge about HCT affecting testing behaviour

**Table 16:** Students’ knowledge about HCT affecting testing behaviour

Variable	Tested for HIV					Not tested for HIV					*P value
	SA	A	D	SD	U	SA	A	D	SD	U	
<b>HIV counselling and testing allows you to learn about your HIV status</b>	444 (48%)	169 (18%)	13 (1%)	11 (1%)	24 (3%)	156 (17%)	79 (9%)	7 (1%)	6 (1%)	23 (3%)	0.009
<b>HCT allows you to speak to a professional counsellor about how to cope with the process of testing</b>	351 (38%)	186 (20%)	22 (2%)	8 (1%)	94 (10%)	121 (13%)	85 (9%)	15 (2%)	3 (0.3%)	47 (5%)	0.135
<b>HCT allows you to speak to a professional counsellor regarding how to cope with being HIV positive</b>	317 (74%)	214 (23%)	22 (2%)	8 (1%)	100 (11%)	112 (12%)	83 (9%)	10 (1%)	3 (0.3%)	63 (7%)	0.053
<b>HCT counsels a person about how to prevent transmission of HIV from one person to another</b>	313 (34%)	234 (25%)	18 (2%)	7 (1%)	89 (10%)	117 (27%)	83 (9%)	8 (1%)	3 (0.3%)	60 (6%)	0.025

SA – strongly agree, A – agree, D-disagree, SD – strongly disagree, U – unsure, \*P-Pearson’s Chi-square

Students' general knowledge regarding HCT was compared with testing behaviours. Pearson chi-square was used to determine significance. Respondents strongly disagreeing and disagreeing were compared with respect to their testing behaviour. Knowledge regarding HIV counselling and testing was lower in students who had not tested for HIV when compared to students who had tested for HIV ( $p=0.009$ ) and also with regards to the help provided by a professional counsellor regarding how to prevent transmission of HIV from one person to another (0.025).

#### 4.11.3 Students' awareness of HCT resources and HCT facilities provided by UKZN on different campuses

**Table 17:** UKZN Students' awareness of resources on campuses (n=935)

Variable	Tested for HIV					Not tested for HIV					P value
	SA	A	D	SD	U	SA	A	D	SD	U	
<b>Know HCT facilities on campus</b>	264 (28%)	195 (21%)	65 (7%)	34 (4%)	101 (11%)	66 (7%)	74 (8%)	46 (5%)	20 (2%)	64 (7%)	0.000
<b>HCT free service on campus</b>	368 (40%)	167 (18%)	16 (1.7%)	4 (0.4%)	105 (11%)	114 (12%)	64 (7%)	8 (1%)	3 (0.3%)	82 (9%)	0.000
<b>HCT on campus is confidential</b>	278 (30%)	210 (23%)	17 (2%)	12 (1%)	142 (15%)	86 (9%)	79 (9%)	10 (1%)	8 (1%)	87 (9%)	0.002
<b>Counselling and PEP at campus clinic for rape survivors</b>	132 (14%)	144 (16%)	92 (10%)	52 (6%)	239 (26%)	41 (4%)	51 (6%)	42 (5%)	17 (2%)	119 (13%)	0.124
<b>Counselling and PEP to people if accidentally exposed to HIV</b>	156 (17%)	161 (17%)	71 (8%)	44 (5%)	227 (24%)	52 (6%)	75 (8%)	25 (3%)	14 (2%)	104 (31%)	0.341



<b>Infected students not on medical aid have access to wellness program</b>	153 (17%)	165 (18%)	72 (8%)	37 (4%)	232 (25%)	38 (4%)	72 (8%)	37 (4%)	15 (2%)	108 (12%)	0.033
<b>HIV infected students referred to local health facilities for treatment</b>	171 (18%)	180 (19%)	69 (7%)	22 (2%)	217 (23%)	40 (4%)	86 (9%)	38 (4%)	13 (1%)	93 (10%)	0.004

\*SA – strongly agree, A – agree, D – disagree, SD – strongly disagree U – unsure, P-Pearson’s chi-square

Knowledge of respondents regarding HCT facilities and resources on campuses was compared with their testing behaviour. Students who had not tested for HIV showed significantly lower knowledge regarding awareness of HCT facilities ( $p=0.000$ ) on campuses and about HCT being a free ( $p=0.000$ ) and confidential service ( $p=0.002$ ) at UKZN for students. Respondents who had not tested for HIV were also not aware of the wellness program for students who did not have medical aid ( $p=0.033$ ) and about the fact that HIV infected students would be referred to local health facilities for treatment ( $p=0.004$ ).

#### 4.11.4 Student’s perceptions about resources on campuses

**Table 18:** UKZN students’ reasons for not wanting to test for HIV on campuses

Variable	Tested for HIV					Not tested for HIV					P value
	SA	A	D	SD	U	SA	A	D	SD	U	
<b>I am afraid people at the</b>	45 (5%)	87 (9%)	143 (15%)	270 (29%)	114 (12%)	21 (2%)	41 (4%)	60 (7%)	87 (9%)	61 (7%)	0.113

<b>HCT services on campus might be people I know or recognize me</b>											
<b>I am afraid about what my friends would think of me if I went in for HCT on campus</b>	36 (4%)	59 (6%)	192 (21%)	293 (32%)	79 (9%)	15 (2%)	45 (5%)	72 (9%)	93 (10%)	45 (5%)	0.001
<b>I have never indulged in any kind of risky sexual behaviour</b>	33 (4%)	37 (4%)	202 (22%)	324 (35%)	63 (7%)	41 (4%)	48 (5%)	86 (9%)	57 (6%)	38 (4%)	0.000
<b>Testing clinic on campus is visible to everybody</b>	34 (4%)	70 (8%)	190 (21%)	265 (29%)	100 (11%)	28 (3%)	45 (5%)	71 (8%)	76 (8%)	50 (5%)	0.000
<b>I don't believe that the counsellors will keep my information confidential</b>	26 (3%)	64 (7%)	187 (20%)	264 (28%)	118 (13%)	18 (2%)	25 (3%)	84 (9%)	78 (8%)	65 (7%)	0.008

SA – strongly agree, A – agree, D –disagree, SD – strongly disagree, U – unsure, \*P-Pearson's chi-square

Students' testing behaviour was compared with reasons why they did not want to test on campus. Statistically significant p values were obtained with respect to fear of being recognized by friends when going for testing (p=0.001), fear that counsellors might reveal their status to familiar people (p=0.008), the testing clinic being at a place on campus where it is

visible to everybody ( $p=0.000$ ) and not wanting to get tested because of never having indulged in any kind of risky sexual behaviour ( $p=0.000$ ).

#### **4.11.5 Attitude of students towards HCT on campus compared to testing behaviour**

To compare the attitude of students regarding HCT on campus with testing behaviour, the scores for all the questions in section F for each respondent were added together to get the overall scores. The overall scores were checked to see if they were normally distributed. Since they were not normally distributed a non-parametric test (the Mann Whitney U test) was used to compare medians with testing for HIV. This provided a score of the analysis of the attitude of students towards HCT on campus. The attitude score analysis of students who had tested compared to students (20) who had not tested (18) showed a significant difference ( $p<0.001$ ).

**Table 19:** Attitude of students towards HCT on campus compared to testing behaviour

<b>Have you ever had a test for HIV?</b>	<b>N</b>	<b>Median</b>
<b>Yes</b>	659	20
<b>No</b>	269	18
<b>Total</b>	928	20

#### **4.11.6 Knowledge regarding HIV/AIDS compared to testing behaviour**

To compare the knowledge of students regarding HIV/AIDS with their testing behaviour, the scores for all the questions in section B for each respondent were added together to get overall scores. The overall scores were checked to see if they were normally distributed. Since they were not normally distributed a non-parametric test (the Mann Whitney U test) was used to compare the knowledge of students regarding HIV/AIDS with testing for HIV. This provided

us a knowledge score regarding HIV/AIDS score analysis. The knowledge score analysis (median score) of students who had tested (median 44) compared to students who had not tested (median 43) showed an insignificant difference ( $p=0.195$ ).

**Table 20:** Knowledge regarding HIV/AIDS compared to testing behaviour

<b>Have you ever had a test for HIV?</b>	<b>N</b>	<b>Median</b>
<b>Yes</b>	663	44
<b>No</b>	271	43
<b>Total</b>	934	44

#### 4.11.7 Knowledge regarding HCT compared to testing behaviour

To compare the knowledge of students regarding HCT with testing behaviour, the scores for all the questions in section E for each respondent were added together to get overall scores. The overall scores were checked to see if they were normally distributed. Since they were not normally distributed a non-parametric test (the Mann Whitney U test) was used to compare the knowledge of students regarding HCT with testing for HIV. This gave us the knowledge score regarding HCT. The knowledge score analysis (median score) of students who had tested (median score 22) compared to students who had not tested (median score 21) showed a significant difference ( $p=0.001$ ).

**Table 21:** Knowledge regarding HIV/AIDS compared to testing behaviour

<b>Have you ever had a test for HIV?</b>	<b>N</b>	<b>Median</b>
<b>Yes</b>	659	22
<b>No</b>	269	21
<b>Total</b>	928	22

**Table 22:** Testing behaviour and significant variables (adjusted model)

Source	df	F	Sig
Intercept	1	76.531	0.000
<b>Demographics</b>			
Age	4	6.027	0.048
Student status (local/International)	1	9.653	0.002
<b>Knowledge of HIV counselling and testing</b>			
HCT counselling allows you to learn about HIV status	1	0.704	0.402
HCT counsels regarding how to prevent transmission from one partner to another	1	4.966	0.026
Awareness that students not on medical aid would have access to wellness program	1	0.834	0.361
Awareness that HIV infected students will be referred to local health facilities	1	6.708	0.010
<b>Students' awareness of HCT facilities on campus</b>			
Being aware of HCT facilities on campus	1	6.708	0.010
HCT on campus was a free service	1	3.299	0.070
Awareness that HCT on UKZN was confidential	1	0.219	0.640
<b>Factors affecting the willingness to undergo HIV counselling and testing</b>			
Having confidence in one's partner	1	13.269	0.000
Not wanting to test because of fear of results	1	36.383	0.000
Not wanting to test because of cost factor	1	2.327	0.127
<b>Attitudes related to HIV testing on campus</b>			
Being afraid of what one's friends might think on going in for HCT	1	0.000	0.984
Not testing for fear of being recognized by familiar people at the clinic	1	0.611	0.435
Not wanting to test because of never having indulged in risky sexual behaviour	1	65.872	0.000
Visibility of the HCT clinic on campus	1	0.584	0.445
Being scared of counsellors not keeping information confidential	1	1.081	0.299

#### **4.12 Analysis of variables using general linear model:**

On putting the variables which were statistically significant into the general linear model and running of the univariate analysis with HCT tested and not tested as the dependent variable the following results were obtained. The significant variables (crude) were compared with testing behaviour.

##### **4.12.1 Demographic factors and testing behaviour**

A person's age was found to be significantly associated with testing behaviour with older students more likely to test ( $p<0.05$ ) and student status (local/international) was found to be significantly associated with testing behaviour ( $p<0.05$ ) with South African students more likely to test.

##### **4.12.2 Factors affecting willingness to undergo HIV counselling and testing:**

*Having confidence in one's partner* was found to be significantly associated with testing behaviour ( $p<0.001$ ), and *not wanting to test because of fear of the results* was found to be significant ( $p<0.001$ ).

##### **4.12.3 Information sources and knowledge of HIV counselling and testing:**

Knowledge of HCT significantly associated with testing behaviour included that *HCT counsels regarding how to prevent transmission from one partner to another* was found to be significant ( $p<0.05$ ), and *awareness that HIV infected students will be referred to local health facilities* was significantly associated with testing behaviour ( $p<0.05$ ).

##### **4.12.4 Students' awareness of HCT facilities provided by UKZN**

*Being aware of HCT facilities on campus* was significantly associated with testing behaviour ( $p<0.05$ ).

#### **4.12.5 Attitude related to HIV testing on campus**

In the model fear and stigmatising factors were not associated with HCT but not *wanting to test because of never having indulged in risky sexual behaviour* was significantly associated with testing behaviour ( $p < 0.001$ ).

## **5. DISCUSSION, LIMITATIONS, CONCLUSION AND RECOMMENDATIONS**

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### **5.1 Introduction**

The aim of this chapter is to discuss the findings and the limitations of the study and make recommendations in line with the objectives of the study.

### **5.2 Discussion**

Altogether 965 students completed the questionnaire of whom 663 (71%) reported having tested for HIV. Student age, student status (local/international), fear of positive results, having confidence in one's partner, and confidence in not being susceptible to the disease because of never having indulged in risky sexual behaviour were associated with HIV testing behaviour ( $p < 0.05$ ). Vulnerability to HIV infection is related to a number of psychosocial and environmental factors. In this study the risk factors for not testing for HIV were identified as demographics factors, sexual behaviour, knowledge and attitudes towards HCT and these factors are discussed in this chapter.

#### **5.2.1 Knowledge about HIV/AIDS and HIV counselling and testing (HCT)**

The HIV epidemic in South Africa is driven by sexual behaviour and thus it is important to bring about changes in the sexual behaviour through a vibrant media which can be used to generate healthy preventative messages regarding sexual health and behaviour. Over half of the students (54%) in the study indicated that the media (television/radio/newspaper/magazines) were their prime source of information regarding HIV/AIDS followed by health care providers (15.9%). In a nationwide survey done in the United States of America with 662 respondents, doctors (79%) followed by family and friends (72%) were the most important sources of information regarding HIV/AIDS (96) whereas a household survey conducted in 2002 by HSRC in South Africa reported that over half of the surveyed young people (15-24years) found the media (television/radio/newspapers) to be an



important source of information followed by health care providers (36%) (97). Mass media campaigns have a key contribution towards sexual behaviour changes like effects on condom use, abstinence and faithfulness and encouraging HIV testing, so the media can be effectively used to bring about the required change (15). A cross-sectional study involving undergraduate students in Enugu, Nigeria found that the electronic mass media (70%) was the popular source of information regarding HIV/AIDS and related services followed by friends (13%) (66). Family or friends may regard discussions around HIV/AIDS as inappropriate due to cultural issues and beliefs and thus youth find the media, a better avenue for obtaining the information (98).

For information sources regarding HIV/AIDS on campuses of UKZN, leaflets and information booklets (36%) were rated highest followed by class lectures (23.4%). The findings are thus similar to the cross-sectional study conducted by HEAIDS in 2008 consisting of students who volunteered at all 21 higher education institutions in South Africa. The students in the province of KwaZulu-Natal had indicated that leaflets and information booklets (37%) on campuses were their primary source of information about HIV/AIDS (36).

The response of UKZN students shows that the media is the most popular source of information regarding HIV/AIDS followed by friends and family. Since UKZN students find the media a popular source of information, the University needs to utilize the sources on campus like campus television and leaflets and information booklets to provide better information regarding HIV/AIDS

Most students (94%) knew that HIV can be transmitted through bodily fluids but fewer were well informed about vertical transmission of HIV from mother to child (74%) or subsequently through breast milk (73%). The findings of the study conducted by HEAIDS in 2008 had found that students of UKZN were less informed about mother to child transmission (66%) of HIV through breast milk (99). This shows that there has not been a significant change

regarding knowledge among students of UKZN about the facts of HIV transmission from a mother to child. Comparatively, in a cross-sectional study involving 400 university students in Xinxiang, China around 80% of students were aware of the vertical transmission of virus from mother to child (100). The relative lack of information about mother to child transmission (MTCT) among UKZN students is a problem and is especially important as the province of KwaZulu-Natal has the highest HIV prevalence among antenatal clinic attendees (29.5%) compared to other provinces and high teenage pregnancy (26% among 15-19 year olds) and thus it is important that male and female students be made aware of the facts of transmission of HIV from mother to child and how to prevent this (5, 16, 101).

Around 85% of UKZN respondents were informed that a person can get infected if they have sexual intercourse with an infected person just once without a condom. Comparatively, in a cross-sectional study conducted among male high school students between ages 17-20 years in Lao People's Democratic republic, most of them (97%) were aware that unprotected sex with an infected partner could cause HIV infection (102). This relative difference in the knowledge regarding transmission among young people in both countries can be looked at in perspective of the relative HIV prevalence among people aged 15-49 years in both the countries with Lao People's Democratic Republic having a lower prevalence at 0.3% (4) compared to South Africa at 29.5% (5). Despite the high HIV prevalence in Province of KwaZulu-Natal there is a lack of knowledge about HIV transmission amongst UKZN students.

A total of 605 UKZN respondents (63%) were aware that oral sex can cause HIV infection. An oral lesion can result in an increased risk of HIV infection in people who indulge in oral sex with an infected partner (103). This assumes importance with university students where sexual experimentation and casual relationships without adequate protection is seen as leading to increased HIV risk (103, 104). In a cross-sectional study conducted in Sao Paulo, Brazil (n=447) which looked at sexual preferences and practices among undergraduate students, the

majority of students reported condom usage during vaginal sex but only 22% used condoms during oral sex (105). Similar results regarding knowledge about oral sex can be seen in a survey conducted in South Texas, U.S.A involving undergraduate students (n=632) having a largely Hispanic population where most students (96%) knew that HIV was transmitted through bodily fluids but very few were informed about transmission through breast milk (30%) and about the risk of oral sex as a transmission route (60%).

A considerable number of UKZN respondents were aware (94%) of the fact that a person with many sexual partners has an increased risk of HIV/AIDS and that sexually transmitted infections increases one's risk of HIV infection. The study conducted by HEAIDS in 2008 at UKZN had reported, that 91% of UKZN students were aware that having sex with many partners can increase one's risk of getting HIV/AIDS (99). Globally, it has been reiterated by many studies that students of tertiary institutions were aware of multi-partner HIV risk. A cross-sectional survey of 324 students between ages 20-24 from 3 tertiary institutions in Nigeria (2010) determined that more than 85% of students were aware of HIV transmission risk through unprotected sex with an infected partner and with having multiple sexual partners (106). This awareness is further confirmed by a cross-sectional survey conducted among Chinese students (n=1081) across eight universities in 2000 where it was found that 95% of the students knew of the risk of HIV transmission from an infected partner.

Many studies have pointed out that knowledge about HIV/AIDS or even perception of being at risk does not necessarily reduce risky behaviour (51, 107, 108). This is especially true for young people, that in spite of awareness of the modes of transmission, youth across the globe still indulge in unsafe sex because of perceived low risk of acquiring the infection and sometimes inadequate knowledge regarding prevention methods. This is reiterated in the data provided by CDC (Centre for Disease Control) which states that young people in America aged 13-29 years account for all new HIV infections in the United States (109). Similarly data from

Canada also shows that youth in the age group of 15-29 years account for all new HIV infections in Canada (110).

Most students agreed that a HIV infected person can be treated and can lead a healthy life (83%) which is an encouraging finding. This was consistent with a study done involving tertiary institutions (n=1081) in China in 2000, where a majority of students (80%) were aware that a HIV infected person could be treated and live a healthy life (111). The study by HEAIDS at UKZN also had reported that the majority of UKZN respondents (92%) were aware that a HIV infected person can be treated with ARVs to lead a healthy life (99). Better awareness that there is treatment available that would help HIV infected people lead a healthier life is a positive finding as this means that more people may go in for HIV testing to know their HIV status and adopt risk reduction behaviours. HIV prevention strategies such as HIV testing work effectively as they are based on the principle of helping people undertake risk reduction behaviour changes and maintain these (112).

More female students (86%) compared to male students (78%) agreed that both sexes had equal responsibility to protect themselves during sex. It has been found in studies that females are more likely to be aware of issues related to health and sexuality compared to males (113). This is one of the reasons that they are more aware of safe sex practices compared to males even though they may lack the power to exercise this awareness (114). In a randomized controlled trial conducted in Zambia involving 1694 individuals (men and women aged above 16yrs) regarding acceptance and equity of home based HIV counselling and testing, women were found to be more aware of safe sex measures and were more likely to consider HIV testing as mandatory (14) as in this study around 67% of women accepted HIV testing as they considered it important compared to men (64%). Gender differences are important in the study of HIV prevention as it is men who directly control the use of barrier protection most of the time, and women in spite of being aware of safe sex practices may not be able to convince the

male partner, and this is especially true for women who are psychologically or economically dependent (114). Women fear initiating safe sex practices in a relationship for fear of negative reactions like the ending of the relationship by the partner. In a cross-sectional survey looking at domestic violence and seeking VCT services conducted in Bangalore, India, 67% of the women reporting violence and abuse were also HIV seropositive (115). High rate of sexual violence and HIV in South Africa are based on community acceptance of norms related to masculine behaviour and men's use of power over women. This unequal power dynamics is further affected by large age differences in relationships where it is more common for women in sub-Saharan Africa to marry at young age or have older intimate partners and this leads to the younger female partner getting infected with HIV/AIDS as these women cannot negotiate safer sex because of power imbalance (50).

It was encouraging to see that most UKZN respondents (91%) knew that HCT is done to know one's HIV status. Preventive strategies like HIV counselling and testing teaches a person about the dual responsibility of protecting oneself and protecting others (114). Knowledge and awareness are important steps towards taking action to improve one's health and more than three quarters of the respondents were aware that speaking to a professional counsellor helped one to cope with the process of testing (79%), with being HIV positive (77%) and being aware of how to prevent the infection from spreading to others (80%). In the study done by Gengiah at UKZN in 2006 looking at psychosocial factors affecting willingness to test among UKZN students, it was found that about half of the participants demonstrated very good knowledge of VCT and associated services on campuses (74). Knowledge of HCT does not necessarily mean that the students have a positive attitude towards testing. In a study done in Nairobi, Kenya, involving 154 secondary schools with students aged between 13 to 20 years, it was found that even though a substantial proportion of students (44% of males and 13% of females) had engaged in sexual activity and did know about VCT, around 90% of the students had not undertaken HIV testing for fear of what their friends might perceive (116).

Nearly two thirds (64%) of the students were aware of HCT facilities on the campuses of UKZN and more than two thirds were aware of the confidentiality of the testing procedure but less than half of the students knew about post exposure prophylaxis following rape or accidental exposure. In a study conducted in Enugu, Nigeria by Uzochukwu *et al.*, where 250 undergraduate respondents from two tertiary institutions answered an interviewer administered questionnaire (117), 64% of the students indicated they were aware of VCT facilities on campus. There was less awareness among UKZN respondents regarding the wellness program run by campus clinics or regarding reference to local health facilities of students who test positive. The finding in this study is nearly similar to the HEAIDS study done in 2008 where UKZN students were less aware (55%) regarding post exposure prophylaxis availability (99).

#### **5.2.2 UKZN students' sexual experiences, protective measures during sex and HIV testing**

More than half of UKZN respondents (68%) reported having had sex. In the study conducted by HEAIDS in 2008 around 60% of UKZN students had indicated having had sex. Comparatively around 68% of students in Western Cape Province had indicated having had sex (36). Asked about protective measures during sex, 45% of students had reported condom usage, 19% had reported being faithful to their partner while 33% had reported abstinence. Comparatively in a cross-sectional study involving 324 undergraduate students at a tertiary institution in Accra, Ghana which has an adult HIV prevalence of 1.5% (2013), it was reported that 45% of the students had undertaken HIV testing. Around 77.5% of the Ghanaian students had reported condom usage, 70% had reported abstinence and 56.8% reported being faithful to their partner as a protective measure (113). Condom use is dependent on marital and relationship status. People who are married and in long term relationships will usually report lower condom use than people who term their relationship status as being single (118). Being consistent in condom use is an important factor in preventing incidence of HIV infections (119). Around 45% of UKZN respondents reported condom usage at last sex compared to

HEAIDS study in 2008 where 60% of students reported condom usage at last sex. When asked about ever having had a test for HIV, 71% of the respondents in this study reported that they had had a test for HIV. Comparatively, 37% of students at UKZN had reported having tested for HIV in the HEAIDS study (36). In the current study, the percentage of students testing for HIV has nearly doubled. In a study conducted by Ajuma *et al.*, (2010) among medical students in Nigeria (adult HIV prevalence of 3.7%) out of a total of 368 students, 50.7% of students had reported having had a test for HIV(120). The study by Peltzer *et al* in 2004 had indicated that 22.4% of students at South African universities had tested for HIV compared to 24.5% of students at American universities (73). Better HIV testing among American students was attributed to better awareness and lesser stigmatizing beliefs when compared to students in South African universities. This can be looked at in terms of the HIV prevalence among adults aged between 15-49 years in the two countries according to 2012 statistics (United states-0.6%, South Africa-17.3%) which shows that better awareness and testing attitudes in the American population can be related to the lower prevalence levels (4).

### **5.2.3 Attitudes affecting UKZN students' willingness to undergo HIV counselling and testing**

Around 48% of UKZN respondents were not afraid of what others might perceive of them if they went for HIV counselling and testing. This shows that there were 52% of respondents who were either unsure or afraid of going in for HIV counselling and testing, the reasons for which could be fear of results, cost factor, fear of stigma or confidence of not being susceptible to the infection (121). Two thirds of the respondents (68%) knew that they could depend on their families if they had a positive test. Around 12% of the respondents had indicated that they had confidence in their partner and felt there was no need to go for HIV testing. The high prevalence of HIV in South Africa where many people have not tested and do not know their HIV status suggests this confidence may be misplaced. More than half of the respondents were not afraid of HIV testing results. In a study conducted among 200 randomly selected medical

students in Tanzania (2006) 56% of respondents who had never tested for HIV reported fear of stigma, fear of positive results, and worries regarding confidentiality for not testing for HIV (122).

In the cross-sectional study involving medical students in Nigeria, a majority of them had indicated that they would want to go for HIV testing (83.1%) and were not afraid of testing results (123). However in a similar cross-sectional study involving 186 Tanzanian medical students, self-confidence about not being susceptible, fear of results and fear of susceptibility due to risky sexual behaviour were contributory factors for not testing (122). Social stigma is one of the most important barriers to HIV prevention and treatment (124). Around 16 % of UKZN respondents had stigmatizing attitudes regarding testing on campus and 5% of students were scared that the clinic employees may reveal their HIV status to others.

UKZN respondents had low perceptions of stigma about testing in this study, which does not necessarily mean that these students would not have stigmatizing beliefs regarding people living with HIV/AIDS. In a study conducted by Van Dyk *et al.*, involving 1422 participants in South Africa, fear of discrimination and mistrust of health care professionals was higher in individuals not wanting to test for HIV (125). According to Van Dyk *et al.*, individuals were more likely to test if they could do so at a location where nobody would recognize them. In a study conducted by Ijadunola *et al.* in Nigeria, 90% of students in the study (n=252) had not tested for HIV and the reasons for not wanting to test were lack of knowledge regarding HCT, fear of testing positive and perception of unlikely to be exposed to HIV, or belief that they had not indulged in risky sexual behaviour (126).

Age and student status (local/international) were found to be significantly associated with testing behaviour ( $p<0.05$ ). More South African students went in for HIV testing when compared to international students. Testing behaviour was significantly associated with having confidence in one's partner ( $p<0.001$ ), fear of results ( $p<0.001$ ) and perception of unlikely to



be exposed to HIV because of non-indulgence in risky sexual behaviour ( $p < 0.05$ ). In a study conducted at University of Venda, South Africa, involving 99 randomly selected students, only 33% students reported having tested for HIV and the majority of 67% who had not tested for HIV reported fear of results, stigmatization and discrimination as the reasons for not getting tested for HIV (124). Focus groups discussions conducted involving 72 students in the University of Limpopo, South Africa (2008), found that fear of stigmatization and fear of positive results were mainly associated with HIV testing behaviour (127). The statistically significant findings of this study were consistent with a qualitative study conducted in Dar-es-Salaam, Tanzania where students attributed fear of test results and the stigma associated with positive results as the main reasons for not wanting to test (13). In this study face-to-face interviews were conducted with 20 college students aged between 19-24 years who also complained of unfriendly and uncooperative service staff and poor counselling services at the testing centres as further reasons for not wanting to test (13).

The Health Belief Model and Social Cognitive Theory can be used to bring about the necessary changes in HIV testing behaviour. The AIDS risk reduction model developed in 1990 by Catania *et al.*, uses both these theories (80). This model identifies 3 stages; behaviour labelling, commitment to change and taking action. Thus programmes developed as preventative measures should focus on increasing knowledge regarding HIV transmission, and overcoming myths and misconceptions about HIV/AIDS through adequate information channels, improving environmental factors by providing adequate resources like easy accessibility of health resources, and preventative measures and reinforcing positive attitudes and behaviours through social support groups and peer groups (80).

#### **5.2.4 UKZN respondents utilizing HCT facilities on campus**

More than half of the students answering the section regarding experiences after having tested on campus felt that the counsellor and nurses were supportive during the process of testing and that the testing process was quick. More than half of the respondents (56.4%) testing on campus indicated that they had a very positive experience during the entire procedure.

#### **5.3 Limitations of the study**

1. Generalizing the findings of this study to young people and students of other universities should be done with caution as students of UKZN may not be representative of the entire youth population of South Africa.
2. The major challenge of volunteer sampling is that not all students volunteer to participate and some of the students who had tested on campus might not have participated due to fear of lack of privacy. Volunteer sampling is an inexpensive way of sampling but unreliable because subjects volunteering might be different from subjects not volunteering and thus the study could not be exactly representative of the student population of UKZN.
3. Design of the questionnaire – Even after piloting the study and making necessary corrections, some students did complain about not understanding some of the terms mentioned. The researcher made every effort to rectify any discrepancies but students could have wrongly marked answers due to not adequately understanding some of the questions. Also the questionnaire did not have a specific question which asked students whether they had tested on campus. In the final section which looked at perceptions of students who had tested on campus it was clearly mentioned that this section should be answered by students who had tested on campus but there were a lot of students who marked unsure in this section. This could be due to poor understanding of the terms.

Moreover questions on factors influencing HCT may not have been comprehensive enough.

#### **5.4 Conclusions and the way forward**

HIV prevalence rates among young people have and continue to be a growing concern in South Africa. The benefit of knowing one's HIV status is important with the view of providing early treatment and thus making ART more effective. This study found that around 71% of respondents had tested for HIV compared to the HEAIDS study done in 2008 which showed that only 37% of students at UKZN had tested. Around one third of students at UKZN had not tested for HIV. HIV testing should be emphasized so that more students test and know their status and take appropriate measures so as to prevent the spread of the epidemic. This would reduce the HIV incidence and state expenditure on treatment and control.

There needs to be more research conducted regarding routine testing, factors motivating a student to go for testing and to determine strategies to reduce stigma associated with HIV testing and increase student numbers undertaking testing.

#### **5.5 Recommendations**

The results indicate that the media is an important source of information regarding HIV/AIDS for UKZN students with leaflets and information booklets on campuses being useful. These popular sources of information among UKZN students can be further used to demystify myths and misconceptions which they might have about the subject of HIV/AIDS.

This study found that more females than males believed that protection during sex was an equal responsibility of males and females. Female students should be encouraged regarding gender assertiveness and safety during sex. Male students should be targeted with leaflets and information booklets and interactive workshops encouraging safe sex and taking responsibility for protection during sex.

Interactive workshops should be conducted providing information regarding disadvantages of multiple sexual partnerships, symptoms of STIs (sexually transmitted infections) and prevention of transmission of STIs and treatment of the same. The workshops should give intensive training to students regarding PMTCT and steps to prevent transmission from mother to child.

Condoms for both males and females must be consistently available free of cost at the institution at residences, toilets, social events and functions held at the university.

Orientation programs focused on HIV education should target first year students. Modules and workshops about HIV/AIDS education, HIV testing and counselling should be conducted and the staff and students on all campuses should be encouraged to participate.

About 18% of UKZN respondents had indicated that they were not aware of HCT resources on campuses. Promotion of HCT should be done through peer advocacy and campus television. Students at the university should be encouraged to undergo testing by appropriately targeted campaigning and advertising using leaflets and information booklets, drama and debates held on all campuses. More South African students have HIV tested compared to international students. International students should be encouraged to test for and know their HIV status.

The way forward would be to further study the knowledge, attitude and perceptions of students with regard to HIV counselling and testing by conducting surveys on campuses of UKZN every year. This survey should be undertaken by the university every year and all students should be encouraged to participate in the survey.

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## 7. APPENDICES

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### 7.1 Research information document

#### Appendix 1

##### Information Document

Study Title - Reasons for avoidance of HIV counseling and testing among undergraduate students of University of KwaZulu-Natal in the year 2011

Researcher – Rashmi Venugopala,  
Master student,  
Department of Public health Medicine  
Nelson R Mandela School of Medicine  
University of KwaZulu-Natal

Dear Student,

I, Rashmi Venugopala, am interested in conducting research on the reasons for avoidance of HIV counseling and testing among students of University of KwaZulu-Natal in the year 2011. It would be of great help to my research if you fill in the questionnaire that follows. Your answers to the questions will help me understand the knowledge that students have with respect to HIV/AIDS. This research will also help me in determining what students perceive about HIV counseling and testing and what are the aspects that encourage them or discourage them from undergoing testing on campus. This in turn will help me to make recommendations to improve HIV services available on campus. The questionnaire will take you between 10 to 15 min to answer. I would also like to inform you of the following

1. Your participation in this study is completely voluntary
2. The information you provide will be kept strictly confidential
3. This is an anonymous questionnaire
4. The information you provide will not be connected to you whatsoever
5. A lucky draw of all participating students offers you an opportunity of winning a prize

Should you have any further queries, please feel free to contact me at

Department of Public Health Medicine

2nd Floor, George Campbell Building,

Howard College Campus, University of KwaZulu-Natal.

Telephone: 031-260-4383, Cell phone: 0791979806, Email: [210552509@ukzn.ac.za](mailto:210552509@ukzn.ac.za)

Alternatively, you could contact my supervisor

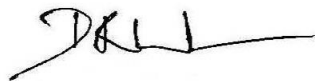
Prof. Myra Taylor (Research Manager & Senior Researcher)

Tel: 031-260-4499 (Office), E-mail: [taylor@ukzn.ac.za](mailto:taylor@ukzn.ac.za)

You may contact the **Biomedical Research Ethics Office** on **031-260 4769 or 260 1074** or  
Email [BREC@ukzn.ac.za](mailto:BREC@ukzn.ac.za) if you have questions about your rights as a research participant.

Thank you for giving up your time to fill out this questionnaire.

Yours sincerely,



(Rashmi Venugopala)

## 7.2 Research informed consent

### Appendix 2

#### Informed consent:

Study Title - Reasons for avoidance of HIV counseling and testing among undergraduate students of University of KwaZulu-Natal in the year 2011

Dear Student,

I, Rashmi Venugopala, a master student at Department of Public Health Medicine, am interested in conducting research on the reasons for avoidance of HIV counseling and testing among students of University of KwaZulu-Natal in the year 2011. It would be of great help to my research if you fill in the questionnaire that follows. Your answers to the questions will help me understand what students think about HIV counseling and testing and what are the aspects that encourage them or discourage them from undergoing testing on campus. This in turn will help me to make recommendations to improve HIV services available on campus. The questionnaire will take you between 10 to 15 min to answer. I would also like to inform you of the following

1. Your participation in this study is completely voluntary
2. The information you provide will be kept strictly confidential
3. This is an anonymous questionnaire
4. The information you provide will not be connected to you whatsoever
5. A lucky draw of all participating students offers you an opportunity of winning a prize

I have read and understood the above letter. *(Please tick one)*

I hereby consent to answering the questionnaire	<input type="checkbox"/>
I decline to answer the questionnaire	<input type="checkbox"/>

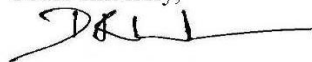
Should you have any further queries, please feel free to contact me at

Department of Public Health Medicine  
2nd Floor, George Campbell Building,  
Howard College Campus, University of KwaZulu-Natal.  
Telephone: 031-260-4383, Cell phone: 0791979806, Email: 210552509@ukzn.ac.za

Alternatively, you could contact my supervisor  
Prof. Myra Taylor (Research Manager & Senior Researcher)  
Tel: 031-260-4499 (Office), E-mail: taylor@ukzn.ac.za

Thank you for giving up your time to fill out this questionnaire.

Yours sincerely,



(Rashmi Venugopala)

### 7.3 Research questionnaire

#### **Section A – Socio-demographic data (Tick on appropriate choice)**

**Campus:** 1) Howard 2) Westville 3) Medical School 4) Pietermaritzburg 5) Edgewood

1. What is your age.....(In years)
2. Sex            1. Male ☐            2. Female ☐
3. Marital status:    1. Single ☐            2. Married ☐  
                             3. Widow ☐            4. Divorced ☐  
                             5. Have regular girl/boyfriend ☐
4. Student Status:    1. Local ☐    2. International ☐
5. Student Category: 1. Full-time student ☐ Part-time student ☐  
                             3. Other (specify) .....
6. Residence status: 1. On Campus ☐    2. Off campus ☐

#### **Section B: Information sources and knowledge of HIV/AIDS**

##### **1) Sources of Knowledge about HIV/AIDS (More than one can be ticked)**

- |                     |   |
|---------------------|---|
| 1. Media            | 2. Family                               |
| 3. Friends          | 4. Books/Journals                       |
| 5. Internet         | 6. University                           |
| 7. School           | 8. Health care providers (e.g. Doctors) |
| 9. Religious groups | 10. Others (please specify) .....       |

##### **2) Sources of information on campus about HIV/AIDS which you found useful (More than one can be ticked)**

- |  |                    |
|--|--------------------|
| 1. Class lectures                      | 2. Posters         |
| 3. Leaflets & information booklets     | 4. Library sources |
| 5. Internet                            | 6. Plays or drama  |
| 7. Campus television                   |                    |
| 8. Other sources (please specify)..... |                    |

##### **3) Knowledge about HIV /AIDS**

1. HIV can be transmitted from one person to another through body fluids (blood, semen, vaginal fluids)  
Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
2. HIV can be transmitted from a mother to her child through breast milk  
Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
3. Oral sex can cause AIDS if partner is infected with HIV  
☐ ☐ ☐ ☐ ☐

1 of 5

Strongly disagree      disagree      unsure      agree      strongly agree

4. A person can get HIV if he or she has sexual intercourse just once without a condom

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

5. A person with many sexual partners has an increased risk of HIV/AIDS

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

6. A HIV positive woman can transmit the virus to her fetus/unborn child

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

7. Sexually transmitted infections increase the risk of HIV/AIDS

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

8. A person who is HIV infected can be treated and live a healthy life

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

9. I do not like using condom during sex as it reduces the sexual pleasure

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

10. I believe that both men and women are equally responsible for practicing safe sex methods

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

### **Section C: Sexual experiences**

1. Have you ever had sex? Yes ☐ No ☐

2. Are you currently sexually active? Yes ☐ No ☐

3. What is your protective measure from contracting HIV?

Abstinence ☐ Condom ☐ being faithful to my partner ☐ no protection ☐

4. Did you use a condom at last sex? Yes ☐ No ☐

5. Have you ever had a test for HIV? Yes ☐ No ☐

### **Section D: Factors affecting willingness to undergo HIV counseling and testing**

1. Going for HIV counseling and testing might make others think that I have indulged in immoral behavior

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

2. I am afraid testing for HIV would cost me money

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

3. My family would not support me if I had a positive result

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

4. My partner and I have confidence in each other. We don't need to undergo HIV testing

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

5. I don't want to get tested because I am afraid of the results

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

### **Section E: Information sources and knowledge of HIV counseling and testing**

1) HIV counseling and testing allows you to learn about your HIV status

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

2) HCT allows you to speak to a professional counselor about how to cope with the process of testing

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

3) HCT allows you to speak to a professional counselor regarding how to cope with being HIV positive

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

4) If a person is HIV positive, HCT counsels the person about how to prevent transmission of HIV from one person to another

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

5) HCT is a free service

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

### **Section F: Knowledge and utilization of HCT facilities on campus**

1. I am aware of the HCT facilities available on campus

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

2. A requirement of HCT at UKZN is that it is confidential
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
3. I don't want to get tested on campus because I am afraid that the people at the HCT services on campus might be people I know or people who recognize me
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
4. I am afraid about what my friends would think of me if I went in for HCT on campus
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
5. I don't want to get tested because I have never indulged in any kind of risky sexual behavior in my life
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
6. I don't want to get tested because the testing clinic on campus is at a place where it is visible to everybody
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
7. I don't want to test because I don't believe that the counselors or members of the campus clinic will keep my information confidential
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
8. I am aware that counseling and post-exposure prophylaxis will be provided at the campus clinics for rape survivors
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
9. I am aware that counseling and post-exposure prophylaxis will be provided to people who become accidentally exposed to the risk of HIV in their occupational environment
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
10. I am aware that all infected students not on medical aid will have access to the wellness program run at the campus clinics
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐
11. I am aware that HIV infected students will be referred to local health facilities for ongoing treatment
- Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐



**Section G: Experiences during the process of HIV counseling and testing on campus (Answer only if utilized the resources)**

1. The counselor on campus was very supportive during the process of HCT

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

2. The nurses on campus were very supportive during the process of HCT

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

3. The experience at the campus clinic provided me with all the information that I needed to know

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

4. The testing process was quick

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

5. I had to wait for a very long time to get my results

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

6. I had a very positive experience during the entire procedure

Strongly disagree ☐ disagree ☐ unsure ☐ agree ☐ strongly agree ☐

-----  
Thank you for your time and patience

## 7.4 Research ethical approval



UNIVERSITY OF  
KWAZULU-NATAL  
INYUVESI  
YAKWAZULU-NATALI

RESEARCH OFFICE  
Biomedical Research Ethics Administration  
Westville Campus, Govan Mbeki Building  
Private Bag X 54001  
Durban  
4000  
KwaZulu-Natal, SOUTH AFRICA  
Tel: 27 31 2604769 - Fax: 27 31 2604609  
Email: [BREC@ukzn.ac.za](mailto:BREC@ukzn.ac.za)  
Website: <http://research.ukzn.ac.za/ResearchEthics/BiomedicalResearchEthics.aspx>

17 January 2012

Ms. R Venugopala  
Department of Public Health Medicine  
Nelson R. Mandela School of Medicine  
University of KwaZulu-Natal

Dear Ms Venugopala

**PROTOCOL: Reasons for avoidance of Human Immune Virus (HIV) counseling and testing among undergraduate students of University of KwaZulu- Natal in the year 2011. BE095/11**

The Biomedical Research Ethics Sub-Committee (BREC) has considered the abovementioned application.

The study was provisionally approved by a quorate meeting of BREC on 13 September 2011 pending appropriate responses to queries raised. Your responses dated 11 October 2011 to queries raised on 17 August 2011 have been noted by a sub-committee of the Biomedical Research Ethics Committee. The conditions have now been met and the study is given full ethics approval and may begin as from 17 January 2012.

This approval is valid for one year from 17 January 2012). To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2004), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at <http://research.ukzn.ac.za/ResearchEthics11415.aspx>.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The following Committee members were present at the meeting that took place on 13 September 2011:

Professor Doug Wassenaar	Psychology (CHAIR)
Professor Dennis Pudifin	Medicine
Dr Tim Hardcastle	Surgery Trauma
Professor T E Madiba	General Surgery
Professor Anna Coutsouli	Paediatrics & Child Health
Professor Chris Rout	Anaesthesia
Dr Shenuka Singh	School of Dentistry
Dr Saeeda Paruk	Psychiatry
Dr Halima Dawood	Medicine
Dr Randolph Green-Thompson	Obstetrics & Gynaecology
Dr Aslam Sathar	Medicine
Professor T E Madiba	General Surgery
Professor Steven Collings	Psychiatry
Mrs T Makhanya	Community Representative

We wish you well with this study. We would appreciate receiving copies of all publications arising out of this study.

Yours sincerely



**PROFESSOR D R WASSENAAR**  
Chair: Biomedical Research Ethics Committee

## 7.5 Post graduate approval



11 October 2011

Professor M Taylor  
Department of Public Health  
Howard College

Dear Professor Taylor

**PROTOCOL: Perceptions of undergraduate students of University of KwaZulu-Natal regarding HIV counseling and testing in the year 2011. M-PH, R Venugopala SN 210552509**

The Postgraduate Education Committee ratified the approval of the abovementioned study on 11 October 2011.

Please note:

- The Postgraduate Education Committee must review any changes made to this study.
- The study may not begin without the approval of the Biomedical Research Ethics Committee.

Yours sincerely

Professor SJ Botha  
Chair Postgraduate Education and Research Committee

CC. R Venugopala

Biomedical Research Ethics Committee  
Westville Campus

## 7.6 Research Registrar approval



14 October 2011

Ms R Venugopala  
Department of Public Health Medicine  
Nelson R Mandela School of Medicine  
University of KwaZulu-Natal

Dear Ms Venugopala,

**RE: PERMISSION TO CONDUCT RESEARCH**

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal towards your postgraduate studies, provided Ethical clearance has been obtained via the Research Office. It is noted the title of your dissertation is:

- 1) Perceptions of undergraduate students of University of KwaZulu-Natal regarding HIV counselling and testing in the year 2011

Please note that the data collected must be treated with confidentiality and anonymity.

Yours sincerely,

  
\_\_\_\_\_  
Prof J Meyerowitz  
Registrar

---

Office of the Registrar  
Postal Address: Private Bag X54001, Durban 4000, South Africa  
Telephone: +27 (0) 31 260 8005/2206 Facsimile: +27 (0) 31 260 7824/2204 Email: registrar@ukzn.ac.za Website: [www.ukzn.ac.za](http://www.ukzn.ac.za)

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