

**KNOWLEDGE, ATTITUDES, BELIEFS, BEHAVIOURS AND SOURCES OF  
HIV/AIDS INFORMATION AMONG UNIVERSITY STUDENTS AT TWO  
TERTIARY INSTITUTIONS IN SOUTH AFRICA**



**A thesis submitted in fulfillment of the requirements for the degree of Master of  
Science (Physiotherapy) in the Department of Physiotherapy, University of the  
Western Cape**

**May 2009**

**Supervisor: Professor J.Frantz**

## DECLARATION

I hereby declare that “**KNOWLEDGE, ATTITUDES, BELIEFS, BEHAVIOURS AND SOURCES OF HIV/AIDS INFORMATION AMONG UNIVERSITY STUDENTS AT TWO TERTAIERY INSTITUTIONS IN SOUTH AFRICA**” is my own work, that it has not been submitted, or part of it, for any degree of examination at any other university, and that all sources I have used or quoted have been indicated and acknowledged by means of complete references.



Preshani Reddy

Signature..... May 2009

**Witness:**

.....

## DEDICATION

I would like to dedicate this thesis to my mum, who is my greatest inspiration and guardian angel. To my late dad who I know is always guiding me. Finally to my fiancé Avilarsh, my rock, who has constantly encouraged me, and never allowed me to quit.



## AKNOWLEDGEMENTS

I would like to acknowledge the following people who have made this journey possible:

God who gave me the strength to complete the thesis and to follow my heart.

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Finally to the University of KwaZulu-Natal and the University of the Western Cape for allowing me to conduct my study on the campuses and a special thank you to the students from the universities who took time out of their schedules to complete the questionnaire.

## ABSTRACT

The incidence of HIV/AIDS appears to be stabilizing in South Africa. However, it is stabilizing at an extremely high number. The South African youth are the most vulnerable to the virus with the main route of transmission being heterosexual intercourse. In South Africa KwaZulu-Natal is the epicenter for the virus, while in the Western Cape has the lowest HIV/AIDS prevalence. The **aim** of the study was to determine the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among university students at two tertiary institutions in South Africa.

**Method:** The study was a quantitative, cross - sectional, descriptive and comparative survey. Students from the University of the Western Cape and the University of KwaZulu Natal (Westville Campus) participated in the study. The study instrument was a questionnaire which was compiled from other questionnaires based on literature. The questionnaire consisted of questions to gather information pertaining to the students' knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information. The questionnaires were then tested for validity and reliability for South African students. The response rate for the questionnaires was 66% (N = 663). The **main findings** from the study showed that university students had a good general knowledge on HIV/AIDS. However students scored poorly in modes of HIV transmission. UKZN students scored higher than UWC students in the knowledge questionnaire. Males scored lower than females and there was also a significant association noted between age and knowledge. Students from both universities had a positive attitude towards people living with HIV/AIDS. There was a significant association between age and gender in terms of

attitudes. Students from UWC deemed themselves as having less of a chance of contracting the disease compared to students from UKZN. UWC on the other hand students participated in more riskier behaviours than UKZN students. The media was the main source of HIV/AIDS information for students (79.9%). In terms of religiosity many students stated that they attend places of worship infrequently (35%).

**Recommendations:** campus health care facilities need to be more proactive in informing the students about HIV/AIDS; alcohol and substance abuse needs to be addressed along with HIV/AIDS; campuses should draw up a full course on HIV/AIDS, courses to empower female students need to be offered and ongoing research needs to be done in this area to evaluate the effectiveness of the programmes being run.



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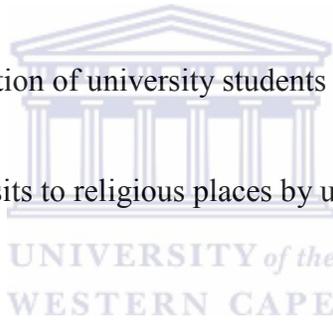


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## ABBREVIATIONS

AIDS: Acquired Immune Deficiency Syndrome

HEAIDS: Higher Education organization on AIDS

HIV: Human Immunodeficiency Virus

NGO: Non – Governmental organization

RAU: Rand Afrikaans University

SPSS: Statistical Package for the Social Sciences

UKZN: University of KwaZulu Natal

UN: United Nations

UNAIDS: Joint United Nations Programme on AIDS

UWC: University of the Western Cape

WHO: World Health Organization



# CHAPTER ONE

## INTRODUCTION

### 1.1 INTRODUCTION

In this chapter the background of the study, statement of the problem, the research question and the objectives are discussed. Terms that are used in the study are defined and the chapter concludes with an overview of the remaining chapters.

### 1.2 BACKGROUND OF STUDY

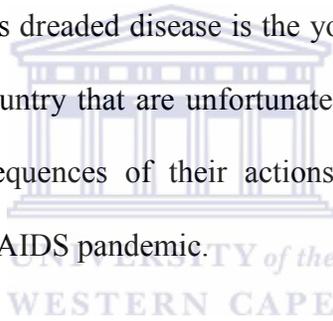
More than 27 years since being discovered, Human Immunodeficiency Virus, which is more commonly referred to as HIV, is what society today is taught to fear. However, the number of newly infected people is still escalating at alarming rates. The question that frequently arises is whether our modern society really fears this dreaded slow killer or whether they perceive themselves as out of reach while they sit and watch behind rose tinted glasses as more and more family and friends perish. Or are we as a modern society ignorant to the severity of this disease?

Once HIV has progressed it results in a compromised immune system, which is known as Acquired Immunodeficiency Syndrome or AIDS. HIV/AIDS is now entering its third decade of existence. This frightful pandemic has swept through nations and countries wiping out families and orphaning children. Ignorance is bliss, but can society afford to

turn a blind eye and attach a stigma to people seeking help from this disease? Everyone is affected by HIV/AIDS either directly or indirectly. Calderon (1997) stated that,

*“One of the most important lessons learned about HIV/AIDS is that it is not only a medical problem, nor is it exclusively a public health problem. Rather, the pandemic is in addition a socio-economic problem and, as such, threatens the sustainable development of developing countries and challenges the ethical foundations of the developed world. HIV/AIDS has become a challenge to health, development and humanity.”*

The group most affected by this dreaded disease is the youth of our country. These young people are the future of the country that are unfortunately making wrong decisions while the elderly pay for the consequences of their actions in the form of having to rear grandchildren orphaned by the AIDS pandemic.



Recent statistics released by the UNAIDS epidemic update (2007) show an estimated 33.2 million people living with HIV/AIDS and 2.5 million newly infected people worldwide. Of this Sub-Saharan Africa is the most affected region where two thirds (68%) of the population are infected, 61% of which are women. The age group with the highest prevalence is between 25 - 29 years of age (33.3%) (UNAIDS, 2007). Young people however aged 15 - 25, shockingly account for an estimated 45% of new HIV infections worldwide (UNAIDS, 2008a).

Heterosexual intercourse remains the primary mode of HIV transmission in Sub-Saharan Africa (UNAIDS, 2008a) which is largely due to inconsistent condom use, early sexual debut and multiple sexual partners. Sexual intercourse is followed by breast feeding and mother to child transmission (Department of Health, 1999). The high HIV prevalence has a negative effect on the life expectancy, causing it to fall dramatically. This in turn impacts on the economy and the overall growth of the country which in turn threatens the political stability of the country (Katjavivi & Otaala, 2003). In Southern Africa, average life expectancy at birth is estimated to have declined to levels last seen in the 1950s; it is now below 50 years for the sub-region as a whole (UNAIDS, 2008a).

### **1.2.1 Effect of HIV/AIDS on South Africans**

The South African HIV data from antenatal clinics suggest that the epidemic might be stabilizing (Department of Health South Africa, 2007), but there is no evidence yet of major changes in HIV-related behaviour. South Africa therefore remains the country with the highest number of people living with the disease and has the fastest growing HIV epidemic in the world (MacGregor, 2001; UNAIDS, 2008a). The HIV prevalence differs within the provinces in South Africa with, KwaZulu-Natal having the highest prevalence (39%) and Western Cape the lowest (15%) HIV prevalence (Department of Health South Africa, 2007).

Since the spread of HIV, the government and non-governmental organizations worldwide have tirelessly set about the task to educate and inform people about the disease and more importantly how to prevent it (Harrison, Smith & Myer, 2000). Various means of

communication both verbal and nonverbal have been used in order to educate people about the growing concerns surrounding HIV/AIDS. This included the 'soul city project', 'beyond awareness campaign', The 'Khomani' ('caring together') campaign, and lovelife (Harrison *et al.*, 2000).

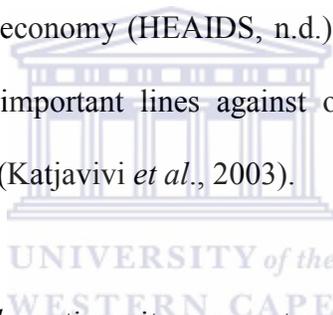
However, despite the ongoing attempts to promote safe sex, the South African incidence still remains high. Other Sub-Saharan African countries such as Kenya, Malawi, Botswana and Zimbabwe have seen noticeable reduction in the newly infected HIV/AIDS numbers (UNAIDS, 2007).

### **1.2.2 South African tertiary institutions and HIV/AIDS**

The statistics from various studies have made it clear that young South Africans put themselves at risk to contract the HIV infection through unprotected sex (Eaton, Flisher & Aaro, 2003). To combat HIV, in the National Policy on HIV by the South African Department of Health (1999) it was stated that "learners and students must receive education about HIV/AIDS and abstinence in the context of life – skills education on an ongoing basis." Universities and/or tertiary institutions are identified as the country's best hope for survival against HIV/AIDS. This has been suggested as tertiary institutions have the resources and capacity to make a significant contribution to the management and control of the pandemic (McGregor, 2001). Dube and Ocholla, (2005) conducted a study on 33 universities in South Africa and found that all the universities that participated in the study had an HIV/AIDS policy in place. The researchers also found that all the universities have integrated HIV/AIDS and teaching through orientation programmes, which are meant

to familiarize new students with the academic environment including HIV/AIDS. However none of the universities have a compulsory course on HIV/AIDS, although 76% of the academic departments have incorporated HIV/AIDS into their curriculum (Dube *et al.*, 2005).

According to epidemiological studies, the peak incidence of HIV/AIDS occurs among 15 - 24 year olds (Pettifor, Rees, Steffenson, Hlongwa-Magikizela, Macphail, Vermaak & Kleinschmidt, 2004). This is the age group attending tertiary institutions and are amongst the most capable and promising members of societies and represent the future of highly skilled individuals required in economy (HEAIDS, n.d.). As long as there is no cure for HIV/AIDS, one of the most important lines against of battle against the epidemic is effective HIV/AIDS education (Katjavivi *et al.*, 2003).

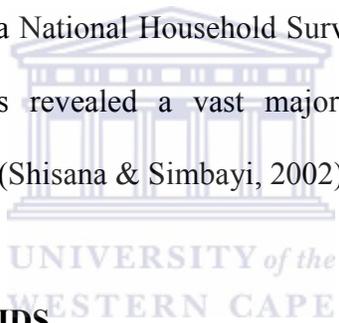


*“Without education, AIDS will continue its rampant spread. With AIDS out of control, education will be out of reach.”* (UNESCO, 2002)

Tertiary institutions are a known focal point of social and sexual interaction. Due to this, universities are deemed high risk institutions for the transmission of HIV (HEAIDS, n.d.). African universities have responded to the pandemic by developing the Higher Education AIDS/HIV programme or HEAIDS in 2000/2001. HEAIDS is a national effort developed to strengthen the capacity, systems and the structures of all higher education institutions in managing and reducing the causes, challenges and consequences surrounding HIV/AIDS (HEAIDS, n.d.). It is perplexing that universities are deemed the focal point of unsafe

sexual interaction, since university students have to possess a certain level of intelligence and cognitive ability to be enrolled at university. There are numerous behavioural and social factors listed by the UNAIDS which were found to play a role in initiating a sexually transmitted HIV epidemic or driving it to higher levels (HEAIDS, n.d.). A review done by Kelly (2001) on several African Universities found that the culture of campus life appears to be ambivalent about “sugar daddy” practices, sexual experimentation, prostitution on campus, unprotected casual sex, gender violence, multiple partners and other similar high risk activities.

In South Africa, the results of a National Household Survey on HIV and sexual behaviour among young South Africans revealed a vast majority do not personally consider themselves of contracting HIV (Shisana & Simbayi, 2002).



### **1.2.3 Models used in HIV/AIDS**

The health belief model is designed to assess why and under what conditions people take action to detect, prevent or comply with treatment (Dennil, King & Swanepoel, 1999). The model asserts that the motivation for people to take action or prevent diseases is based on how strongly they believe that, they are susceptible to the disease in question, the disease would have serious effects on their lives if they should contract it, the suggested health intervention is of value and the effectiveness of the treatment is worth the cost and the barriers they must confront (Dennill *et al.*, 1999). Behaviour modification is an essential aspect that needs to be taken into account in the battle to reduce the number of new infections. However, behavioural change can only occur if the individual is equipped with

sufficient information. This illustrates how important an individual's knowledge is towards the prevention of contracting the disease. Regression and correlation analysis show that accurate knowledge of AIDS is correlated highly with taking precautions to prevent exposure to the HIV infection (Brown & Bocarnea, 1991). The ways and means to achieve this is through health promotion.

Health promotion is a process of enabling people to increase control over, and to improve their health (Dennill *et al.*, 1999). Health education is the central tool in this process. The other important aspects are empowerment, behavioural, socio-economic, biological and environmental changes (Dennill *et al.*, 1999). Health education and promotion is the most effective way to help prevent the spread of HIV/AIDS. However despite the various programmes in place designed to assist the youth in correct decisions making, the incidence of HIV/AIDS has not significantly decreased in South Africa, which raises questions as to why health promotion programs not working.

According to research, South Africa has an opportunity to reverse the course of the HIV/AIDS epidemic over the next five to ten years by focusing prevention efforts on young people in this target group so that sustained behaviour change can be seen (Pettifor *et al.*, 2004). However bringing about a change is a slow and tedious process and requires continuous research in areas concerning the youth and HIV/AIDS. It is only through knowledge that we can bring about a change and/or adjust the current programmes to specifically suit the ever changing society and campus culture.

Most of the studies on the knowledge, attitude, beliefs and behaviours of youth focused on high school learners or the youth in general (Akande, 2001; Eaton *et al.*, 2003; Pettifor *et al.*, 2004; James, Reddy, Taylor & Jinabhai, 2004, Simbayi *et al.*, 2004; Hartell, 2005; Pettifor, Kleinschmidt, Levin, Rees, Macphail, Hlongwa–Madikizela, Vermaak, Napier, Stevens & Padian, 2005; James, Reddy, Ruiter, McCauley, & van den Borne, 2006; Pharaoh, Frantz & Rhoda., 2007; Wong, Thompson, Huang, Park, DiGange & De Leon, 2007). There have been few South African studies done in the early 90’s on students at tertiary institutions (Friedland, Jankelowitz, De Beer, Klerk, Khoury, Csizmadia, Padayachee, & Levy, 1991; Henunis, 1994). However, recent studies which primarily focus on students in tertiary institutions in South Africa (Smith, De Visser, Akande, Rhosenthal & Moore, 1998; Barnes, 2000; Chetty, 2000; Ichharam & Martian, 2002; Herren, Jemmott III, Mandeya & Tyler, 2007), are few and far between considering South Africa has the highest HIV/AIDS prevalence in the world. The general consensus from the studies indicate that although students in higher education institutions have a sound basic knowledge surrounding HIV/AIDS they still engaged in unsafe sexual practices. However, majority of the research was done prior to the implementation of the HEAIDS programme (HEAIDS, n.d.), and improved HIV/AIDS campaigning by the government and non-governmental organizations. Thus it would be necessary to determine whether the programme is having the desired impact on the students. This research is therefore aimed at determining the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among university students at two tertiary institutions in South Africa.

### **1.3 STATEMENT OF PROBLEM**

Despite the numerous health promotion and prevention strategies over the past two decades, South Africa remains the country with the highest HIV/AIDS prevalence globally. South African youth are the group most affected by the pandemic. There is therefore a need to determine whether there is a change in the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among South African youth.

### **1.4 AIM OF THE STUDY**

The aim of the study is to determine the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among university students at two tertiary institutions in South Africa.



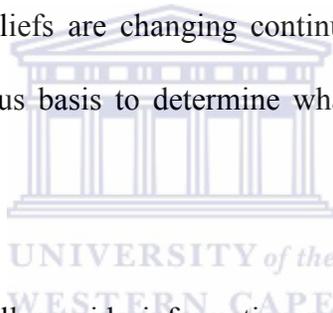
### **1.5 OBJECTIVES**

1. To determine the knowledge of HIV/AIDS among university students at two tertiary institutions in South Africa.
2. To determine the attitudes towards HIV/AIDS among university students at two tertiary institutions in South Africa.
3. To determine the beliefs towards HIV/AIDS among university students at two tertiary institutions in South Africa.
4. To determine the HIV/AIDS risk behaviour among university students at two tertiary institutions in South Africa.
5. To determine the sources of HIV/AIDS information among university students at two tertiary institutions in South Africa.

6. To determine the differences between university students in the different provinces in South Africa in terms of knowledge, attitudes, beliefs and behaviours regarding HIV/AIDS.
7. To determine the relationship between age, gender, race and university regarding knowledge, attitudes, beliefs and behaviours of students towards HIV/AIDS.

## **1.6 SIGNIFICANCE OF THE STUDY**

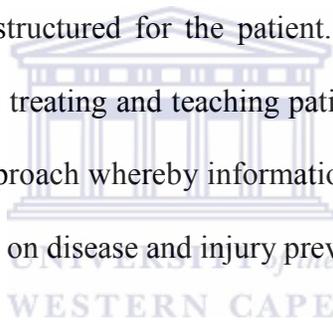
There is no known cure for HIV/AIDS. The only way to stop the pandemic and its ripple effect on our country's people and economy is through behavioural change and education. Society morals, values and beliefs are changing continuously. Thus it is imperative to conduct studies on a continuous basis to determine what the current thought process of university students are.



The outcomes of the study will provide information regarding the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among South African university students. The results obtained will assist in establishing methods to help empower and protect the future generations of our country by illustrating the present gaps in knowledge and the current mindset of South African university students surrounding HIV/AIDS. It will also provide the university with relevant information pertaining to the current 'thinking' and behaviour of their students. This will also enable the chosen universities to tailor the HIV/AIDS prevention aspect in their orientation programme(s) thus making it relevant for their students. In addition, the universities chosen were strategically selected,

one in the province with the highest prevalence of HIV/AIDS (KwaZulu-Natal) and the other in the province with the lowest prevalence of HIV/AIDS (Western Cape).

The fight against HIV/AIDS cannot be restricted to a specific discipline. All health care professionals come into contact with HIV positive patients. Physiotherapy specifically, plays an integral part in the management of HIV/AIDS related conditions. Health promotion falls within the physiotherapists' job description and area of expertise. They play a vital role in injury and/or disease prevention in numerous HIV/AIDS related conditions. The responsibilities include assessment, treatment planning, rehabilitation and health promotion specifically structured for the patient. Physiotherapy involves holistic patient care which incorporates treating and teaching patients. Health promotion is known to be a vital strategy and an approach whereby information and education are disseminated to individuals and communities on disease and injury prevention (Caldron, 1997).



Prophylaxis is better than cure. As the physiotherapy profession continues to grow and receive recognition, it is part of our duty to use it to help assist in preventing spread of the HIV/AIDS. However, the desired effect of health promotion can only be achieved once physiotherapists equip themselves with the relevant information to create a change.

## 1.7 DEFINITIONS OF TERMS

Clarification of the context within which terms were used in the research is explained in order to remove all possibility of misinterpretation.

**Knowledge:** “is the capacity to acquire, retain and use information; a mixture of comprehension, experience, discernment and skill” (Badran, 1995).

**Attitudes:** refers to inclinations to react in a certain way to certain situations, to see and interpret events according to certain predispositions or to organize opinions into coherent and interrelated structures (Badran, 1995).

**Belief:** refers to something believed or accepted as true, especially a particular tenet or a body of tenets accepted by a group of persons (The American Heritage Dictionary of the English Language, 2000).

**Behaviour:** the actions or reactions of persons or things in response to external or internal stimuli (The American Heritage Medical Dictionary, 2007). Bandura, (1989) states that “behaviour is depicted as being shaped and controlled either by environmental influences or by internal dispositions.”

**HIV:** stands for Human Immuno-deficiency Virus and is the virus that destroys the immune system and renders a person susceptible to infections (Whiteside & Sunter, 2000).

**AIDS:** stands for 'acquired immunodeficiency syndrome' and is a surveillance definition based on signs, symptoms, infections, and cancers associated with the deficiency of the immune system that stems from infection with HIV (UNAIDS, 2008b).

**Youth:** can be defined as young males and females aged from 14 to 35 years. Young people in this age group require social, economic and political support to realize their full potential. Whilst this definition is broad, encompassing a large slice of one's life, it is understood that this is a time in life when most young people are going through dramatic changes in their life circumstances as they move from childhood to adulthood (National Youth Commission, 1997).



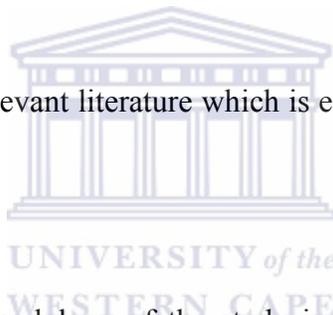
## 1.8 SUMMARY

This chapter presented the background of the study, formulation of the problem and the objectives of the study. The relevance of the present study to the physiotherapy profession was explained. Abbreviations and terms used in the study were defined.

## 1.9 OUTLINE OF SUBSEQUENT CHAPTERS

**Chapter 1:** Chapter one is concluded with an outline of the chapters that follow. The background of the study, statement of problem, aim and objectives of the study, significance of the study of the study were discussed.

**Chapter 2:** A review of the relevant literature which is essential to understanding the need of the study is presented.



**Chapter 3:** The research methodology of the study is described. The research setting, study population, sampling, the methods for data collection and the analysis are described. The rationale for the research method and study design used is explained.

**Chapter 4:** The results and the interpretation of results are presented. The responses obtained were an indication of the university students' knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information in KwaZulu-Natal and the Western Cape.

**Chapter 5:** In the discussion, the results are discussed in relation to the purpose and objectives of the study and relevant literature. The discussion also compares the findings of the current study to other similar studies and attempts to draw comparisons and differences.

**Chapter 6:** The summary of the thesis, limitations of the study and the recommendations based on the results are presented.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

The literature review in this chapter explores on the concepts of HIV relating to the youths' knowledge on HIV/AIDS, their attitudes, beliefs and behaviours on the disease and the main sources of HIV/AIDS information in South Africa. It also looks at the socio-economic impacts of HIV/AIDS, how the disease affects education and why it is necessary for universities to unite and be active in the fight against the virus.

#### 2.2 HISTORICAL OVERVIEW

HIV/AIDS is now entering its third decade of existence. There have been rare, sporadic case reports of AIDS documented prior to 1970 and available data suggests that the current pandemic started in the middle to late 1970's (Hymes, Greene & Marcus, 1981). Eight cases were reported in 1981 among gay men in the United States of America as an aggressive form of Kaposi's Sarcoma (Hymes *et al.*, 1981). By 1982, there were documented cases of HIV/AIDS occurring in heterosexual individuals and in 1983, it was confirmed that the disease could be transmitted through heterosexual intercourse (Mortality and Morbidity Weekly Report, 1983). The name AIDS was given because it was acquired rather than inherited, it resulted in a deficiency in the immune system and because it was a syndrome with a number of manifestations rather than a single disease (Connor & Kingman, 1988).

HIV belongs to a class of slow viruses, which exhibits two features; slow transmission and ready transmissibility (Kelly, 2000), whereby a person infected by the virus may look and feel healthy for several years. However, the viral activity leads to a progressive weakening and ultimate breakdown of the body's immune system (Kelly, 2000). The lack of a viable immune system leaves the individual prone to opportunistic infections such as tuberculosis which then ultimately results in death.

There are two types of HIV; HIV-1 and HIV-2. HIV-1 is more widely spread than HIV-2. HIV-2 is found mainly in West Africa and the adjacent North African countries (Lecatsas & Ogunbanjo, 2005). HIV-2 differs from HIV-1 in that it is far rarer, significantly less infectious and progresses more slowly to AIDS than HIV-1. There are many theories as to the origin of the virus, but the general consensus is that HIV was passed from non-human primates to humans due to consumption of bush meat or contact with animal blood by local inhabitants of Sub-Saharan Africa (Lecatsas *et al.*, 2005).

Following the history of other sexually-transmitted infections in South Africa; the long-standing and well-developed system of migrant labor was a very facilitating environment for the transmission of the HIV virus (Phillips, 2003). As was the case with syphilis during the diamond and gold rushes of the nineteenth century, it seems that the heterosexual strain of HIV was also introduced to South Africa by a men-to-the-mines route (Phillips, 2003). This was due to the concentration of young Black African men in cities and single-sex mine compounds. These men were far from their wives or loved ones for months at a time and would then only return to their homes for holidays or at the end of their contracts

(many now unwittingly HIV positive), and thus the viscous cycle was born (Phillips, 2003). The first two recorded cases of HIV/AIDS in South Africa were homosexual males in 1982 (Ras, Simson, Anderson, Prozesky & Hammerson, 1983). It increased at an alarming rate since then and in 1988, there were a significant number of women infected. By 1990, the ratio of women to men infected was almost equivalent (Van Harmelen, Wood, Lambrick, Rybicki, Williamson. A & Williamson. C, 1997).

### **2.3 PREVALENCE AND INCIDENCE OF HIV/AIDS**

HIV/AIDS has grown at alarming rates into the pandemic we are faced with today since its discovery. HIV/AIDS knows no boundaries of class, status, race or sexual preference. Both the powerful and powerless in every society are caught up in this vicious epidemic either directly or indirectly (Dorrington, Bourne, Bradshaw, Laubscher & Tinaeus, 2001). Recent data from the UNAIDS (2007) showed that globally, 6800 persons become infected with the HIV virus, and over 5700 persons die from AIDS daily. The other shocking statistic is that about half of the new adult infections are occurring among young people (UNAIDS, 2002). Of the estimated 33.2 million people living with HIV globally, the region most seriously affected is the Sub-Saharan Africa, where AIDS remains the leading cause of death (UNAIDS, 2007). More than 68% of adults and nearly 90% of children are HIV positive in this region (UNAIDS, 2007). Of the HIV positive people in this region, women account for 61% of the total and the country most affected is South Africa (UNAIDS, 2007).

Out of a total of nearly 48 million South Africans; there is an estimated 5.4 million people living with HIV/AIDS, which gives a total population prevalence rate of a little over 11% (Dorrington, Bradshaw, Johnson & Daniel, 2006). Of the number of people infected, statistics show that 40% of the South African population is less than 15 years of age and 15.64% of the South African youth between the ages of 15 - 24 are infected with HIV (Hartell, 2005). In comparison to other African countries such as Kenya, Côte d'Ivoire, Malawi, Zimbabwe, and rural parts of Botswana which have shown a noticeable decline in the prevalence of HIV/AIDS, South Africa is falling short (UNAIDS, 2007). South Africa therefore does not only remain the highest infected country in Sub-Saharan Africa but, the highest infected country in the world (Table 2.1).

**Table 2.1 Prevalence of HIV/AIDS among South Africans**

Age Group (Years)	HIV Prevalence (CI 95%) 2006	HIV Prevalence (CI 95%) 2007
< 20	15.9 (14.6 – 17.2)	13.7 (12.8 – 14.6)
20 – 24	30.6 (29.0 – 32.2)	28.0 (26.9 – 29.1)
25 – 29	39.5 (37.7 – 41.3)	38.7 (37.3 – 40.2)
30 – 34	36.4 (34.3 – 38.5)	37.0 (35.5 – 38.5)
35 – 39	28.0 (25.2 – 30.8)	29.6 (27.7 – 31.5)
40+	19.8 (16.1 – 23.6)	21.3 (18.5 – 24.1)

*DOH National HIV prevalence and syphilis survey, 2006*

Despite tedious efforts to educate society over the last two decades about HIV/AIDS, the incidence and prevalence remains alarmingly high. The South African prevalence of HIV/AIDS from UNAIDS (2007) is only an estimate, there are probably more people

infected by the virus. This is a result of AIDS not being a notifiable disease in South Africa as it rarely appears on death certificates (Barnes, 2000). Although the statistics are frightening, the results of recent studies done showed that South Africa demonstrated no significant evidence of a decrease in HIV infection levels among young people in 2007 (UNAIDS, 2007). One of the main methods of measuring HIV sero-prevalence in the country is by testing women attending antenatal clinics. A vast majority of pregnant women (over 80%) make use of public antenatal care (Dorrington *et al.*, 2006). This group of women makes an ideal sentinel group for monitoring the epidemic as they have recently had unprotected sex (Dorrington *et al.*, 2006). Determining the HIV prevalence among the various age categories is important as it impacts on the future structure of the population (William, Gouws & Aboo Karim, 2000). The 2007 epidemic update by UNAIDS revealed the HIV/AIDS prevalence trend among pregnant South African women aged between 15 and 24 that showed a minimal decrease of 1%. Zimbabwe, in comparison has showed an 8% reduction trend in HIV/AIDS prevalence among pregnant women in the same age group which was largely attributed to behavioural change (UNAIDS, 2007). The high prevalence of HIV/AIDS among the youth appears to be fuelled by high risk sexual behaviour such as inconsistent condom use and high numbers of sexual partners (Eaton *et al.*, 2003). Unfortunately, the recent figures show that the HIV incidence has increased substantially from 2000 (UNAIDS, 2008a). However, the HIV incidence rate in South Africa is showing signs of stabilization (UNAIDS, 2008a, Dorrington *et al.*, 2001) but unfortunately, it is stabilizing at an extremely slow pace associated with a high number of infections. According to Dorrington *et al.*, (2001);

*“Nationally the epidemic has reached its mature phase. The number of people infected with HIV is beginning to stabilize at around 6 million people. This is because the number of new infections has slowed down to the point where it nearly matches the number of people dying from AIDS. During this period, the number of people dying from AIDS each year is increasing rapidly and is expected to plateau after 2015.”*

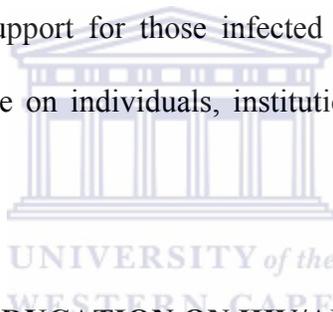
Although the incidence rate is starting to stabilize, it will only start to decline once the transmission rate is reduced. Research in the area is thus essential in order to determine the reasons for the dawdling decrease in the incidence of HIV.

The Department of Health estimated that 18.3% of adults (15 - 49 years) were living with HIV in 2006 (Department of Health South Africa, 2007). The epidemic varies considerably between the different provinces. More than half (55%) of all South Africans infected with HIV reside in the KwaZulu-Natal and Gauteng provinces (Dorrington *et al.*, 2006). The department of health survey showed that the HIV prevalence among pregnant women is highest in KwaZulu-Natal province (39%), and lowest in the Western Cape (15%) (Department of Health South Africa, 2007). These projections were similar to what was reported by Dorrington and company in 2006, where it was estimated that the highest HIV prevalence among pregnant women was in KwaZulu-Natal province (40%), and lowest in the Western Cape (17%). However, although the Western Cape has low rates of infection, the city of Cape Town has a large population thus resulting in a high density of people infected with the virus (Williams *et al.*, 2000). In comparison, KwaZulu-Natal has

a high infection rate yet its population is patchily distributed, thus indicating that infection does not occur evenly throughout the province (Williams *et al.*, 2000).

*“At the start of the epidemic, the prevalence doubled every fifteen months. This implied that each person with HIV infected another person on an average of every fifteen months. If the life expectancy of an infected person is seven years, then each infected person will infect six people before he/she dies”* (Williams *et al.*, 2000).

The challenges posed by HIV/AIDS is thus three-fold; stopping the further spreading of the disease; providing care and support for those infected and affected, and off-setting the negative impacts of the disease on individuals, institutions, and society’s social systems (Katjavivi *et al.*, 2003).



#### **2.4 AWARENESS AND EDUCATION ON HIV/AIDS**

In Africa the most common HIV/AIDS prevention programs and activities include, HIV/AIDS education in schools, peer education for high risk groups (*e.g.*, out-of-school youth, commercial sex workers, drug users), widespread communication campaigns (via the radio, pamphlets, posters, *etc*) against risky behaviours, HIV testing for pregnant women (including counseling and treatment if the HIV test result is positive), and free condom distribution (Adeokun, Ladipo, Kanki, Delano, Carrington & Odimegwu, 2005). There are numerous HIV/AIDS prevention programmes in place in South Africa. These prevention programs fall broadly into the categories of information, education and communication, behavioural risk reduction and peer education. These include Soul City

(television program), Laduma (youth magazine), the Department of Health's Beyond Awareness campaign, which promotes condom use, dialogue about the disease and sponsorship of HIV and AIDS-related activities as well as Love Life, which is a national youth sexual health initiative (Harrison *et al.*, 2000).

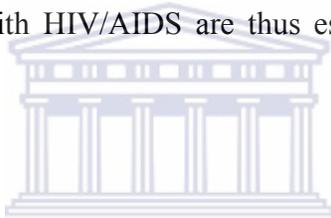
Few studies have been done on the evaluation and impact of AIDS education programmes on the sexual behaviour of adolescents (Hartell, 2005). Results from research have highlighted that there is a substantial gap between high levels of knowledge and low levels of prevalence (Harrison *et al.*, 2000). Studies done in the 90's showed that although students had a sound knowledge about HIV/AIDS, they still engaged in unsafe sexual practices (Friedland *et al.*, 1991; Galloway, 1999). More than a decade later studies are still showing a similar pattern whereby students with a high knowledge of HIV/AIDS are engaging in unsafe sexual practices (Herren *et al.*, 2007). This also correlates with results from a review of several case studies conducted in African Universities by Kelly (2001), who showed that even though students could acknowledge that HIV/AIDS was a problem on campus, they did not generally regard themselves at risk for HIV infection. The review by Kelly (2001) also stated that this was as a result of the students' dominant attitudes towards HIV/AIDS which included denial, fatalism and an air of invulnerability among other things. However, it could also be argued that this could be as a result of students not having detailed knowledge on HIV/AIDS that was necessary for behavioural change (Hartell, 2005).

The studies however do prove that while knowledge may increase an individual's awareness of the disease, it does not necessarily deter an individual from engaging in unsafe sexual practices. Other factors such as behaviour, attitudes and beliefs which equally affect an individual's decision making process with regard to HIV/AIDS may therefore then come into play. According to Harrison *et al.*, (2000), there is strong scientific evidence for the efficacy of various behavioural change interventions in reducing high-risk behaviour and increasing condom use although few interventions have influenced HIV prevalence or incidences.

Results from a survey (James *et al.*, 2004) showed that majority of youth stated that they learnt the most about HIV/AIDS from school (teachers, classmates or in the classroom). The aim of majority if not all the initiatives are to empower society with knowledge about the disease. Both theory and research suggest that prior to youth changing their sexual behaviour to protect themselves from HIV/AIDS, key antecedents of behaviour change such as knowledge, attitudes, and beliefs must change first (Pettifor *et al.*, 2004). However, despite information concerning HIV/AIDS being freely available and in abundance, people are still vulnerable to participate in high risk behaviour. Harrison *et al.*, (2000) stated that the impact of many of the prevention programs is limited because of the emphasis placed on knowledge and prevention without imparting the skills needed to achieve these ends.

Consistent protection against HIV/AIDS requires accurate knowledge and extremely high access to STD treatment and condoms (Macintyre, Rutenburg, Brown & Karim, 2004).

Total protection requires abstinence from intercourse. Compounding this are two other major factors; stigma against AIDS, which may well extend into a range of behaviours that illustrate denial and fear, as well as optimism bias which fuels the notion of invulnerability among the youth (Macintyre *et al.*, 2004). According to Macintyre *et al.*, (2004), young people tend to undervalue their own risks of contracting the virus not only in comparison with other adults, but even with their peers as well. Both stigma and discrimination play important roles in the development and maintenance of the HIV epidemic (Skinner & Mfecane, 2004). By attaching a stigma to HIV and driving it out of sight, the pressure for behavioural change is reduced (Skinner *et al.*, 2004). Acknowledgement, interaction and acceptance of people living with HIV/AIDS are thus essential aspects in the process of eliminating the virus.



The health belief model adopts the principle that before a person engages in any behaviour he/she will consider the health risks (Swartz, De la Rey & Duncan, 2004) associated to it. However, it was also noted that most adolescents and adults do not approach risk-taking from a logical perspective. The model has also been criticized as being too individualistic and assuming that people make ‘rational’ decisions with regard to their choices (Swartz *et al.*, 2004). It questions what influences and brings about a change in an individual’s thought process. It appears that the right to life is not enough motivation for our country’s youth. This therefore leads researchers to consider behavioural changes. Behavioural changes are made when the individual perceives control over the risk behaviour (Ijadunola, Abiona, Odu & Ijadunola, 2007). Harrison *et al.*, (2000) and James *et al.*, (2004) stated that prevention programs should focus on including and addressing behavioural aspects that

curb the increase of HIV/AIDS. It has also been agreed that HIV/AIDS education should start incorporating content to address a wider age group and different cultures, and making the intervention context specific that therefore would result in behavioural changes (James *et al.*, 2004).

Thus, it is essential for health professionals to continue to research the knowledge, attitudes, behaviours and beliefs of the youth as it will provide invaluable insight into the ever-changing thought process of young people (Hancock, Mikhail, Nguyen & Bright, 1999). The information from new research on knowledge about the sexual behaviour among adolescents can provide an important base for educational interventions aimed at reducing further transmission (Hartell, 2005; Svenson, Carmal & Varnhagen, 2007). The results from the new studies could be crucial in informing the course and impact of the disease, and how its effects can be systematically addressed (Hartell, 2005; Svenson *et al.*, 2007). The information obtained will also assist in the restructuring of HIV/AIDS programs to make them more beneficial and applicable to today's generation.

## **2.5 IMPACT OF HIV/AIDS ON SOUTH AFRICAN YOUTH**

According to the National Youth Policy (1997), youth can be defined as any persons between the ages of 14 and 35 years although this is an extremely broad definition of youth. However, it is understood that this is a time in life when most young people are going through dramatic changes in their life circumstances as they move from childhood to adulthood (National Youth Commission, 1997). They are most impressionable at this point in their life, and important life decisions which, in turn shape their future are made.

The incubation period from HIV infection to the onset of AIDS can range from less than 1 year to 10 years or longer, it can be concluded that many of the individuals diagnosed with AIDS in their twenties actually contracted the disease during adolescence (Hancock *et al.*, 1999). Research has shown that young people are most at risk of contracting the HIV virus due to high risk behaviour and experimentation either with drugs and/or sex (Hancock *et al.*, 1999). Young men and women also bring different competencies to the sexual encounter. It is clear however, that the decision to engage in safe sex is a complex one and is determined by a diversity of factors (Akande, 2001).

Alcohol abuse has been identified as one of the primary behaviours that increases an individual's chances of engaging in unprotected sex, thus increasing his/her chances of contracting HIV (Kalichman, Simbayi, Kaufman, Cain & Jooste, 2007; Leigh, 2002). Illicit drug use is also a growing concern among the youth (Wong *et al.*, 2007). Research has also shown that the use of drugs together with problem drinking significantly increased the likelihood of an individual consuming alcohol immediately before sex, which therefore increased the odds of the individual not using a condom during sex (Wong *et al.*, 2007). According to Wong *et al.*, (2007), Coloured and Black South Africans showed that alcohol before sex was the 'primary' driver for having unprotected sex and served as a median for other risk factors such as drug use before sex and problem drinking. This is a growing concern as individuals often experiment with alcohol and drugs at this impressionable age.

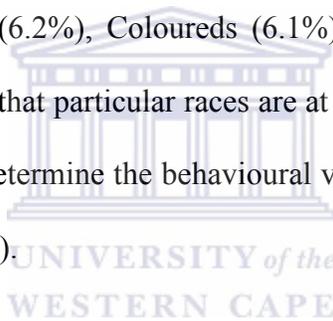
Drugs, sex and alcohol go hand in glove. Research has showed that many adolescents are sexually active by the age of 15 years (Hartell, 2005). This correlates with epidemiological

studies which have shown that the peak incidence of HIV occurs in young people aged 15 - 24 years (Dorrington *et al.*, 2001; Pettifor *et al.*, 2004). Kelly (2003) noted two remarkable features that characterize the susceptibility of young people to HIV infection, and these were sizeable gender differences and ignorance about the disease. Various studies have proven that South African women are more at risk of contracting HIV than males (Pettifor *et al.*, 2004; Bradshaw, Pettifor, MacPhail & Dorrington, 2006; Rehle, Shisana., Pillay, Zuma, Puren & Parker, 2007). It has also been proven that women in the age cohort attending universities are more vulnerable to infection and the impact of HIV/AIDS than men (Chetty, 2000). A study conducted by Rehle *et al.*, (2007) showed women between the ages of 15 and 24 years old account for 90% of the new HIV infections. Research conducted by Pettifor *et al.*, (2005) showed that South African women aged between 15 and 24 years have roughly four times the prevalence of HIV compared to their male counterparts. This therefore suggests that 1 in 4 females are HIV positive (Pettifor *et al.*, 2004). A similar study showed that the HIV incidence among 20 - 29 year old women in 2005 was a shocking six times higher than for men in the same age group (Rehle *et al.*, 2007). Researchers have also found that females aged 15 - 49 years who reported a current pregnancy were found to have an HIV incidence of 5.2% compared to 3.8% in the non-pregnant female population of the same age group (Rehle *et al.*, 2007).

Biological factors partially explain why young women are at an increased risk of HIV infection. However, behavioural factors also put women at greater risk than men of the same age (Pettifor *et al.*, 2005). In several studies conducted, not only were women more likely to report socio-economic factors that may increase their risk of HIV such as those of

not being in school, but they also reported being more sexually active than their male counterparts (not necessarily by choice, women were significantly more likely to report being forced to have sex), while at the same time reporting less condom use and having older partners (Pettifor *et al.*, 2005).

According to Pettifor *et al.*, (2004), Black South African youth have the highest HIV prevalence of all races in South Africa (Table 2.2). This correlated with a community-based survey done by Connolly, Colvin, Shishana and Stoker in 2004, which showed that in South African, the race with the highest HIV/AIDS prevalence was Black South African (12.9%) compared to Whites (6.2%), Coloureds (6.1%) and Indians (1.6%). However, there is no biological evidence that particular races are at higher or lower risk and therefore the challenge still remains to determine the behavioural variables for which race is a proxy indicator (Connolly *et al.*, 2004).



**Table 2.2 HIV prevalence among adults aged 15 – 49 years by race in South Africa**

<b>Total</b>	<b>15.6%</b>
African	18.4%
White	6.2%
Coloured	6.6%
Indian	1.8%

*Source: NMF/HSRC 2002*

According to Kelly (2003), ignorance concerning HIV/AIDS continues to be widespread. Even though most young people allege that they know something about the disease, many of them are still ignorant in ways that could be lethal for them (Kelly, 2003). Numerous studies were conducted to determine the influence various health education programs have on the youth. The incidence of HIV/AIDS is the key indicator of the rate of HIV transmission and provides the most direct means of assessing the impact of HIV prevention programmes (Rehle *et al.*, 2007). Research conducted in Nigeria by Nwokocha & Nwakoby (2002) among high school learners showed that the learners were not knowledgeable on the basic facts of HIV/AIDS and its prevention. This in turn is most likely to lead to a defective attitude towards AIDS and to unacceptable behaviour towards the disease (Nwokocha *et al.*, 2002). Contrary to this study, research done on adolescents in Kwazulu-Natal by James *et al.*, (2004) and in the Western Cape by Pharaoh *et al.*, (2007) showed that learners had sufficient basic knowledge on HIV/AIDS. However, although they had sufficient knowledge, they did not have enough knowledge to make safe decisions that would save them from the risk of developing HIV/AIDS. What is more alarming is that neither groups perceived themselves at risk of contracting the disease. If this is the attitude

of scholars, we therefore have to question whether this mentality is carried over to tertiary institutions.

Theory and research have suggested that attitudes surrounding HIV/AIDS create the context in which youth operate and can lead to changes in behaviour. Without a sense of future, youth may have little motivation to protect themselves from becoming infected with HIV and without the belief that they can protect themselves (self-efficacy), they may not be persuaded to change their behaviour (Pettifor *et al.*, 2004). The national South African survey conducted by Pettifor *et al.*, (2004) showed that a vast majority of young people agreed that safe sex is a shared responsibility between partners, and disagreed that it is okay to force someone to have sex or that having many partners is okay or that it is okay to engage in transactional sex yet in the same group, an alarming number of youth (31%) still believe that using condoms is a sign of not trusting your partner (Pettifor *et al.*, 2004).

## **2.6 UNIVERSITY STUDENTS AND HIV/AIDS**

Higher education is a critical pillar of human development world-wide (HEAIDS, n.d.). It has a fundamental role in developing leaders who will shape South Africa's future economy, communities, government as well as its role on the global stage (HEAIDS, n.d.). HIV/AIDS was considered a medical problem for a long time. However it has become clear that prevention is vital and that education might potentially be the single most powerful weapon against HIV/AIDS (Kelly, 2000). Chetty (2000) described the five key reasons as to why HIV is of relevance to the university sector namely: HIV/AIDS is a development issue and not just a health issue; HIV/AIDS affects not just individuals but

organizations and systems; HIV/AIDS affects human resource development; preventing the spread of HIV/AIDS and managing its impact requires knowledge; successful institutional and societal responses to HIV/AIDS requires leadership. The disease has already marked impact on higher education and will continue to do so as it intensifies (Barnes, 2000). The higher education institutions therefore have a vital role to play in developing effective and efficient mechanisms to deal with the impact of HIV/AIDS both within the institution and in the surrounding society (Barnes, 2000).

Unfortunately, there is much denial and secrecy surrounding HIV/AIDS in campuses and universities lack good information about the HIV/AIDS situation on their campuses (Kelly, 2002). Kelly (2003) stated that silence and denial are primordial and protective human responses to situations that are excessively stressful. The students are sheltered from the major impact of HIV/AIDS because most AIDS-related student deaths are less common usually due to the short duration of the course studied, which is usually too short to encompass the full progression from HIV infection, AIDS to death (Kelly, 2003). Most students also deregister from campus when their diseases progress in fear of discrimination or to spend time surrounded by loved ones (Kelly, 2003).

Universities were classified as a high risk area for HIV/AIDS. This is because universities are home to and very often a residential base for large cohorts of young people whose age makes them particularly vulnerable to the HIV infection especially female students (Kelly, 2003). This is due to students experiencing ‘freedom’ and peer pressure, thus resulting in our young minds indulging and experimenting with drugs, alcohol and unsafe sexual

practices. A modeling exercise conducted among the tertiary institutions of South Africa concluded that the university undergraduate HIV infection rate was estimated at 22%, rising to 33% in 2005; that the technikon undergraduate infection rate was estimated at 24%, rising to 36% in 2005; and that the infection rate among post-graduate students was estimated at 11%, rising to 21% in 2005 (Kinghorn, 2000).

A study conducted in Florida among college students showed that although college students are more knowledgeable than high school learners about the risks and transmission modes, they are neither very concerned personally about becoming infected nor do they take appropriate safer sex precautions (Opt & Loffredo., 2004). This correlated with research done by Ijadunola *et al.*, (2007) among college students in Nigeria which showed that majority (85%) of the students perceived themselves to be at little or at no risk of contracting HIV/AIDS (Ijadunola *et al.*, 2007). This included students who were in the high risk category. In South Africa the results obtained among the youth in the national survey (Pettifor *et al.*, 2004) were similar. The results showed that despite many HIV positive youth wanting to know their status, the majority do not see themselves at risk for contracting HIV, even though they are already infected (Pettifor *et al.*, 2004). According to Rehle *et al.*, (2007), current prevention campaigns are not having the desired impact, particularly among young women. If risky behaviour and poor attitude continue, then the incidence of HIV infection will not decrease among the youth. Reducing the risk of HIV in the youth is critical in slowing down the epidemic and reducing the burden of the disease, since young people will continue to fuel the epidemic as newly sexually active cohorts become part of the susceptible pool (Bradshaw *et al.*, 2003).

In many respects, students in African Universities encounter problems similar to those that affect students in residential universities in the United States and other universities worldwide (Kelly, 2003). However, the student responses surrounding HIV/AIDS from various studies appear to differ depending on the university. Herren *et al.*, (2007) compared university students in South Africa and the United States and found that undergraduate students at an Eastern Cape University reported sexual activity at a younger age and were less likely to use condoms at first sexual intercourse, as compared to the American students. In South African higher education institutions, student responses to HIV/AIDS are widely divergent (Chetty, 2000). The results obtained from the study done at the Eastern Cape University (Herren, 2007) differed from the data collected from a study conducted at Rand Afrikaans University (RAU) by Ichharam *et al.*, (2002). The results collected showed that only 1.1% of the population at RAU tested positive to HIV. The authors stated that the low prevalence was linked to a high rate of condom use; a low level of sexual activity compared to other young people but not to other students and a high level of knowledge. One of the hypotheses to come out from the study was that RAU students generally came from middle class families therefore had the privilege of a better education thus better knowledge on HIV/AIDS than their peers (Ichharam *et al.*, 2002). The study also noted that there was a higher rate of HIV infection among Black students but with no significant differences between Black and White students in terms of their sexual activity. This outcome correlated well with research done by Shisana *et al.*, (2002) among the South African youth which showed a significant increase in the HIV prevalence with increasing levels of education among Black South Africans. Placing the current behaviour and

attitudes in context of HIV/AIDS within students, communities today are in danger of affirming risk more than safety, death more than life (Kelly, 2003).

Kelly (2003) argued that universities have not fully grasped the fact of HIV/AIDS condition and its implications for their continued effective functioning. In many universities, education and communication efforts for raising HIV/AIDS awareness still tend to be concentrated in the brief period of orientation at the start of the academic year (Kelly, 2003). Harrison *et al.*, (2000) stated that interventions should develop negotiations and decision-making skills especially among girls. Since then, HEAIDS (n.d.) developed and placed structures in place to mobilize institutions to respond to the pandemic through their core functions of learning, research, management and community involvement (HEAIDS, n.d.). This is to be achieved through the continuum of HIV/AIDS interventions and namely; prevention, treatment, care and support (HEAIDS, n.d.).

Few studies have developed and tested HIV risk reduction strategies for university students in South Africa and consequently, the efficacy of such strategies is unknown (Herren *et al.*, 2007). This raises questions regarding the current mindset or ‘trend’ among the South African universities. Recent literature examining the knowledge, attitudes, beliefs and behaviours of university students in South Africa is scarce, which is surprising considering the high incidence of HIV in South Africa and the ripple effect it has on university students in particular. This study is thus aiming at determining the knowlegde, attitudes, beliefs, behaviours and sources of HIV/AIDS at two tertiary institutions in South Africa.

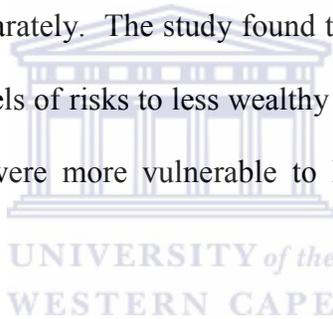
## 2.7 SOCIO-ECONOMIC IMPACT OF HIV/AIDS

The impact HIV has on university students has devastating ramifications for a nation's human resources infrastructure and therefore the economic outlook of the country (World Bank, 2002). The HIV pandemic has become much more extensive than predicted (Katjavivi *et al.*, 2003). Developing countries are the hardest hit and have the highest prevalence of HIV/AIDS (Barnes, 2000). Globally the entire African continent has suffered such major developmental setbacks, that we are now at a risk of reverting to human development conditions that have not been experienced since the early twentieth century (Kelly, 2003). This has a huge impact on education and indicates that African Universities must operate in a substantially changed (and worsened) socio-economic environment (Kelly, 2002). One of the greatest concerns is the manner in which the disease impacts on households, on the demographic structure of society, on the various sectors within which universities have traditionally interacted, and on the economy in general (Kelly, 2002).

*“AIDS is turning back the clock on development. In too many countries the gains in life expectancy won are being wiped out.” (World Bank Group, 2000).*

It is estimated that 1.8 million people have died from AIDS in South Africa since the start of the epidemic (Dorrington *et al.*, 2006). Social and economic changes underlie the spread of the virus, which needs to be taken into account. HIV is unlike other diseases that have plagued South Africa (Phillips, 2003). This is a result of South Africans being most vulnerable to contracting the fatal disease in their youth. Due to the incubation period of

the virus, individuals start developing symptoms of AIDS in the prime of their life which results in such individuals quitting work and ultimately dying. The gains though science to cure diseases and prolong one's life are being lost (Table 2.3). Nearly 12% of the adult workforce in South Africa is assumed to be HIV infected (Chetty, 2000). Also unlike other major diseases in Africa, HIV/AIDS is prevalent among the better educated and higher income Africans in urban areas (Beegle, de Weerd & Dercon, 2006). This correlates with the 2002 South African House-hold Survey by Shisana *et al.*, which found that in most homes an increase in socio-economic status was accompanied by a decrease in HIV prevalence. However, the trend was not seen when Black South Africans and Coloured race groups were analyzed separately. The study found that wealthy Black South Africans were found to have similar levels of risks to less wealthy Black South Africans yet in other race groups, poorer persons were more vulnerable to HIV than their rich counterparts (Shisana *et al.*, 2002).



**Table 2.3 Estimated life expectancy of South Africans**

	KwaZulu- Natal 2006	Western Cape 2006	South Africa 2006	KwaZulu- Natal 2010	Western Cape 2010	South Africa 2010
Life Expectancy StatsSA	50	67	50.7	**	**	**
Life Expectancy ASSA 2003	43.1	61.7	50.8	43.3	60.4	50.4

\*\* not available

*ASSA (2003), StatsSA (2006)*

The premature mortality of young adults has a negative impact on the upliftment of our nation. The country is thus robbed of youth, vigor and intelligence. The loss of people in their prime age creates a gap in the workforce which, ultimately impacts negatively on the economy of the country. There are two major economic effects namely; the reduction in the labour supply due to increased absenteeism, early retirements and increased morbidity and mortality, and increased costs associated with increased pension and medical aid payouts as well as expenditures of training and recruitments (Bollinger & Stover, 1999 and Katjavivi *et al.*, 2003). HIV/AIDS in higher education does not start and stop at students, death and absenteeism among teachers, technical, supervisory and managerial staff is numerous (Kelly, 2003). Therefore, managing the system to cope with AIDS impacts places heavy demands on those who remain active (Kelly, 2003). The rate of economic growth is severely affected and for countries in the Sub-Saharan Africa, it is 2 to 4% lower than it would have been in the absence of AIDS (Isaksen, Songstad & Spissoy, 2002). The full economic impact of HIV/AIDS is still developing, such evidence of how a serious

epidemic can throttle key sectors of the country's economy and destroy families' economic bases through the death of the breadwinners are ominous (Phillips, 2003). According to Dorrington *et al.*, (2006);

*“This mortality is resulting in increasing numbers of children who are orphaned. It is estimated that there were over 1.5 million orphans in South Africa in July 2006. Of the overall total, two thirds have been orphaned as a result of AIDS. KwaZulu-Natal and Gauteng together, account for over half (55%) of all AIDS orphans currently. Overall, AIDS accounted for 82% of all new orphans in 2006. It also accounted for over 87% of the new orphans in KwaZulu-Natal for the same year.”*

The reduction in household income signals a dramatic deepening of poverty for affected households (Kelly, 2002). Research done by Beegle *et al.*, (2006) on the effect of adult mortality on household consumption in Tanzania has provided evidence that adult mortality, especially of females, has a large impact on the growth in consumption of surviving household members. Beegle *et al.*, (2006) also stated that,

*“There are several pathways through which an adult mortality can affect consumption or income levels among surviving household members. The direct costs of these events include medical expenses as well as funeral costs (funeral costs can be larger than the medical costs in areas with low health care provision). Illnesses are associated with the loss of earnings for both the sick household members and care-givers in the household. Un-earned income for households may also suffer if remittances are curtailed due to*

*illnesses and mortality. Deaths can result in asset losses due to disinheritance (for example, land grabbing). Finally, there may be significant inter-generational effects if illness and mortalities result in lower health and education investments in children (say due to costs of illness and liquidity constraints), thus compromising the future income of these children when they reach adulthood.”)*

African universities generally draw their students from rural background, and it is probable that the epidemic is reducing potential future student intakes (Kelly, 2002). Orphans are already disadvantaged as many of them cannot afford the tuition fees and socially, some have the full responsibility for managing a household and caring for younger siblings (Kelly, 2003). This in turn, hinders development. Thus the cycle which we are currently following is a vicious one, with young parents perishing, leaving either their eldest children or a grandparent(s) to run the households. This leads to a reduction in the household income and forcing children to leave school and enter the working world (Udjo, 2006). Thus, it is the responsibility of the present generation to help shape and protect the lives of future generations. It is also our responsibility and duty as health professionals to show society the path.

## 2.8 SUMMARY

There is limited literature available on the knowledge, attitude, beliefs, behaviours and sources of HIV/AIDS information among students in tertiary institutions in South Africa. However, the following key findings emerged from the available literature. South African youth are sexually active from a young age (15 years). There is a vast difference between the incidence of HIV/AIDS and gender, with female being six times more likely to contract the virus than males. Black South African females are most at risk of contracting HIV. The youth appear to have a good basic knowledge of HIV/AIDS but still engage in risky behaviour. HIV/AIDS has a devastating impact on the South African society and its economy. Higher education institutions are viewed as one of the high risk areas for students to contract the disease due to the campus ‘culture’. Universities have joined together and developed HEAIDS in the hope of reducing the HIV incidence on campuses. Universities are now supposed to have programmes in place to educate students about HIV/AIDS and to protect and help students who are HIV positive.

This chapter reviewed the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information to students and the youth globally and in South Africa. It looked at how these concepts have impacted on the youth and the HIV/AIDS prevalence in the country. The literature also highlighted the gap in the literature and the need for updated information on the current situation in tertiary institutions. The next chapter will then focus on the methodology of the research that was used in the study. A description of the research design, setting, population, validity, reliability and ethical considerations will therein be given.

## CHAPTER THREE

### METHODOLOGY

#### 3.1 INTRODUCTION

In this chapter the methodology of the study will be described. The rationale of the research design and the procedure in which the research was conducted will be clearly explained. In conclusion the ethical considerations for the study are described.

#### 3.2 RESEARCH SETTING

The study was conducted at two universities in South Africa. The universities were located in different provinces namely KwaZulu Natal and the Western Cape. The universities chosen to participate in the study were done via convenience selection. The universities were the University of the Western Cape which is situated in the Western Cape and the University of KwaZulu Natal (Westville Campus) which is situated in KwaZulu Natal. A brief description of the institutions is given below.

**University of the Western Cape:** The University of the Western Cape (UWC) is located in the Northern Suburbs of the greater Cape Town. It is a vibrant campus filled with cultural diversity and has a rich history. UWC was opened in 1959 for people classified as “Coloured” in the apartheid era. It offered limited training for middle to lower level positions to serve the coloured community. Since then the university has grown from strength to strength amidst many political struggles. In 1983 UWC finally gained its

autonomy on the same terms as established “White” institutions. Thereafter numerous changes occurred in the university and a new curriculum was drawn up. The university also formalized its “open” admission policy for a growing number of Black students. The University now boasts both national and international students as one of its strengths. UWC is known as ‘a Place of Quality, a Place to Grow’ and considering the university’s rich heritage, it is understandable why it is now ranked as one of the top universities in the country.

With regard to HIV/AIDS, UWC appears to have been ‘sheltered’ from the epidemic. This is a result of two main reasons. Firstly, UWC is located in the province which probably has the lowest incidence of HIV/AIDS in South Africa (Barnes, 2000). Secondly there is a deep and broad, official and unofficial, personal and institutional silence about HIV/AIDS on campus (Barnes 2000). It is thus important to keep a close eye for any new developments on the campus.

**University of KwaZulu Natal:** The Westville Campus is located about 8 km from the Central Business District of Durban and Pinetown. It was previously known as the University of Durban Westville. The University was established in the 1960’s as the University College for Indians which was initially located in Salisbury Island in Durban Bay in the apartheid era. Student numbers grew rapidly and in 1971 the college was granted university status. The University became an autonomous institution in 1984, thus opening its doors to students of all races. It merged with the University of Natal in January 2004 and thus became known as the University of KwaZulu Natal.

According to the researcher's knowledge there was no research undertaken on the UKZN Westville Campus on HIV/AIDS pertaining to knowledge, attitudes, beliefs and behaviors in which every student was given an equal chance at participation in the study. According to Kelly, (2002), there is a silence that surrounds the disease on all campuses. Thus it is up to researchers to try and comprehend the students understanding of HIV/AIDS in order to improve the manner in which the disease is addressed on campuses.

### **3.3 RESEARCH DESIGN**

The research design is a structured framework of how to conduct the research process in order to solve the research problem (Babbie, Mouton, Vorster & Prozesky, 2001). A cross-sectional, descriptive and comparative study using the quantitative research method was chosen to address the research question. The research design was chosen based on similar studies done (Friedland, 1991; Huang, Bova, Fennie, Rogers & Williams, 2005; Heeren *et al.*, 2007; Ijadunola *et al.*, 2007; Lonn, Sahlholm, Maimaiti, Abdukarim & Andersson, 2007; Wong *et al.*, 2007), as this would assist in the comparison of the studies. The researcher also chose the quantitative research paradigm because it is used to investigate the causes of health problems and to give answers that enable medical and other interventions to be designed for prevention and alleviation (Peat, Mellis, Williams & Xuan, 2002). Cross-sectional research is based on observation at a single point in time (Babbie *et al.*, 2001). Cross sectional studies are ideal for collecting initial information and making ideas of association (Peat *et al.*, 2002). The researcher also chose a cross-sectional study because it is a relatively inexpensive way to measure trends in the changes of the health status of the population (Peat *et al.*, 2002). Questionnaires are often used in cross-sectional

studies and ask for current and/or retrospective information concerning the exposure and disease status. Describing the findings of the research is often utilized in cross-sectional research. This is because scientific descriptions are typically more accurate and precise than casual ones (Babbie *et al.*, 2001).

### **3.4 RESEARCH SUBJECTS AND SAMPLING**

Two universities from different provinces in South Africa were chosen, namely the University of KwaZulu-Natal (Westville Campus) and the University of the Western Cape. The population consisted of all students enrolled for the 2008 academic year at the University of the Western Cape (UWC) and the University of KwaZulu-Natal (UKZN), the Westville campus. UWC had 12 143 students enrolled as of the 7<sup>th</sup> of March 2008 while the Westville campus had 9939 students enrolled as of the 19<sup>th</sup> of March 2008. The sample size was calculated using a simplified formula for proportions (Israel, 2007). Using the equation, where a 95% confidence and precision = 0.5 are assumed, the sample size calculated for UWC was 387 students, while the sample size for the Westville campus was calculated to be 385 students. The researcher however targeted 500 students at UWC and 500 students at the Westville campus. Only students 18 years and older were allowed to participate in the study. The study sample was derived using a multi-stage sampling approach. The study sample utilized a disproportionate stratified sample at each institution. The reason for the disproportionate stratified sampling is because all faculties do not have the same number of students. The faculties at each institution were randomly chosen through a list of all courses offered in the semester of data collection, using the ballot method. Thereafter cluster sampling was utilized to select the departments to participate in

the study. Following the selection of the departments, simple convenience sampling was done to select the classes and students to participate in the study. Convenience sampling may not be preferred, but it is easy and efficient with dealing with large groups (Polit & Hungler, 1999).

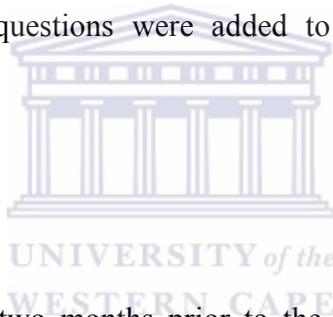
### **3.5 SURVEY INSTRUMENT**

The study was a university based survey in which data was collected through self-administered questionnaires. The advantages of self-administered questionnaires over an interview survey are that self-administered questionnaires are more economical when dealing with large numbers; it is faster to collect large amounts of information in a short duration; there is a lack of interviewer bias and the possibility of anonymity and privacy encourages the participant to respond on sensitive issues (Babbie *et al.*, 2001). The disadvantage of self administered questionnaires is that there is generally a lower return rate and less flexibility in terms of sampling and special observations (Babbie *et al.*, 2001).

Three survey instruments that have been tested and used to conduct university based HIV/AIDS knowledge, attitudes, beliefs and behaviours surveys were used. The instruments used in the study were the HIV-Knowledge questionnaire (Carey, Morrison-Beedy & Johnson, 1997), AIDS Attitudes Scale (Shrum, Turner & Bruce, 1989) and Assessing AIDS-related Beliefs questionnaire (Brown *et.al.*, 1991). In addition, the National College Students Health Risk Behavior survey and the AIDS Attitudes survey from the Centers of Disease Control and Prevention (CDC) were used to assess the

behaviors and sources of the HIV/AIDS information. These instruments are public use surveys available from CDC.

The questionnaire consists of 140 questions concerning the following issues: students' demographic characteristics (9 questions), pattern of alcohol use and substance abuse (16 questions), sexual behavior and practices (12 questions), HIV/AIDS knowledge (45 questions) answered using the categories "True", "False", "Don't know", HIV/AIDS attitudes and beliefs (39 questions) mainly answered using the categories "strongly agree", "Agree", "Neither agree nor disagree", "Strongly disagree", and HIV/AIDS information (17 questions). Two additional questions were added to evaluate the possible effect of religiosity.



### **3.6 VALIDITY**

A pilot study was conducted two months prior to the actual data collection to test the validity of the questionnaire. Validity describes a measure that accurately reflects the concept it is intended to measure (Babbie *et al.*, 2001). According to Babbie *et al.*, (2001), researchers look to both their colleagues and to the participants as sources of agreement on the most useful meaning and measurements of the concepts in their study. It was also stated that the interviewees should be allowed to actively construct certain features and a mutual understanding should be achieved between the researcher and the participant with regards to the questionnaire (Babbie *et al.*, 2001). Thus to guarantee the validity of the questionnaire, two steps were taken. Firstly, the questionnaire was adopted from previously used and valid self administered questionnaires done by Carey *et al.*, (1997),

Shrum *et al.*, (1989), Brown *et al.*, (1991), The National College Students Health Risk Behavior survey and the AIDS Attitudes survey. Secondly, the questionnaires were adapted to suit South African students, because according to the researcher's knowledge these questionnaires were not used in South Africa.

The pilot study was conducted on 20 university students who did not participate in the study. Ten students from UKZN and 10 students from UWC were chosen. A focus group was held in which the students scrutinized the questionnaires for face validity and alerted the researcher when he/she did not understand any question or felt that the question was ambiguous. The question was then discussed and a note was made by the researcher regarding the correction to be made. The questions were then adapted accordingly. A second focus group was held five days later where the questionnaire was scrutinized in the same manner by a different set of students who did not participate in the study. They understood the survey questions and no faults were reported to the researcher. None of the questions in the survey needed to be changed. Changes that had to be made were, firstly the addition of the race group 'Indian' in question six. Secondly, the addition of the religion 'Hindu' in question 140 was done. Finally, certain medical terms in the questionnaire needed to be explained to facilitate understanding of the questions. The description that needed to be added was then placed in brackets next to the terms. The interpretation of the medical terms that needed to be added in is listed below.

Question 13: Marijuana: 'Dagga'

Question 22: PCP: 'Angel Dust'

Question 59: Pap smears: ‘An internal vaginal exam in which cells from the cervix and the vagina are examined for abnormalities.

Question 81: Douching: ‘Introducing a stream of water into the vagina.’

### **3.7 RELIABILITY**

A pilot study was conducted one month prior to the actual data collection to test the reliability of the study. According to Babbie *et al.*, (2001) reliability is the quality of measurement method that suggests that the same data would have been collected each time in repeated observations of the same phenomenon. The test retest method was used as mentioned in Babbie *et al.*, (2001) to test the reliability of the questionnaire. It was conducted on 50 university students who did not participate in the study. Twenty-five students from UKZN and 25 students from UWC were chosen. In the test retest method, the same university students were given the questionnaires to complete twice with a week interval between administering the questionnaires. Each student was assigned a number and asked to remember the number for the following week thus allowing the researcher to compare any gross discrepancies in the answers.

The pretest and post-test data was analysed using SPSS version 15.0 (Statistical Package for Social Sciences Inc, Chicago). Repeatability analysis was undertaken using correlation analysis between the same questions at pre and post test stage. For each question, the pre and post responses were cross tabulated together and, in the case of ordinal data, Spearman’s rank correlation analysis was used to assess the level of agreement between the two responses. For interval level data, Pearson’s correlation coefficient was reported. A

95% level of confidence was used to assess statistical significance of the agreement. The analysis was done in accordance with R.A Yaffee's document on <http://www.nyu.edu/its/statistics/Docs/correlate.html>.

The results showed that all demographics, substance use, HIV/AIDS knowledge and religiosity questions all showed 100% reliability and agreement between pre and post test. The sexual activity variables all showed 100% reliability and agreement, except for "During the past 30 days, how many times did you have sexual intercourse" where the correlation was 0.998, "During the past 30 days, how often did you or your partner use a condom" where the correlation coefficient was 0.991, "The last time you had sexual intercourse; did you or your partner use a condom" where the correlation was 0.967.

In terms of the HIV/AIDS knowledge questions, the reliability was also mostly 100% agreement, except for "HIV is killed by bleach" where the correlation was 0.921, "A person can be infected with HIV for 5 years or more without getting AIDS" where the correlation was 0.992, "A person can get HIV from the wetness of a woman's vagina", where the correlation was 0.997.

The AIDS attitudes section towards people living with HIV/AIDS was divided into tolerant, intolerant and no response depending on the question, the variables showed 100% agreement in pre and post response. The results for the obtained for the questionnaire indicated that the questionnaire was reliable.

### **3.8 PROCEDURE**

Permission to carry out the research was obtained from the University of the Western Cape where the study is registered (Appendix 1). Thereafter, letters were sent out to the various heads of departments (Appendix 2). Verbal permission was obtained from the relevant authorities at each institution and the heads of the various departments. Students and classes were then selected via convenience sampling to participate in the study. The researcher contacted the lecturers allocated to the relevant classes and explained the study to the lecturers. The researcher then coordinated a time with the lecturer in which the researcher would address the class and explain the study. All the lecturers who were approached gave the researcher thirty minutes at the end of the lecture to conduct the survey. In the allocated time, the students were asked to participate in the anonymous cross-sectional survey. The researcher explained the aim of the study, its significance and the benefits to students. The researcher then addressed any queries related to the study that the students had concerning the study. Those who agreed to participate were given an informed consent page to read (Appendix 3). The informed consent page also addressed any questions or queries the students may have regarding the study. The students were then requested to give their written consent (Appendix 4). Those who did not wish to participate in the survey were allowed to leave the lecture room. On average the self-administered questionnaire took the students about thirty minutes to complete (Appendix 5). Following completion of the questionnaire, the students placed the completed questionnaire and the signed consent page in different boxes which were located at the exit of the classroom thus ensuring the anonymity of the questionnaires. The students were thanked by the researcher for their participation. The researcher then removed the boxes

from the classroom and locked both the questionnaires and signed consent forms in a filing cupboard until the data was captured.

### **3.9 DATA ANALYSIS**

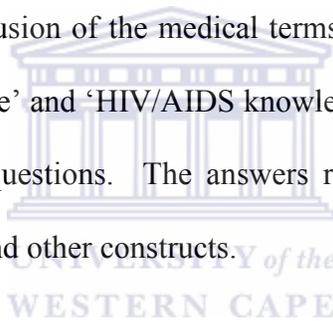
The data obtained was captured on Microsoft Excel within seven days of being collected. Each questionnaire was given unique serial number which correlated with the number on Microsoft Excel. The number allowed the researcher to identify the questionnaire should any problems arise later on. The questionnaires which were not fully completed were discarded by the researcher. Once the data was captured, the questionnaires were locked away in a filing cabinet, which only the researcher had access to. The data was then exported to SPSS version 15 for Windows (Statistical Package for Social Sciences Inc, Chicago) where the data was analyzed. Descriptive data analysis was then carried out for each section of the survey instrument as well as inferential statistics. According to Babbie *et al.*, (2001), 'descriptive statistics is a method for presenting quantitative data in a manageable form.' Each section was coded in order to reduce the data collected.

On analysis it was observed that the data was not normally distributed (skewed to the right) therefore non parametric Mann-Whitney tests were used to compare median knowledge and attitude scores between the two University groups. Pearson's chi square tests and Spearman's tests were used to compare categorical variables between the two groups.

In order to determine relationships between demographic factors and outcomes, multiple linear regression analysis was used to assess the strength and significance of the

relationships whilst controlling for confounding due to other factors. A backwards stepwise model building approach was used with entry and exit probabilities set to 0.05 and 0.1 respectively. For binary outcomes, multiple logistic regression analysis was used with the same modeling approach. Crude and adjusted coefficients or odds ratios are reported.

The addition of the race group 'Indian' and religion 'Hindu' facilitated the researcher's analysis as the majority of Indians reside in Durban in comparison to other provinces in South Africa. The change therefore aided in creating the appropriate picture of the youth and any differences or similarities in the diverse race groups and cultural backgrounds within South Africa. The inclusion of the medical terms under the sections of 'pattern of alcohol use and substance abuse' and 'HIV/AIDS knowledge' facilitated in the participants correct interpretation on the questions. The answers received help to establish correct correlations with this section and other constructs.



The knowledge section in the questionnaire was marked out of a total of 45. The participant was awarded 1 for a correct response and 0 for an incorrect response. A higher score in this section indicates a greater knowledge in HIV/AIDS (Carey *et al.*, 1997).

The AIDS attitude scale was scored according to Shrum *et al.*, (1989). The score ranged from 1 to 5. For the tolerant items 'strongly agree' had a value of 5, 'agree' had a value of 4 and so on. Reverse scoring was then used for the intolerant items where 'strongly agree' now had a value of 1. The formulae used to obtain the total attitude score of the participant was  $(x - n) (100) / (n) 4$ . The score ranged from 0 to 100, the higher the score was

indicative of more empathy or tolerance to AIDS and people who are living with HIV/AIDS.

The participants' beliefs on HIV/AIDS were measured by utilizing three questions in the questionnaire namely, 'what are the chances that you might catch HIV/AIDS', 'what is the main reason why you would not contact HIV/AIDS' and 'how much do you know about HIV/AIDS'. The responses selected by the participants were then analyzed and to provide the researcher with what the beliefs of students surrounding HIV/AIDS are.

Behaviours were measured by utilizing numerous questions in order to gauge whether the participant participated in 'risky' behaviours. This was done based on the response to the alcohol/ substance abuse section and the sexual intercourse section. The participants' behavior was considered to be 'risky', if s/he abused alcohol/ illegal substances or engaged in unsafe sexual practices.

### **3.10 ETHICAL CONSIDERATION**

Ethical consideration was observed in all aspects of the research. Prior to conducting the survey, verbal permission to conduct the research was obtained from the various heads of departments selected to participate in the study. The survey was an anonymous survey as students detached the signed consent page and placed it in a box separate from the questionnaires. The survey was self administered. The participants were assured of confidentiality and anonymity. The survey did not contain questions that will personally identify the participant. All results were kept confidential. The participants were allowed

to withdraw from the survey at anytime and needed not fear victimization. All the participants were informed about the risks and benefits of the study. At no time were the participants asked to disclose their HIV status. Once the completed questionnaires and consent forms were received, it was locked away in a filing cabinet, which only the researcher had access to.

### **3.11 SUMMARY**

This chapter focused on the methodology of the study. The choice for quantitative research paradigm was motivated. The next chapter will focus on results obtained from the questionnaires.



## **CHAPTER FOUR**

### **RESULTS**

#### **4.1 INTRODUCTION**

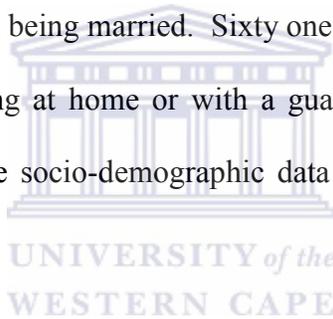
The chapter describes the results obtained from the study. The data collection was conducted over a period of two months between August 2008 and September 2008. The information extracted from the results will be presented under the following headings: the socio-demographic characteristics of the participants, results of the HIV/AIDS knowledge section, results of the HIV/AIDS attitude section, results of the HIV/AIDS beliefs section, results of the HIV/AIDS behaviours section, sources of HIV/AIDS information among university students and religiosity and university students.

#### **4.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS**

A total of 1000 questionnaires were distributed equally among the students at UKZN and UWC. Of the questionnaires distributed, 678 questionnaires were received. From the total questionnaires received, fifteen questionnaires were incomplete and therefore excluded from the study. Thus 663 questionnaires were completed, yielding a response rate of 66%. Three hundred and forty eight completed questionnaires were received from the University of KwaZulu Natal and 315 completed questionnaires were received from the University of the Western Cape. The ages of the participants ranged between 17 to 40 years with a mean age of 21.07 and a standard deviation of 3.194.

The mean age was statistically significantly different ( $p = 0.001$ ) between the universities with UKZN students being older than UWC students. There was no statistical difference noted in gender proportions between the universities ( $p = 0.108$ ). With regard to various race groups, 30.8% of the total number of participants were Coloured and 30.6% of the total group were Indian. The racial composition of the universities differed significantly ( $p < 0.001$ ). More Whites and Blacks were from UKZN than UWC, while more Coloured students were from UWC.

There was no significant difference noted in the responses between the universities in terms of current residence and having being married. Sixty one percent of the total number of the students were currently residing at home or with a guardian and 93.4% stated that they have never been married. The socio-demographic data of the students is represented in Table 4.1.



**Table 4.1 Socio-demographic data of the students**

	<b>UKZN</b> n = 348 (52%)	<b>UWC</b> n = 315 (48%)	<b>TOTAL</b> N = 663 (100%)
<b>Age</b>	Mean = 21.4 SD = 3.2	Mean = 20.7 SD = 3.0	
<b>Gender</b>			
Male	94 (27%)	108 (34%)	202 (30.5%)
Female	254 (73%)	207 (66%)	461 (69.5%)
<b>Race</b>			
White	41 (11.8%)	27 (8.6%)	68 (10.3%)
African	107 (30.7%)	68 (21.6%)	175 (26.4%)
Coloured	12 (3.4%)	192 (61%)	204 (30.8%)
Indian	184 (52.9%)	19 (6%)	203 (30.6%)
Asian and Other	4 (1.1%)	9 (2.9%)	13 (2%)
<b>Marital status</b>			
Never been married	322 (92.5%)	297 (94.3%)	619 (93.4%)
Married	16 (4.6%)	12 (3.8%)	28 (4.2%)
Separated	0 (0%)	1 (0.3%)	1 (0.2%)
Divorced	6 (1.7%)	1 (0.3%)	7 (1.1%)
Living with someone as married	4 (1.1%)	4 (1.3%)	8 (1.2%)
<b>Place of living</b>			
University Residence	80 (23%)	58 (18.4%)	138 (20.8%)
Other University Housing	3 (0.9%)	5 (1.6%)	8 (1.2%)
Off-campus home or apartment	36 (10.3%)	53 (16.8%)	89 (13.4%)
Parent/Guardians Home	220 (63.2%)	190 (60.3%)	410 (62.8%)
Other	9 (2.6%)	9 (2.9%)	18 (2.7%)

The results showed that a vast majority of the students were full time students (95.6%), with UWC students significantly more likely to be full time students than UKZN students ( $p < 0.001$ ). Majority of the students who participated in the study were second year

students (32.3%), followed by first year students (26.8%). There was a highly significant difference between the universities and students who participated in the study in terms of year at university ( $p < 0.001$ ). UWC students who participated in the study were more likely to be in first year than UKZN students (hence their younger mean age), and UKZN had a higher proportion of postgraduate students in the sample.

The highest response rate received from both the universities was from the medical/health science faculty (68.3%) followed by the commerce faculty (13.3%). There was a highly significant difference in academic disciplines between the universities ( $p < 0.001$ ). UWC had a higher proportion of Arts/Humanities students than UKZN, while UKZN had a higher proportion of commerce students.

Only 23.9 % of students stated that they were part of a social club or society on campus. The result obtained was very similar between the universities ( $p = 0.428$ ). Table 4.2 represents the university student profile.

**Table 4.2 Profile of university students (N = 663)**

	<b>UKZN</b> <b>n = 348 (52%)</b>	<b>UWC</b> <b>n = 315 (48%)</b>	<b>TOTAL</b> <b>N = 663 (100%)</b>
<b>Current year of study</b>			
First year	49 (14.1%)	129 (41%)	178 (26.8%)
Second year	135 (38.8%)	79 (25.1%)	214 (32.3%)
Third year	78 (2.4%)	74 (23.5%)	152 (22.9%)
Forth year	45 (12.9%)	20 (6.3%)	65 (9.8%)
Fifth year	8 (2.3%)	1 (0.3%)	9 (1.4%)
Sixth year	1 (0.3%)	0 (0%)	1 (0.2%)
Post grad	32 (9.2%)	12 (3.8%)	44 (6.6%)
<b>Academic Discipline</b>			
Arts/Humanities/Social Sciences	12 (3.4%)	58 (18.4%)	70 (10.6%)
Physical Sciences	18 (5.2%)	18 (5.7%)	36 (5.4%)
Medical/Health Sciences	256 (73.6%)	197 (62.5%)	453 (68.3%)
Education	0 (0%)	12 (3.8%)	12 (1.8%)
Commerce	62 (17.8%)	26 (8.3%)	88 (13.3%)
Public/Business Administration	0 (0%)	4 (1.3%)	4 (0.6%)
<b>Full time student</b>			
Yes	324 (93.1%)	310 (98.4%)	634 (95.6%)
No	24 (6.9%)	5 (1.6%)	29 (4.4%)
<b>Member of Social Club</b>			
Yes	83 (23.9%)	67 (21.3%)	150 (22.6%)
No	265 (76.1%)	248 (78.7%)	513 (77.4%)

### 4.3 RESULTS OF HIV/AIDS KNOWLEDGE SECTION

#### 4.3.1 HIV/AIDS knowledge among university students

The histogram in Figure 4.1 shows the distribution of the knowledge scores. The scores were skewed to the right, indicating that the majority of participants scored relatively high and that the median and inter-quartile range may be a better indicator of the central tendency and distribution than the mean and standard deviation. This also indicated that non parametric statistics may be more appropriate when comparing this score.

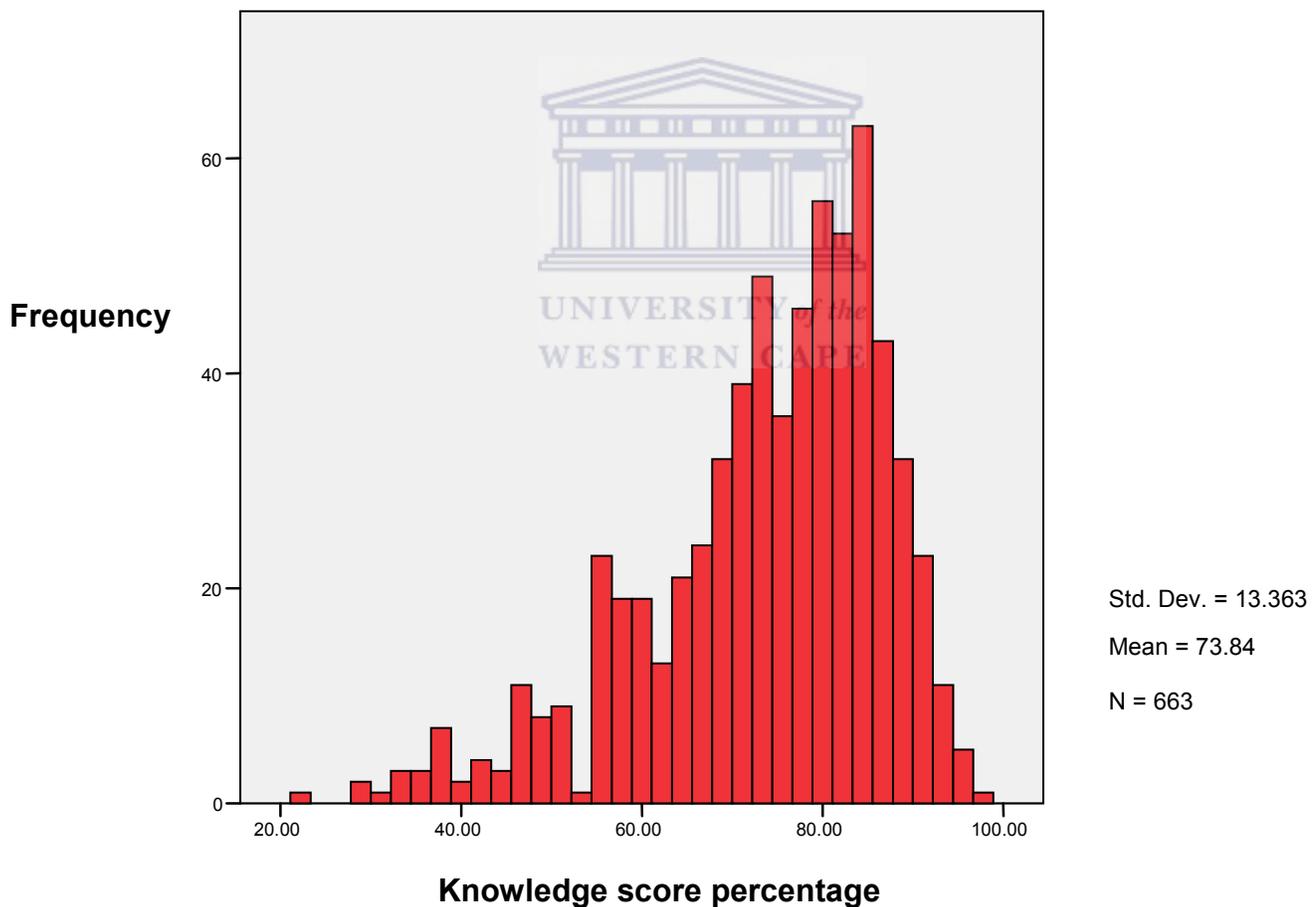


Figure 4.1 Histogram of knowledge score percentage (N = 663)

Knowledge was scored as a percentage of the total knowledge questions which were answered correctly. There were 45 true/false knowledge questions. The highest score acquired was 44 out of 45 (97.8%), whilst the lowest score was 10 out of 45 (22.2%). The median knowledge score was 34.98 (77.7%). The scoring system used was as used by Carey et al (1997) where the higher the knowledge score, the more knowledgeable a participant with regard to HIV/AIDS. The frequency and percentage of individual responses is shown on Table 4.3. The table illustrates that most questions were answered correctly by the majority of participants.



**Table 4.3 Responses to individual knowledge items (N = 663)**

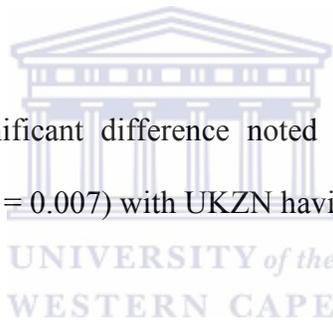
Questions	True	False	Don't Know
	%	%	%
HIV and AIDS are the same thing	5.9%	92.2%	2.0%
There is a cure for AIDS	3.9%	92.0%	4.1%
A person can get HIV from a toilet seat	2.7%	91.0%	6.3%
Coughing and sneezing do not spread HIV	79.2%	15.2%	5.6%
HIV can be spread by mosquitoes	11.3%	78.3%	10.4%
AIDS is the cause of HIV	22.5%	71.9%	5.6%
A person can get HIV by sharing a glass of water with someone who has HIV	3.3%	93.8%	2.9%
HIV is killed by bleach	5.1%	87.0%	7.8%
It is possible to get HIV when a person gets a tattoo	67.0%	15.1%	17.9%
A pregnant woman with HIV can give the virus to her unborn baby	88.2%	8.4%	3.3%
Pulling the penis before a man climaxes or ejaculates keeps a women from getting HIV during sex	6.3%	74.1%	19.6%
A women can get HIV if she has anal sex with a man	72.2%	8.9%	18.9%
Showering, or washing one's genitals or private parts after sex keeps a person from getting HIV	2.4%	91.0%	6.6%
Eating healthy foods can keep a person from getting HIV	3.9%	91.3%	4.8%
All pregnant women infected with HIV will have babies born with AIDS	9.5%	81.1%	9.4%
Using a Latex condom or rubber can lower a person's chance of getting HIV	78.9%	10.9%	10.3%
A person with HIV can look and feel healthy	94.4%	3.5%	2.1%
People who have been infected with HIV quickly show serious signs of being infected	6.3%	85.5%	8.1%
A person can be infected with HIV for 5 years or more without getting AIDS	80.7%	5.0%	14.3%
There is a vaccine that can stop adults from getting HIV	6.5%	75.4%	18.1%

Questions	True	False	Don't Know
Some drugs have been made for the treatment of AIDS	73.2%	14.9%	11.9%
Women are always tested for HIV during Pap smears	16.0%	27.6%	56.4%
A person can not get HIV by having oral sex with a man who has HIV	17.5%	55.5%	27.0%
A person can get HIV even if he or she has sex with a person one time	88.8%	6.0%	5.1%
Using a lambskin condom or rubber is the best protection against HIV	10.1%	47.1%	42.8%
People are likely to get HIV by deep kissing, putting their tongue in their partners mouth if their partner has HIV	14.3%	65.8%	19.9%
A person can get HIV by giving blood	34.7%	50.7%	14.6%
A women cannot get HIV if she has sex during her period	6.6%	78.6%	14.8%
You can usually tell if someone has HIV by looking at them	4.7%	92.5%	2.9%
There is a female condom that can help decrease a women's chance of getting HIV	71.3%	13.6%	15.1%
A natural skin condom works better against HIV than a Latex condom	3.6%	37.4%	59.0%
A person will not get HIV if she or he is on antibiotics	4.5%	81.3%	14.2%
Having sex with more than one partner can increase a person's chance of being infected with HIV	92.5%	5.0%	2.6%
Taking a test for HIV one week after having sex will tell a person if she or he has HIV	15.1%	65.9%	19.0%
A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV	2.7%	86.0%	11.3%
A person can get HIV though contact with saliva, tears, sweat or urine	14.0%	68.5%	17.5%
A person can get HIV from the wetness of a woman's vagina	37.1%	22.9%	40.0%
A person can get HIV if having oral sex with a woman	48.7%	17.8%	33.5%
If a person tests positive for HIV then the test site will have to tell all of his/her partners	24.7%	60.3%	14.9%

Questions	True	False	Don't Know
Using Vaseline or baby oil with condoms lowers the chances of getting HIV	3.3%	76.3%	20.4%
Washing equipment used to inject drugs with cold water kills HIV	4.5%	82.2%	13.3%
A woman can get HIV if she has vaginal sex with a man who has HIV	91.6%	3.9%	4.5%
Athletes who share needles when using steroids can get HIV from the needles	90.2%	4.7%	5.1%
Douching after sex will keep a woman from getting HIV	2.6%	81.6%	15.8%
Taking vitamins keeps a person from getting HIV	2.4%	89.0%	8.6%

\* The highlighted areas are the correct answer

There was a statistically significant difference noted in the median knowledge score between the two universities ( $p = 0.007$ ) with UKZN having a higher score than UWC.



#### 4.3.2 The relationship between age, gender, race and universities regarding HIV/AIDS knowledge

On single linear regression, variables such as: age, university and gender were significant predictors of knowledge score. After adjustment using multiple linear regression the variable university was not quite significant yet remained in the model. Race was not associated with knowledge. The adjusted  $r^2$  for the final model was 0.019 indicating a poor fit, or that there were other explanatory variables for knowledge scores which were not included in the model.

Age was significantly associated with knowledge score ( $p=0.006$ ). For every one year increase in age, the knowledge score went up by an average of 0.5%. UWC students had on average a 1.8% lower knowledge score than UKZN students, and after adjusting for age and gender this difference was not quite statistically significant ( $p = 0.089$ ). Males scored on average 2.6% lower than females, which was statistically significant ( $p = 0.023$ ) (Table 4.4).

**Table 4.4 Single and multiple linear regression analysis for knowledge score**

Independent variable	Crude coefficient	p value	Adjusted coefficient	p value
Age	0.433	0.008	0.452	0.006
University (UKZN vs. UWC)	-2.268	0.029	-1.768	0.089
Gender (male vs. female)	-2.326	0.039	-2.588	0.023
Race	-0.175	0.726	-	
Constant			70.296	

#### 4.4 RESULTS OF HIV/AIDS ATTITUDE SECTION

##### 4.4.1 Attitudes among university students towards HIV/AIDS

Attitudes were scored according to the method of Shrum *et al.*, (1989) using a total of 39 items after reversing the coding of the positively phrased items. The scores ranged from 23.72 to 90.38 with a mean of 66.96 and standard deviation of 11.6. Table 4.5 shows the responses to the individual attitude items on their original scale (prior to reversal of coding for positively phrased items). No significant difference was noted between the universities ( $p = 0.917$ ).

**Table 4.5 Responses to individual attitude items (N = 663)**

Question	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
	%	%	%	%	%
Limiting the spread of AIDS is more important than trying to protect the rights of people with AIDS	29.4%	32.0%	28.4%	6.5%	3.8%
Support groups for people with HIV would be very helpful to them	61.1%	30.2%	5.0%	2.3%	1.5%
I would consider marrying someone with HIV infection	2.9%	10.6%	28.8%	19.2%	38.6%
I would quit my job before I would work with someone who has AIDS	4.1%	4.7%	12.7%	29.6%	49.0%
People should not be afraid of catching HIV from casual contact, like hugging or shaking hands	59.3%	26.1%	8.0%	2.9%	3.8%
I would like to feel at ease around people with AIDS	41.0%	37.4%	14.5%	4.7%	2.4%
People who receive positive results from the HIV blood test should not be allowed to get married	3.6%	6.3%	18.3%	27.9%	43.9%
I would prefer not to be around homosexuals for fear of catching AIDS	5.7%	5.6%	19.8%	26.4%	42.5%
Being around someone with AIDS would not put my health in danger	29.0%	30.0%	24.4%	9.5%	7.1%

<b>Question</b>	<b>Strongly agree</b>	<b>Agree</b>	<b>Neither agree nor disagree</b>	<b>Disagree</b>	<b>Strongly disagree</b>
I would consider asking a person who has been to prison to get an HIV test before dating them	42.5%	28.2%	19.6%	5.1%	4.5%
People with AIDS should not avoid being around other people	44.9%	31.8%	9.8%	6.3%	7.1%
People should avoid going to the dentist because they might catch HIV from dental instruments	3.5%	4.5%	19.0%	29.3%	43.7%
A person who has been to jail or prison has a greater chance of being infected with HIV	15.7%	27.0%	37.7%	13.9%	5.7%
The thought of being around someone with AIDS does not bother me	30.9%	33.2%	22.5%	9.8%	3.6%
People with HIV infection should not be prohibited from working in public places.	42.5%	34.7%	10.0%	6.0%	6.8%
I would not want to be in the same room with someone who I knew had AIDS	2.7%	8.4%	13.4%	31.4%	44.0%
People who give HIV to others should face criminal charges	23.4%	19.6%	32.9%	13.9%	10.3%
People should not be afraid to donate blood because of AIDS	32.3%	31.1%	20.7%	8.7%	7.2%
A list of people who have HIV infection should be available to anyone	4.1%	7.5%	21.7%	25.5%	41.2%

<b>Question</b>	<b>Strongly agree</b>	<b>Agree</b>	<b>Neither agree nor disagree</b>	<b>Disagree</b>	<b>Strongly disagree</b>
I would date a person with AIDS	3.6%	8.0%	32.4%	23.7%	32.3%
No one deserves to have a disease like HIV infection	49.2%	23.8%	17.8%	5.9%	3.3%
It would not bother me to attend class with someone who has AIDS.	48.0%	30.6%	11.9%	3.9%	5.6%
An employer should have the right to fire an employee with HIV infection regardless of the type of work s/he does	3.0%	5.4%	13.7%	21.7%	56.1%
I would allow my children to play with the children of someone known to have AIDS	14.6%	24.7%	37.1%	14.5%	9.0%
People get AIDS by performing unnatural sex acts	9.0%	15.7%	38.8%	19.2%	17.3%
People with HIV should not be looked down upon by others	46.9%	33.5%	10.6%	3.5%	5.6%
I could tell by looking at someone if s/he has AIDS	3.9%	7.8%	12.7%	25.6%	49.9%
Health care workers should not refuse to care for people with HIV infection regardless of their personal feelings about the disease	46.9%	29.3%	15.4%	4.7%	3.8%
Children who have AIDS should not be prohibited from going to schools or day care centers	44.8%	25.9%	17.8%	5.9%	5.6%

<b>Question</b>	<b>Strongly agree</b>	<b>Agree</b>	<b>Neither agree nor disagree</b>	<b>Disagree</b>	<b>Strongly disagree</b>
HIV blood test results should be confidential to avoid discrimination against people with positive results	52.3%	27.5%	12.4%	4.2%	3.6%
HIV infection is a punishment of immoral behavior	5.1%	9.0%	24.9%	24.4%	36.5%
I would not be afraid to take care of a family member with AIDS	32.9%	33.2%	21.0%	9.8%	3.2%
If I discovered that my roommate had AIDS, I would move out	3.8%	8.4%	22.6%	34.5%	30.6%
Churches should take a strong stand against drug abuse and homosexuality to prevent the spread of AIDS	32.7%	29.6%	23.5%	8.1%	6.0%
I could comfortably discuss AIDS with others	44.3%	38.3%	11.5%	3.9%	2.0%
People with AIDS are not worth getting to know	1.7%	6.0%	13.1%	26.1%	53.1%
Parents who transmit HIV to their children should be prosecuted as child abusers	8.3%	11.6%	30.9%	25.6%	23.5%
People would not be so afraid of AIDS if they knew more about the disease	42.8%	31.7%	14.5%	7.5%	3.5%
I would not avoid a friend if s/he had AIDS	51.7%	32.4%	8.7%	3.9%	3.2%

*\*The highlighted area represents a tolerant statement*

#### 4.4.2 The relationship between age, gender, race and universities regarding attitudes of students towards HIV/AIDS

Race and university were not associated with attitudes. On multiple linear regression analysis, only age ( $p = 0.010$ ) and gender ( $p < 0.001$ ) were significantly associated with attitudes. As age increased by one year, the attitudes score increased by 0.362, and males had a 4.621 units lower attitudes score than females. The final adjusted  $r^2$  was 0.036, indicating a poor fit, and that there could be other determinants of attitudes which were not considered here (Table 4.6).

**Table 4.6 Single and multiple linear regression analysis for attitudes score**

Independent variable	Crude coefficient	p value	Adjusted coefficient	p value
Age	0.273	0.054	0.362	0.010
University (UKZN vs. UWC)	0.155	0.899	-	
Gender (male vs. female)	-4.291	<0.001	-4.621	<0.001
Race	-0.389	0.371	-	
Constant			65.387	

#### 4.5 RESULTS OF HIV/AIDS BELIEFS SECTION

##### 4.5.1 Beliefs of university students towards HIV/AIDS

Beliefs were measured with 3 questions. The responses to each of these questions in the sample are shown in Table 4.7. Almost half the sample thought there was no chance they could get HIV. Of the 550 respondents who answered the question ‘what is the main reason why you would not contract HIV/AIDS’, most said abstinence would prevent them from contracting HIV (49.5%). Using a condom was the second most frequent response,

followed by having only one partner. The respondents that chose to select 'other' in the question, 7 of the 14 respondents stated the reason was due to them not engaging in risky behaviour, the remainder (n = 8) did not give a reason. Majority (49.2%) of the respondents believed they knew a lot on HIV/AIDS.



**Table 4.7 Belief questions**

<b>Question</b>	<b>Selection</b>	<b>N (663)</b>	<b>Percent (%)</b>
<b>What are the chances that you might catch HIV</b>	No chance	324	48.9
	Moderate chance	210	31.7
	Good chance	14	2.1
	Don't know	115	17.3
<b>What is the main reason why you would not contact HIV/AIDS</b>	Abstinence from sex/no sex	272	49.5
	Have/had only one partner	80	14.5
	Always use a condom	98	17.8
	Use contraceptives	2	.4
	Use traditional Medication	1	.2
	Had sex with a virgin	1	.2
	Partner is faithful	54	9.8
	No needle sharing	5	.9
	No blood contact	7	1.3
	There is no such thing as AIDS	1	.2
	It can't happen to me	4	.7
	Have unprotected sex	6	1.1
	Accidents	3	.5
	Contact sport	1	.2
	Rape	1	.2
Other	14	2.5	
<b>How much do you know about HIV/AIDS</b>	A lot	326	49.2
	Some	288	43.4
	A little	44	6.6
	Nothing	5	.8

Table 4.8 shows that there was a significant difference between the two universities in terms of beliefs ( $p = 0.042$ ). The UWC students were more likely to think there was no chance of them acquiring HIV than the UKZN students. The UKZN students were more likely to say “don’t know”.

**Table 4.8 Beliefs by university**

			What are the chances that you might catch HIV				Total
			No chance	Moderate chance	Good chance	Don't know	
University	UKZN	Count	161	109	5	73	348
		%	46.3%	31.3%	1.4%	21.0%	100.0%
	UWC	Count	163	101	9	42	315
		%	51.7%	32.1%	2.9%	13.3%	100.0%
Total		Count	324	210	14	115	663
		%	48.9%	31.7%	2.1%	17.3%	100.0%

Pearson’s chi square 8.194,  $p=0.042$ .

#### **4.5.2 The relationship between age, gender, race and university regarding beliefs of students towards HIV/AIDS**

Question 36 (“what are the chances that you might catch HIV”) was dichotomized into two categories for logistic regression analysis as an indicator of beliefs. Responses of ‘No chance’ and ‘Don’t know’ were classified as “not at risk”, whereas ‘moderate chance’ and ‘good chance’ were classified as “at risk”. Logistic regression for factors associated with

belief of being “at risk” was performed. Only age was significantly associated with belief ( $p = 0.008$ ). With every 1 year increase in age the odds of believing one is at risk of HIV increased by 1.069 times. The other factors were not associated with belief in being at risk.

## **4.6 RESULTS OF THE BEHAVIOURS SECTION**

### **4.6.1 Alcohol and substance abuse among students**

The questions pertaining to alcohol and substance abuse among students showed that 27% of the students have never drunk alcohol while 22.9% of the students started drinking alcohol at 15 or 16 years of age (Table 4.9). Only 0.8% of the students ( $n = 5$ ) stated that they consume alcohol daily while the majority of students (56.6 %) stated that they have not consumed alcohol in the past month. Ninety (13.5%) of the respondents stated that they have had more than 5 drinks of alcohol in a row with a few hours between 2 – 5 days in the past month, while 480 (72.4%) of respondents stated that they have not had more than five drinks of alcohol within a few hours in the past month.

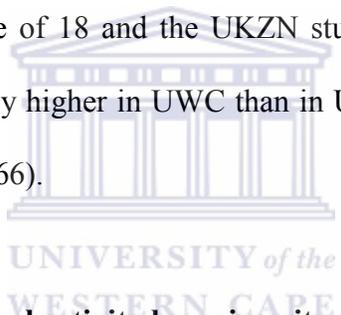
**Table 4.9 Age of initial alcohol consumption**

<b>Question: How old were you when you had your first drink of alcohol?</b>	<b>N = 663</b>	<b>%</b>
I have never drank alcohol	179	27.0
I have never had a drink of alcohol other than a few sips	35	5.3
12 years old or younger	74	11.2
13 or 14 years old	79	11.9
15 or 16 years	152	22.9
17 or 18 years	93	14.0
19 or 20 years	36	5.4
21 to 24 years	12	1.8
25 years or older	3	.5

The data obtained from substance abuse and illegal drug use showed that 97.7% of students reported never having taken steroid pills or injections without a doctor's prescription while only 65.2% reported never trying marijuana. Similar results were found for 'harder' drugs with 96.4% never having tried cocaine; 94.7% never sniffed glue or any other aerosol to get high and 92.9% of the students stated that they have never used any other type of illegal drug. The results also showed that 95.3% of the students stated that they have never used an illegal drug in combination with drinking alcohol and a further 98.8% of students have never injected themselves with illegal drugs. A summary of the results shown suggests that students who were involved in drug use usually experimented with drugs around the age of 17 or 18 years.

#### 4.6.2 Sexual behavior of students

The results show from the 47.7% (n = 316) of participants who stated that they have never had sexual intercourse, 38.9% were female. Students that did engage in sexual intercourse usually started at 17 or 18 years old (n = 126). According to the results, male students begin to engage in sexual intercourse from an earlier age (12 years to 16 years). Whilst females tend to engage in sexual activity for the first time at the age of 17 or 18 (12.2%), which is more than their male counterparts (6.8%). There was a significant difference between the universities in terms of age of first sexual encounters (p = 0.009). The UKZN students were more likely not to have had sex, while the UWC students were more likely to have had sex before the age of 18 and the UKZN students over the age of 18 (Table 4.10). Condom use was slightly higher in UWC than in UKZN but the difference was not statistically significant (p = 0.066).



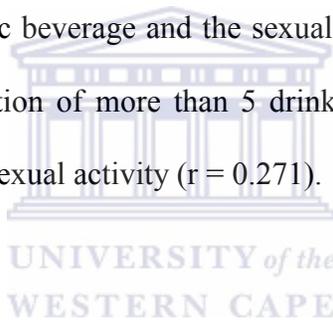
**Table 4.10 Age of first sexual activity by university**

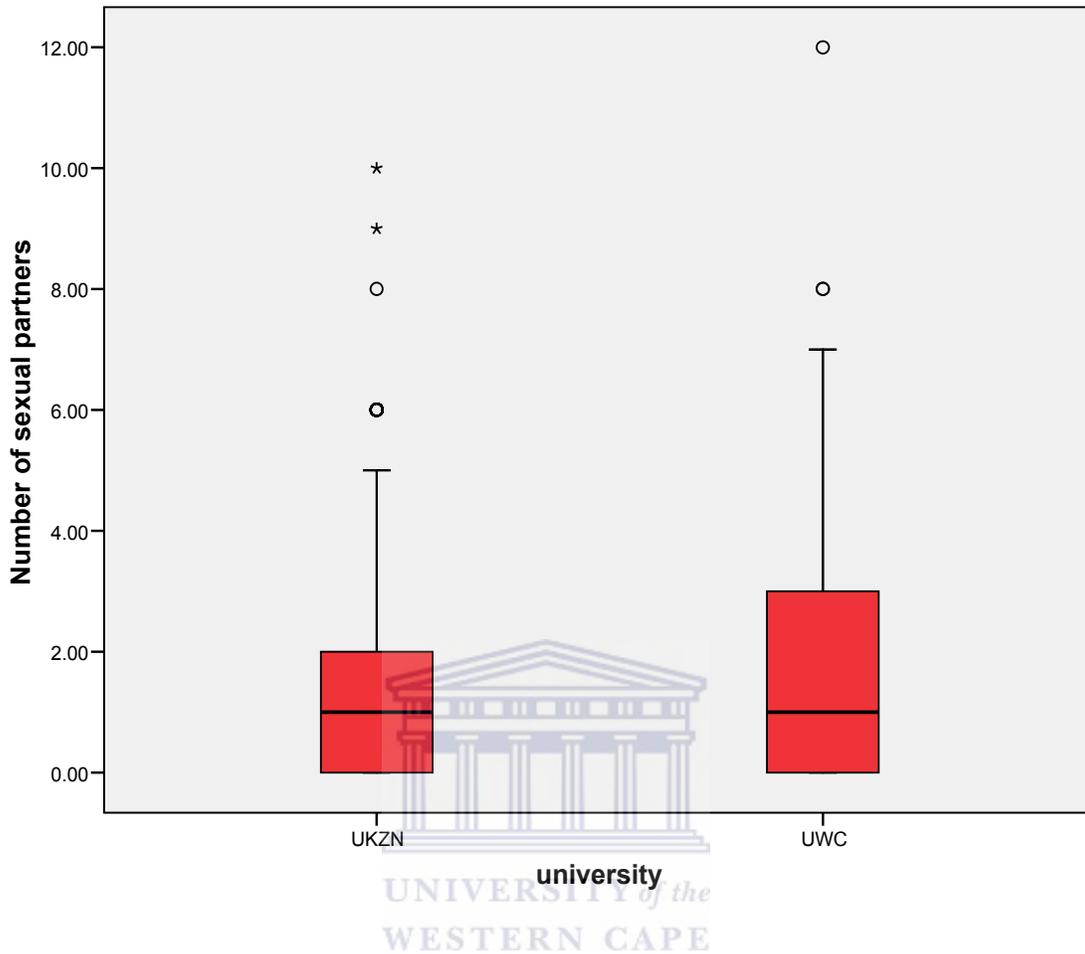
			How old were you when you had sexual intercourse for the first time				Total
			I have never had sexual intercourse	14 years old or younger	15 to 18 years old	> 18 years old	
University	UKZN	Count	176	15	84	73	348
		%	50.6%	4.3%	24.1%	21.0%	100.0%
	UWC	Count	140	24	103	48	315
		%	44.4%	7.6%	32.7%	15.2%	100.0%
Total		Count	316	39	187	121	663
		%	47.7%	5.9%	28.2%	18.3%	100.0%

Pearson's chi square 11.66, p=0.009

The median number of sexual partners for both universities was 1. However, the Mann-Whitney test yielded a statistically significant p value ( $p=0.035$ ) for the comparison between the two groups. Figure 4.2 shows that the distribution of number of sexual partners at UWC is higher than that for UKZN, indicating that UWC students were likely to have more partners than UKZN students.

With use of spearman correlation a positive correlation was found between age of initial alcohol consumption and age of initial sexual experience ( $r = 0.330$ ). A statistically significant correlation was also noted between the number of days in a month an individual consumed at least one alcoholic beverage and the sexual activity of the individual for that month ( $r = 0.339$ ). Consumption of more than 5 drinks in a row was also found to be associated with an increase in sexual activity ( $r = 0.271$ ).





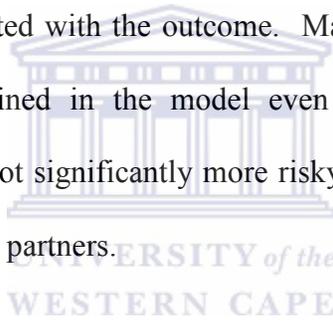
**Figure 4.2** Box and whisker plot of number of sexual partners by university

#### **4.6.3 The relationship between age, gender, race and university regarding behaviours of students**

Risk factors for being sexually active were investigated using logistic regression analysis. University was the only factor not associated with being sexually active. One year increase in age increased the risk of sexual activity by 1.3 times. Males were 2.8 times more likely than females to be sexually active. Black students were 2.1 times more likely than Whites to be sexually active and Indians were 36% less likely than Whites to have sex. Knowledge increased the risk of being sexually active significantly. As knowledge score

increased by one percent, the risk of being sexually active increased 1.016 times. However, it is uncertain whether it was knowledge that increased the risk of sex, or that having sex increased their knowledge (reverse causality).

There were no factors significantly associated with not using a condom at the last sexual encounter for students who stated they were sexually active. On bivariate analysis the universities were significantly associated with having more than 2 sexual partners ( $p = 0.004$ ) with UWC students having nearly 2 times higher risk than UKZN students. After adjustment for confounders (age, gender, university, race and knowledge), university was no longer significantly associated with the outcome. Males were 3.3 times at higher risk than females, and race remained in the model even though each particular race in comparison with Whites was not significantly more risky. Knowledge was not associated with having more than 2 sexual partners.



#### 4.7 SOURCES OF HIV/AIDS INFORMATION AMONG UNIVERSITY STUDENTS

In terms of seeing information about HIV/AIDS, the television and billboards were most frequently mentioned (79.9% each). This is shown in Figure 4.3.

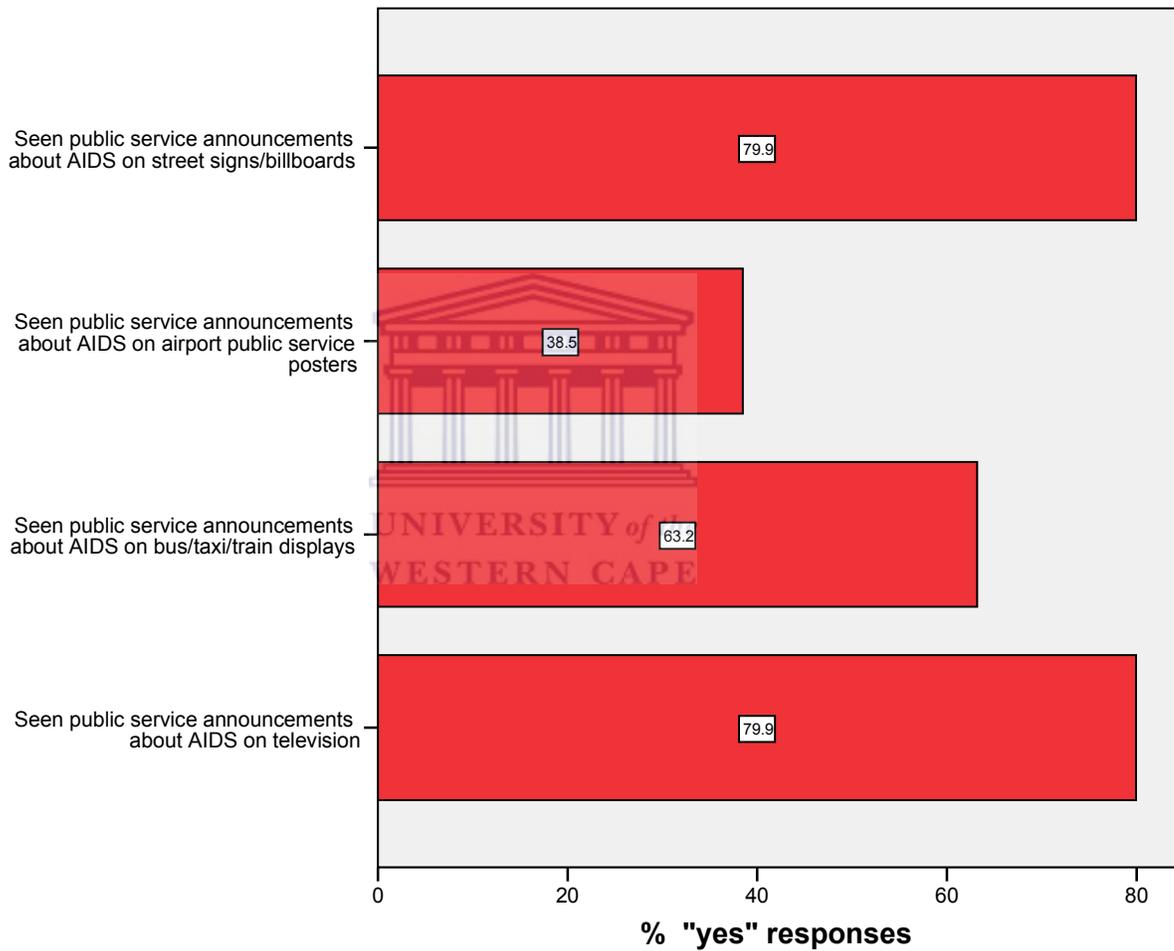
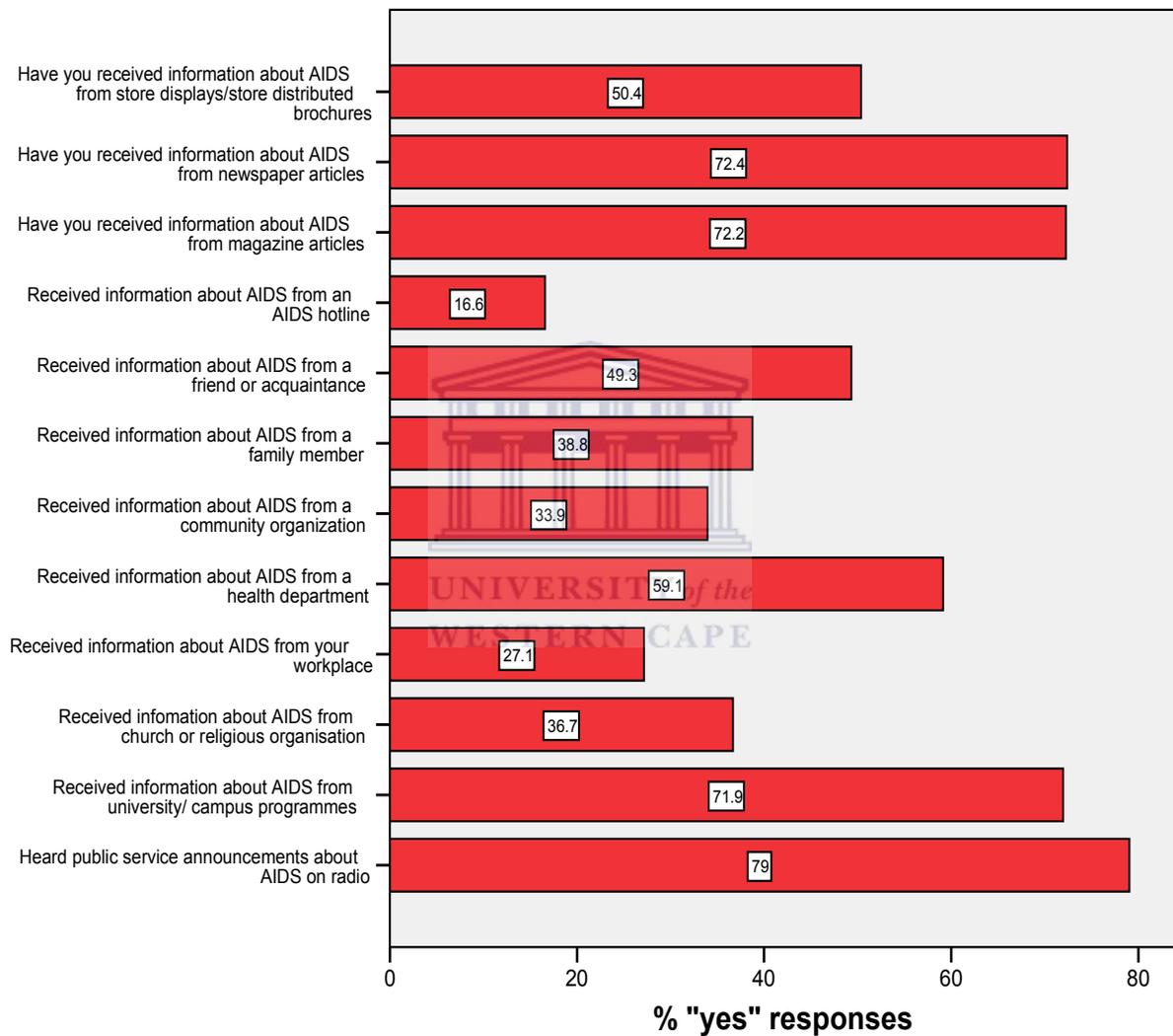


Figure 4.3 Percentage of “yes” responses to questions 123 to 126 (N=663)

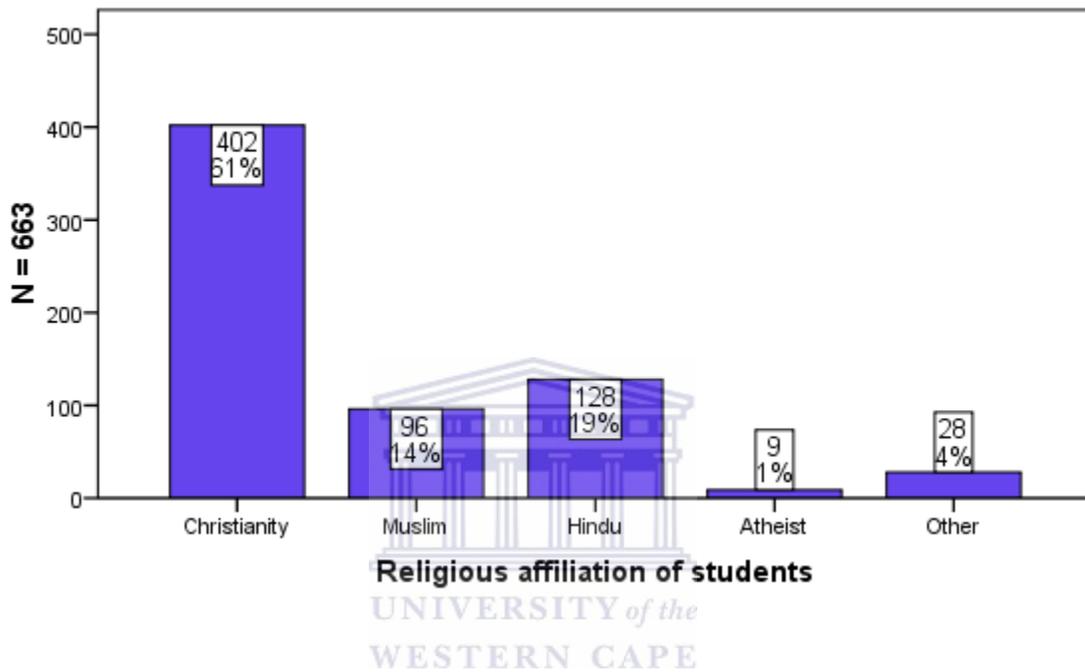
Other sources of HIV/AIDS information is shown in Figure 4.4. The most common was hearing public service announcements on the radio (79%), followed by newspapers and magazines. Only 16.6% had utilized an AIDS hotline.



**Figure 4.4 Percentage of “yes” responses to questions 127 to 138 (N= 663)**

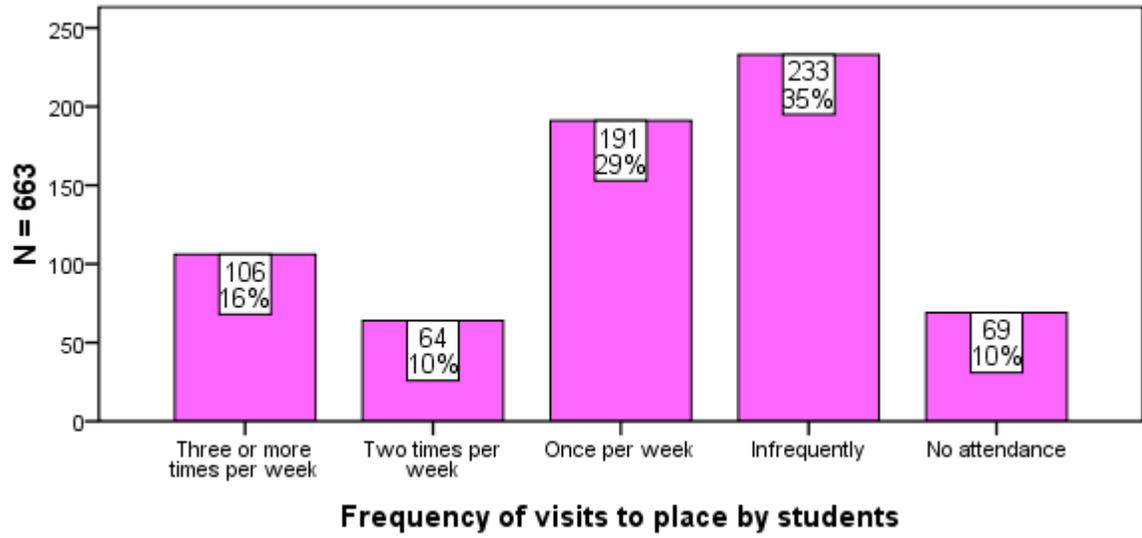
#### 4.8 RELIGIOSITY AND UNIVERSITY STUDENTS

The vast majority of the students who participated in the study was Christian (n = 402), followed by Hinduism (n = 128). This is shown in Figure 4.5.



**Figure 4.5 Religious affiliations of university students**

When asked about frequency of visits to places of worship, most of the students selected ‘infrequently’ (n = 233), which was followed by ‘once a week’ (n = 191) (Figure 4.6).

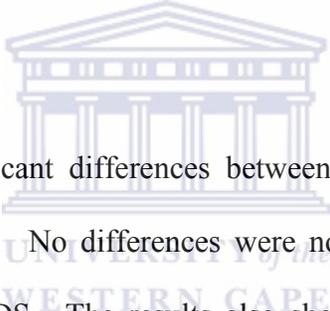


**Figure 4.6** Frequency of visits to religious places by university students



#### 4.9 SUMMARY

The findings from the study reveal that the students have a good knowledge of HIV/AIDS and were aware of the common modes of HIV/AIDS transmission. There were areas where students had limited knowledge in certain aspects of the disease. Students' attitudes towards HIV positive people were favorable in both universities. Majority of students believed that they had no chance of contracting the virus, the primary reason being abstinence. The results also highlighted that students majority of students did consume alcohol and started drinking at an early age. The drug most frequently used was marijuana. Television and billboards were the most common source of HIV/AIDS information mentioned by the students.



There were statistically significant differences between the universities for knowledge, beliefs and behavior questions. No differences were noted between the attitudes of the students pertaining to HIV/AIDS. The results also showed that there was a significant relationship between age, gender, race and knowledge with regards to the behavior of students.

The results illustrated that students have a good general knowledge on HIV/AIDS, but in-depth information is needed. The results further illustrated that UWC students tend to be at a higher risk in contracting the virus than UKZN. It was further highlighted that males had lower knowledge scores and more sexual partners than females, which places them at greater risk for contracting and/or transmitting the virus.

The vast majority of the students who participated were Christian. More than half of the group tended to visit a place of worship at least once a week. The next chapter focuses on the discussion of the findings.



## CHAPTER FIVE

### DISCUSSION

#### 5.1 INTRODUCTION

In this chapter the results of the study are discussed in relation to the purpose and objectives of the study. The study explored the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among two tertiary institutions in South Africa. The chapter also highlights the impact of the current HIV/AIDS education programmes and/or strategies on the youth in South Africa.

#### 5.2 HIV/AIDS KNOWLEDGE OF UNIVERSITY STUDENTS

While the best approach to reduce the incidence of HIV is still being researched, we do know that knowledge is the key to curbing the spread of the virus. This does not imply that knowledge is a sufficient condition for behaviour change and positive attitudes, but it is a necessary condition (Shisana *et al.*, 2002). South Africa is not the only country with this problem; however it has the highest prevalence of HIV positive people in the world (UNAIDS, 2007) and considering KwaZulu-Natal has the highest HIV prevalence in South Africa (Department of Health South Africa, 2007) it can be considered as being the epicenter of the virus

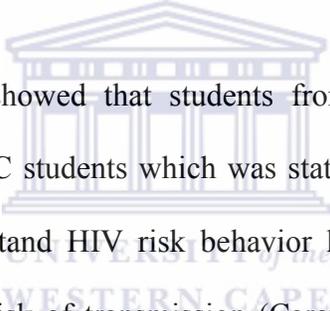
### 5.2.1 Possible factors influencing knowledge

The questionnaire used in this study was designed to measure the knowledge of the following HIV categories: transmission (*e.g.*, vaginal, anal and oral intercourse, blood products, needle sharing and perinatal), non-transmission (*e.g.*, saliva, insect bites, touching and sharing foods), effective ( male and female condom, monogamy following antibody testing) and ineffective (*e.g.*, douching, birth control pills and vaccination) prevention methods (*e.g.*, condom use and needle sterilization) and the consequences of infection (*e.g.*, treatment and disease course).

In this study, the majority of respondents were relatively well informed about HIV/AIDS (mean = 73.84%). Scores obtained at the 25<sup>th</sup> percentile was 66.7% and the 75<sup>th</sup> percentile was 84.4%. This coincides with similar studies done by Friedland *et al.*, (1991) and Ichharam *et al.*, (2002) where South African university students scored high in the knowledge of HIV/AIDS. However, misconceptions concerning the transmission of HIV that was identified by Friedland *et al.*, (1991) over a decade ago, but these misconceptions are still rife. Respondents from both universities scored lowest on knowledge of the transmission methods of HIV/AIDS. This demonstrates that basic HIV knowledge has been acquired by students, but detailed knowledge on the transmission of the disease is still lacking. The fact that there has not been a significant reduction in the transmission of HIV/AIDS in South Africa, could, in part, be attributed to this.

The scores obtained in this study were significantly higher than in a study conducted by Smith *et al.*, 1998, where South African university students scored less than 50% in a

knowledge-based questionnaire. Other surveys and studies on South African youth over the age of 15 showed that, although there was a high general knowledge of HIV/AIDS, detailed knowledge of the disease was lacking and misconceptions existed (Department of Health, 1999; Simbayi, Kalichman, Jooste, Cherry, Mfecane, & Cain, 2005), which was consistent with the findings in this study. However, this should not be the case at tertiary level. Students ought to have a better understanding of the disease and be able to identify all the likely modes of transmissions. HIV is rife in South Africa especially among the youth. Thus knowledge about the virus and the behavior changes would be the most effective method of curbing the spread of the virus at present, since there is no cure.



The results from this study showed that students from UKZN had a higher median knowledge score than the UWC students which was statistically significant. Models that have been proposed to understand HIV risk behavior have identified knowledge as an important determinant of the risk of transmission (Carey *et al.*, 1997). Therefore, if an individual has a limited knowledge of the disease, they cannot effectively protect themselves. Conversely, literature has also stated that obtaining a high score in an HIV/AIDS knowledge questionnaire does not necessarily mean that one will not participate in risky behaviours (Ratliff-Crain, Donald & Dalton, 1999).

Various studies have identified Black South African youth as being more at risk of contracting the virus than youth of other race groups (Pettifor *et al.*, 2005). This can be associated with participating in riskier behavior and having a lower knowledge score with regards to HIV/AIDS than students of other race groups. However, the findings showed

that there was no association between race and knowledge. Findings from the RAU study showed that Black students scored higher than the other students on the knowledge questionnaire (Ichharam *et al.*, 2002).

Further analysis of the results of this study showed that age and HIV/AIDS knowledge was related. The older the student was, the higher their score was. Huang *et al.*, (2005) had similar findings, where there was a significant difference between knowledge and age, with younger university students having lower knowledge scores. This is interesting as it suggests that older students are either more aware of the HIV/AIDS through campaigns and exposure, or they are aware of the severity of the virus and therefore want to learn more about it and how best to protect themselves.

Interestingly enough studies done in high schools in California by Hancock *et al.*, (1999) and the Western Cape by Pharoh (2007) showed no association between HIV knowledge and the scholars' age. This again could be attributed to awareness campaigns. Scholars in high school are in a controlled environment relative to that of university students, ensuring awareness exposure at schools but not at universities. The increase in sexual activity of an individual as they get older could also possibly influence them to seek methods of protection which can only be obtained through knowledge.

Males scored significantly lower than females in the knowledge section. On average males scored 2.6% lower than females. This is in keeping with research done by Ratliff-Crain *et al.*, (1999), Ichharam *et al.*, (2002) and Anderson & Beutel, (2007). It is interesting to note

that although females scored higher than males in the knowledge questionnaire, the HIV incidence among females in the 20 - 29 age group is 6 times higher than that in males of the same age (Rehele *et al.*, 2007). It is evident from the findings that factors other than knowledge and awareness need to be taken into account when searching for answers as to why the incidence among females is so high. Factors such as peer pressure, lack of self-confidence, abuse, the anatomical design of a female and sexual coercion to name a few have been highlighted in literature (Pettifor *et al.*, 2005). This study further confirms the dire need for empowerment programmes and support groups for women for women.

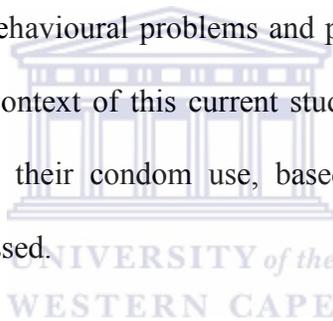
### **5.2.2 Knowledge and behaviour**

Findings from this study illustrate that UWC students were more likely to be involved with multiple sexual partners than UKZN students; however there was no significant difference in the condom use between the students at either university. Most literature demonstrates no relationship between knowledge and risky behaviour, with students with high scores in the knowledge questionnaire still participating in risky behaviour (Akande, 2001; Opt *et al.*, 2004; Odu, Asekun-Olarinmoye, Bamidele, Egbewale, Amusan & Olowu, 2008). Conversely, Zellner (2003) explained knowledge of HIV/AIDS as a form of self-empowerment that may influence risk perception and act as a catalyst for behavioural change. This is in keeping with results from this study which suggests that there is an association between the knowledge and behaviour.

The students at UWC scored lower in the knowledge section than the UKZN students. Based on answers from the behaviours section, UWC students are more at risk of

contracting the virus than UKZN students. In order to prevent the transmission of HIV, young people need to adopt safe sexual habits. Sex is the main mode of transmission; abstinence is the most effective way to prevent infection. The second method is having a monogamous and mutually faithful sexual relationship, while the third is the use of condoms (Obiero, Nyagero, Mwikali, Wambua, Amuyunzu-Nyamongo & Omurwa, 2000). UWC students were more likely to have sexual intercourse prior to the age of 18 years as compared to UKZN students who were more likely to have sexual intercourse after 18 years of age. Ratliff-Crain *et al.*, (1999) and Tapert, Aarons, Sedlar & Brown (2001) found that there was an association with age of first sexual intercourse and participation in risky behaviours among students. The studies suggest that the earlier the first sexual encounter, the more likely the student was to engage in persistent risky behaviours such as substance abuse, multiple sexual partners and less consistent condom use. This was consistent with findings in this study as UWC students were likely to have more sexual partners than UKZN students. The findings were also consistent in terms of gender as males were found to be sexually active at an earlier age than females; and nearly three times more sexually active. According to Pettifor *et al.*, (2004) a difference in reported partners among the genders is common. Possible explanations are that males tend to over-report and females under-report, and gender differences in the social patterns for selecting sex partners (Pettifor *et al.*, 2004). In terms of other risky behaviours the results of this study were consistent with the studies previously mentioned (Ratliff-Crain *et al.*, 1999; Tapert *et al.*, 2001) as it showed a significant correlation between the age of initial alcohol consumption and age of initial sexual experience whereby students who engaged in sexual intercourse at an earlier age also consumed alcohol at an earlier age.

A study done by Zulu, Dodoo & Chicka-Ezeh, (2002), found that individuals who initiate sex early in life have been found to know less about HIV prevention and to be less likely to use condoms. Hence, it was not surprising that there was no statistical difference noted between the two universities with regard to last condom use. Although the bulk of students from both universities stated using a condom the last time they engaged in sexual intercourse; one would expect condom use to be higher at UWC due to students having more sexual partners. According to Coasta, Jessor, Donovan & Fortenberry (1995) and Ratliff-Crain *et al.*, (1999) the past behaviour of students have been found to exert a direct, independent effect on subsequent behaviour, this suggests that sexual behavioural problems may be the result of broader behavioural problems and part of a pattern that preceded the first sexual encounter. In the context of this current study, UWC students would then be likely to be inconsistent with their condom use, based on other negative behavioural problems that need to be addressed.



There was also an association noticed between age and sexual activity. The results showed that the older a respondent was, the more sexually active s/he was. There was no association between age and condom use. However, as mentioned earlier, there is also an association between age and knowledge. This is a positive sign as it further confirms that the older a sexually active person is, the more they take heed of HIV/AIDS prevention campaigns, or become aware of it due to consistent, prolonged exposure, compared to a younger person. It demonstrates an increase in maturity and understanding of the risks associated with having unprotected sex and participation in risky behaviour. Hence, they considered themselves more a risk of contracting the virus. However, this could have also

been attributed to older students being married or in long-term relationships which, should hopefully, also lead to safer sexual practices and prevention of infections.

The study found that black students were more likely to be sexually active than any other race group. This was consistent with other work which showed that HIV/AIDS is most prevalent among the black population (Connolly *et al.*, 2004; Pettifor *et al.*, 2004), and the main route of transmission in South Africa is via heterosexual sexual intercourse (UNAIDS, 2006). Conversely in RAU, there was no association found between black and white students in terms of sexual activity (Ichharam *et al.*, 2002). One of the possible reasons could be that students who attended RAU, were from relatively well-off families (Ichharam *et al.*, 2002) as opposed the students who took part in this study. UWC and UKZN were initially built for people from disadvantaged communities, thus the campuses presently harbour all walks of life and not only middle-to-upper income households. However, this study showed no association between race and knowledge. This therefore is supportive of literature that shows that cultural background has an impact on sexual decisions (Odu *et al.*, 2008). In the patriarchal black family setting, adolescent males have sex earlier because of cultural permissiveness (Iwuagwu, Ajuwon & Olaseha, 2000). This is an important point and should be addressed when designing HIV/AIDS programmes.

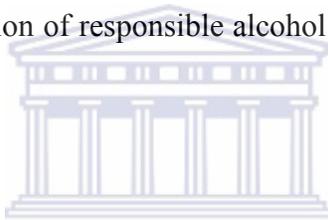
The majority of the university students consumed alcohol (n = 484) at some point in their life. The age most students started consuming alcohol was between the ages of 15 or 16 years old (n = 152). More than half of the students (56.6%) stated that they have not consumed alcohol in the past month, however it should also be taken into account that the

time the study was conducted was during the students 'testing/exam' period, which could have impacted on the results. When gender was analysed more than half the male (n = 108) students in the study stated that they consumed alcohol in the past month. According to Cooper (2002) and Taylor, Dlamini, Kagoro, Jinabhai & de Vries (2003), alcohol consumption is significantly associated with sexual activity. Students who consumed alcohol were three times more likely to be sexually active. This is significant because nearly half (43.6%) of the students in the study consumed alcohol during the month despite it being an exam month.

A systematic review on alcohol use and HIV/AIDS in sub-Saharan Africa showed a consistent association between alcohol use and the sexual risk of HIV infection (Kalichman, Simbayi, Kaufman, Cain, & Jooste, 2007). Research done by Parry, (2005) showed that South Africa has one of the highest volumes of per capita alcohol consumption in the world. Overindulgence in alcohol and its repercussions is an issue that many people overlook. Research has shown that greater the quantity of alcohol consumed the greater the sexual risks, rather than the frequency of drinking (Kalichman *et al.*, 2007). This was to a certain extent similar with findings in this study as results showed that students, who consumed five or more drinks of alcohol in a row in the past month, had more sexual intercourse in that same month than peers that did not. However, there was a slightly higher correlation among students who consumed one drink of alcohol in the past month and the number of sexual partners. Further gender specific analysis showed that male students (n = 86, 43%) made up the bulk in that scenario. Consuming five drinks or more per drinking occasion is binge drinking (Wechsler, Davenport, & Dowdall, 1995). The

findings correlated with results from O'Mally & Johnson (2002) and Kalichman *et al.*, (2007) where it was shown that men consume alcohol more frequently and in larger quantities than women.

It is important because men scored significantly lower in the knowledge section than females. Men are also more likely than females to engage in higher risk behaviour once they consume alcohol and unfortunately women's risks are often associated with their male partners drinking (Kalichman *et al.*, 2007). In view of this and other studies which have found alcohol to be a problem on campuses, it is evident that interventions and programmes need to incorporate the promotion of responsible alcohol consumption amongst the student body (Kalichman *et al.*, 2007).



Marijuana was the most frequently used illegal drug used by university students in this study (n = 231, 35%), with the majority only having tried it once (n = 89, 13%). Students were also more likely to use marijuana again as compared to other illegal drugs. Slightly more than 50% of the male group stated having tried marijuana which ties in with the other behavioural traits. These findings are consistent with research done by Parry, Pluddermann, Bhana, Harker, Potgieter, Gerber & Johnson (2005), where it was found that cannabis is a popular drug of choice among young people. These results also tie in with studies done by Flisher, Ziervogel, Chalton, Leger & Robertson (1996) and Morojele, Brook & Kachieng'a (2006) on South African adolescents where the researchers found associations between binge drinking, cannabis smoking and sexual intercourse. Results were also similar among youth internationally (Lowery, Holtzman & Truman, 1994;

Castilla, Barrio, Belza & de la Fuente, 1999). Surprisingly enough, Methamphetamine ('Tik') was not the most frequently used drug among students in the Western Cape, which is now the most commonly used drug in the Western Cape (Parry *et al.*, 2005). Possible reasons for this are that it has been mainly associated with people coming from impoverished communities on the 'Cape Flats' (Morris & Parry, 2006). However, alcohol and drug use have been overlooked and their effect of diminishing inhibitions and socio-economic consequences may influence the spread of HIV (Furber, Newell & Lubben, 2002).

### **5.3 ATTITUDES OF STUDENTS TOWARDS HIV/AIDS**

There is a stigma that surrounds people living with HIV/AIDS; as a result people who have the virus are often rejected by society or their communities, frowned upon and, in many instances, physically abused. The stigma that surrounds the virus makes it difficult for people with the virus to accept it. This has dire consequences. Denial of having contracted the disease due to fear of discrimination leads to a person not receiving the proper treatment and transmitting it to others. Stigma impacts on behaviour change as it limits the possibility of using certain safer sexual practices (Skinner *et al.*, 2004). Behaviour such as wanting to use or buy a condom is seen as a marker for HIV, leading to rejection and stigma (Skinner *et al.*, 2004).

People fear the disease because people have fear both the unknown and death. However with the number of people infected, we need to know how to address the situation and the live together with acceptance and without fear or stigmatisation. This can only be through

a thorough understanding of HIV/AIDS. One again knowledge is a key. As people realise that HIV/AIDS is a disease that can be both prevented and treated, attitudes will change, and denial, stigma and discrimination will rapidly reduce (WHO, 2003).

### **5.3.1 Factors influencing attitudes**

The attitudes of the respondents varied greatly from a low score of 24 to a high score of 90 (Mean = 67). The 25<sup>th</sup> percentile was 58 and 75<sup>th</sup> percentile was 76. The findings suggest that students are moderately empathetic to HIV/AIDS and towards people with the virus. Similar results were found by Haung *et al.*, (2005), where results show that many Chinese university students hold positive attitudes towards people with HIV/AIDS. Findings from the current study show that more than half the respondents strongly agreed that support groups for people with HIV would be very helpful to them; that people should not be afraid of contracting HIV from casual contact such as hugging or shaking hands; that HIV blood tests should be kept confidential to avoid discrimination against people with positive results; and that they would not avoid a friend if s/he had AIDS.

The results also show that age and gender were found to be significantly associated with having a higher attitude score. An increase in age resulted in an increase in the attitude score by 0.36 while, males scored a significant 4.6 units lower than females. The results are consistent with a study done by Ndinda, Chimbwete, McGrath & Pool, (2007) on community attitudes towards people living with HIV in rural KwaZulu-Natal, where the researchers found that females were more compassionate than men.

### 5.3.2 Knowledge and attitudes

There is an association with gender and age with regards to knowledge and attitudes. The older an individual is, the more knowledgeable they are likely to be about HIV, and this influences how favorable their attitude towards people living with HIV/AIDS is likely to be. Females were much more empathetic than males and had a significantly higher knowledge score.

Another interesting finding was that although UKZN had a higher median knowledge score than UWC, the attitude score between the universities did not differ significantly. The results are consistent with findings by Shisana *et al.*, (2002) which showed that majority of the South African population express attitudes of acceptance to people living with AIDS. A study done in Japan among female college students gave a different view where the results show that although the students had a good knowledge of HIV/AIDS, half of the students still stated that they would not live in the same house as a person with HIV/AIDS without worry (Maswanya, Moji, Aoyagi, Yahata, Kusano, Nagata, Izumi & Takemoto, 2000). The findings were attributed to Japanese people not encountering many people who are HIV positive which in turn has led to fear, ignorance and uncertainty among adolescents (Maswanya *et al.*, 2000). Due to the high HIV prevalence in South Africa, the South African population is exposed to HIV positive people on a daily basis, many of whom are friends and/or relatives. This could also have impacted on the favorable attitudes score. Skinner *et al.*, (2004) found that knowing the person who is HIV positive encourages greater feelings of compassion, but fear remains both of the disease and the associated stigma.

Tavoosi *et al.*, (2004) in a study among high school students found serious attitudinal problems caused by lack of education about AIDS that needed to be addressed. Similarly in the present study, the poor attitude of males due to a lack of detailed HIV/AIDS knowledge needs to be attended to. According to other studies better knowledge about how HIV is transmitted has been shown to have a positive influence on both prevention behaviours and positive attitudes towards people with HIV/AIDS (Shisana *et al.*, 2002). However; this does not imply that knowledge is a sufficient condition for behavioural change and positive attitudes, but it is a necessary condition (Shisana *et al.*, 2002).

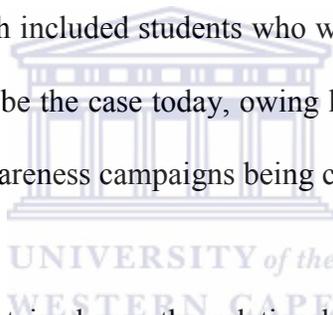
#### **5.4 BELIEFS**

The belief one has concerning HIV/AIDS has a profound effect on the way one conceptualises the virus and behaves in response to it. In many instances youth have been found to have an optimistic outlook, with the belief that they are at little or no risk of contracting the virus irrespective of their behaviour (Eaton *et al.*, 2003; Chng, Eke-Huber, Eaddy & Collins, 2005; Eaton *et al.*, 2003). Every individual is at some risk of contracting the disease, hence acknowledging that risk enables one to take the necessary precautions to prevent it.

##### **5.4.1 Factors influencing beliefs**

There was a statistical difference between the universities with regard to their beliefs about the likelihood of contracting the virus, with the UWC students more likely to consider themselves as having ‘no chance’ compared to the UKZN students, who were more likely to choose ‘Don’t know’. This is interesting because the results from the study show that

UWC students were more likely to have sex before the age of 18 and have more sexual partners compared to students from UKZN. In view of their responses students from UWC therefore come across as being more optimistic about not contracting the disease compared to UKZN students. This is a problem as UWC students can be categorised as being the 'high risk' based on their behavioural responses. This is in keeping with findings among college students in Nigeria, where students exhibited an 'optimism bias' despite being classified as being at 'high risk' of contracting the disease (Ijadunola *et al.*, 2007). A cause for concern is that this is similar to findings just under two decades ago where less than half the youth perceived themselves to be at no risk of contracting the virus (Friedland *et al.*, 1991, Visser *et al.*, 1995) which included students who were classified as being in the high risk category. This should not be the case today, owing largely to the high prevalence rate and the multiple HIV/AIDS awareness campaigns being currently run in South Africa.



Another significant statistic obtained was the relationship between age and belief. The results showed that the older a person was, the more they would consider themselves at risk of contracting the disease. This is consistent with the knowledge and attitudes sections. This shows growth in the right direction as one can interpret this information as the older an individual is, the more aware they are about the virus. This could be attributed to the individual finally taking cognisance of the virus due to a greater duration of being exposed to HIV/AIDS awareness campaigns.

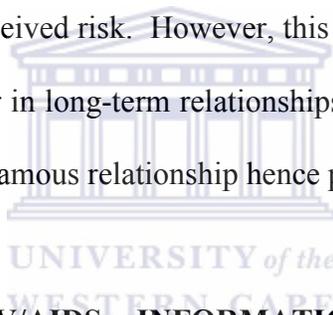
#### 5.4.2 Knowledge and beliefs

The majority of students stated they knew ‘a lot’ about HIV/AIDS (49.2%). Although the knowledge scores are not high, collectively most respondents deemed themselves as having ‘no chance’ of contracting the HIV virus (48.9%). Identical to the association between age and knowledge, there was also association between age and belief. The findings suggest that the older a respondent was, the more knowledgeable s/he was and the more likely s/he perceived themselves as being susceptible to contracting the disease.

Knowledge has been known to be associated with risk perceptions (Barden-O’Fallon, de Graft-Johnson, Bisika, Sulzbach, Benson & Tsui, 2004). The results yielded amid the universities with regard to contraction of the virus was interesting, with UWC obtaining a lower knowledge score while deeming themselves as having no chance of contracting the virus, compared to UKZN students who scored higher in the knowledge section and were more likely to choose ‘don’t know’. These findings thus illustrate that knowledge has an impact as to whether or not an individual will consider themselves at risk of contracting the virus. This, in turn, will impact on the behavioural decisions of an individual as unrealistically low beliefs of contacting the disease have been associated in some groups with high rates of sexual activity and low condom use (Eaton *et al.*, 2003) which is actually consistent with the UWC results in this study. Research done in Zimbabwe has shown that women who have higher levels of knowledge, perception of risk and have a relative or friend infected with HIV were associated with behavioural change (Gregson, Zhuwau, Anderson & Chandiwana, 1998). This is important, as it leads to an individual taking the

necessary precautions and making the correct decisions if they consider themselves at risk of contracting the virus; and will, for example, use of a condom during sexual intercourse.

On the other hand, age was also associated with an increase in sexual activity. Thus the older and more knowledgeable a student was, and the more s/he perceived themselves at risk of contracting the virus, the more sexually active s/he was. This was similar to research by Akwara, Madise & Hinde (2003) where the researcher found high levels of risk-taking was associated with high levels of perceived risk. Conversely, the increase in sexual activity with age could be reason for students' increased knowledge about the disease and the increase in perceived risk. However, this could have also been attributed to older students being married or in long-term relationships which, should hopefully, lead to safer sexual practices, a monogamous relationship hence prevention of new infections.



## **5.5 SOURCES OF HIV/AIDS INFORMATION AMONG UNIVERSITY STUDENTS**

Television and billboards were regarded as the main sources of HIV/AIDS information among the students. When compared to other articles, the findings are consistent among youth nationally and internationally (Lonn *et al.*, 2007, Pharaoh *et al.*, 2007, Opt *et al.*, 2004, Ichharam *et al.*, 2002). This shows that media is an efficient way to disseminate important information, however the information that is transmitted may be limited to certain aspects of HIV/AIDS only, such as condom use, abstinence and knowing your HIV status, thereby restricting knowledge of an individual. Media also leaves room for misinterpretation which is why it should be supplemented with more formal education.

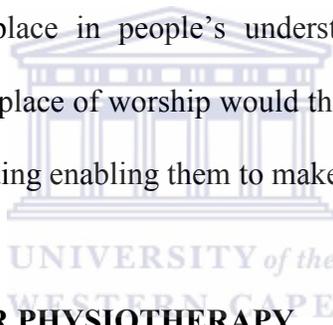
Only 71.9% of the students stated having received HIV/AIDS information from campus. The results are higher than those for international students' (29.9%), (Opt *et al.*, 2004), however considering the high prevalence of the disease among the youth in South Africa it is disappointing. It is unacceptable that HIV/AIDS information received from campuses is so low considering a full-time student averages between six-to-eight hours a day on campus. Interestingly enough, research done by Friedland *et al.*, (1991) showed that campus health was the preferred source of HIV/AIDS information. Could the campus health services not be as involved due to the mass campaigning on and off campus? Irrespective, there should be some follow through on their part as most students would find it easier to go to the campus clinic as it is both cheap and accessible.

Another worrying statistic is that less than half the students are receiving HIV/AIDS information from friends and family. HIV is a topic that should be openly discussed amongst peers and family members in order to prevent infection, provided they receive the correct information. Once again the path points to formal education. It is within the control of higher education to offer courses that provide the students with the correct information rather than have them guess or receive false information, thereby placing them at risk.

## **5.6 RELIGIOUS BELIEFS OF UNIVERSITY STUDENTS**

A vast majority of the respondents were Christian (n = 402, 61%). Although more than half the respondents stated they attend a place of worship at least once a week (n = 361, 55%). Many of the students (n =233, 35%) stated that they attend their place of worship

infrequently or not at all (n = 69, 10%). This is important as literature suggests that religious attitudes are associated with conservative sexual attitudes and perceived vulnerability to HIV (Lefkowitz, Gillen, Shearer & Boone, 2004). Religion and behaviour are closely linked because religion has the potential to influence decisions regarding sex-related issues such as birth control, abstinence and abortion (Lefkowitz *et al*, 2004). By not attending a place of worship, it leaves the individual open to formulate their own moral decisions and ideas concerning sex prior to marriage and condom use. Considering that many of the students are in their early twenties, making the correct decision with the influence of peer and cultural pressure is difficult. Religious teachings have also been found to have a prominent place in people's understanding of HIV/AIDS in Africa (Caldwell, 2000). Attending a place of worship would therefore give that student the tools, support and correct moral standing enabling them to make an informed choice.



## **5.7 IMPLICATIONS FOR PHYSIOTHERAPY**

Physiotherapy is described as a branch of medicine that incorporates physical means such as manual therapy, respiratory therapy and exercise therapy to rehabilitate an individual to their highest functional level. Physiotherapists also use health promotion as a tool to prevent disease and injury from occurring. This is achieved by providing advice and health education to patients, carers, support workers and other health care professionals. Thus physiotherapy not only involves treating, but also teaching patients. In treating HIV infected patients a physiotherapist would provide symptomatic and prophylactic treatment to help patients have a healthier and better quality life. This involves respiratory physiotherapy for chest infections, exercise therapy to prevent and/or improve muscle

atrophy and general rehabilitation to improve the functional capabilities of these patients. Health promotion is an essential tool that should not be neglected. Health care professionals have always practiced their professions in a threefold objective: curing, caring and preventing (Kemmm & Close, 1995). The pattern usually followed is curing and if this is limited, then caring with minimal emphasis on prevention is followed (Kemmm *et al.*, 1995). Patient education is important in every profession, as prophylaxis is better than cure. It is thus imperative for physiotherapists to be involved in health promotion campaigns targeting the youth. This will require physiotherapists to broaden their role and work in partnership with those engaged in health promotion, such as community health workers (Porter, 2008). These campaigns should incorporate education on the pathogenesis of the HIV virus, modes of HIV transmission and the progressively debilitating effect the virus has on an individual's functional capacity. Through education and delivering relevant information on how the virus will affect the independence and skill of an individual over a period of time, we can empower the youth and guide them to make an informed decision.

The statistics of the study prove that a greater effort is required to reduce the prevalence of HIV. The study revealed that ignorance among younger students was greater than that of older students. Young adults are thus embarking on a detrimental path of ill-health which can be avoided. These young adults need to be made aware of the social implications of ignorance towards HIV and the possible repercussions of the attitude that "it won't happen to me". Empowerment of our youth cannot be achieved through physiotherapy alone. This requires a multi-disciplinary team approach involving all health care professionals. We

need to strategise and implement community outreach programmes, as well as structured courses at schools and universities and occupational health education workshops.

The tools to prevent the spread of HIV globally begin with making informed decisions. Morals, values and self-confidence are an integral part of shaping the children of tomorrow into bright successful leaders. Better planning is far less costly than better reacting. Therefore, why not prevent infection before it is allowed to consume our society? We cannot wipe out the mistakes of yesterday, however we can learn from them. But, in order for society to build a brighter and better future, the seeds of empowerment need to be planted today.



## 5.8 SUMMARY

This chapter discussed the findings of the study in relation to the knowledge, attitudes, beliefs, behaviours and sources of information among students at two tertiary institutions in South Africa. The results obtained from the two universities were also compared.

Although students had a good knowledge of HIV/AIDS, they are still lacking detailed knowledge on the modes of HIV transmission which is vital to the prevention of infection. Students from both universities displayed a positive attitude towards people living with HIV/AIDS. UWC students were considered to engage in riskier behaviour compared to UKZN students in terms of initial age of first sexual experience and number of sexual partners. There was a relationship noted between gender and age in terms of knowledge, attitudes and behaviour. With regard to belief, only age was significantly associated. There was a statistical difference between the universities in terms of knowledge, beliefs and some aspects of their behaviour.

The findings were contrary to what one would expect to find. How is it that the HIV prevalence remains so low in despite students engaging in such risky behaviours in the Western Cape compared to KwaZulu-Natal? Theoretically, the results should have been reversed. One poor decision is all that is required to contract the disease. UKZN has the lower frequency of engaging in risky behaviour. However, when risky behaviour is engaged, all inhibitions could be lost due to the feeling of freedom. Alternatively, UKZN students could be making a concerted effort to change and protect themselves. UWC

students are assuming that they will not contract the disease or are not as fearful of contracting it possibly due to less exposure compared to their UKZN counterparts.

The importance of the universities and health care professionals to step in and provide a more integrated formal education on HIV/AIDS for university students is apparent. The next chapter presents the summary conclusion and recommendations.



## CHAPTER 6

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 6.1 INTRODUCTION

This chapter focuses on the summary of the study. The conclusion of the study, the limitations and recommendations are also discussed.

#### 6.2 SUMMARY

The study explored the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among students at two tertiary institutions in South Africa. The study also identified the difference between the two universities as they are situated in different provinces; namely KwaZulu-Natal and Western Cape.

The questionnaire used in the study was an amalgamation from those developed by Shrum *et al.*, (1989), Brown *et al.*, (1991), Carey *et al.*, (1997), The National College Students Health Risk Behavior survey and the AIDS Attitudes survey from the Centers of Disease Control and Prevention. The questionnaires were then adapted to suit South African students.

The study yielded surprising results in terms of the differences between the two campuses. The results demonstrated that the student participants in the study had a sound basic knowledge of HIV/AIDS but lacked in-depth information on the transmission of the virus –

information needed to avoid infection. Students from UKZN scored higher overall than students from UWC with regards to the knowledge questionnaire. Students in general showed a positive attitude towards people living with HIV/AIDS on both campuses. UWC students were more optimistic than UKZN students, which was relevant and vital point considering UWC students participated in riskier behaviours than UKZN students. However, due to the high incidence of HIV/AIDS in KwaZulu-Natal, students are more likely to be aware of the virus than students in the Western Cape. There was also a statistical difference noted between the gender and age, with males scoring lower than females and older students obtaining higher scores in terms of knowledge and attitudes. Males were also likely to have more sexual partners and consume alcohol on a regular basis than their female counterparts.



Media, more specifically television and billboards, contributed the most to the students' knowledge of HIV/AIDS. Only 71.9% of students noted that they received information from the campus health centre. That means that 447 students did not receive information from the campuses, which was a worrying statistic considering the number of hours a full-time student spends on campus. The lack of knowledge and students not accessing information on campuses could possibly fuel risky behaviours. This increases the risk of the transmission of HIV in South African youth attending tertiary institutions.

### 6.3 CONCLUSION

This study highlights a significant lack of awareness by students at tertiary institutions as to how HIV is transmitted. It also draws attention to areas that should be addressed to reduce the spread of HIV.

HIV/AIDS does not only affect the person infected by the virus, but has a ripple effect that goes beyond the affected family and has implications for health care and the economy of South Africa. A person infected with HIV/AIDS will probably have to take time off work as a result of the infection. This can affect their take-home pay once their sick leave allocation has been used up, and will also affect productivity and morale at the work place. As the disease progresses it could result in the person no longer being able to work. This results in a loss of income for the family; not only as a result of the person infected having to stop work, but also because other family members will have to take time off work or subsistence farming (people often return to their rural homesteads when very ill) in order to care for the sick, having a double impact on income for the family concerned. Businesses also suffer as a result of having to recruit and train a new employee to fill the position. The health care system has also come under strain as a result of HIV/AIDS such as the cost of care, number to care for and fatigue by care giver.

We can see that students at UKZN are now making a concerted effort to protect themselves and UWC students could be taking the situation for granted because as stated by Barnes (2000) they have been sheltered by the virus due to the low prevalence in the Western Cape. Empowering youth with the ability to make informed decisions around sex and HIV

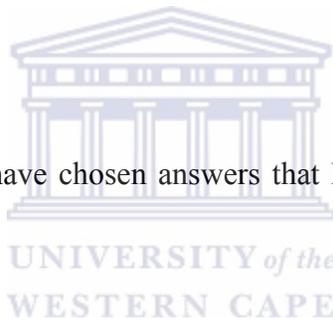
is one effective way to protect them from contracting the virus. One of the methods for the youth to protect themselves is if they make an informed decision, and this can only be achieved through education. This study supports this as UKZN students, having a higher knowledge score, engaged in less risky behaviours compared to UWC students. Ongoing and more importantly in-depth information, with a focus on viral transmission modes should be provided to the students in order to help them select safer sexual practice and incorporate these practices into their lives.

The study has met its objectives and confirmed that although students have a sound basic knowledge on HIV/AIDS, they lack more in-depth knowledge needed to prevent infection. Students still participated in risky behaviour despite having a basic knowledge of HIV, males more than females. The study also highlighted that that alcohol is more of a problem on campuses than substance abuse. The implications of the partaking of alcohol in relation to HIV/AIDS are often overlooked and needs to be addressed along with the disease.

## 6.4 LIMITATIONS OF THE STUDY

There were several limitations in this study namely:

1. A self administered questionnaire was given to the respondent; this relied on the ability of the respondent to recall information. The participants might not have been able to recall all the information received on HIV/AIDS.
2. The questionnaire was done close to exam time therefore some of the students selection with regard to behaviours may have been dissimilar had it been answered after exams.
3. The respondent could have chosen answers that he/she deemed to be socially and morally acceptable.
4. Caution should be taken in generalising the results of the study to young people in general in KwaZulu-Natal and the Western Cape.

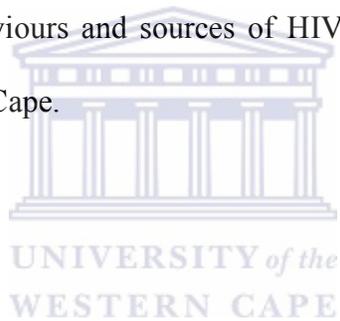


## 6.5 RECOMMENDATIONS

The following recommendations are made based on the results of the study:

1. Campus health care centres need to be more actively involved in the distribution of relevant preventative information concerning HIV to the students.
2. Alcohol and substance abuse is a topic that needs to be addressed as binge drinking is a problem on campuses, especially among males.
3. A full curriculum should be held in the student's first year and smaller tutorials thereafter to remind, reinforce and update the student about the disease. This should focus on information regarding the transmission of the disease.
4. Many of the students categorised as having a 'high risk' of contracting the disease, believed themselves not to be at risk of contracting the disease. This is serious and needs to be addressed. Educational courses should therefore incorporate what type of lifestyle classifies an individual as high risk and help by providing a means of reducing the risk.
5. Female students need to be empowered in areas of self development such as self esteem and self worth.

6. Ongoing evaluation of courses are required to improve and structure the content to make it more appropriate to students.
7. Further research is required in this area to determine why UWC students are engaging in risky behaviours and if the changes in the UKZN students are consistent.
8. Future research should include more universities in these two provinces, which would provide more representative information of university students' knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information in KwaZulu-Natal and the Western Cape.



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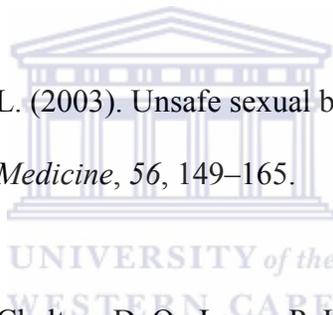
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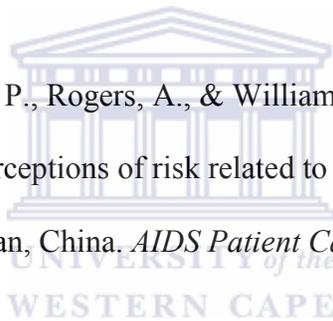
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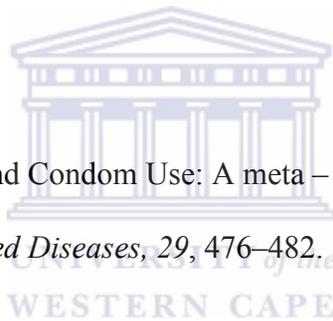
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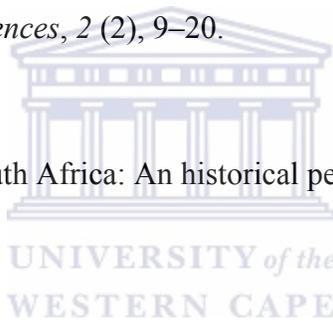
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## APPENDIX 1

### Ethical Clearance

OFFICE OF THE DEAN  
DEPARTMENT OF RESEARCH  
DEVELOPMENT

Private Bag X17, Bellville 7535  
South Africa  
Telegraph: UNIBELL  
Telephone: +27 21 959-2948/2949  
Fax: +27 21 959-3170  
Website: www.uwc.ac.za

25 June 2008

**To Whom It May Concern**

I hereby certify that the Senate Research Committee of the University of the Western Cape has approved the methodology and the ethics of the following research project by Ms. P Reddy (Dept. of Physiotherapy)

Research Project: The knowledge, attitudes, beliefs, behaviour and sources of HIV/AIDS information among university students at two tertiary institutions in South Africa

Registration no. 08/5/9

  
*Peter Suster*  
Research/Development  
University of the Western Cape



UNIVERSITY of the  
WESTERN CAPE

A place of quality, a place to grow, from hope to action through knowledge

## APPENDIX 2

### Permission letter to Head of Department



## UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa  
Tel: +27 21-959, Fax: 27 21-959  
E-mail: 2114049@uwc.ac.za

To: The Head of Department

### Re: Administration of Questionnaires to students for Research in HIV/AIDS

Dear: Sir/Madam

I am a postgraduate student doing a Master of Science degree in the department of physiotherapy at the University of the Western Cape. Due to the nature of my course, I am conducting a study where I intend to gather information about the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among university students at two tertiary institutions in South Africa. The two provinces I have chosen to conduct the study in are; KwaZulu-Natal and the Western Cape. The reason these two provinces were chosen is because KwaZulu-Natal has the highest prevalence of HIV/AIDS in South Africa and the Western Cape has the lowest. I have chosen via convenience selection to conduct the study at, the University of Kwa-Zulu Natal (UKZN), the Westville Campus and the University of the Western Cape (UWC).

As part of my study, I have to administer questionnaires to students. I would like to request permission to include students from your department as part of the study. Ethical Clearance for the research project has been obtained from the University of the Western Cape. The registration number is 08/5/9 (please see attached letter).

This research project is an excellent opportunity to determine why the prevalence of HIV/AIDS in the country has not significantly reduced despite the numerous prevention campaigns. The outcomes of the study will provide valuable information regarding the knowledge, attitudes, behavior, beliefs and sources of HIV/AIDS information among university students. The results of this study will also add to the current literature on risks for HIV/AIDS among university students and may be used to review current policies and programmes addressing HIV/AIDS.

I look forward to hearing from you. Should you require any further information concerning the research please feel free to contact me.

Thanking you

Yours Sincerely

---

Miss Preshani Reddy  
(BSc) Physiotherapy  
(C) 083 799 7409  
2114049@uwc.ac.za



## APPENDIX 3

### Letter of information to Participant



## UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-959, Fax: 27 21-959

E-mail: 2114049@uwc.ac.za

Dear Potential Participant

I am a postgraduate student doing a Master of Science degree in the department of physiotherapy at the University of the Western Cape. Due to the nature of my course, I am conducting a study where I intend to gather information about the knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among university among students at two tertiary institutions in South Africa.

The information you provide may help with future efforts towards slowing the spread of sexually transmitted diseases including HIV/AIDS. The results of this study will also add to the current literature on risks for HIV/AIDS among university students and may be used to review current policies and programmes addressing HIV/AIDS. I hope that, in the future, other people might benefit from this study through improved understanding of HIV/AIDS and how to be more effective in the prevention of the disease in terms of information distribution and campaigning

The survey is voluntary and it has been designed to be as brief and convenient as possible. The survey should take 30 minutes to complete. No names or ID numbers should be put on the survey. A consent form will have to be signed prior to commencement of the survey. The signed consent form should be detached from the questionnaire prior to hand and placed in a separate box from the questionnaire, therefore guaranteeing anonymity. The signed consent form and questionnaire will be kept in a locked filing cabinet which only

the researcher will have access to. None of the information you provide will be shared with anyone: including lecturers or colleagues at the university. If you feel you don't want to participate further in this study at this point, you have the liberty to withdraw. For those that do want to continue, we will move on and ask for your voluntary permission to continue.

Should you have any questions or concerns before or after the study, feel free to contact me telephonically or via e-mail.

Preshani Reddy

Cell: 0837997409

E-mail: 2114049@uwc.ac.za



APPENDIX 4

Consent form



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

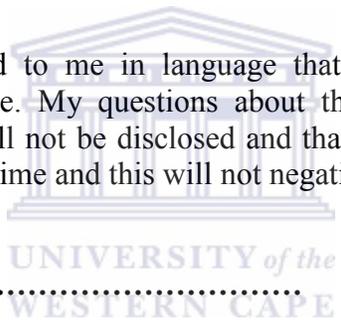
Tel: +27 21-959, Fax: 27 21-959

E-mail: 2114049@uwc.ac.za

Title of Research Project:

The knowledge, attitudes, beliefs, behaviours and sources of HIV/AIDS information among university students at two tertiary institutions in South Africa.

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.



**Participant's name**.....

**Participant's signature**.....

**Date**.....

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Student: Miss Preshani Reddy  
Cell: 0837997409  
Email: 2114049@uwc.ac.za

Study Coordinator: Professor Jose' Franz  
University of the Western Cape  
Private Bag X17, Belville 7535  
Telephone: (021)959-3647

## APPENDIX 5

### Questionnaire

## UNIVERSITY OF THE WESTERN CAPE

### HIV/AIDS Knowledge, Attitudes, Beliefs and Behaviors and Sources of HIV prevention Information Study

**INSTRUCTIONS:** From question 2 (Q2), please circle your response.

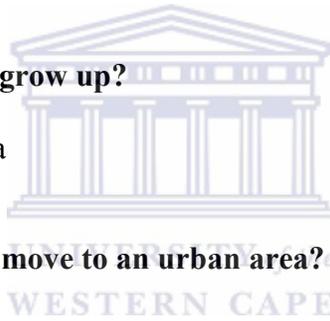
**Q1. How old are you?** (Age last birthday) ..... (Years)

**Q2. What is your gender?**

1. Female
2. Male

**Q3. In which area did you grow up?**

1. Urban (city) area
2. Rural area



**Q4. If rural, when did you move to an urban area?**

1. 1 – 3 years ago
2. 3 – 5 years ago
3. 5 – 10 years ago
4. More than 10 years
5. I am only here to study and plan on returning

**Q5. What is your academic discipline?**

1. Arts/Humanities/Social Sciences
2. Physical Sciences
3. Medical/Health Sciences
4. Education
5. Commerce
6. Public/Business Administration
7. Engineering/Technology

**Q6. What is your current year at University?**

1. 1<sup>st</sup> year
2. 2<sup>nd</sup> year
3. 3<sup>rd</sup> year
4. 4<sup>th</sup> year
5. 5<sup>th</sup> year
6. 6<sup>th</sup> year
7. Graduate/Postgraduate Student

**Q7. Are you a full-time student?**

1. Yes
2. No

**Q8. To which race group do you belong?**

1. White
2. African
3. Coloured (mixed ancestry)
4. Indian
5. Asian
6. Other



**Q9. What is your marital status?**

1. Never been married
2. Married
3. Separated
4. Divorced
5. Widowed
6. Co-habiting/Living with someone as married

**Q10. Where do you currently live?**

1. University residence
2. Other university housing
3. Off-campus house or apartment
4. Parent/guardian's home
5. Other

**Q11. Are you a member of a social club or society eg. University choir/ athletic team?**

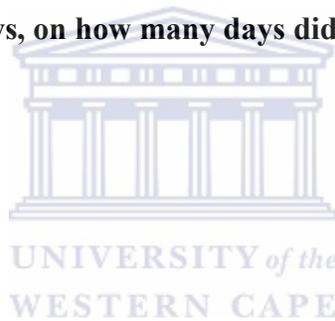
1. Yes
2. No

**Q12. How old were you when you had your first drink of alcohol?**

1. I have never drunk alcohol
2. I have never had a drink of alcohol other than a few sips
3. 12 years old or younger
4. 13 or 14 years old
5. 15 or 16 years old
6. 17 or 18 years old
7. 19 or 20 years old
8. 21 to 24 years old
9. 25 years old or older

**Q13. During the past 30 days, on how many days did you have at least one drink of alcohol?**

1. 0 days
2. 1 or 2 days
3. 3 to 5 days
4. 6 to 9 days
5. 10 to 19 days
6. 20 to 29 days
7. All 30 days



**Q14. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?**

1. 0 days
2. 1 day
3. 2 days
4. 3 to 5 days
5. 6 to 9 days
6. 10 to 19 days
7. 20 or more days

**Q15. During your life, how many times have you used marijuana (dagga)?**

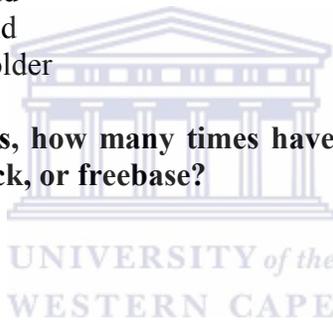
1. 0 times
2. 1 or 2 times
3. 3 to 9 times
4. 10 to 19 times
5. 20 to 39 times
6. 40 to 99 times
7. 100 or more times

**Q16. How old were you when you tried marijuana (dagga) for the first time?**

1. I have never tried marijuana
2. 12 years old or younger
3. 13 or 14 years old
4. 15 or 16 years old
5. 17 or 18 years old
6. 19 or 20 years old
7. 21 to 24 years old
8. 25 years old or older

**Q17. During the past 30 days, how many times have you used any form of cocaine, including powder, crack, or freebase?**

1. 0 times
2. 1 or 2 times
3. 3 to 9 times
4. 10 to 19 times
5. 20 to 39 times
6. 40 or more times



**Q18. During your life, how many times have you used any form of cocaine, including powder, crack, or freebase?**

1. 0 times
2. 1 or 2 times
3. 3 to 9 times
4. 10 to 19 times
5. 20 to 39 times
6. 40 to 99 times
7. 100 or more times

**Q19. How old were you when you tried any form of cocaine, including powder, crack, or freebase, for the first time?**

1. I have never tried cocaine
2. 12 years old or younger
3. 13 or 14 years old
4. 15 or 16 years old
5. 17 or 18 years old
6. 19 or 20 years old
7. 21 to 24 years old
8. 25 years old or older

**Q20. During your life, how many times have you sniffed glue, or breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?**

1. 0 times
2. 1 or 2 times
3. 3 to 9 times
4. 10 to 19 times
5. 20 to 39 times
6. 40 to 99 times
7. 100 or more times



**Q21. During your life, how many times have you taken steroid pills or shots without a doctor's prescription?**

1. 0 times
2. 1 or 2 times
3. 3 to 9 times
4. 10 to 19 times
5. 20 to 39 times
6. 40 to 99 times
7. 100 or more times

**Q22. During your life, how many times have you used any other type of illegal drug, such as LSD, PCP (Angel dust), ecstasy, magic mushrooms, speed, ice, tic or heroin?**

1. 0 times
2. 1 or 2 times
3. 3 to 9 times
4. 10 to 19 times
5. 20 to 39 times
6. 40 to 99 times
7. 100 or more times

**Q23. During the past 30 days, how many times have you used any other type of illegal drug, such as LSD, PCP (Angel dust), ecstasy, magic mushrooms, speed, ice, tic or heroin?**

1. 0 times
2. 1 or 2 times
3. 3 to 9 times
4. 10 to 19 times
5. 20 to 39 times
6. 40 or more times

**Q24. During the past 30 days, how many times have you used any illegal drug in combination with drinking alcohol?**

1. 0 times
2. 1 or 2 times
3. 3 to 9 times
4. 10 to 19 times
5. 20 to 39 times
6. 40 or more times

**Q25. During your life, how many times have you used a needle to inject any illegal drug into your body?**

1. 0 times
2. 1 time
3. 2 or more times



**Q26. How old were you when you had sexual intercourse for the first time?**

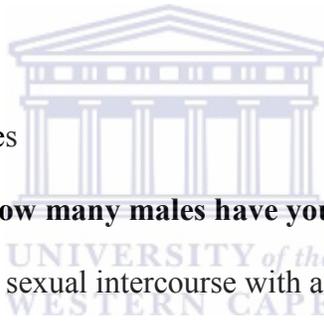
1. I have never had sexual intercourse
2. 12 years old or younger
3. 13 or 14 years old
4. 15 or 16 years old
5. 17 or 18 years old
6. 19 or 20 years old
7. 21 to 24 years old
8. 25 years old or older

**Q27. During your life, with how many females have you had sexual intercourse?**

1. I have never had sexual intercourse with a female
2. 1 female
3. 2 females
4. 3 females
5. 4 females
6. 5 females
7. 6 or more females

**Q28. During the past 3 months, with how many females have you had sexual intercourse?**

1. I have never had sexual intercourse with a female
2. I have had sexual intercourse with a female, but not during the past 3 months
3. 1 female
4. 2 females
5. 3 females
6. 4 females
7. 5 females
8. 6 or more females



**Q29. During your life, with how many males have you had sexual intercourse?**

1. I have never had sexual intercourse with a male
2. 1 male
3. 2 males
4. 3 males
5. 4 males
6. 5 males
7. 6 or more males

**Q30. During the past 3 months, with how many males have you had sexual intercourse?**

1. I have never had sexual intercourse with a male
2. I have had sexual intercourse with a male, but not during the past 3 months
3. 1 male
4. 2 males
5. 3 males
6. 4 males
7. 5 males
8. 6 or more males

**Q31. During the past 30 days, how many times did you have sexual intercourse?**

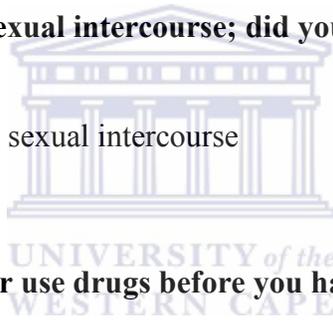
1. 0 times
2. 1 time
3. 2 or 3 times
4. 4 to 9 times
5. 10 to 19 times
6. 20 or more times

**Q32. During the past 30 days, how often did you or your partner use a condom?**

1. I have not had sexual intercourse during the past 30 days
2. Never used a condom
3. Rarely used a condom
4. Sometimes used a condom
5. Most of the time used a condom
6. Always used a condom

**Q33. The last time you had sexual intercourse; did you or your partner use a condom?**

1. I have never had sexual intercourse
2. Yes
3. No



**Q34. Did you drink alcohol or use drugs before you had sexual intercourse the last time?**

1. I have never had sexual intercourse
2. Yes
3. No

**Q35. Does any relative, friend or colleague of yours have or had HIV/AIDS?**

1. Yes
2. No
3. Not sure

**Q36. What are the chances that you might catch HIV?**

1. No chance
2. Moderate chance
3. Good chance
4. Don't know (*Skip to Q38*)
5. Already infected (*Skip to Q38*)

**Q37. What is the main reason why you would not contract HIV/AIDS?  
(Circle only one answer)**

1. Abstinence from sex/no sex
2. Have/had only one partner
3. Always use a condom
4. Use contraceptives
5. Use traditional medicine
6. Had sex with a virgin
7. Partner is faithful
8. No needle sharing
9. No blood contact
10. There is no such thing as AIDS
11. It can't happen to me
12. Have/had multiple sexual partners
13. Partner is infected
14. Have unprotected sex
15. Drug use
16. Accidents
17. Contact sports
18. Rape
19. Other (specify)-----



**INSTRUCTIONS: For each statement, please circle true (T), false (F), or I don't know, please do not guess; instead circle don't know (DK).**

	(1)	(2)	(3)
	True	False	Don't Know
Q38. HIV and AIDS are the same thing.	T	F	DK
Q39. There is a cure for AIDS.	T	F	DK
Q40. A person can get HIV from a toilet seat.	T	F	DK
Q41. Coughing and sneezing DO NOT spread HIV.	T	F	DK
Q42. HIV can be spread by mosquitoes.	T	F	DK
Q43. AIDS is the cause of HIV.	T	F	DK
Q44. A person can get HIV by sharing a glass of water with someone who has HIV.	T	F	DK
Q45. HIV is killed by bleach.	T	F	DK
Q46. It is possible to get HIV when a person gets a tattoo.	T	F	DK
Q47. A pregnant woman with HIV can give the virus to her unborn baby.	T	F	DK
Q48. Pulling out the penis before a man climaxes or ejaculates keeps a woman from getting HIV during sex.	T	F	DK
Q49. A woman can get HIV if she has anal sex with a man.	T	F	DK
Q50. Showering, or washing one's genitals or private parts after sex keeps a person from getting HIV	T	F	DK
Q51. Eating healthy foods can keep a person from getting HIV.	T	F	DK

	<b>True</b>	<b>False</b>	<b>Don't Know</b>
Q52. All pregnant women infected with HIV will have babies born with AID	T	F	DK
Q53. Using a latex condom or rubber can lower a person's chance of getting HIV.	T	F	DK
Q54. A person with HIV can look and feel healthy.	T	F	DK
Q55. People who have been infected with HIV, quickly show serious signs of being infected.	T	F	DK
Q56. A person can be infected with HIV for 5 years or more without getting AIDS.	T	F	DK
Q57. There is a vaccine that can stop adults from getting HIV	T	F	DK
Q58. Some drugs have been made for the treatment of AIDS.	T	F	DK
Q59. Women are always tested for HIV during their pap smears (An internal vaginal exam in which cells from the cervix and vagina are examined for abnormalities.)	T	F	DK
Q60. A person can not get HIV by having oral sex (mouth to penis) with a man who has HIV.	T	F	DK
Q61. A person can get HIV even if she or he has sex with a person one time.	T	F	DK
Q62. Using a lambskin condom or rubber is the best protection against HIV.	T	F	DK
Q63. People are likely to get HIV by deep kissing, putting their tongue into their partner's mouth, if their partner has HIV.	T	F	DK
Q64. A person can get HIV by giving blood.	T	F	DK
Q65. A woman can not get HIV if she has sex during her period/menstruation.	T	F	DK

	<b>True</b>	<b>False</b>	<b>Don't Know</b>
Q66. You can usually tell if someone has HIV by looking at them.	T	F	DK
Q67. There is a female condom that can help decrease a woman's chance of getting HIV.	T	F	DK
Q68. A natural skin condom works better against HIV than a latex condom.	T	F	DK
Q69. A person will not get HIV if she or he is taking antibiotics.	T	F	DK
Q70. Having sex with more than one partner can increase a person's chance of being infected with HIV.	T	F	DK
Q71. Taking a test for HIV one week after having sex will tell a person if she or he has HIV.	T	F	DK
Q72. A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV.	T	F	DK
Q73. A person can get HIV through contact with saliva, tears, sweat, or urine.	T	F	DK
Q74. A person can get HIV from the wetness from a woman's vagina.	T	F	DK
Q75. A person can get HIV if having oral sex, (mouth on vagina), with a woman.	T	F	DK
Q76. If a person tests positive for HIV, then the test site (clinic) will have to tell all of his or her partners.	T	F	DK
Q77. Using vaseline or baby oil with condoms lowers the chance of getting HIV.	T	F	DK
Q78. Washing equipment used to inject drugs with cold water kills HIV.	T	F	DK
Q79. A woman can get HIV if she has vaginal sex with a man who has HIV.	T	F	DK

	<b>True</b>	<b>False</b>	<b>Don't Know</b>
Q80. Athletes who share needles when using steroids can get HIV from the needles.	T	F	DK
Q81. Douching (introducing a stream of water into the vagina) after sex will keep a woman from getting HIV.	T	F	DK
Q82. Taking vitamins keeps a person from getting HIV.	T	F	DK



**INSTRUCTIONS:** For each of the following statements, please note whether you agree or disagree with the statement by circling the number that corresponds with your answer. There are no correct answers, only your opinions. Use the following scale:

- 1=SA: Strongly agree with the statement**
- 2=A: Agree with the statement**
- 3=N: Neither agree nor disagree with the statement**
- 4=D: Disagree with the statement**
- 5=SD: Strongly disagree with the statement**

	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Q83. Limiting the spread of AIDS is more important than trying to protect the rights of people with AIDS.	1	2	3	4	5
Q84. Support groups for people with HIV would be very helpful to them.	1	2	3	4	5
Q85. I would consider marrying someone with HIV infection.	1	2	3	4	5
Q86. I would quit my job before I would work with someone who has AIDS.	1	2	3	4	5
Q87. People should not be afraid of catching HIV from casual contact, like hugging or shaking hands.	1	2	3	4	5
Q88. I would like to feel at ease around people with AIDS.	1	2	3	4	5
Q89. People who receive positive results from the HIV blood test should not be allowed to get married.	1	2	3	4	5
Q90. I would prefer not to be around homosexuals for fear of catching AIDS.	1	2	3	4	5
Q91. Being around someone with AIDS would not put my health in danger.	1	2	3	4	5
Q92. I would consider asking a person who has been to prison to get an HIV test before dating them.	1	2	3	4	5
Q93. People with AIDS should not avoid being around other people.	1	2	3	4	5
Q94. People should avoid going to the dentist because they might catch HIV from dental instruments.	1	2	3	4	5

	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Q95. A person who has been to jail or prison has a greater chance of being infected with HIV.	1	2	3	4	5
Q96. The thought of being around someone with AIDS does not bother me.	1	2	3	4	5
Q97. People with HIV infection should not be prohibited from working in public places.	1	2	3	4	5
Q98. I would not want to be in the same room with someone who I knew had AIDS.	1	2	3	4	5
Q99. People who give HIV to others should face criminal charges.	1	2	3	4	5
Q100. People should not be afraid to donate blood because of AIDS.	1	2	3	4	5
Q101. A list of people who have HIV infection should be available to anyone.	1	2	3	4	5
Q102. I would date a person with AIDS.	1	2	3	4	5
Q103. No one deserves to have a disease like HIV infection.	1	2	3	4	5
Q104. It would not bother me to attend class with someone who has AIDS.	1	2	3	4	5
Q105. An employer should have the right to fire an employee with HIV infection regardless of the type of work s/he does.	1	2	3	4	5
Q106. I would allow my children to play with the children of someone known to have AIDS.	1	2	3	4	5
Q107. People get AIDS by performing unnatural sex acts.	1	2	3	4	5
Q108. People with HIV should not be looked down upon by others.	1	2	3	4	5
Q109. I could tell by looking at someone if s/he has AIDS.	1	2	3	4	5

	<b>SA</b>	<b>A</b>	<b>N</b>	<b>D</b>	<b>SD</b>
Q110. Health care workers should not refuse to care for people with HIV infection regardless of their personal feelings about the disease.	1	2	3	4	5
Q111. Children who have AIDS should not be prohibited from going to schools or day care centers.	1	2	3	4	5
Q112. HIV blood test results should be confidential to avoid discrimination against people with positive results.	1	2	3	4	5
Q113. HIV infection is a punishment of immoral behavior.	1	2	3	4	5
Q114. I would not be afraid to take care of a family member with AIDS.	1	2	3	4	5
Q115. If I discovered that my roommate had AIDS, I would move out.	1	2	3	4	5
Q116. Churches should take a strong stand against drug abuse and homosexuality to prevent the spread of AIDS.	1	2	3	4	5
Q117. I could comfortably discuss AIDS with others.	1	2	3	4	5
Q118. People with AIDS are not worth getting to know.	1	2	3	4	5
Q119. Parents who transmit HIV to their children should be prosecuted as child abusers.	1	2	3	4	5
Q120. People would not be so afraid of AIDS if they knew more about the disease.	1	2	3	4	5
Q121. I would not avoid a friend if s/he had AIDS.	1	2	3	4	5

**INSTRUCTIONS: For this set of questions, please circle your response.**

**Q122. How much do you know about AIDS?**

1. A lot
2. Some
3. A little
4. Nothing

**In the past month have you:**

**Q123. Seen public service announcements about AIDS on television?**

1. Yes
2. No

**Q124. Seen public service announcements about AIDS on bus/taxi/train displays?**

1. Yes
2. No

**Q125. Seen public service announcements about AIDS on airport public service posters?**

1. Yes
2. No

**Q126. Seen public service announcements about AIDS on street signs/billboards?**

1. Yes
2. No



**Q127. Heard public service announcements about AIDS on radio?**

1. Yes
2. No

**Q128. Received information about AIDS from university/campus programmes?**

1. Yes
2. No

**Q129. Received information about AIDS from church or religious organizations?**

1. Yes
2. No

**Q130. Received information about AIDS from your workplace?**

1. Yes
2. No
3. Not currently working
4. Self-employed

**Q131. Received information about AIDS from a health department?**

1. Yes
2. No

**Q132. Received information about AIDS from a community organization?**

1. Yes
2. No

**Q133. Received information about AIDS from a family member?**

1. Yes
2. No

**Q134. Received information about AIDS from a friend or acquaintance?**

1. Yes
2. No

**Q135. Received information about AIDS from an AIDS hotline?**

1. Yes
2. No

**Q136. Have you received information about AIDS from magazine articles?**

1. Yes
2. No

**Q137. Have you received information about AIDS from newspaper articles?**

1. Yes
2. No

**Q138. Have you received information about AIDS from store displays/store distributed brochures?**

1. Yes
2. No



**Q139. How would you describe your religious affiliation?**

1. Christianity
2. Muslim
3. Hindu
4. Atheist
5. Other

**Q140. How frequently do you attend your place of worship?**

1. Three or more times per week
2. Two times per week
3. Once per week
4. Infrequently
5. No attendance

**Thank you for your participation, it is greatly appreciated!!**

