

**KNOWLEDGE, ATTITUDE AND SEXUAL BEHAVIOUR OF UNIVERSITY
STUDENTS CONCERNING HIV/AIDS: A CASE OF PUBLIC UNIVERSITIES IN
TANZANIA**

**BY
JOHN NSHIMBA JECKONIAH**

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN RURAL
DEVELOPMENT OF SOKOINE UNIVERSITY OF AGRICULTURE.
MOROGORO, TANZANIA**

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ABSTRACT

Sexual behaviour remains the primary target of AIDS prevention efforts worldwide, it is one kind of human behaviour that continues to affect youths world wide. Despite government efforts and NGOs effort's to address HIV/AIDS, youths continue to be affected disproportionately. Understanding the socio-cultural context in which sexual behaviour occurs will help to protect youth from HIV/AIDS. The general objective of this study was to determine the level of knowledge, attitude and sexual behaviour of university students concerning HIV/AIDS in order to provide necessary information to university authorities and assist policy makers to design more relevant and efficient programmes to combat HIV/AIDS specifically targeting university students. The study adopted a cross sectional design using closed ended self administered questionnaires from a sample of 360 students in two public universities. The Statistical Package for Social Sciences (SPSS) version 11.5 was used to analyse the data. Descriptive statistics and index scales were used to gauge levels of risky sexual behaviour, misconception on means of HIV/AIDS transmission, attitude and barriers to sexual behavioural change. F-test was used to test the hypotheses at 5% level of significance. The key findings indicate that students' sexual behaviour was influenced by demographic characteristics such as age, living arrangement, marital status, university of study and entrance status ($P < 0.05$). Risk of sexual behaviour increased with student's age up to 35-39 age group and girls were at more risk than boys. Levels of knowledge about HIV/AIDS were found to be high. However, misconception was widespread. Sexual behaviour was not associated with attitude towards HIV/AIDS and perceived barriers to sexual behavioural change. The study recommends the government and universities to develop policies, programmes and strategies to address sexual

behaviours. In addition, peer-based interventions should be increased to ensure that university students have access to accurate information on HIV/AIDS.

DECLARATION

I, JOHN NSHIMBA JECKONIAH do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work and has never been submitted nor concurrently being submitted for any degree award in any other University.

John Nshimba Jeckoniah
(MA. Rural Development)

Date

The above declaration is confirmed

Prof. E.A. Mwangeni
(Supervisor)

Date

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I highly thank the Government of Tanzania through the High Education Students Loans Board (HESLB) for sponsoring my studies without which it would have been impossible. I am also grateful to my employer, the Kongwa District Council for granting me a two year study leave.

I thank my supervisor Prof. Mwageni, E.A. for his tireless guidance throughout different stages of this research; his constructive criticism has significantly contributed into making this research a success.

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acknowledged. I thank my research assistants who enabled the data collection exercise to be successful. However, errors and shortfalls of this research are my own.

DEDICATION

This dissertation is dedicated to my parents, my late father Mr. Jeckoniah K. Mvurungu, my mother Janeth Gwalema. My beloved wife Danty Malamia Urrio and my sons Amos, Nathan and James.

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Female (n=160).....66

Total66

Yes 66

No 66

Yes 66

No 66

30.9 66

44.1 66

63.3 66

23.4 66

17.6 66

20.9 66

16.2 66

24.8 66

20.1 66

80.6 66

89.0 66

15.7 66

87.1 66

86.8 66

13.0 66

10.3	66
10.4	66
10.3	66
90.8	66
91.5	66
8.9	66
8.6	66
3.6	66
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AIDS	Acquired Immune-deficiency Syndrome
AAC&U	Association of American Colleges and Universities
AWSE	Association of Women in Science and Engineering
FAO	Food and Agricultural Organisation
FHI	Family Health International
FOCAL	Future Opportunities and Capacity Building in Agricultural Learning
HESLB	High Education Students' Loans Board
HIV	Human Immune-deficiency Virus
IEC	Information Education and Communication
IPDP	The International Population and Development Programs
IWISE	International Women in Science and Engineering
MGD	Millennium Development Goals
MTCT	Mother to Child Transmission
MU	Mzumbe University
MUCCoBS	Moshi University College of Cooperative and Business Studies
MUCHS	Muhimbili University College of Health Sciences
NACP	National AIDS Control Programme
NSGRP	National Strategy for Growth and Reduction of Poverty
OUT	Open University of Tanzania
SENCER	Science Education for New Civic Engagement and Responsibilities
SNAL	Sokoine National Agricultural Library
SPSS	Statistical Package for Social Sciences
STDs	Sexually Transmitted Diseases
STI	Sexually Transmitted Infections
SUA	Sokoine University of Agriculture
SUZA	State University of Zanzibar
TACAIDS	Tanzania Commission for AIDS
TDHS	Tanzania Demographic and Health Survey
THIS	Tanzania HIV/AIDS Indicator Survey
TRCHS	Tanzania Reproductive and Child Health Survey
UCLAS	University College of Lands and Architectural Studies
UDSM	University of Dar es Salaam
UNAIDS	United Nation Programme on HIV/AIDS
UNFPA	United Nations Population and Development Fund
UNICEF	United Nations Children's Fund
URT	United Republic of Tanzania
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background information on HIV/AIDS

The HIV and AIDS epidemic is a health and development crisis throughout much of sub-Saharan Africa, including Tanzania. The Joint United Nations Programme on AIDS (UNAIDS), (2005) estimated the number of infections world wide at about 40.3 millions by the end of 2005, of which about 25.8 millions were found in sub-Saharan Africa. About five millions became infected in 2005, three million of whom were from sub-Saharan African. World wide, about three million persons died from AIDS in 2005; Sub-Saharan Africa accounted for more than two million of the total (TACAIDS, 2005). HIV/AIDS has emerged as a global health problem with serious medical, economic and social implications (WHO, 2000). Throughout history, a few crises have presented such a threat to human health, social and economic progress as does the HIV/AIDS epidemic (WHO, 2000).

In addition to human suffering and loss of life, AIDS in Africa is reversing the development and socio-economic gains. Life expectancy is dropping by decade, growth of the already fragile economies decrease yearly and governments experience increasing difficulty in the delivery of the health care, welfare and national defense (Mayer, 2003).

The HIV/AIDS pandemic is rampant among the economically active section of the population (Errickson, 1990). This greatly affects production, causes loss of labour, and results into loss of income. The spread of HIV/AIDS among the most productive age groups of the population, seriously affects the economic development of any country in the

world. HIV/AIDS has a pronounced adverse impact on both the supply and quality of education. The HIV/AIDS has created a host of problems that threaten to overwhelm the very fabric and structure of educational organization, particularly the institutions of tertiary education (World Bank, 2001).

The majority of students joining university education in Tanzania are between 19 and 29 years of age, while most of the technical and administrative staff are between 31 and 60 years of age; these age groups constitute the working force of the nation. The University community, like the other communities in the country, is also affected by the HIV/AIDS pandemic (UDSM HIV Policy, 2006). Reported HIV/AIDS infection and mortality rates in many higher education institutions in Africa are alarming. At a workshop organized by African Women in Science and Engineering (AWSE), Association of American Colleges and Universities (AAC/U) and International Women in Science and Engineering (IWISE) in 2001 representative from eight East African Universities reported figures of two to three deaths per month among faculty and staff (Mayer, 2003).

In many parts of the world, the spread of the HIV epidemic is still fueled by ignorance. This lack of knowledge is often unequally distributed in the population. A recent UNAIDS AIDS Update Report (2005) notes that: "Data from 35 of the 48 countries in sub-Saharan Africa show that, on average, young men were 20% more likely to have correct knowledge about HIV than young women." Filling in this knowledge gap is considered key in the fight against HIV and in efforts to reduce the vulnerability of women and girls.

The future direction of HIV/AIDS prevention depends, to a large part, on the level of knowledge of how the virus is spread, attitude of people towards HIV and people living

with HIV/AIDS and consequent in sexual behavioural change (THIS, 2005; TACAIDS, 2005). This study examines the knowledge, attitude and sexual behaviour of university students towards HIV/AIDS.

1.2 Problem statement

The impact of HIV/AIDS in higher learning institutions is devastating. HIV/AIDS has caused deaths to skilled and highly trained manpower. Since most of those who die from AIDS had been trained using government resources, it means loss in investment in education (FOCAL-SENCER, 2003; Mayer, 2003).

There is a documented evidence that more than 90% of the people in East African region are aware of the causes and means of transmission of HIV/AIDS (Nyamongo, 1996; Amuyunzu, 1997). A high percentage knows the preventive measures and many people have seen the destructive consequences of HIV/AIDS in their households and communities, yet this has not resulted in behavioural change, misconception are still common, and the impact of behavioural change on the progression of epidemic is low.

Tanzania HIV/AIDS Indicator Survey (THIS) 2005, observed that HIV prevalence rises with increase in education and wealth; adults with secondary education or higher were 50 percent more likely to be infected with HIV than those with no education. It further notes that infection rates are three times among those in the highest wealth quintile than those in the lowest wealth quintile. Most university students fall under these categories. Since sexual interactions among different groups of people in and out of campuses can not be prevented, it is likely that new HIV infections are occurring.

Patterns of sexual behaviours are one of the primary determinants of the spread of HIV/AIDS (www.iaen.org/limalate/pdfs/confornt-aids-chapter-07-kpdf,2006). Therefore, understanding the patterns of sexual behaviours of students is vital in planning programmes to halt the spread of the disease and mitigate its effects. In view of the fact that no cure has yet been found for AIDS, prevention and controlling the disease remains the most viable option to contain it (Mayer, 1988). Youths including students are at a higher risk of contracting sexually transmitted diseases and HIV/AIDS as they are more likely to have shorter relationships with more partners before marriage (THIS, 2005).

In response to the growing threat of HIV/AIDS, national concerted efforts have been set up and tried to halt the spread of the pandemic. These include the formation of the National HIV/AIDS Control Programme (NACP) which formulated the short term plan (1985-1986), medium and long term plan in (1987-1991) and (1998-2002) respectively; health education, decentralization and multi-sectoral response and community participation. The government also instructed government institutions to form different committee to address HIV/AIDS in places of works; as a result several measures across universities are put in practice in trying to control the spread of HIV/AIDS. These include: formation of standing committee for example SUA–Technical AIDS Committee (SUA–TAC), awareness campaign using video/TV, erecting signposts carrying messages against HIV/AIDS, distribution of condoms, mainstreaming HIV/AIDS issues into undergraduate curriculum as well as introducing university wide common course (FOCAL-SENCER, 2003; URT,2001). However, the response of these efforts has not had much impact on the progression of the epidemic as expected; little is known about student’s sexual decision-making behaviour and their risky sexual activity are frequently reported in local news papers. It is therefore apparent that data on sexual behaviour of students, social and cultural

context in which they occur is known empirically, so that measures being undertaken or planned are effective and can generate quantifiable improvement.

1.3 Problem justification

Sexual behaviour remains the “primary target” of AIDS prevention efforts worldwide (UNAIDS, 1999 cited in Boerma *et al.*, 2002). The National Policy on HIV/AIDS identifies and promotes behavioural change at all levels of all sectors as one possible way to halt and combat the spread of HIV/AIDS in view that awareness of the risk and severity of HIV/AIDS will lead to adoption of HIV protective behaviour at the community and individual levels (URT, 2001). This behavioural survey will attempt to elicit behavioural information that would contribute to a better understanding of the dynamics and underlying factors of the spread of HIV/AIDS in universities. It will also serve as baseline information that can be linked with future follow-up studies and interventions being implemented.

Studies on university populations are few, despite the vulnerability of students to unsafe sexual practices, high prevalence rates of sexual intercourse, infrequent use of condom and other contraceptives and a significant proportion of adolescent who have two or more lifetime sexual partners (Kaaya *et al.*, 2002). Activities to promote healthy sexual behaviour (including abstinence, delaying sexual intercourse, and consistent and correct use of condoms) will have a positive impact on many individuals and communities (Bruce and Walker, 2001). It is, therefore, apparent that empirical information and data on knowledge, attitude and sexual behaviour of students is known, this research aimed at bridging this gap and create new knowledge on sexual behaviour of university students in Tanzania. The data can also be used in designing effective mitigation and strategies to combat HIV/AIDS in Universities

In the National Strategy for Growth and Reduction of Poverty (NSGRP),(2005) it is revealed that increases in HIV and AIDS prevalence over the last decade has further aggravated the health status and future prospects of Tanzanians. HIV/AIDS undermines the foundations of development and attainment of the Millennium Development Goals and national targets. Prevention campaigns have succeeded in raising people's awareness, but this has not translated into required behavioural changes (URT, 2005). This makes research in this area a priority, in order to understand linkage between knowledge and behavioural change.

This research is, also, in line with the sixth Millennium Development Goal (MDG), which endeavors to combat HIV/AIDS, malaria and other diseases with the target to have halted by 2015 and begun to reverse the spread of HIV/AIDS.

1.4 Objectives

1.4.1 General objective

The general objective of this study was to determine the level of knowledge, attitude and sexual behaviour of university students concerning HIV/AIDS. Such information will provide necessary inputs to university authorities and will assist policy makers to design more relevant and efficient programmes to combat HIV/AIDS in Universities.

1.4.2 Specific objectives

Specifically this study sought to:

- (a) identify risky behaviours of university students that contribute to spread of HIV/AIDS
- (b) determine knowledge of university students concerning HIV/AIDS

- (c) identify misconceptions about means of transmission of HIV/AIDS among university students
- (d) determine attitude of university students towards HIV/AIDS
- (e) identify barriers to behavioural change as a response to HIV/AIDS

1.5 Conceptual framework

The conceptual framework is a narrative outline presentation of variables to be studied and hypothetical relationships between and among the variables. The types of variables shown in the conceptual framework (see Figure 1) are: the background variables, which include year of study, degree programme, entrance status and religious affiliation. The independent variables consist of demographic, social-cultural and socio-economic variables. Demographic variables include age, sex and marital status. Socio-cultural variables include attitude towards condom use, misconception about means of transmission, living arrangement, communication with sexual partners, health provider or peer, alcoholism and perceived susceptibility to HIV. Socio-economic variables include employment before joining university and sponsorship at the university. The dependent variable, sexual behaviour constitute of indicators such as ever had sex, number of sexual partner(s), condom use, consistency of condom use with sexual partner and incidence of STD/STI.

The background variables were expected to have little influence on independent variables. Demographic, socio-cultural and socio-economic variables were also expected to influence each other. Independent variables which include demographic, socio-cultural and socio-economic variables were expected to have influence on dependent variable.

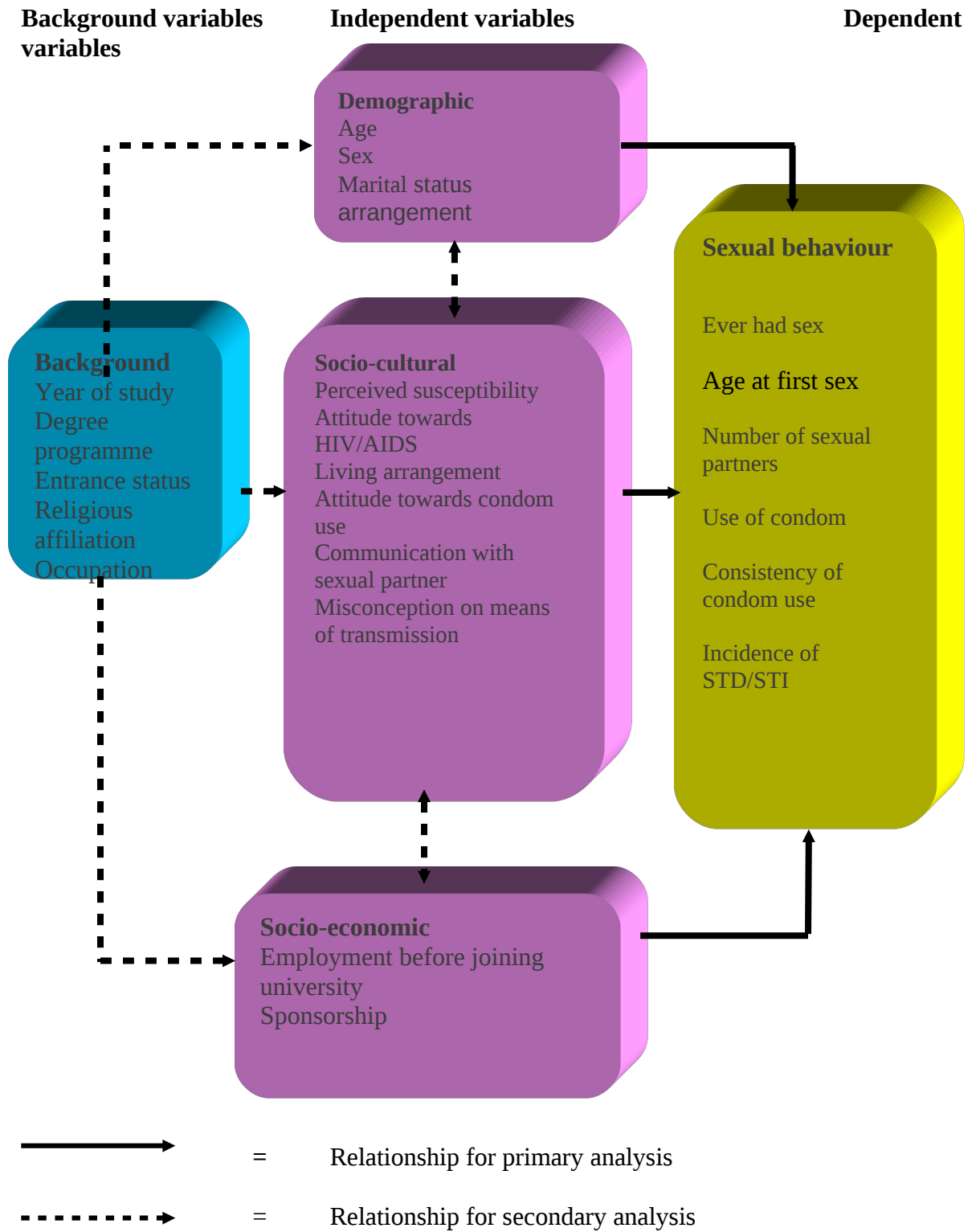


Figure 1: Conceptual framework

1.6 Hypotheses

Four hypotheses were tested in this study based on students' risk behaviour, knowledge concerning HIV/AIDS, misconception about means of transmission, and attitude of students towards HIV/AIDS.

(a) Knowledge concerning HIV/AIDS

Conceptual hypothesis: Knowledge about HIV/AIDS is associated with students' sexual behaviour.

Operational hypothesis: Students with high knowledge about HIV/AIDS are less likely to engage in risk-taking sexual behaviour than their counterparts.

(b) Risk behaviour of students

Conceptual hypothesis: Demographic variables are associated with students sexual behaviour

Operational hypothesis: Young and unmarried students are more likely to engage into risk taking sexual behaviour than their counterparts.

(c) Misconception about means of transmission

Conceptual hypothesis: Misconceptions are associated with students' sexual behaviour.

Operational hypothesis: Students with high levels of misconception are more likely to involve in risk taking sexual behaviour than their counterparts.

(d) Attitude of students towards HIV/AIDS

Conceptual hypothesis: Attitude of students towards HIV/AIDS is associated with risky sexual behaviour

Operational hypothesis: Students who had negative attitude towards HIV/AIDS were more likely to engage into high risk sexual behaviour than their counterparts.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

In chapter one, an overview of global situation about HIV/AIDS was given and the importance of sexual behaviour towards reducing the spread of HIV/AIDS. In this chapter, a review of what is known about sexuality issues in relation to HIV/AIDS in universities is discussed. This information is important because students fall in the age bracket that is vulnerable to HIV/AIDS infection and STDs infection. Creswell, (1994) report that literature review is important as it provides a framework for establishing the importance of the study, as well as a benchmark for comparing results of a study with other findings.

2.2 AIDS: An epidemic and a pandemic, and its prevalence in the world

Acquired Immunodeficiency Syndrome (AIDS) caused by the Human Immunodeficiency Virus (HIV) was first diagnosed in the United States in 1981 (Gettlieb *et al.*, 1981). Since the first case was diagnosed in North America, AIDS has grown into an international pandemic (Chin, 1990). According to Willis (2002), HIV/AIDS is both an endemic and a pandemic because it exhibits characteristics of both of the following definitions. An epidemic is a disease affecting a great number of people in communities in a certain time moving from place to place, while a pandemic is a widespread endemic.

2.2.1 Overview of the HIV/AIDS situation globally

According to UNAIDS/WHO (2005) about 40.3 million were estimated to be living with HIV/AIDS world wide (Range 36.7-43.3). In a year, about 4.9 new HIV cases occurred

(Range 4.3-6.6million) and there were about 3.1 million deaths (Range 2.8 – 3.6). The global prevalence rate and distribution is Summarized in Table 1 and 2.

Table 1: World estimates of the HIV and AIDS epidemics at the end of 2005

Number of people living with HIV/AIDS in 2005	Estimate (million)	Range (million)
Adults (men an women)	38.0	34.5– 42.6
Women	17.5	16.5 –19.3
Children	2.3	2.1 – 2.8
Total	40.3	36.7– 45.3
People newly infected with HIV in 2005		
Adults	4.2	3.6 – 5.8
Children	0.7	0.6 – 0.8
Total	4.9	4.3 – 6.6
AIDS deaths in 2005		
Adults	2.6	2.3 – 2.9
Children	0.6	0.5 – 0.7
Total	3.1	2.8 – 3.6

Source: UNAIDS/WHO (2005)

Table 2: Regional statistics for HIV and AIDS end of 2005

Region	Adults & children living with HIV/AIDS (millions)	Adults &children newly infected (millions)	Adult infection rate (%)	Deaths of adults & children (millions)
Sub-Saharan Africa	25.8	3.2	7.2	2.4
East Asia	0.9	0.1	0.1	0.0
South and South-East Asia	7.4	0.9	0.7	0.5
Oceania	0.1	0.0	0.5	0.0
Eastern Europe& Central Asia	1.6	0.3	0.9	0.1
Western& central Europe	0.7	0.0	0.3	0.0
North Africa& Middle East	0.5	0.1	0.2	0.1
North America	1.2	0.1	0.7	0.0
Caribbean	0.3	0.0	1.6	0.0
Latin America	1.8	0.2	0.6	0.1
Global total	40.3	4.9	1.1	3.1

Source: UNAIDS/WHO (2005)

2.2.2 HIV/AIDS in Sub Saharan Africa

Africa is the global epicenter of AIDS and it is estimated that 83 percent of all worlds AIDS cases/deaths are from this continent. Sub-Saharan Africa (SSA) is the most severely affected region in the world. According to the Joint United Nations Programme on HIV/AIDS (UNAIDS) pandemic update, at the end of 2005 the infection rate for adults in the productive years, i.e. those aged between 15 and 49, was 7.5% -8.5% for SSA as a whole, and 0.9-1.3% for the whole world. Although they accounted for only 10% of the world's population, Sub Sahara African countries experienced almost three times as many AIDS deaths in 2005 as the rest of the world combined (UNAIDS, 2005). The disease has a different outcome in different parts of the continent. Eastern and southern Africa is more severely affected than western and northern Africa. Even though prevalence rates are low in northern Africa the visible trend is also toward increasing HIV infection (Mayer, 2003).

2.2.3 HIV situation in Tanzania

In Tanzania the first three AIDS cases were reported in 1983 in Kagera Region (Heggenhougen and Lugalla, 2005; URT, 2000). By 1986 all the regions in Tanzania mainland had reported AIDS cases. By the end of 1999 there were some 600,000 cases of HIV/AIDS and similar number of orphans. It is, also, estimated that over two million people are infected with HIV/AIDS; 70.5% of whom are in the age group 25-49 years and 15% in 15-24 years. Over 72,000 newborn babies are HIV infected (URT, 2001). The Tanzania HIV/AIDS Indicator Survey (THIS, 2005) reports that adult prevalence rate is seven percent for Tanzanian mainland and less than one percent in Zanzibar. The reported prevalence places Tanzania among the 12 worst-affected countries in the world (TACAIDS, 2005).

2.2.4 The HIV/AIDS situation in Universities

The impact of HIV/AIDS on education sector is horrifying. Reported infection and mortality rates in many higher education institutions in Africa are alarming and according to a study done in Tanzania in 1996 by the World Bank the number of available teachers will continue to fall drastically as more and more fall to AIDS. The considerable investment already made in the education of those who die from AIDS will be lost lowering the returns to education realized on average by graduate, their families, employers and communities (World Bank, 1996; Mayer, 2003).

The University community, like the other communities in the country and elsewhere, is also affected by the HIV/AIDS pandemic. At a workshop organized by the African Women in Science and Engineering (AWSE), Association of American Colleges and Universities (AAC&U) and International Women in Science and Engineering (IWISE) in 2001 representative from eight East African Universities, reported first of all that they had each been hit very hard by the HIV/AIDS epidemic. Statistics were more easily available for infection and death rates among staff than they were for students, since staff members tend to remain attached to the university after the onset of illness whereas students tend to disappear. Estimates of percentage of staff infected range from 12 % to over 50 % (Maseno University reports a rate of 51.5 % of staff members between the ages of 30 and 39 years, and 35 % of those over 40 years, of these nearly three quarters were support staff, with some 17 % being academic staff and the rest about nine percent, administrators) (Mayer, 2003). Many institutions reported an average death rate of about two staff members per month, with University of Nairobi reporting an average death rate of two staff members per week. In each case the numbers of students infected and dying were unknown. Each of the universities has already taken a variety of measures to respond to the HIV crisis,

including awareness-raising and prevention, care and treatment, and medical research (Mayer, 2003; UDSM HIV Policy, 2006).

Most of the universities reported the establishment of AIDS committees, known by a variety of names, e.g., AIDS Control Board, AIDS Control Unit, Technical AIDS Committee, and so on. Despite measures taken to provide voluntary testing with assurances of confidentiality, most universities have noted that students are reluctant to get tested on campus, preferring the greater anonymity of city or national testing centers because of privacy concerns. For example, between 2000/2004 there were only 14 cases of HIV documented at UDSM Health Centre. Over the same period of time 207 cases of tuberculosis (TB) were reported at the Health Centre (UDSM HIV Policy, 2006). Given the strong association between TB and HIV in developing countries, it is likely that a significant proportion of individuals presenting themselves at the University Health Centre with TB had underlying HIV infection. This reality makes it more difficult for universities to provide counseling and treatment and to record accurate measures of the scope of the problem (Mayer, 2003; UDSM HIV Policy, 2006).

2.3 HIV/AIDS knowledge

After first AIDS cases were reported in early 1980s, AIDS awareness increased rapidly in Tanzania. About 91% of women and 94% of men had heard about AIDS in 1989/90. By 1999, AIDS awareness was almost universal among both men and women. Specific knowledge about AIDS also increased overtime (Heggenhougen and Lugalla, 2005; TDHS, 1996). Although AIDS awareness was high, misconception about HIV/AIDS were also common. In 1999, only 54% of women and 59% of men thought it was not possible to get AIDS from mosquito bites, while 41% of women and 36% of men thought that sharing

food or eating in same utensil with an AIDS patient could transmit HIV. However, several reports and surveys show that although HIV/AIDS knowledge is increasing; risk perception has not changed significantly since 1994. The proportion of men who perceived themselves at high risk of HIV was 37% in 1994 and 46% in 1999, while for women it was 40% in 1994 and 43% in 1999 (TDHS, 1996). Risk perception is an important indicator of a certain level of knowledge about HIV/AIDS as it helps to show if people perceive the disease to be a threat to themselves or for some other people. Behavioural surveillance on specific population is, therefore, important to establish the level of knowledge and risk perception as well as to make a comparison to national and regional levels like those data generated in the Demographic and Health Survey data.

2.4 Mode of transmission and Risk of HIV infection

The HIV is spread through body fluids including blood, semen (sperm) and vaginal fluid. HIV is transmitted from one person to another mainly through heterosexual intercourse which accounts for about 90% of all infections in Tanzania (URT, 2001). HIV infection can also be transmitted from a mother to her child during pregnancy and during child birth or from breast feeding. Other modes of HIV transmission can be through infected blood, blood products, donated organs or bone grafts and tissues, common use of needles or other sharp objects (URT, 2001; TACAIDS, 2005).

Due to the fact that HIV infection is mainly through heterosexual intercourse, HIV/AIDS is a behavioural, social, cultural and economic problem, which touches on the private lifestyle of individuals. The risk of HIV infections is highest among young people and especially girls (URT, 2001). HIV/AIDS affects mainly the sexually active members of

population. About 94% of the AIDS cases are between the ages 15-55 years, 4% below five years and a negligible two percent between 7-14 years (NACP, 1999).

Adolescents and young adults are at a high risk of HIV since they are at an early stage of sexual behaviour, changing partners frequently. According to NACP (1988), the youth in Tanzania form a group which is mostly affected by HIV/AIDS epidemic. Young people (15-24 years old) account for half of all new HIV infections world wide, most students in universities fall under this age bracket. More than 6000 people become infected with HIV world wide every day (UNAIDS/WHO, 2005).

Several factors play a role in a kick-starting of a sexual transmission of HIV or driving infectious rates to higher degree. In Tanzania these factors are mainly cultural beliefs, psychological, behavioural, social and biological factors. Talking about sex is a taboo in many African societies. In such circumstances it is difficult for sexual partners to enquire about sexual behaviour of one's partner. To enquire about one's part is tantamount to calling that person a prostitute. Advocating sexual safety has long been equated to being evil (Kimani, 2002; TACAIDS, 2005).

2.5 Misconception about means of transmission

Kuruvila *et al.* (1997) in their study of knowledge, attitude, and practice about AIDS among university students in India found that misconception and stigma were widespread. Male students were found to have better knowledge regarding transmission and prevention of AIDS than female students. A study among undergraduate students of Delhi University in India revealed that 41% of students felt AIDS patients should not be allowed to mix freely in society (Benora *et al.*, 1992). Another survey commissioned by WHO global

programme against AIDS in 1991 found that misconceptions like transmission through insect bite and non-intimate touch exist (WHO, 1991). The study also found that 25.74% of students believed that mosquitoes could transmit infection and 9 percent believed that by wearing clothes of an affected patient one could get AIDS.

Orubuloye, (2000) found the high level of awareness and knowledge of transmission of HIV among Nigerian youth, two-thirds of both male and female respondents had good knowledge of protection against HIV transmission. He further reported that misconception about modes of HIV transmission was generally high. The misconception was higher in the rural areas than the urban areas. In all, about 40% of young people in Nigeria had between one and four major misconceptions about HIV/AIDS.

In the AIDS-related knowledge study that was carried among high secondary school teachers and students, in Kassala, eastern Sudan (Elzubier *et al.*, 1996) found a high frequency of AIDS-related misconceptions, especially among females and among teachers. The overall mean score for misconceptions was five out of a possible total of seven. Misconception about means of transmission and prevention are common in Tanzania. Approximately four in five men and women in every hundred people know that a healthy-looking person can have the AIDS virus and that a person can not become infected by sharing food with some one who has AIDS and about three quarters know that AIDS can not be transmitted through mosquito bites (TDHS, 1996).

The findings in the above studies highlight that knowledge about HIV/AIDS is high both among university and among the general population. However, caveat in knowledge level harbours serious misconception which need to be corrected to enable people have correct

knowledge on how HIV/AIDS is transmitted and stand better chance to protect themselves against the deadly disease.

2.6 Determinants of sexual behaviour

Sexual behaviour is part of normal human experience; it is one kind of human behaviour which demands an understanding of the socio-cultural context in which it takes place (Coast, 2003). Human sexuality is influenced by many factors including age, gender, religion, family, friends, culture, ethnicity, economics, sexual orientation, and past experiences, both positive relational experiences and experiences of abuse, discrimination, and oppression. As a result, sexual behaviours are expressed in a variety of ways. The future direction of HIV/AIDS depends to a large part on the level of knowledge of how the virus is spread and consequent in sexual behaviour (THIS, 2005).

Though some studies have shown that increasing the level of knowledge about HIV/AIDS does not guarantee a reduction in risk behaviour and adoption of safe sexual behaviour (Muturi, 1998); knowledge is still a necessary condition for reducing the rate of new infections (Dinkelman *et al.*, 2004). Cultural, social, moral and socio-economic factors are frequently cited as determinants of sexual behaviours, these factors are also said to facilitate behavioural change (Muturi, 1998). Since most of the risky sexual behaviour that are associated with the transmission of the HIV/AIDS are practiced in a highly private context and the fact that these behaviour are also difficult to change, it is important to identify the barriers that prevent behavioural change and to ensure that as far as possible, a supportive environment for sustaining this change exists (Heggenhougen and Lugalla, 2005).

Many public health studies have tried to measure the causal effect of HIV information on risk behaviours (Dinkelman *et al.*, 2004). Several robust patterns about HIV knowledge have been reported; usually men tend to have better knowledge of HIV prevention methods than women, Urban residents tend to have better knowledge about HIV than do their rural counterparts, but this gap has often fallen (slightly) over time, HIV knowledge is strongly positively correlated with education and older cohorts tend to have better information about the disease than do the under-20 cohorts (Dinkelman *et al.*, 2004).

2.6.1 Sex

Sex of adolescents has something to do with sexual behaviour (Zaba *et al.*, 2004). It has, also, been reported that boys appear to initiate intercourse earlier than girls, but girls catch up by the late teens (Nzioka, 2001). The timing of puberty is a significant influence for boys, while for girls it appears that social controls exert a greater influence than does the onset of puberty. While boys are more likely to believe that sexual coercion is justifiable and more likely to respond to antisocial peer pressure.

UNFPA (1996) reports that in developing countries socially accepted gender roles and the position of females in many African societies have a strong impact on the needs of adolescent girls. For some girls, sexual relationships are not entered into willingly, but come about as the result of force or abuse, including incest. They may have no control over whether, whom or when they marry, sometimes before they have even reached puberty.

2.6.2 Age at first sex

Sexual activity begins in adolescent for the majority of people; in many countries unmarried boys and girls are sexually active by the age of 15years. It has been observed

that adolescents who start having sex early are more likely to have sex with high risk sexual partners or multiple partners, and are less likely to use condoms (UNICEF/UNAIDS/WHO, 2002).

Age at first sex is of particular interest in the study of sexual behaviour especially in an area where the predominant mechanism of HIV transmission is through heterosexual contacts (THIS, 2005). Age at first sex is an important indicator of exposure to risk of pregnancy and sexually transmitted infections during adolescence. Sexual behaviour has been found to be associated with changes in age at first sex, rates of partner change, sexual mixing patterns, and condom use. In Uganda, a rapid increase in age at first sex in urban areas between 1990 and 1995 was considered a major contributing factor in the observed HIV prevalence decline in young pregnant women (Zaba *et al.*, 2004).

2.6.3 Premarital sex

In order to establish prevailing level of knowledge of premarital sex, Curtis and Sutherland (2004), analyzed data from a selected subset of 31 Demographic and Health Surveys (DHS) surveys in 10 developing countries including Ghana, Kenya, Tanzania, Uganda, Zambia, and Zimbabwe. These data were collected between 1988 and 2003. Their analysis found fluctuating trends in premarital sex in sub-Saharan Africa. The percentage of never-married respondents aged 15–24 years who report having had sex in the 12 months preceding each survey ranged from 5% in the 1991 Dominican Republic DHS to 49% in the 1993 Ghana DHS. This indicates that youth are engaging in the premarital sexual behaviour which put them at risk of contracting STDs and HIV/AIDS.

In general, reporting of premarital sex is found to be more common among women in sub-Saharan Africa than in Latin America and the Caribbean (Curtis and Sutherland, 2004). Among men, the percentage reporting premarital sex in the last year varied from 24% in the 1998 Ghana DHS to 65% in the 1991/92 Tanzania DHS. Men were consistently more likely than women to report premarital sex in the previous 12 months and unmarried women were less likely than unmarried men to report casual partners (Curtis and Sutherland, 2004).

2.6.4 Education levels

Wealth, education, and occupation, are typical factors to measure socio-economic status (SES) and health outcomes (Adler, 2002). Educational attainment has often been associated with positive health outcomes (UNAIDS, 1998). However, UNAIDS survey in 44 countries in sub-Saharan Africa, revealed a negative impact of the relationship between HIV and literacy. The countries with the highest levels of HIV infection are, also, those whose men and women are most literate. Education may actually be a risk factor contributing to the spread of the virus in this region for various cultural reasons (UNAIDS, 1998).

Educated people have higher earning power and use their disposable income to support behaviors or lifestyles that put them at risk of infection (UNAIDS, 1998). Men with higher incomes have the opportunity to engage in more leisure activities, which include drinking and sexual relationships. They have the income necessary to be more mobile moving from an urban work environment to a rural traditional family life. HIV spreads very quickly in this environment, devastating those who lay in its path (UNAIDS, 1998).

2.6.5 Peer influence

Generally, boys and girls report similar perceptions of peer pressure, but boys are more likely to submit to peer influence (Billy *et al.*, 1988). The normal process of an adolescent's development involves becoming less dependent on the family and paying more attention to the influence of peers. This is healthy, and in many ways can lead to positive behaviour especially when the peers' influences are positive (Billy *et al.*, 1988).

2.6.6 Socio-economic status

Lugalla (1995) in a study of urban poverty and survival politics in Tanzania reported that adolescents from a family with a poor or average standard of living were significantly more likely than those from a family with a high living standard to engage in risk taking behaviour. A study conducted in Kenya (Filmer, 1998) examined sexual behaviour patterns by socio-economic status; he concluded that: higher socio-economic status was associated with later sexual debut and marriage among adolescents aged 15 to 24 years.

2.6.7 Number of sexual partners

The age at first sexual intercourse is an important marker of high-risk behaviour and sexually transmitted disease. Early first sexual intercourse has been associated with risky behaviours such as not using contraception at first intercourse, having more sex partners and having more frequent intercourse (DuRant and Sanders 1989; UK Family Planning Research Network 1988). It may also be a marker for other sexual behaviours that place an individual at greater risk for sexually transmitted disease, such as lack of condom use, less discriminating recruitment of sex partners, and having multiple sex partners in a short period of time and sexually transmitted disease (Shafer and Boyer 1991; Seidman *et al.*, 1992).

Pettifor *et al.* (2004) argue that, the greater the number of sexual partners young people have, the greater there is potential exposure to HIV will be. Partner reduction is, therefore, one of the key factors of most HIV prevention programmes. Among sexually experienced young people in South Africa, 35% reported only having had one lifetime sexual partner. Sexually experienced males were significantly less likely to report having had only one lifetime partner compared to females. Fifteen percent of sexually experienced young people reported that they had more than five lifetime sexual partners; 24% of males and six percent of females. It was also found that the number of lifetime sexual partners increases as youth get older with 15% of sexually experienced 15-19 year old males reporting having more than five partners compared to 31% of sexually experienced males age 20-24 and only one percent of sexually experienced females age 15-19 reported having more than five partners compared to seven percent of sexually experienced females age 20-24 (Pettifor *et al.*, 2004).

2.6.8 Condom use

The most efficient and recommended means to reduce the chances of contracting HIV is condom use, and the knowledge that condoms can be used to prevent HIV infection is widespread among university and college students (Svenson *et al.*, 1992; Pleck *et al.*, 1993). However, reported condom use by adolescents and young adults is rather low, ranging from 10 to 66% (Pleck *et al.*, 1993). Given the minimal increase in reported condom use, DeBuono *et al.* (1990) concluded that increases in the rates and seriousness of HIV/AIDS and STDs over the time period had little impact on the sexual practices of college students. On the other hand, researchers have detected increasing trends toward greater condom use as a function of the frequency of sexual intercourse (DuRant and

Sanders, 1989), and as a function of greater number of sexual partners (Varnhagen *et al.*, 1991).

2.7 Perceived susceptibility and attitude towards HIV/AIDS

Attitudes towards AIDS and those persons with AIDS may also help predict behaviour change; however, the existing literature is inconclusive. Several studies found high levels of empathy, tolerance, acceptance, and positive attitudes towards AIDS or persons with AIDS (Serovich and Greene, 1997; Villarruel *et al.*, 1998). However, other findings show neutral, unfavorable, or unsympathetic attitudes towards AIDS or those persons with AIDS (Carducci *et al.*, 1995; Katz *et al.*, 1995; Konde-Lule *et al.*, 1989). For example, Al-Owaish *et al.* (1999) report that 80% of Kuwait participants felt that persons with AIDS should not be left to live freely in the community. A possible explanation for the variance in findings among studies is demographic characteristics such as nationality, age, sex, religion, ethnicity, and marital status. Knowledge level is another possible predictor of attitude, indicating that increasing knowledge levels of AIDS may produce more positive attitudes towards individuals with AIDS (Carducci *et al.*, 1995).

Research focusing on the effects of beliefs of susceptibility to AIDS indicates that adolescents and adults who report high perceived risk for AIDS practice safer sexual behaviours, whereas those who perceive low risk for contracting AIDS report practicing unsafe sexual behaviours (Gray and Saracino, 1989; Villarruel *et al.*, 1998). However, in a study of health behaviour in Kenya, perceived susceptibility to AIDS was not a significant predictor of condom use (Volk and Koopman, 2001). Failure of perceived susceptibility to predict behaviour most likely results from participants' misconceptions about the origins and transmission of AIDS. For example, some participants reported the belief that anal sex

was a safe alternative to vaginal sex (Volk and Koopman, 2001). For these individuals, misconceptions, or lack of accurate knowledge about AIDS, resulted in inaccurate assessments of susceptibility. In this way, it seems that perceived susceptibility must be coupled with accurate knowledge in order to bring about behavioural change.

2.8 Status of research in knowledge, attitude and sexual behaviour in Tanzania.

2.8.1 Knowledge about HIV/AIDS

According to (THIS, 2005), over 99 percent of Tanzanians aged 15-49 have heard of HIV/AIDS, awareness of the modes of HIV transmission and AIDS is generally high with almost 90 percent knowing that having only one uninfected, faithful partner can reduce the chances of getting AIDS. In the Tanzania Demographic and Health Survey (TDHS) (1996), it was found that misconception about the means of transmission and prevention of HIV are common in Tanzania. Approximately four in five men and women in every hundred people know that a healthy looking person can not have the AIDS virus and that a person can become infected by sharing food with some one who has AIDS. In THIS, (2005) about 25% of respondents thought that AIDS can be transmitted through mosquito and other insects bites. AIDS-related misconceptions were found to be common among university students in many countries. However, there is no research which has been done to university students in Tanzania to underscore the level of knowledge and whether misconceptions are also common among university students, this is important as it may establish reasons to why students engage in risky sexual behaviour.

2.8.2 Attitude about HIV/AIDS and people living with HIV/AIDS

Tanzanian adults generally have accepting attitude towards HIV and those living with HIV/AIDS. However, their perceived vulnerability is low (TDHS, 1996; THIS, 2005). This

high level of knowledge and perceived invulnerability observed indicates that Tanzanian adults are empathetic towards HIV and people with AIDS regardless of their own perceived susceptibility to the disease. As the information on sexual behaviour and perceived susceptibility of university student is scant, it is important to conduct a research of this kind to underscore the relationship between attitudes of student towards HIV/AIDS and adoption of HIV/AIDS protective behaviour.

2.8.3 Sexual behaviour in Tanzania

Studies conducted in Tanzania between 1991 and 1999 show limited changes in term of the age at first sex and pre-marital sexual activity, the median age at first sex among women and men are 16.6 years among women and 17.9 years among men (National Bureau of Statistics, 2000; Heggenhougen and Lugalla, 2005). In various parts of Tanzania, older men have been reported to have sexual relationships with younger and inexperienced women who are perceived to be at lower risk of HIV (Kilewo *et al.*, 1993).

Studies that have examined the associations between sexual behaviour and HIV have revealed conflicting reports. In general, the number of sexual partners has been observed to be positively associated with increased risk of HIV infection (Barongo *et al.*, 1992; Mwakagile *et al.*, 2001). The risk of HIV infection has been found to be positively associated with casual sexual partners (Kilewo *et al.*, 1990; Kapiga, 1996) and the initiation of sexual activity at an early age (Kapiga *et al.*, 2002). These high-risk sexual behaviours have been shown to be more common in men than women (National Bureau of Statistics, 2000). These findings propose that men's sexual behaviour might be associated with an increased transmission of HIV in Tanzania. Other studies have shown that the male partner's sexual behaviour was a major predictor of HIV in women not practicing high-risk

sexual behaviour (Kapiga *et al.*, 1994). The sexual behaviour patterns of university students in Tanzania are not well established hence in an effort to combat HIV/AIDS in universities it is apparent that sexual behaviour patterns of students is known.

2.8.4 Determinants of sexual behaviour in Tanzania

[Kessy *et al.* \(1998\)](#) in an assessment of the behavioural risk factors associated with HIV infection among youth in Moshi found that, behavioural risk factors associated with HIV were different in male compared to female youth. Among male subjects, cigarette smoking, ever use of marijuana and having a past history of sexually transmitted diseases (STDs) were significant risk factors associated with increased risk of HIV. On the other hand, in females, those with a past or current history of STDs, those who volunteered that they practiced oral sex and subjects with four or more lifetime sexual partners were more likely to be HIV positive than subjects without a history of an STD and those with single sexual partner or had never practiced oral sex. The profile of risk behaviour associated with HIV seropositivity calls for an urgent need to target health information and education interventions to bring about a change in behaviour among the youth and hopefully help to reduce the rate of transmission of HIV infection.

In another study that was conducted in Arusha on determinants of multiple sexual partners and condom use among adults (Mnyika *et al.*, 1997) found that, significantly more men than women reported having multiple sexual partners (49% versus 25.2%). In both men and women, early sexual debut was associated with having multiple sexual partners while travel, alcohol use, and sex under the influence of alcohol were significantly associated with multiple sexual partners in men only. For both men and women, frequent discussion of AIDS with family members or friends was associated with increased condom use.

Currently there is no research that has been done on university students in Tanzania to establish determinants of sexual behaviour. Therefore the results of this study may help to suggest the interventions targeting students in the control of HIV transmission in universities.

Mohamed and Masona (1997) in the study of adolescent pregnancies in a prospective survey of contraceptive knowledge and reproductive behaviour in Tanzania found the age at first sexual intercourse to be low; 12 years for boys and 13 years for girls. Most Tanzanian girls practice sexual intercourse for the first time with someone older than themselves, while most boys practice sexual intercourse for the first time with someone of the same age or younger than themselves. In most cases, girls' and boys' first sexual experiences are not voluntary. The main reasons for initiating sexual intercourse are curiosity and the influence of friends. It is excusable for boys to become sexually active at a significantly earlier age than girls, and even expected that they will do so (Sharif, 1993).

2.8.5 Summary

In Tanzania, HIV/AIDS control activities have focused on increasing general AIDS awareness and the promotion of safer sexual practices. Although these efforts have been successful in raising AIDS awareness and knowledge, results from community-based studies show that this awareness has not resulted in significant changes in sexual behaviours (Heggenhougen and Lugalla, 2005). It is argued that although condoms are available in Tanzania, there are many constraints on their use by Tanzanian adolescents. Many religious leaders and elders see the condom as a message promoting adolescent sexual activity (Maswanyana *et al.*, 1999). Only a small proportion of men and women report

to having ever used condom, indicating that most sexual encounters are not protected by condoms in Tanzania (Kapiga and Lugalla, 2002).

Kapiga, (1996) in his study of the determinants of multiple sexual partner and condom use among sexually active Tanzanians found that condoms were more likely to be used by people who are less than 25 years of age and among men and residents of urban areas. Condom use has been reported to increase with increasing levels of education and among men and women practicing high-risky sexual behaviour (Kapiga, 1996; Kapiga and Lugalla, 2002). It is also possible that due to perceived HIV/AIDS protection, availability of condoms and willingness to use them may increase the tendency to engage in high-risk sexual behaviour (Konde-Lule *et al.*, 1997). The information on sexual behaviour of students in universities in Tanzania is scant and it therefore important to explore the general condom uses and reasons for using them among students.

Mwaluko *et al.* (2003) studied the trends in HIV and sexual behaviour in Tanzania, 1994-2000 and found that in spite of a modest increase in knowledge during the study period, most individuals continued to feel that they were not at risk of HIV, and sexual risk behaviour remained largely unchanged, except for a small increase in condom use. Such information among university student is scant this study therefore contribute towards filling this gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter presents the methods used to collect and analyse data on knowledge, attitude and sexual behaviour of university students concerning HIV/AIDS. The chapter is divided into six sections. Section one presents the study location and justification of its selection. Section two presents research design, while section three presents the sampling procedures employed. Section four describes data collection procedures, which is followed by data processing and analysis in section five. The last section presents limitations of the study.

3.2 Study location and justification for its selection

3.2.1 Geographical location of the study area

This study was conducted in two public universities namely, Sokoine University of Agriculture (SUA) located in Morogoro Region and University of Dar es Salaam (UDSM), located in Dar es Salaam Region. These universities were selected as they are the oldest universities in the country hosting students from all over Tanzania. Moreover these universities are located in regions where HIV/AIDS infection rates are high. Morogoro and Dar es Salaam regions have the prevalence rates of 8% and 13.4% respectively which is above national average which stands at seven percent (TACAIDS, 2005; URT, 2004). Figure 2 shows the map of Tanzania and location of Dar es Salaam and Morogoro regions in which these universities are located.



Figure 2: Map of Tanzania showing the location of Dar es Salaam and Morogoro Regions

Source: THIS, 2005

3.3 Research design

The cross-sectional research design was used in this study. The cross sectional research design allows data to be collected at a single point in one time and used in descriptive study for determination of relationship of variables (Bailey, 1998; Babbie, 1990). The cross sectional research design is considered to be favorable because of resource limitations and time for data collection. The adoption of the cross sectional design is justifiable on the basis that is the most common design used in survey research to compare extents to which at least two groups of people differ on a dependent variable (de Vaus, 1993).

3.4 Sampling procedures

3.4.1 The population

The population from which the sample for this study was drawn involved university students pursuing studies leading to first degree (undergraduate) and those studying for postgraduate diplomas, masters and PhD degrees (post graduates). The total student population in these universities were 34 113 (see Table3).

3.4.2 Sample size

The sample size for the study was 400 students; the choice of this figure was based on the simple formula of selecting sample according to Fisher *et al.* (1991) for the total population that exceed 10 000 (see Appendix 2). A total of 420 questionnaires were distributed to students based on the proportionate number of students in these universities. However, only 360 questionnaires were collected back 150 (38.9%) from SUA and 220 (61.1%) from UDSM respectively. Both uundergraduate and postgraduate students were

interviewed, of the interviewee 283 students (78.6%) were undergraduates and the rest 77 students which is (21.4%) were postgraduates.

3.4.3 Sampling method

A multistage sampling technique was adopted. This method allows more than one sampling method to be used and involve sampling in phases (Singleton *et al.*, 1993). In this case a combination of simple and systematic random sampling techniques was applied to obtain respondents. This method is useful in large and diverse populations (Singleton *et al.*, 1993). Simple random sampling technique was used to obtain the faculties and degree programs from each faculty where as systematic sampling was used to obtain respondents in each degree program.

3.4.3.1 Simple random sampling

Simple random sampling allows each subject to have equal chance of being selected (Kothari, 2004). A list of all names of faculties in each university was obtained from university records, names of these faculties were written on pieces of papers which were then folded. The number of faculties to be involved was determined and papers were randomly selected to get the faculties to be involved in the study. In each particular faculty similar procedures were repeated to get the degree program to be involved in the research.

Table 3: Students enrolment in public higher learning institutions 2004/ 2005

University	Undergraduate			Postgraduate diploma			Masters			PhD			Total grand		
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T
UDSM	3 828	6 566	10 394	55	233	288	391	929	1 320	24	118	142	5 108	7 036	12 144
SUA	604	1 687	2 291	0	0	0	35	146	181	1	7	8	640	1 840	2 480
OUT	3 481	9 464	12 945	0	0	0	0	0	0	0	0	0	3 481	9 464	12 945
MU	919	1 519	2 438	0	0	0	36	75	111	0	1	1	955	1 595	2 550
SUZA	79	128	207	0	0	0	0	0	0	0	0	0	79	128	207
MUCHS	606	1 292	1 898	0	0	0	28	75	103	9	7	16	643	1 374	2 017
UCLAS	163	826	898	1	9	10	11	23	34	0	2	2	175	860	1 035
MUCCoBS	237	463	700	11	24	35	0	0	0	0	0	0	248	487	735
TOTAL	9 917	21 945	31 771	67	266	333	501	1 248	1 749	34	135	169	11 329	22 784	34 113

Source: Ministry of Science Technology and High Education (2005)

3.4.3.2 Systematic random sampling

In systematic random sampling, subjects are selected at regular interval (Kothari, 2004). A class list comprising names of all students in the particular degree program was used as a sampling frame; this list was obtained from the class representative or student records office. Sampling interval was obtained by dividing total number of students in the class by the required sample size from each class (N). A starting point was randomly selected, and then every Nth student in the list was selected until the required sample in the class was completed. Similar procedures were repeated in each degree program to get total respondents that were used in the study.

3.5 Data collection procedures

3.5.1 Primary data

Primary data were collected through structured interviews using a self administered questionnaire. Anonymous questionnaires were distributed to students in their classes or halls of residences and were collected back when dully filled. The questionnaire contained closed ended questions to assess students' knowledge, attitude and sexual behaviour to HIV/AIDS risk. This study adopted standard questionnaire developed by Joint United Nations on HIV/AIDS (UNAIDS) and Family Health International (FHI) on sexual behaviour (see appendix 1). However, after pilot study which was done to test the clarity, sequence of the questions and the information obtained the questionnaire was modified to fit the objectives of the study. Self administered questionnaire was used due to high literacy level of the study population. Moreover, it is a relatively cost-effective research method to administer and is not labour intensive as it does not require the training of a large number of interviewers (Singleton *et al.*, 1993) this enabled the researcher to study a larger sample.

3.5.2 Secondary data

Secondary data have been used to improve the primary data source, and was documented from library books, journals, magazines, previous research reports and the internet. These were obtained from sources such as Sokoine National Agricultural Library (SNAL), University of Dar es Salaam Library, university health centres, international organizations, and non-governmental organizations dealing with HIV/AIDS. The focus was to obtain data, which could not be obtained sufficiently through primary data sources.

3.6 Data processing

The data collected was coded, entered into computer, verified and cleaned before analysis. The Statistical Package for Social Sciences (SPSS) *Version 11.5* was used to analyze the data. Descriptive statistics such as mean, frequencies and percentages were computed to find the extent of sexual behaviour among students with different variables. Index scales were constructed to gauge levels of risky sexual behaviour, misconception about means of transmission of HIV/AIDS, attitude and barriers to sexual behavioural change. The *F-test* was used to test the hypotheses at 5% (0.05) level of significance.

3.7 Limitations of the study

- a) Students, especially from the UDSM requested to be given money before they could fill in the questionnaire and some filled the questionnaire and refused to return them back demanding to be paid. This necessitated the researcher to explain to them the aim and the importance of this research to the university authority, those who refused to cooperate were excluded from the study and their questionnaires were dropped in the analysis.

- b) Students were not filling in the questionnaires on time this necessitated the researcher and research assistants to return back several times to same respondent to collect the questionnaires.

- c) Students were not responding to all items in the questionnaire as instructed hence resulted to poorly filled questionnaires which were removed from the sample.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Overview

In this chapter, the results of the study are presented and discussed in line with the study objectives and hypotheses. The chapter is divided into eight sections. Section one describes the demographic and socio-economic characteristics of the respondents, while section two presents sexual behaviour characteristics of university students. Section three describes the relationship between demographic variables and risk of sexual behaviour. Section four discusses socio-economic characteristics of respondents, section five discusses the knowledge concerning HIV/AIDS and section six discusses misconception on means of transmission and the way they relate to risk of sexual behaviour. Attitude of students towards HIV/AIDS is discussed in section seven. Lastly, section eight describes barriers to behavioural change as a response to HIV/AIDS.

4.2 Demographic and socio-economic characteristics of the respondents

A pertinent starting point for presentation of findings in a study of this nature is an examination of the socio-demographic characteristics of respondents. This then provides the background for other findings of the study. The parameters for demographic and socio-economic variables used in this study are presented in Table 4. The parameters for demographic characteristics include age, marital status, how they joined university, degree programme, place of residence while studying; while socio-economic characteristics include, financial sponsorship and religious affiliation.

Table 4: Demographic and socio-economic characteristics by sex (%)

Category	Sex (%)		Total
	Male (n=200)	Female (n=160)	
Age			
19-24	35.0	58.1	45.6
25-29	31.5	29.4	30.6
30-34	20.0	7.5	14.4
35-39	10.0	1.9	6.4
40+	3.5	3.1	3.3
Marital Status			
Single	70.5	82.5	75.8
Married	29.0	16.9	23.6
Cohabiting	0.5	0.0	0.3
Widow/widower	0.0	0.6	0.3
Degree program of study			
Natural sciences	33.7	37.4	35.3
Social Sciences	36.3	39.5	37.7
Business related studies	30.0	23.1	27.0
Student status			
Undergraduate students	79.5	77.5	78.6
Postgraduate students	20.5	22.5	21.8
Year of study			
First year	28.5	29.4	28.9
Second year	40.5	41.9	41.1
Third year	27.5	26.3	26.9
Fourth year	3.5	2.5	3.1
How they joined the university			
Direct from school	70.5	78.8	74.2
Equivalent qualification/ mature age scheme	29.5	17.5	24.2
Special female program	0.0	3.8	1.7
Financial sponsor			
HESLB	84.5	80.5	82.7
Employer	6.2	3.1	4.8
Private	5.7	11.3	8.2
Scholarship	3.6	5.0	4.3
Place of residence while studying			
University campus hostel	55.0	63.1	58.6
Off campus university hostel	18.5	25.0	21.4
Private accommodation	22.0	6.9	15.3
Home with parents / relatives	4.5	5.0	4.7
Religious affiliation			
Moslem	15.5	22.5	18.6
Christian - Protestant	37.0	40.0	38.3
Christian - Roman Catholic	40.0	33.1	36.9
Seventh Day Adventists	6.5	4.4	5.6
Others	1.0	0.0	0.6
Total	55.6	44.4	100.0

4.2.1 Age

The age distribution of respondents is presented in Table 4, in order to facilitate comparison between this study and other studies the age was presented in five-year age groups. The minimum and maximum age was 19 years and 50 years for female students. The youngest male student had 20 years and the oldest had 43 years. The mean age was 27.8 and 25.2 years for male and female respectively. The median age was 26 years for male and 24 years for female students and the modal age was 24 and 23 years for male and female students respectively. This reveals that most of the respondents are in their youth. Also, a predominant number of them are in the 21-30 age groups. This shows that university students in Tanzania rightly constitute AIDS prevention programme target groups; especially when it is realized that the disease usually disproportionately affects those between the ages of 20-40 (TACAIDS, 2005). Sexwise, female were numerous than males in younger ages 58.1% versus 31% in the 19-24 years age group. The study also reveals that there are older male students than females (33.5% versus 12.5% of students are thirty or more years old).

4.2.2 Marital status

Marriage is an important factor of exposure of women and men to sexual intercourse which is the leading mechanism to HIV infection in Tanzania (TDHS, 1996). Respondents in this study were asked if they were married, live as singles, cohabiting or were widows/widowers. The study revealed that the majority of students (75%) lived as singles while studying and less than quarter (23%) were married. Furthermore it was revealed that male students were more likely to be married than female students 29% versus 16.9% respectively. Students who were cohabiting or were widow/widower are few (0.6%). The majority of students (64%) who are married were aged 30-39 years, this compares well

with Tanzania HIV/AIDS Indicator Survey (THIS), 2005 which note that at the age 30-34 the proportion of male and female who are married were high (80%) with more male than females indicating that female get married earlier than males (THIS, 2005).

Early marriage is still relatively common in Africa. The average age of brides is 15 years in Niger, 16.5 years in Cameroon, and 17.5 years in Burkina Faso. Marriage often occurs between young girls and considerably older men. In Cameroon, the average age difference between husband and wife is 15 years, while in Kenya it is seven years (Kishor and Neitzel, 1996). Young women married to much older men often have less power in decision making around sexual intercourse, childbearing, and birth control, and are less able to protect themselves from STDs, exploitation, or abuse (Noble *et al.*, 1996; Kishor and Neitzel, 1996).

4.2.3 Degree program and year of study

Students in this study were broadly classified into three groups; natural sciences, social sciences and business related courses. Natural science courses included Bachelor of Sciences (BSc) Agricultural Education and Extension, BSc Home Economics and Human Nutrition, Master of Sciences (MSc) in Human Nutrition, BSc Food Science and Technology, Master of Science in Food Science and Technology, BSc Environmental Science and Management and BSc Engineering. Social sciences degree programmes included: Bachelor of Arts (BA) in Rural Development, BA Education, and Master of Arts in Rural Development, BA Sociology, Bachelor of Law (LLB) and BA Political Sciences and Public Administration (PSPA). Business related degree program were; BSc Agricultural Economics and Agribusiness, Masters of Science (MSc) in Agricultural Economics, Masters in Business Administration (MBA) and Bachelor of Commerce. In

the study sample, students who were studying natural sciences degree programmes were 35.3% while those in social sciences were 37.7%, twenty seven percent were enrolled in business related degree programmes. Sex wise, there were slight differences in proportion of students in natural sciences and social sciences categories except in business related degrees where there were more males than females 30% versus 27% respectively. Students in their second year of study constituted 41.1%, over a quarter (28.9%) came from first year while 26.3% were in third year and the rest 2.5% were in their fourth year of study. Over three quarters (78.6%) were undergraduate and 21.8% were postgraduate students.

4.2.4 Place of residence while studying

Living arrangement of students while studying may have influence in sexual behaviour of student depending on actual location of the hostel and surrounding social cultural context such as entertainment and noise pollution. Students were asked their place of residence while studying at the university. It was observed that many students (58.6%) live in University campus hostels, less than quarter (21.4%) live in university hostel which are situated away from university campuses, few students (15.3%) are privately accommodated and those who live with their parents or relatives account for (4.7%).

4.2.5 Financial sponsorship

Students were also asked about their financial sponsorship. The purpose was to determine how the students secure funds to meet university costs for their studies; this may have influence on their sexual behaviour. The vast majority 82.7% were sponsored by High Education Students Loans Board (HESLB), few students (4.8%) were sponsored by their employer, while 8.2% were privately sponsored and 4.3% were covered by scholarships. Sex wise more male students were sponsored by their employer than female student (6.2%

versus 3.1% respectively) also more female students were privately sponsored than male students (11.3% versus 5.7% respectively).

4.2.6 Religious affiliation

Religion is considered as an important cultural variable. In some cases the type of religion of an individual has been found to relate to sexual behaviour. The variable was considered as a background one. Respondents were asked to state the religion to which they belonged. Data in Table 4 show that the majority of students were Christians - Protestants (38.3%), followed by Christians - Catholics (36.9%). Moslems accounted for 18.6%, Seventh Day Adventists (SDA) were 5.6% and insignificant 0.6% were followers of Apostolic and traditional religions.

4.3 Sexual behaviour of students

Sexual behaviour of students in this study refers to behaviours related to sexual intercourse such as ever had sex, number of sexual partners, condom use and consistence of condom use as well as incidences of STDs. These variables were the focus of the study. To elicit information on sexual behaviour of students in universities, in depth questions were asked on these key variables. In order to a get better understanding of other factors related to sexual behaviour respondents were asked questions on how they satisfy their sexual urges and forms of sexual intercourse that they use or have tried. Those in marriage were asked the age at which they first get married, other forms of partnership, places they first met their sexual partners and alcohol drinking prior to having sex. Respondents were also asked to gauge their chances of contracting HIV/AIDS disease whether they thought their chances were great, moderate, small or nil and why they thought to have low risks.

4.3.1 Ever had sex

The future direction of HIV/AIDS depends to a large part on the level of knowledge of how the virus is spread and consequent in sexual behaviour. Given the evidence that the vast majority of HIV infections in Tanzania are contracted through heterosexual contact, information on sexual behaviour is important in designing and monitoring intervention programs to control the spread of the diseases (TDHS, 1996; THIS, 2005).

This study examined sexual experience and history. The vast majority of the respondents (90.2%) had experienced sex at least once during the past 12 months preceding the study. About a tenth of the respondents (9.2%) claimed they had never had sex (see Table 5). Males were more likely to report to have had sex in the past 12 months prior the study than their female counterparts (96% and 84.4% respectively). This compares with findings obtained in the Tanzania and Demographic and Health Survey (TDHS, 1996) and Tanzania HIV/AIDS Indicators Survey (THIS, 2005) in which it was reported that more than half of girls and boys had sex before their 18th birthday and 95% had sexual intercourse by their 25th birthday.

4.3.2 Number of sexual partners

According to literature, young men often begin sexual activity earlier and have more sexual partners than young women (Gorgen *et al.*, 1998). In this study respondents were asked questions about the number of sexual partners they ever had. As per Table 5, nearly one third (29.1%) reported to have had one partner, 27.8% had two partners and less than quarter (23%) had five or more sexual partners. On average male student had 4.6 partners while female student had 2.2 partners. This shows that many students have multiple sexual partners which put them at high risk of contracting STDs and HIV infections. Elsewhere in

Sub Saharan Africa, similar pattern have been reported; in Guinea, sexually active young men report a mean lifetime number of four sexual partners to two partners among sexually active young women (Gorgen *et al.*, 1998).

Table 5: Sexual behaviour of students by sex (%)

Category	Sex (%)		Total
	Male (n=200)	Female (n=160)	
Ever had sex (n=360)			
Yes	96.0	84.4	90.8
No	4.0	15.6	9.2
Number of sexual partners (n=230)			
1	20.0	43.3	29.1
2	27.9	27.8	27.8
3	11.4	12.2	11.7
4	7.9	8.9	8.3
5+	32.9	7.8	23.0
Mean*	4.6*	2.2*	3.4*
Age at first sex (n=314)			
6-11	5.4	0.8	3.5
12-17	28.1	10.9	21.0
18-23	51.4	74.4	60.8
24+	15.1	14.0	14.6
Condom use for the first time they had sex (n=346)			
Yes	67.6	56.9	63.2
No	32.4	43.1	36.8
Condom use for the last time they had sex (n=336)			
Yes	48.7	44.0	46.4
No	51.3	56.0	53.7
General condom use (n=326)			
Sometimes	46.6	48.5	47.4
Every time	48.0	36.9	43.4
Almost every time	5.4	14.6	9.2
Incidence of STDs (n=334)			
Yes	4.7	2.8	3.9
No	95.3	97.2	96.1

* = Mean number of sexual partner

The results of this study show that students' behaviour with regard to number of sexual partners does not differ with results found on general populations. In 2004-05 Tanzania Demographic and Health Survey (TDHS) it was revealed that on average, men had 5.7

sexual partners over their lifetimes. The mean number of sexual partners was nearly three times higher among divorced, separated, or widowed men than among never-married men (TDHS, 2005).

4.3.3 Age at first sexual intercourse

The period between age at first sex and age at marriage is often a time of sexual experimentation. Unfortunately, in the era of HIV/AIDS, it can also be a risky time. Age at first intercourse is of particular interest given the fact that in Tanzania HIV is mainly transmitted through heterosexual contact. This study gathered information on the timing of the first sexual intercourse for both men and women. The percentages of men and women who had ever had sexual intercourse by specific age are given in Table 5. In order to facilitate comparison of these results with other studies ages are grouped into five year groups. The study revealed that, the earliest self-reported age was six years for both sexes. The mean age to engage into sexual intercourse was 19.1 years for male students and 20.4 years for female students. The modal age for starting to engage into sexual intercourse was 18 and 20 years for male and female students respectively. However, 18.4% of male student had their first sex before their 15th birth day as compared to 7.1% of females in the same age bracket (data not shown). This means that boys are more likely to engage into sexual intercourse earlier than girls. Similar findings were reported in the 1999 Tanzania Reproductive and Child Health Survey (TRCHS) survey which further reported that there has been slight increase in age at first intercourse among women and men from 16.7 to 17.6 years (TRCHS, 1999).

In many sub-Saharan African countries, first sexual activity takes place before marriage. Among Kenyan women, the median age at first marriage is 18.8 years, while the median

age of first intercourse is 16.8 years. Data also show that four percent of Kenyan men are married by age 18, although 64 percent report sexual intercourse before that age (KDHS, 1993). In South Africa it was found that the peak of the rate of entry into sexual relations occurs at age 18 and that younger cohort of women are entering sexual relations at a younger age. The rate of entry into sexual relations is 14% to 20% faster for the younger cohorts (McDevitt, 1996). According to Noble *et al.*, (1996) by age 20, at least 80 percent of Sub-Sahara African youth are sexually experienced. Seventy-three percent of all Liberian women aged 15 to 19 have had intercourse, as have 53 percent of Nigerian, 49 percent of Ugandan, and 32 percent of Botswanan women (Noble *et al.*, 1996).

4.3.4 Condom use among students

Condom use among young people plays an important role in the prevention of transmission of HIV and other sexually transmitted infections as well as unwanted pregnancies. It has been documented in the literature that condoms are an effective method of preventing unwanted pregnancy, STDs and HIV/AIDS and that it is the best way for those who cannot abstain from sex (NACP, 1999; Kegeles *et al.*, 1988). Knowledge that condom can be used to prevent HIV infection is also widespread among university students (Kegeles *et al.*, 1988; Baldwin and Baldwin, 1988). Respondents in this study were asked if they used condoms with their sexual partners the first and last time they had sexual intercourse.

Data in Table 5 show that the majority (63.2%) used condoms in their first sex. However, condom usage rate in the last sex were low with less than half using condoms. Condom use among girls were slightly lower than their boys' counterpart (68% versus 59.9% for the first sex and 48.7% against 44% for last sex). It is discouraging that 36.8% percent of the respondent did not use condoms with their sexual partners in their first sex and more than

half of the respondent (53.7%) did not use condoms with their partners in the last sex. A low rate of condom use among university students has been found to be common. Peltzer (2000) in the research to investigate factors affecting condom use among South African university students, found that almost one third (29.2%) of the sample reported never using condoms, 35.4% always, 19.8% regularly and 8.5% irregularly in the past three months. Similarly, Qiaoqin *et al.*, (2006) in their study of sexual behaviours of Chinese university students found that sexual behaviours and awareness were undergoing rapid change, becoming active earlier and more risky, they also found that condom use were low; Condom was reported never/rarely used by 35% of sexually active students in both sexes in the previous year and about 1.5% of sexually active students of both sex reported being diagnosed with an STD.

4.3.5 Consistency of condom use

Information on consistence of condoms use were obtained by requesting respondents to state if they and their sexual partners used a condom for the first and last time and whether they were using condoms regularly during sexual intercourse. As per Table 5 and section 4.3.4 above, general condoms use among students was inconsistent, only 43.4% used condom every time while 47.7% used condoms sometimes and few students (9.2%) reported to use it almost every time. Also, male students were more likely to use condoms more consistently than female. This may be explained by low status of female in sexual relations.

4.3.6 Incidence of STDs

Sexually transmitted diseases (STDs) are a major public health problem which cause acute illness, infertility, long-term disability and death, with severe social, economic,

psychological and health consequences to millions of people. STDs are a marker of sexual networking and may provide clues on the extent of unprotected sex in the community. STDs are also known to facilitate sexual transmission and spread of HIV infections. During the year 2004, a total of 208,384 STDs were reported to STDs clinics of the different health facilities throughout the country (URT, 2004; TDHS, 2005).

Respondents were asked if they had been affected by STDs in the previous 12 months. According to Table 5, very few respondents (less than four percent) had been affected by STDs in the previous 12 months prior to survey. Although it has been shown in this study that the majority of students did not use condoms consistently low rate of STDs incidence could be due to shyness in reporting that the disease had infected them which result to underreporting. Data obtained from university health centre support this finding. For example, during the period of one year (April, 2006-April, 2007) only twenty two cases were recorded to SUA health centre of which the majority were female students (SUA STD/STIs Records, 2007).

4.3.7 Patterns of sexual activity among students

To prevent HIV/AIDS transmission, it is important that young people practice safe sex through the most advocated ABC methods (Abstinence, Being faithful to one uninfected partner, and Condom use). To explore more on students who had sex in the 12-month period preceding the survey, respondents were asked how they satisfy their sexual urges, forms of sexual intercourse that they use or have tried and place or event they first talked to or get to know their partners, the results of patterns of sexual behaviour are presented in Table 6.

The data in Table 6 show that the majority of respondents were sexually active; seventy five percent of respondents have had sexual intercourse in the four weeks preceding the survey (data not shown). Female students were more likely to report recent sexual intercourse than male students (29.1% female and 18.1% male reported to have had sex during the last six days preceding the survey).

The majority of respondent (71% males and 69% females) satisfy their sexual urges by having sex with spouse/partner. Some risky sexual behaviour has been observed in the sexual activity patterns of respondent. Few students (three percent) satisfy their sexual urges by drinking alcohol and (0.3%) by paying for sex. It is revealed that oral sex is practiced among university students. The most popular sites that students meet their partners include schools, colleges and the university in which they study (41.5%) followed by family event or social gathering. The least popular sites include churches/mosques, markets, hotels and bars. Few students met their partners in areas which are associated with high risk of sexual behaviour, 1.3% in bars/hotel and 3.5% could not remember the place or event where they met their partners for the first time (see Table 6).

Table 6: Patterns of sexual activity

Category	Sex (%)		Total
	Male (n=200)	Female (n=160)	
When was the last time you had sex			
1-6 days ago	18.1	29.1	22.7
1-3 months ago	30.9	28.4	29.8
1-4 weeks ago	22.9	20.9	22.0
4-6 months ago	5.9	8.2	6.8
More than 6 months ago	22.3	13.4	18.6
How students satisfy their sexual urges			
By having sex with spouse/partner	71.3	69.1	70.4
By praying	9.7	16.2	12.4
Looking pornographic films	8.7	3.7	6.6
By masturbation	4.1	8.1	5.7
By drinking alcohol	4.1	1.5	3.0
By drinking water	1.5	1.5	1.5
By paying for sex	0.5	0.0	0.3
Forms of sexual intercourse used or tried			
Sex with opposite sex	86.5	88.7	87.4
Oral sex	11.6	10.6	11.2
Anal sex	1.4	0.0	0.8
Sex with same sex	0.5	0.7	0.5
Site they first talked to or get to know their partners			
School /college/University	38.2	46.2	41.5
Family event or social gathering	21.0	15.9	18.9
At place of work	11.8	15.2	13.2
Own or friends house	14.0	11.4	12.9
Church/Mosque	4.3	6.1	5.0
Can't remember	5.4	0.8	3.5
Market	1.6	1.5	1.6
Hotel/guest house	1.6	1.5	1.6
Bar/Night club/disco	1.6	0.8	1.3
On journey	0.5	0.8	0.6
Total	55.6	44.4	100.0

4.3.8 Index of risky sexual behaviour

In order to determine the level of risk of sexual behaviour, an index was developed using a list of sexual behaviour variables. Six variables were used to form this index. These variables were: ever had sex, number of sexual partners, condom use for the first time during sexual intercourse, condom use for last time during sexual intercourse, general condom use and incidences of STD's. For each variable, every "Yes" response was given a

value of 1, which indicated high risk, while "No" response was given a value of 0, meaning low risk. The list of these variables and their values are presented in Table 7.

Table 7: Variables used in the risk sexual behaviour scale

Variables	Description
1 Ever had sex	1 = Ever had sex 0 = Never had sex
2 Number of sexual partner	1 = One or more sexual partner 0 = No sexual partner
3 Condom use for the fist time had sexual intercourse	1 = Did not use condom for the fist time had sexual intercourse 0 = Used condom for the fist time had sexual Intercourse
4 Condom use for the last time had sexual intercourse	1 = Did not use condom for the last time had sexual intercourse 0 = Used condom for the last time had sexual Intercourse
5 General condom use	1 = Never/sometimes/almost every time uses condom 0 = Uses condom every time s/he had sexual Intercourse
6 Incidences of STD's	1 = Ever affected by STDs 0 =Never affected by STDs

Key: 1 = high risk, 0 = low risk

In this case, an index scale ranging from 0 (meaning low risk) to 6 (meaning high risk) was obtained as an indicator of risky sexual behaviour. The index had a mean of 2.9. Data in Table 8 show the frequency and level of risk of sexual behaviour. Furthermore, the values on the index of the risk of sexual behaviour were categorized into low risk, medium risk and high risk of sexual behaviour in order to get a meaningful analysis.

Scores of 0 to 2 were considered as low risk, 3 medium and 4 to 6 high risk. As per Table 8 and Figure 3, the majority of students (43.3%) were in the low risk category. Thirty six percent were categorized in high risk group and less than a quarter (19.7%) was in the medium risk category.

Table 8: Frequency and level of risk of sexual behaviour

Score	Sex (%)		Total
	Male	Female	
0	4.0	15.6	9.2
1	11.0	9.4	10.3
2	26.0	21.3	23.9
3	21.5	17.5	19.7
4	27.5	24.4	26.1
5	10.0	10.6	10.3
6	0.0	1.3	0.6
Level of risk of sexual behaviour			
Low	41.0	46.3	43.3
Medium	21.5	17.5	19.7
High	37.5	36.3	36.9

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Figure 3: Level of risk of sexual behaviour

The estimated index of risky sexual behaviour among students was further used to examine the relationship between students' sexual behaviour and demographic socio-economic, socio-cultural, and students' misconception on means of transmission of HIV/AIDS. *F-test* was used to determine the relationship between these variables and students sexual behaviour.

4.4 Demographic and socio-economic variables and risk of sexual behaviour

This section determines the association between demographic variables and students' sexual behaviour. Information on the relationship between sexual behaviour and selected demographic variables such as age, sex, and marital status, university of study, entrance status, sponsorship and living arrangement are presented in Table 9. The mean index of sexual behaviour have been used in the analysis and the *F-test* was used to accept or reject the null hypothesis at 5 % level of confidence ($P=0.05$).

The data in Table 9 show that the mean index score on students' sexual behaviour was highest in 34-39 years age group and lowest in the 19-24 years age group. This shows that older students were more likely to involve in risk sexual behaviour than younger students. This may be because most of young students are in their first years of study and they still maintain formal guidance of their parents, guardians and school based guides in hostel. Older students on the other hand are used to freedom and marital experiences in their families thus in an effort to satisfy their sexual urges they embark on risk taking behaviour. The *F-test* analysis showed significant relationship between students' age and risk of sexual behaviour ($P < 0.05$). It was hypothesized in this study that young students are more likely to engage into risk taking sexual behaviour than older ones. However, based on the finding of this study the hypothesis is rejected.

Table 9: Mean index of sexual behaviour by selected background and demographic variables

Category (N = 360)	Mean index	F	P
Age			
19-24	2.4	14.8	0.000
25-29	3.1		
30-34	3.8		
35-39	4.2		

40+	3.6		
Sex			
Boys	3.2	6.7	0.010
Girls	2.8		
University			
SUA	3.4	21.1	0.000
UDSM	2.6		
Marital status			
Married	4.0	18.3	0.000
Cohabiting	3.0		
Single	2.6		
Widow/widower	2.0		
Entrance status			
Equivalent qualification/ mature age scheme	3.7	14.6	0.000
Direct from school	2.8		
Special female program	2.2		
Financial sponsor			
Employer	3.7	1.1	0.333
Private	3.5		
Scholarship	3.1		
HESLB	2.9		
Living arrangement			
Private accommodation	3.7	5.3	0.001
At the University campus hostel	2.9		
Home with parents / relatives	2.7		
In off campus university hostel	2.6		
Index mean	2.9		

The data in Table 9 show that the relationship between sex and risk of sexual behaviour was statistically significant ($P=0.010$). Implying that male and female student do not have the same risk. The mean index score was higher for male than female students' (3.2 and 2.8 respectively). Indicating that, male students were more likely to involve into high risk sexual behaviour than female students.

The demographic significance of marriage patterns derives from the fact that formal or informal unions are primary indicators of exposure to the risk of pregnancy, STDs and HIV infections (THIS, 2005). This study found that the relationship between marital status and risky sexual behaviour was statistically significant. The mean index was highest for

married student and lowest among those who were cohabiting and singles. This indicates that those in marriage were more likely to involve in risk behaviours than those who are not. Data in Table 9 therefore confirm the hypothesized relationship between marital status and risk sexual behaviour. It was hypothesized that married students are more likely to involve in risk taking sexual behaviour. These finding are comparable to THIS, (2005) which also found that those in marriage/formally married individuals have high HIV prevalence than other groups and those reported to have never been in union had a relatively low prevalence of HIV.

In an attempt to underscore the relationship of living arrangement of students and risk of sexual behaviour, respondents were asked their places of residence while studying at the university. The data in Table 9 show that the relationship between living arrangement and sexual behaviour of students was statistically significant. The mean index was highest for those with private accommodation and lowest for those who live in off campus university hostels. This implies that students who live in private accommodation are more likely to involve in risk taking sexual behaviour. Surprisingly, student residing in off campus university hostel had relatively low risk of sexual behaviour compared to students in university campus hostel and those living with their parents, the reasons for this are unclear and call for further research in the same area.

4.5 Socio-economic status of students and risk of sexual behaviour

Students' financial sponsorship was used to rank their social economic status. Those who received more than one sponsorship and were supported by their employer would be into high social economic status than their counterparts, who solely depend on the High

Education Students Loans Board or were privately/self sponsored. Respondents were asked who were sponsoring their studies at the university. However, no respondent acknowledged to be receiving more than one source of funding for his/her studies. The *F-test* for level of risk of sexual behaviour (low, medium and high) and sponsorship of students did not show significant relationship.

The student entrance status to university in this study was used as an indicator for employment and socio-economic status of students. University records show that most of students who joined university on equivalent qualification basis were employed before joining university. Data in Table 9 show that the mean index was highest for equivalent students and lowest for those who joined university under special female program and direct entrant, this imply that student who joined university under equivalent qualification were more likely to involve in risk sexual behaviour.

Data in Table 9 show significant relationship between university of study and risky sexual behaviour. SUA had the higher score on mean index than UDSM (3.4 versus 2.6) indicating that students studying at SUA were more likely to involve themselves into risk taking sexual behaviour than those from UDSM. This may be explained by age distribution of students in these universities. Fifty nine percent of UDSM student were in 19-24 years age category as compared to 27% in the same age category at SUA. The mean and median age was 29 and 27 years respectively for SUA students as compared to the mean and median ages of 23 and 22 years for UDSM. As it was found in this study (section 3.4.9) that older students were more likely to be involved into risk taking sexual behaviour.

4.6 Knowledge concerning HIV/AIDS

The second objective of this study was to identify the level of knowledge of university student concerning HIV and AIDS. This sub section establishes the prevailing level of knowledge about HIV/AIDS among university students. Respondents were asked if they have ever heard of the HIV virus or an illness called AIDS, if they know any one with or who have died of HIV/AIDS and source where they obtain HIV information. They were also asked if they have discussed HIV/AIDS with anyone in the past four weeks or thought they have enough information about HIV/AIDS and their perceived risk of acquiring HIV/AIDS. Those who perceived to have low chances of acquiring HIV were asked why they thought their chances were low and what behavioural change they have adopted to avoid getting HIV. This information is presented in Table 10 and 11.

This study found high levels of knowledge concerning HIV/AIDS among university students, all students have heard of HIV/AIDS and 79.1% have discussed the HIV/AIDS with friends or relatives in the past four weeks. The vast majority (99.6%) believe of its existence, 93.9% of respondents have heard or seen information concerning HIV/AIDS in the past four weeks and most of students (92.7%) have seen or knew some one who has or died of HIV/AIDS.

Table 10: Knowledge concerning HIV/AIDS

Statement	Sex (%)		Total
	Male (n=200)	Female (n=160)	
Have you ever heard of the HIV virus or an illness called AIDS?			
Yes	100	100	100
No	0.0	0.0	0.0
Do you believe that HIV/AIDS exists			
Yes	100	98.7	99.4
No	0.0	1.3	0.6
Do you know any one with or who have died of HIV/AIDS?			
Yes	91.4	94.3	92.7
No	8.6	5.7	7.3
During the past four weeks have you discussed the AIDS virus with anyone			
Yes	76.4	82.4	79.1
No	23.6	17.6	20.9
With who have you discussed AIDS with			
Friend	33.3	31	32.2
Sex partner	24.7	30	27.2
Fellow student	28.4	24.4	26.8
Family	9.1	10.8	9.9
Health care worker	4.1	3.8	3.9
Would you say you have enough information about HIV/AIDS?			
Yes	60.2	72.6	65.7
No	39.8	27.4	34.3
Perceived risk of acquiring HIV/AIDS			
Small	34.7	37.3	35.9
Moderate	24.1	22.2	23.2
Don't know	23.6	17.1	20.7
No risk at all	11.6	15.8	13.4
Great	6.0	7.6	6.7
Total	55.6	44.4	100.0

Table 11: Source of HIV/AIDS knowledge, risk perception and behavioural change

Statement	Sex (%)		Total
	Male (n=200)	Female (n=160)	
Source of HIV information			
Television	18.9	19.0	18.9
Radio	17.6	14.5	16.3
Newspaper/magazine	16.7	15.9	16.4
Friend	9.0	11.2	9.9
Pamphlet/Poster	7.4	7.5	7.4
Sex partner	7.1	7.8	7.4
Family member	6.3	8.4	7.2
From class lecture	5.7	6.5	6.0
Mosque/Church	6.1	4.7	5.5
Health care worker	5.2	4.5	4.9
Why do you think you have low chances of acquiring HIV			
Avoid multiple sex partners	19.9	19.8	19.8
Practice safe sex	16.7	22.6	19.7
Abstain from sex	7.4	15.2	10.6
Use condom correctly every time I have sex	11.6	6.2	9.4
Avoid sex with prostitute	10.5	6.2	8.7
Ensure safe blood transfusion	8.0	9.9	8.7
Ensure injection with sterilized needles	8.2	9.1	8.6
Avoid sex with homosexuals	8.8	5.8	7.6
Avoid sex with casual partners	8.0	4.9	6.7
Seek protection from traditional healers	0.0	0.4	0.2
What behavioural change have you done to avoid getting HIV			
Restricted sex to one partner	27.2	21.9	25.0
Advised partner to be faithful	21.6	29.4	24.8
Started using condoms	18.2	12.7	15.9
Ensured injections with sterilized needles	8.6	11.4	9.8
Stopped all sex	9.8	7.0	8.3
Reduced number of sex partners	10.8	4.8	8.3
Didn't start sex	2.8	11.8	6.5
No more homosexual contact	1.5	0.4	1.1
No behavioural change	0.0	0.4	0.2
Total	55.6	44.4	100.0

As expected with urban population; television was the most popular source of information (18.9%); news papers and radio were second in importance with 16.4 and 16.3 percent respectively. The mainstreaming of HIV/AIDS into university curriculum was also observed with (6.0%) mentioning class lectures as their source of HIV/AIDS information.

It was revealed from this study that the majority of respondent perceived their risk of contracting HIV to be low (35.9%), less than quarter (23.2%) perceived to have moderate risk and few respondents (6.7%) thought to have great risk of contracting HIV. Some respondent (13.4%) perceived to have no risk at all and about twenty percent were unable to quantify their risk.

4.6.1 Comprehensive knowledge of HIV/AIDS

In the Tanzania Demographic and Health Survey (TDHS), 2004-05 comprehensive knowledge of HIV/AIDS was defined as 1) knowing that both condom use and limiting sex partners to one uninfected partner are HIV prevention methods, 2) being aware that a healthy-looking person can have HIV, and 3) rejecting the two most common local misconceptions that HIV/AIDS can be transmitted through mosquito bites and by sharing food. Respondent in this study were asked these questions to establish the prevailing level of knowledge about HIV/AIDS among university students, the results are presented in Table 12.

University students in this study were found to have high levels of knowledge about HIV/AIDS. The data in Table 12 reveal that respondents scored high percentages in all major five indicators of comprehensive knowledge about HIV/AIDS. The rejection of the misconception that health looking person can not have the HIV virus ranked first, followed by other two major misconceptions sharing meals with infected person and transmission through mosquito bites. As expected, respondents with higher levels of education and in urban areas were more likely than other respondents to have comprehensive knowledge of HIV/AIDS (THIS, 2005; TDHS, 2005).

Table 12: Level of comprehensive knowledge about HIV/AIDS among students

Percent of respondent who say:-	Sex (%)		Total
	Male (n=200)	Female (n=160)	
It is possible for a person who look health to have the HIV virus (n=349)	96.4	96.1	96.0
People can not get HIV/AIDS by sharing a meal or eating meal prepared by HIV infected person (n=348)	90.8	91.5	91.0
People can not get HIV/AIDS through mosquito bites and other insect bites (n=345)	87.4	95.5	91.0
People can reduce their chances of getting the HIV virus by using a condom correctly every time they have sex (n=344)	83.8	75.2	79.9
People can reduce their chances of getting the AIDS virus by having only one sex partner who has no other partners (n=350)	76.6	82.4	79.1

The index of risk sexual behaviour was compared to selected knowledge variables to ascertain relationship between knowledge levels and risk of sexual behaviour. The variables included respondents belief that HIV or AIDS exist, if in the past 4 weeks respondents have heard or seen any information about the AIDS and have discussed the AIDS with anyone. Others were perceived chances of contracting AIDS and if respondents know any one with HIV or who has died with AIDS and whether they claim to have enough information regarding HIV/AIDS.

Table 13: Knowledge concerning HIV/AIDS and risk of sexual behaviour

Category (N = 360)	Mean index	F	P
Do you believe that HIV or AIDS exist?			
Yes	2.9	5.3	0.022
No	5.5		
In the past 4 weeks have you heard or seen any information about the AIDS virus?			
Yes	2.9	0.4	0.533
No	3.2		
During the last 4 weeks, have you discussed the AIDS with anyone?			
Yes	2.9	0.8	0.774
No	3.0		
Would say you have enough information regarding HIV/AIDS?			
Yes	2.9	0.4	0.848
No	3.1		
Do you know any one with HIV or who has died with AIDS?			
Yes	2.9	3.6	0.058
No	3.5		
What are your chances of getting AIDS?			
Great	3.9	4.3	0.002
Don't know	3.1		
Moderate	3.0		
Small	2.9		
No risk at all	2.4		
Mean index	2.9		

The data in Table 13 show that respondents who don't believe that HIV or AIDS exists scored high on the index of sexual behaviour which imply they were more likely to involve into risk sexual behaviour than those who believe that HIV/AIDS exist. Similarly, a comparison of the mean index score show that respondents who have heard or seen any information about the AIDS and have discussed the AIDS with anyone were less likely to involve into high risk behaviour (mean index 2.9 versus 3.2). Respondents who perceived to have high chances of contracting AIDS were also likely to indulge into high risk sexual behaviour. Those who knew someone with HIV or who have died of AIDS were less likely to involve into risk taking sexual behaviour (mean score 2.9 versus 3.5). The *F test* analysis

showed that the relationship between perceived susceptibility of acquiring HIV/AIDS and risky sexual behaviour was statistically significant. However, the relationship was not significant with the rest of the variables. Thus, the hypothesis that students with high knowledge about HIV/AIDS are less likely to engage in risk-taking sexual behaviour is rejected.

4.7 Misconception about means of transmission of HIV/AIDS

The third objective of this study was to identify if misconception about means of transmission of HIV/AIDS were also widespread among university students. In addition to knowing about effective ways to avoid contracting HIV, it is also useful to be able to identify incorrect belief about AIDS. TDHS, (1996) report show that misconception about means of transmission and prevention was common in Tanzania. In order to elicit information on misconception, respondents were asked whether they agree or disagree with specific statements on how HIV/AIDS is transmitted. Some of the statements were true, while others represented misconceptions about means of transmission. Common misconception about HIV/AIDS include the idea that HIV-infected people appear ill and the belief that the virus can be transmitted through mosquito or other insect bites, by sharing food with someone who is infected, or by witchcraft or other supernatural means (THIS, 2005). Respondents were also asked on misconception involving mother to child transmission (MTCT), donating blood and whether they thought that people can reduce their chances of contracting HIV by having only one partner who also do not have other partners (see Table 14).

As per Table 14, misconceptions about means of transmission of HIV are found among university students. The most common misconceptions are the belief that HIV can be

transmitted by donating blood (63.3%), the belief that having only one faithful partner who has no other partners can reduce chances of contracting HIV virus and consistency in condom use (20.9% and 20.1% respectively). The least common form of misconceptions include belief that a healthy person can not have HIV virus and the belief that HIV virus can not be transmitted from mother to child (3.7% and 2.6% respectively). Generally, male students were more likely to harbor more misconceptions than their female counterparts; they scored high marks in most of the statement representing misconceptions (See Table 14).

Table 14: Misconception on means of transmission of HIV (%)

Statement	Male (n =200)		Female (n=160)		Total
	Yes	No	Yes	No	
Can a person get infected with the AIDS virus by donating blood?	69.1	30.9	55.9	44.1	63.3
Can people reduce their chances of getting the AIDS virus by having only one sex partner who has no other partners?	76.6	23.4	82.4	17.6	20.9
Can people reduce their chances of getting the AIDS virus by using a condom correctly every time they have sex?	83.8	16.2	75.2	24.8	20.1
Can people get AIDS through casual contacts eg. Hand shaking, hugging, caring for people living with HIV/AIDS (PLHV)	19.4	80.6	11.0	89.0	15.7
Do you think people can get AIDS through supernatural/ witchcraft means?	12.9	87.1	13.2	86.8	13.0
If a mother is infected with the AIDS virus, is there a way to avoid transmission to the baby?	89.7	10.3	89.6	10.4	10.3
Can a person get infected with the AIDS virus by sharing a meal or meal prepared/preserved by person who has HIV or AIDS?	9.2	90.8	8.5	91.5	8.9
Do you think that a person can get infected with the AIDS virus through mosquito bites and other insect bites?	12.6	87.4	4.5	95.5	8.6
Is it possible for a person who looks healthy to have the AIDS virus?	96.4	3.6	96.1	3.9	3.7
Can the AIDS virus be transmitted from a mother to a child?	96.9	3.1	98.0	2.0	2.6

4.7.1 Index of misconception on means of HIV/AIDS

Misconception index was developed in order to obtain a single compound measure. This was done for the purpose of knowing the relationship between misconceptions on means of HIV transmission and students' sexual behaviour, the index was based on ten variables presented in Table 15. Respondents were asked whether they agree or disagree with specific statements on means of HIV transmission.

Table 15: Variables used in the misconception scale

Variables		Description	
1	Is it possible for a person who looks healthy to have the AIDS virus?	Yes= 1	No= 0
2	Do you think people can get AIDS though supernatural/witchcraft means?	Yes= 0	No= 1
3	Can people get AIDS though casual contacts eg. Hand shaking, hugging, caring for people living with HIV/AIDS (PLHV)	Yes= 0	No =1
4	Can people reduce their chances of getting the AIDS virus by using a condom correctly every time they have sex?	Yes= 1	No= 0
5	Do you think that a person can get infected with the AIDS virus through mosquito bites and other insect bites?	Yes= 0	No= 1
6	Can people reduce their chances of getting the AIDS virus by having only one sex partner who has no other partners?	Yes= 1	No= 0
7	Can a person get infected with the AIDS virus by sharing a meal or meal prepared/preserved by person who has HIV or AIDS?	Yes= 0	No= 1
8	Can a person get infected with the AIDS virus by donating blood?	Yes= 0	No= 1
9	Can the AIDS virus be transmitted from a mother to a child?	Yes= 1	No= 0
1 0	If a mother is infected with the AIDS virus, is there a way to avoid transmission to the baby?	Yes= 1	No= 0

Key 1= Correct response 0= Incorrect response

For each variable, every "Yes" response against a correct fact was given a value of 1, while every "Yes" response on wrong fact was given a value of 0. Similarly, every "No" response against a wrong fact was given a value of 1 and every "No" response on correct fact was given a value of 0. High scores on the misconception scale were obtained by respondents who had no or less incorrect answers for statements showing means of transmission of HIV/AIDS. Scores on the misconception scale were further classified into low (0-4), medium (score of 5) and high levels of misconceptions (6-10). Table 15 shows the variables used to construct misconception scale and Table 16 shows the frequency and level of misconception.

The data in Table 16 and Figure 4 show that the majority of student (48.1%) had low levels of misconception on the means of HIV transmission; males had low levels of misconception than females (52.5% versus 42.5%). Similarly, more females were in the high level category of misconception than males (18.1% and 13% respectively).

Table 16: Frequency and level of misconception of HIV transmission

Score	Sex (%)		Total
	Male (n=200)	Female (n=160)	
0	2.5	3.8	3.1
1	0.0	0.6	0.3
2	0.0	1.9	0.8
3	2.0	4.4	3.1
4	8.5	7.5	8.1
5	34.5	39.4	36.7
6	37.0	31.9	34.7
7	11.5	10.0	10.8
8	2.0	0.6	1.4
9	1.5	0.0	0.8
10	0.5	0.0	0.3
Level of misconception			
High	13.0	18.1	15.3
Medium	34.5	39.4	36.7
Low	52.5	42.5	48.1

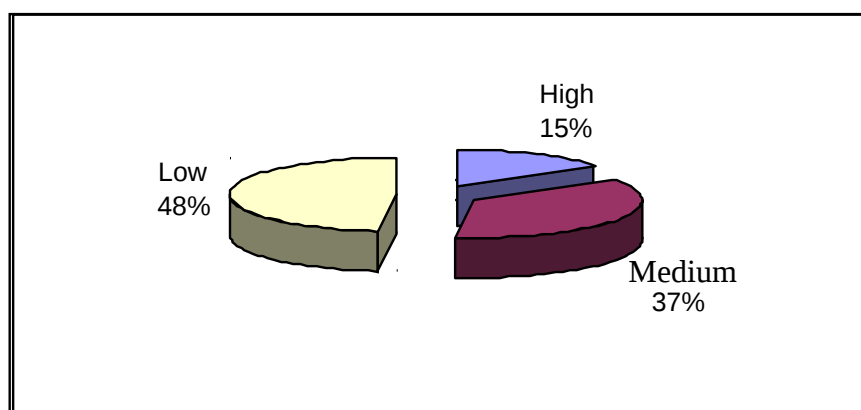


Figure 4: Level of misconception

It was hypothesized in this study that students with high levels of misconception were more likely to involve in risk taking sexual behaviour. Correlation analysis was employed to underscore the relationship between misconceptions and risky sexual behaviour. The correlation between scores on the index of misconception and score on sexual behaviour was positive indicating that levels of risky sexual behaviour increases as one has more misconceptions. However, the strength of the associations was weak (Pearson correlation coefficient $r = 0.044$) and the relationship was not significant ($p = 0.409$). Therefore the hypothesis that students with high levels of misconception were more likely to involve in risk taking sexual behaviour is rejected.

4.8 Attitude of students towards HIV/AIDS

The fourth objective of the study was to identify attitude of students towards HIV/AIDS. This subsection presents attitude of students towards HIV and people living with HIV/AIDS. Since HIV/AIDS has emerged as a global problem with a disastrous impact on survival and human development, it has created fear, social anxiety and feeling against humanity (THIS, 2005). HIV/AIDS related stigma can partly be attributed to the fact that it

is a sexually transmitted disease (THIS, 2005). National Policy on HIV/AIDS has identified stigma as one of the challenges in prevention and control of the epidemic (URT, 2001). People living with HIV/AIDS face discrimination and are sometimes neglected because of the hostile attitude which lead to secrecy and denial which hinder people from seeking counseling and testing for HIV, which is a crucial first step in fighting the epidemic (URT, 2001).

In this study attitude of respondents towards HIV was sought using Likert attitudinal scale. The Likert scale that was constructed had eight statements which carried positive and negative statements about HIV/AIDS. Respondents were requested to say whether they strongly agree, agree, uncertain/undecided, disagree or strongly disagree against each statement. Information on attitude of students towards HIV/AIDS was analyzed first by using summated scale approach where scores on positive and negative statement was obtained and compared (see Table 17). Then an index scale on attitude towards HIV/AIDS was constructed in order to facilitate comparison between attitude of student towards HIV/AIDS and sexual behaviour.

As per Table 17 most of the respondents received high percentage scores on all positive statements and relatively low percentage were obtained to all negative statements. This implies that respondents had positive attitude towards HIV/AIDS. Similar findings have been reported in the Tanzania HIV/AIDS Indicator Survey, (2005) in which it was found that generally Tanzanian adults have accepting attitude towards those living with HIV/AIDS and that women are slightly less likely to express accepting attitude towards people living with HIV/AIDS than men are.

Table 17: Attitude and belief towards HIV/AIDS

Statement	Attitude (%)		
	Disagree	Undecided	Agree
1. AIDS is a disease syndrome for which you can protect yourself	3.3	6.7	88.9
2. Getting HIV/AIDS is a result of ones sin	70.8	13.1	13.6
3. People with HIV/AIDS deserve to get all types of support (including food donations, nutrition education and counseling	5.5	11.1	91.9
4. There is no need of using national recourses to care for people living with HIV/AIDS	83.9	5.8	9.4
5. Condoms are useful and effective tool for preventing against HIV/AIDS	29.2	29.5	40.8
6. Knowledge of students about HIV/AIDS is good enough to influence their sexual behaviour	23.4	22.2	52.8
7. The HIV status of students and lectures should be made public to make people change their behaviour	22.2	10.8	61.4
8. Death to HIV/AIDS is not a threat "Every body will die anyway"	67.0	10.0	22.5

4.8.1 Index of attitude towards HIV/AIDS

In order to obtain a summary measure an index scale of attitude towards HIV/AIDS was developed. Responses were grouped into three categories namely: agree, uncertain and disagree. In all positive statements every "Agree" response was represented by 3 while "Uncertain" was represented by 2 and "Disagree" was represented by 1. For all negative statements every "Agree" response was represented by 1 while "Uncertain" was represented by 2 and "Disagree" was represented by 3. The list of these variables and their values are presented in Table 18. Table 19 show frequency of attitudes towards HIV/AIDS.

Table 18: Variables used in the index of attitude towards HIV/AIDS

Category	Response	Score
AIDS is a disease syndrome for which you can protect yourself	Disagree	1
	Uncertain	2
	Agree	3
Getting HIV/AIDS is a result of ones sin	Agree	1
	Uncertain	2
	Disagree	3
People with HIV/AIDS deserve to get all types of support including food donations, nutrition education and counseling	Disagree	1
	Uncertain	2
	Agree	3
There is no need of using national recourses to care for people living with HIV/AIDS	Agree	1
	Uncertain	2
	Disagree	3
Condoms are useful and effective tool for preventing against HIV/AIDS	Disagree	1
	Uncertain	2
	Agree	3
Knowledge of students about HIV/AIDS is good enough to influence their sexual behaviour	Agree	1
	Uncertain	2
	Disagree	3
The HIV status of students and lectures should be made public to make people change their behaviour	Agree	1
	Uncertain	2
	Disagree	3
Death to HIV/AIDS is not a threat "Every body will die anyway"	Agree	1
	Uncertain	2
	Disagree	3

In this case an index ranging from 8 to 24 was constructed as the measure of attitude towards HIV/AIDS; the scale had the mean of 15.1. The scores on the index were further categorized into negative and positive attitudes. Scores below the index mean was categorized as negative attitude where as scores above the index mean was categorized as positive attitude. Data in Table 19 show that the majority of the respondents (61.2%) had positive attitude towards HIV/AIDS. More female students than male students had the positive attitude towards HIV/AIDS (65.8% versus 57.5% respectively).

Table 19: Attitude of students towards HIV/AIDS

Score	Sex (%)		Total
	Male (n=200)	Female (n=160)	
9	1.0	1.3	1.1
10	1.5	1.3	1.4
11	5.0	3.2	4.2
12	8.0	5.7	7.0
13	11.5	8.2	10.1
14	15.5	14.6	15.1
15	15.0	13.9	14.5
16	18.0	23.4	20.4
17	10.0	9.5	9.8
18	9.0	10.8	9.8
19	4.0	1.3	2.8
Attitude towards HIV/AIDS			
Positive	57.5	65.8	61.2
Negative	42.5	34.2	38.8

4.8.2 Attitude towards HIV/AIDS and risk of sexual behaviour

In order to determine the influence of attitude of students towards HIV/AIDS and sexual behaviour the mean score on the index of sexual behaviour was compared to scores on attitude of students towards HIV/AIDS. The data in Table 20 show that mean score of students who had positive attitudes were high compared to those categorized in negative attitude implying that students who had positive attitude towards HIV/AIDS were more likely to engage into risk taking behaviour than their counterparts. However, the F-test results showed that the relationship between attitude of students towards HIV/AIDS and sexual behaviour was not statistically significant ($P > 0.05$). Therefore, the hypothesis that students who had negative attitude towards HIV/AIDS were more likely to engage into risk taking sexual behaviour than their counterparts is rejected.

Table 20: Attitude towards HIV/AIDS and risk of sexual behaviour

Category	Mean index	F	P
Positive	3.0	0.051	0.822
Negative	2.9		
Mean index	2.9		

4.9 Barriers to behavioural change

The fifth objective of this study was to determine the barriers of students' sexual behavioural change. Fourteen questions/items were used to implore information on barriers to sexual behavioural change. Respondents were requested to state whether they perceived that: peer has influence on their sexuality, sex is a necessity in their life or they perceived to have minimum or no risk of contracting HIV/AIDS, perceived that sex is a way of expressing love or thought sex with condom is tasteless, perceived fear of the side effects of using condoms. Respondents were also asked if they considered doing sex as one way of gaining/spending money or if condoms were not readily available and if their partners were reluctant to use condoms or perceived to have less power over their sexuality. Respondents were also asked if they thought to have enough knowledge on HIV/AIDS and if they perceived social environments and surroundings at campuses e.g. sexy clothes, private rooms and entertainment was a barrier to their behavioural change. Lastly respondent were asked if they engaged into high risk sexual behaviour to try new experience with new partner or fertility concerns. The summary of the result is presented in Table 21.

The data in Table 21 show that the factors mentioned to be the barriers to sexual behavioural change had more influence on male student than their female counterparts; male respondents scored high percentages in all aspects than female implying that the mentioned factors had influence on their sexual behavioural change. The most popular barriers to sexual behavioural change was perception that sex is a necessity in life (73.4%)

followed by students' perception to have minimum or no risk of contracting HIV/AIDS and wish to have children (50% and 46% respectively). The least popular barrier to sexual behavioural change was whether students consider doing sex as one way of gaining/spending money and condom availability (18.4% and 11.6% respectively).

Table 21: Barriers to behavioural change

Statement	Sex (%)		Total
	Male (n=200)	Female (n=160)	
Perceived that sex is a necessity in life	82.5	64.3	73.4
Perceived to have Minimum or no risk of contracting HIV/AIDS	50.1	51.7	50.9
Perceived social environment at campuses e.g. sexy clothes, private rooms and entertainment as a barrier to behavioural change	56.7	36.7	46.7
Fertility concerns/Wish to have children	48.4	36.2	42.3
Peer has influence on their sexuality	47.7	35.2	41.6
Perceived that sex is a way of expressing love	38.2	24.7	31.6
Thought they needed to try new experience with new partner	41.8	19.1	30.6
Lack of sexual decision power	32.8	21.9	27.4
Perceived fear of the side effects of using condoms	30.4	22.1	26.3
Thought sex with condom is tasteless	29.0	22.8	25.9
Partners are reluctant to use condoms	26.2	25.3	25.8
They lack enough or had poor knowledge on HIV/AIDS	27.6	18.1	22.9
Consider doing sex as one way of gaining/spending money	23.7	13.0	18.4
Condoms are not readily available	15.7	7.4	11.6

4.9.1 Index of barriers to sexual behavioural change

In order to determine if the factors mentioned to be the barriers to sexual behavioural change were related to risky sexual behaviour, an index of barriers to sexual behavioural change was constructed and compared to individual sexual behaviour variables. Fourteen variables were used to construct an index of sexual behavioural change (see Table 22).

Table 22: Barriers to sexual behavioural change variables

Statement	Description
Perceived that sex is a necessity in life	1 = Perceived 0= Not perceived
Peer has influence on their sexuality	1 = Perceived 0= Not perceived
Perceived to have Minimum or NO risk of contracting HIV/AIDS	1 = Perceived 0= Not perceived
Perceived that sex is a way of expressing love	1 = Perceived 0= Not perceived
Thought sex with condom is tasteless	1 = Thought 0 = Not thought
Perceived fear of the side effects of using condoms	1 = Perceived 0= Not perceived
Consider doing sex as one way of gaining/spending money	1 = Thought 0 = Not thought
Condoms are not readily available	1 = Thought 0 = Not thought
Their partners are reluctant to use condoms	1 = Thought 0 = Not thought
Lack of sexual decision power	1 = Had 0 = Had not
They lack enough or had poor knowledge on HIV/AIDS	1 = Had 0 = Had not
Perceived social environment at campuses eg. sexy clothes, private rooms and entertainment as a barrier to behavioural change	1 = Perceived 0= Not perceived
Thought they needed to try new experience with new partner	1 = Thought 0 = Not thought
Fertility concerns/Wish to have children	1 = Had

0 = Had not

For each variable every "Yes" response was given a value of 1, which indicated high influence to sexual behavioural change, while every "No" response was given a value of 0, meaning low influence. In this case an index ranging from 0 (meaning low influence) to 12 (meaning high influence) was obtained as a measure of level of influence of the mentioned factors; the index had the mean of 4.5. The results were further classified into low and high levels of influence to sexual behavioural change; scores below mean score on the index was categorized as low influence and scores above index mean was categorized as high influence (see Table 23).

Table 23: Barriers to sexual behavioural change

Scores	Sex (%)		Total
	Male (n=200)	Female (n=160)	
0	4.0	12.5	7.8
1	6.0	15.6	10.3
2	7.0	11.9	9.2
3	11.0	13.8	12.2
4	15.0	10.6	13.1
5	14.5	10.0	12.5
6	14.5	8.1	11.7
7	8.0	5.0	6.7
8	8.0	3.1	5.8
9	4.5	6.3	5.3
10	3.0	1.9	2.5
11	4.0	0.6	2.5
12	0.5	0.6	0.6
Level of influence (barriers to change)			
Low	57.5	74.4	65.0
High	42.5	25.6	35.0

Data in Table 23 show that majority of students (65.0%) perceived that the mentioned factors had low influence as barriers to sexual behavioural change. More female students than males perceived that these factors had less influence as barrier to sexual behavioural

change (74.4% compared to 57.5%). A significant number of respondents (35%) perceived these factors as barriers to their behavioural change. More male student than female perceived the mentioned factors were the barriers sexual behavioural change (42.5% and 25.6% respectively).

Levels of influence of the factors perceived to be barriers to sexual behavioural change were further compared to an index of sexual behaviour; as shown in Table 24 the respondents categorized in high level category of influence had high score on the index scale than their counterparts. The *F test* analysis showed that the relationship between these factors and sexual behaviour of the respondent was not statistically significant ($P>0.05$).

Table 24: Barriers to behavioural change and risk of sexual behaviour

Barriers to behavioural change	Mean	F	P
High	3.1	3.05	0.082
Low	2.8		
Mean index	2.9		

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

The main objective of this study was to determine the level of knowledge, attitude and sexual behaviour of university students concerning HIV/AIDS in order to provide necessary information to university authorities and assist policy makers to design more relevant and efficient programmes to combat HIV/AIDS in Universities. This chapter presents the summary of the major findings and conclusions; it also provides recommendations and suggestions for further research.

5.2 Summary of the major findings

5.2.1 Sexual behaviour

The results indicated that the majority of students were sexually active in the four weeks preceding the survey hence they were at risk of being infected by STDs, HIV/AIDS. Furthermore the data show that the majority had ever had sexual intercourse and on average students have had more than three sexual partners in their lifetime. High inconsistency in condom uses is found with most students using condom only for the first sexual encounter. The risk of sexual behaviour was lowest in age group of 19-24 years and highest in age group 34-39 years, males were more likely to engage in high risk sexual behaviour than females.

5.2.2 Level of knowledge concerning HIV/AIDS

The study found that knowledge of AIDS among university was high; all university students have heard of HIV/AIDS and believe of its existence. The information concerning

HIV is available in universities; students scored high percentages in all major five indicators of comprehensive knowledge about HIV/AIDS defined in (TDHS, 2004-5).

5.2.3 Misconception about means of transmission of HIV/AIDS

Despite high knowledge about HIV/AIDS, students also harbored some misconceptions. These included the belief that HIV could be spread through supernatural means (13.1%), casual contact (15%) and the belief that a person can get HIV virus through mosquito bites and other insect bites (8.6%). Young and older students (19-24 years and those aged 40 years and above) had high misconception than their counter parts. Male respondents had more misconceptions than female respondents. Married students and those in union had more misconception than singles. The study also found that misconception about the means of transmission did not influence students to engage into high risk sexual behaviour ($P>0.05$).

5.2.4 Attitude of students towards HIV/AIDS

Most students received high score on all positive statements about HIV/AIDS and relatively low score were obtained to all negative statements. This implies that respondents had positive attitude towards HIV/AIDS. The index scale on attitude towards HIV/AIDS showed that the majority of the respondents had positive attitude towards HIV/AIDS. The relationship between attitude of students towards HIV/AIDS and risk sexual behaviour was not statistically significant ($P>0.05$).

5.2.5 Barriers to behavioural change

The most popular barriers to sexual behavioural change was perception that sex is a necessity in life followed by students' perception to have minimum or no risk of

contracting HIV/AIDS, social environment at campuses things like sexy clothes and entertainment, peer influence and wish to have children. The least popular barrier to sexual behavioural change was condom availability and partner reluctance to use them.

5.3 Conclusions

The following conclusions are made from the findings of this study:

- (a) University students are involved in risky sexual behaviour.
- (b) University students are sexually active at early ages, have many sexual partners and are inconsistent in using condom during sex.
- (c) High levels of knowledge concerning HIV/AIDS have little influence on sexual behaviour many university students still practise high risk sexual behaviour. The findings are similar to those found in general populations like (TDHS, 1996 and THIS, 2005).
- (d) University students have accepting attitudes towards HIV/AIDS and people living with HIV/AIDS.
- (e) Misconceptions about means of transmission of HIV/AIDS are widespread among university students.
- (f) Sexual behaviours of students in universities are undergoing rapid changes becoming more active and risky, potentially driven by earlier sex initiation, greater

multiple partnerships and less condom use, that allows the spread of STDs and HIV among university students

5.4 Recommendations

5.4.1 Recommendations to policy makers

- (a) The government should continue to empower teachers with enough skills especially primary and secondary school teachers who teach HIV/AIDS education so that they give in depth knowledge this will help students to be aware of how the HIV virus is spread and the likely danger, as revealed in this study students start to practice sex as early as six years.

- (b) It was found that youth starts having sex in younger ages. Therefore, communication campaigns should also target adults, encouraging them to talk openly to their children about sex, STIs and HIV/AIDS. Campaigns should correct incomplete knowledge, challenge misconceptions, communicate the availability of HIV and STI testing and stress the importance of knowing one's HIV status.

5.4.2 Recommendations to university authorities

- (a) The universities should develop policies, programmes and strategies to address risk sexual behaviour issues to help students realize their vulnerability to HIV/AIDS.

- (b) In order to minimize the risk of exposure to risk taking behaviour sensitisation programmes to address students' sexual behaviour should be introduced to provide knowledge and scientific facts on HIV/AIDS.
- (c) The universities should mainstream HIV/AIDS related courses into their curriculum and make them compulsory courses to all students.
- (d) The universities should compile and release periodical updates reports on HIV/AIDS situations in each university including deaths of staff and students due to AIDS.
- (e) Because young people rely heavily upon interpersonal contacts for STI/HIV information, peer-based interventions should be initiated and strengthened to ensure that students have access to accurate information on HIV/AIDS.

5.4.3 Recommendations to university students

- (a) This study found that university students are involved in risky sexual behaviour which is the leading mechanism for HIV transmission in the country. Furthermore, many students perceive their risk of acquiring HIV/AIDS is low. University students should change this deceptive attitude and take measure to protect themselves from contracting HIV virus.
- (b) A high level of knowledge concerning HIV/AIDS found among university students is useless if it doesn't transform into their sexual behaviour. They

should reduce number of sexual partners and use condom consistently during sex.

- (c) This study found that misconceptions about means of transmission of HIV/AIDS are widespread among university students. They must look for reliable sources of HIV/AIDS information so that they have accurate information on how HIV/AIDS is spread.

5.5 Areas of future research

- (a) Further longitudinal surveys and surveillance on sexual behaviour of students is needed to develop trends in sexual behaviour to enable policy makers and university authorities to have long term plans which are effective to prevent further spread HIV and minimize its adverse outcomes.
- (b) It was revealed in this study that university and student based initiatives are in place to address the HIV/AIDS in universities, a research to underscore the effectiveness of these programme and student perception is needed.
- (c) The findings presented in this study are a result of a survey conducted in two public universities and they cannot be representative of the total population of university students in Tanzania. Consequently, there is a need for more studies on the same subject in private universities and other non universities institutions to enable generalization of the observations.

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APPENDICES

Appendix 1: Questionnaire

INFORMED CONSENT

Introduction

“My name is **JECKONIAH, J.N.** a postgraduate student pursuing Master of Arts in Rural Development (MARD) at Sokoine University of agriculture. Am conducting a research on knowledge, attitude and sexual behaviour of university students concerning HIV/AIDS. I kindly ask you to participate in my research by responding to the questions below.

Confidentiality and Consent

“I’m going to ask you some very personal questions that some people might find difficult to answer”. Your answers are completely confidential and anonymous. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. You are kindly requested to answer all questions completely and to the best of your knowledge. Your honest answers to these questions will help us better understand the knowledge, attitude and sexual behaviour of university students concerning HIV/AIDS and assist policy makers to design better techniques to combat HIV/AIDS in universities.

SECTION 1: QUESTIONNAIRE IDENTIFICATION

Date of interview

Questionnaire No.....

Name of UniversityCampus.....

SECTION 2: BACKGROUND INFORMATION /CHARACTERISTICS

In this section I would like to know your background information. I therefore ask you to respond to these simple questions about you.

1. What is your Sex? **(Circle the answer)**

(1)Male

(2) Female

2. How old are you (in years)years

3. What is your marital status **(Circle the answer)**
1. Single
 2. Married
 3. Divorced/separated
 4. Widow/widower
 5. Cohabiting
4. Name of the degree program you are studying and year of study
Degree.....Year of study.....
6. How did you join this university? **(Circle the answer)**
1. Direct (fresh from school)
 2. Equivalent (mature age entry)
 3. Special female programme
 4. Others (mention)
7. Who is your financial sponsor for your study at the university? **(Circle the answer)**
1. HESLB
 2. Employer
 3. Family/Relative
 4. Spouse (husband/Wife)
 5. Boyfriend/ Girl friend
8. Where do you live while studying at this university? **(Circle the answer)**
1. At the university campus hostels
 2. In off campus university hostel
 3. Private accommodation
 4. Home with parents/relatives
9. What is your religion? _____

SECTION 2: SEXUAL ACTIVITY AND BEHAVIOUR

I am going to ask some specific questions about sex and your sexual partners in the last 12 months.

Sexual partners are any persons with whom you might have had sex, including your husband, wife or wives, girlfriends, boyfriends, friends, casual partners, prostitutes, someone you may have met at a bar, a wedding, a special event, or during the normal

course of your day. For this study, the term “sexual intercourse” refers to vaginal or anal sex.

9. Have you ever had sex intercourse? **(Circle the answer)**

(1) Yes

(2) No

10. At what age did you first have sex?

(1) age (years). [__] [__]

(2) Never

11. When was the last time you had sex? **(COMPLETE ONLY ONE OF THE OPTIONS)**

(1) Today [__] [__]

(2) [__] [__] days ago

(3) [__] [__] weeks ago

(4) [__] [__] Months ago

(5) [__] [__] years ago

12. How do you satisfy your sexual urges? **(CIRCLE ANSWERS)**

(1) By masturbating

(2) By praying

(3) By drinking water

(4) By drinking alcohol

(5) By having sex with spouse/partner

(6) By paying for sex

(7) Others (specify) _____

13. Some people practice different forms of sexual intercourse. Which of the following have you tried? **[circle an answer(s)]**

(1) Sex with opposite sex

(2) Sex with same sex

(3) Sex with children (4) anal sex

(5) Oral sex

(6) Others (specify) _____

14. Have you ever been married or lived with a man/woman as if you were married?

(1) Yes

(2) No

15. How old were you when you first married or lived with a man/woman as if you were married? _____ complete years

16. Are you currently married or living together with a man/woman as if you are married?

- (1) Yes, married
- (2) Yes, living together
- (3) No

17. For how many years have you been married or living together as if you were married?.....

[__|__] YEARS

18. **MEN:** Do you have more than one wife or live-in partner who lives with you?

WOMEN: Does your husband have other wives or does he live with other partners?

- (1) Yes
- (2) No

19. **MEN:** Altogether, how many wives or other partners live with you?

WOMEN: Including yourself, how many wives or other partners live with your husband?

- (1) No
- (2) [__|__] wives/partners

20. Does your spouse/partner live with you or does he/she live somewhere else? (**Circle the answer**)

- (1) With respondent
- (2) Somewhere else

21. How often do you visit your spouse/partner? (**Circle the answer**)

- (1) Every week
- (2) 2 to 3 times a month
- (3) Once a month
- (4) Once every 2 months
- (5) Once every 3 months
- (6) Less than once every 3 months
- (7) Others specify _____

I would like you to think about last time you had sex and am going to ask you some questions about your sexual partners with whom you had sex most recently.

22 What is your relationship with this partner? **(Circle the answer)**

- (1) Husband/wife
- (2) Live-in partner
- (3) Girlfriend/boyfriend not living with you
- (4) Someone whom you paid or who paid you for sex
- (5) Casual acquaintance
- (6) Others (specify)

23. How old is this partner? **(Circle the answer)**

- (1) Age. [__|__]
- (2) Don't know

24. What place or event did you **first** talk to or get to know this partner? **(Circle the answer)**

- (1) Own or friend's house
- (2) Market (3) Church/mosque
- (4) Bar/night club/disco
- (5) Family event or social gathering
- (6) Hotel/guest house
- (7) School/college/university
- (8) Can't remember
- (9) Don't know
- (10) Other (specify)

25 Where does this partner live? Does he/she live..... **(Circle the answer)**

- (1) In same house
- (2) In the same University/campus
- (3) In same village /neighborhood
- (4) Don't know
- (5) Other: specify)_____

26. About how many times have you slept with this partner in the last 4 weeks? No. of times

[__|__]

27. How long ago did you first have sex with this partner?
- (1) [__|__]days
 - (2) [__|__]weeks
 - (3) [__|__]months
 - (4) Years [__|__]
28. Did you use a condom the first time you had sex with this partner? **(Circle the answer)**
- (1) Yes
 - (2) No
 - (3) Don't know
29. When was the last time you had sex with this partner? **(Complete only one option)**
- (1)_____ days ago
 - (2) _____ weeks ago
 - (3)_____ months ago
 - (4)_____ years ago
 - (5) was a one-time sexual contact
30. The last time you had sex with this partner; did you or this partner use a condom?
(Circle the answer)
- (1) Yes
 - (2) No
 - (3) Don't know
31. If not, why didn't you and your partner use a condom the last time you had sex? [**circle answer(s)**]
- (1) Not available
 - (2) Too expensive
 - (3) Partner objected
 - (4) Don't like to use them
 - (5) Used other contraceptive
 - (6) Didn't think it was needed
 - (7) Too impatient to use one
 - (8) Indifferent
 - (9) Skin reactions
 - (10) Don't know
 - (11) Others: _____

32. Who suggested using a condom the last time you had sex? **(Circle the answer)**
- (1) Yourself
 - (2) Your sex partner
 - (3) Joint decision
 - (4) Don't know
33. In general., with what frequency did you and this sexual partner use a condom? **(Circle the answer)**
- (1) Every time
 - (2) Almost every time
 - (3) Sometimes
 - (4) Don't know
34. The last time you had sex, did you or this partner drink alcohol before hand? **(Circle the answer)**
- (1) Yes
 - (2) No
 - (3) Don't know
35. The last time you had sex, did you or this partner do anything to delay or avoid getting pregnant? **(Circle the answer)**
- (1) Yes
 - (2) No
 - (3) Don't know
36. What did you do to avoid getting pregnant? **[Circle the answer(s)]**
- (1) Used condom
 - (2) Used pills
 - (3) Used IUD
 - (4) Used injection
 - (5) Used withdrawal
 - (6) Self or partner is derile
 - (7) Nothing
 - (8) Other specify).....

37. Do you think this partner has/had other partners?
- (1) Yes
(2) No
(3) Don't know
38. During the last 12 months have you ever been affected by STDs?
- (1) Yes
(2) No
(3) Don't know
39. In this relationship, do you feel you can say 'No' to having sex when you do not feel like?
- (1) Yes
(2) No
40. **WOMEN:** In the last 12 months have you ever attempted doing abortion?
MEN: In the last 12 months have you ever assisted any girl to do abortion?
- (1) Yes
(2) No

SECTION 3: ATTITUDE AND BELIEF TOWARDS HIV/AIDS

Let us now discuss about your attitude and belief towards HIV/AIDS. Say whether you **strongly agree (SA), agree (A), uncertain (U), disagree (D), or strongly disagree (SD)** on each of the statements.

	Statement	SA 1	A 2	U 3	D 4	SD 5
41	AIDS is a diseases syndrome for which you can protect yourself					
42	Getting HIV/AIDS is a result of ones sin.					
43	People with HIV/AIDS deserve to get all types of support (including food donations, nutrition education and counselling)					
44	There is no need of using national resources to care for people with AIDS					
45	Condoms are useful and effective tool for preventing against HIV/AIDS					
46	Knowledge of students about HIV/AIDS is good enough to influence their sexual behaviour					
47	The HIV status of students and lectures should be made public to make people change their behaviour					
48	Death to HIV is not a threat 'every body will die any way'					

**SECTION 4: KNOWLEDGE ABOUT HIV/AIDS AND
BEHAVIOURAL CHANGE**

Now I would like to ask some questions about HIV, the virus that causes AIDS.

48. Have you ever heard of the virus HIV or an illness called AIDS?

- (1) Yes
- (2) No
- (3) Don't know

49. Do you believe that HIV or AIDS exist?

- (1) Yes
- (2) No
- (3) Un sure
- (4) Don't know

50. In the past 4 weeks, have you heard or seen any information about the AIDS virus?

- (1) Yes
- (2) No

51. From what source(s) did you receive this information about the AIDS virus? **(Circle answers.)**

- (1) Television
- (2) Radio
- (3) Newspaper/magazine
- (4) Pamphlet/poster
- (5) Health care worker
- (6) Mosque/church
- (7) Friend
- (8) Family member
- (9) Sex partner
- (10) From class lecture
- (11) Don't know

52. During the past 4 weeks, have you discussed the AIDS virus with anyone?

- (1) Yes
- (2) No

53. With who have you discussed the AIDS virus during the past 4 weeks? **(Circle answers)**
- (1) Sex partner
 - (2) Friend
 - (3) Family
 - (4) Health care worker
 - (5) Fellow students
54. Would you say have enough information regarding HIV/AIDS?
- (1) YES
 - (2) NO
55. Do you know anyone with HIV or who has died of AIDS?
- (1) YES
 - (2) NO
56. Was this person a close relative or close friend?
- (1) YES
 - (2) NO
57. What are your chances of getting AIDS?
- (1) No risk at all
 - (2) Small
 - (3) Moderate
 - (4) Great
 - (5) Don't know
58. Why do you think that you have no risk or only a small chance of getting AIDS?
- (1) Practice safe sex
 - (2) Abstain from sex
 - (3) Avoid multiple sex partners
 - (4) Avoid sex with prostitutes
 - (5) Avoid sex with homosexuals
 - (6) Avoid sex with casual partners
 - (7) Ensure safe blood transfusions
 - (8) Ensure injections with sterilized needles
 - (9) Use condoms correctly every time they have sex
 - (10) Seek protection from traditional healer

(11) Others (specify)_____

59. Since you have heard of AIDS, have you changed your behaviour to prevent getting AIDS?

(1) Yes

(2) No

60. IF YES, what did you do?

(1) Didn't start sex

(2) Stopped all sex

(3) Started using condoms

(4) Restricted sex to one partner

(5) Reduced number of sex partners

(6) Advised spouse/partner to be faithful

(7) No more homosexual contacts

(8) Ensured injections with sterilized needles

(9) No behaviour change

(10) Other_____

SECTION 5: SEXUAL BEHAVIOURAL CHANGE

Please indicate whether the following factors are barriers or has influence to your sexual behavioural change in relation to risk sexual activity

61	Statement	Answers	
i	Perceived that sex is a necessity in life	Yes	No
ii	Peer has influence on their sexuality	Yes	No
iii	Perceived to have Minimum or no risk of contracting HIV/AIDS	Yes	No
iv	Perceived that sex is a way of expressing love	Yes	No
v	Thought sex with condom is tasteless	Yes	No
vi	Perceived fear of the side effects of using condoms	Yes	No
vii	Consider doing sex as one way of gaining/spending money	Yes	No
viii	Condoms are not readily available	Yes	No
ix	Partners are reluctant to use condoms	Yes	No
x	Lack of sexual decision power	Yes	No
xi	They lack enough or had poor knowledge on HIV/AIDS	Yes	No
xii	Perceived social environment at campuses eg. sexy clothes, private rooms and entertainment as a barrier to behavioural change	Yes	No
xiii	Thought they needed to try new experience with new partner	Yes	No
xiv	Fertility concerns/Wish to have children	Yes	No

SECTION 6 MISCONCEPTION ABOUT MEANS OF TRANSMISSION

Now, here are some questions about HIV, the virus that causes AIDS. Some of the questions have accurate information and others incorrect information. Don't worry about getting the right answer, just say what you think.

NO	QUESTION	Coding categories
62	Is it possible for a person who looks healthy to have the AIDS virus?	YES...1, NO ...2
63	Do you think people can get AIDS through supernatural/ witchcraft means?	YES...1, NO ...2
64	Can people get AIDS through casual contacts eg. Hand shaking, hugging, caring for people living with HIV/AIDS (PLHV)	YES...1, NO ...2
65	Can people reduce their chances of getting the AIDS virus by using a condom correctly every time they have sex?	YES...1, NO ...2
66	Do you think that a person can get infected with the AIDS virus through mosquito bites and other insect bites?	YES...1, NO ...2
67	Can people reduce their chances of getting the AIDS virus by having only one sex partner who has no other partners?	YES...1, NO ...2
68	Can a person get infected with the AIDS virus by sharing a meal or meal prepared/preserved by person who has HIV or AIDS?	YES...1, NO ...2
69	Can a person get infected with the AIDS virus by donating blood?	YES...1, NO ...2
70	Can the AIDS virus be transmitted from a mother to a child?	YES...1, NO ...2
71	If a mother is infected with the AIDS virus, is there any way to avoid transmission to the baby?	YES...1, NO ...2

Thank you very much

Appendix 2: Sample size calculation

The simple formula used:

$$n = \frac{Z^2 pq}{d^2}$$

Where n = sample size when population is greater than 10,000

Z = Standard normal deviate, set at 1.96 (in simple at 2.0) corresponding to 95% confidence level,

p = proportion in the target population estimate to have a particular characteristic; if not known use 50%.

$$q = 1.0 - P$$

d = degree of accuracy desired, set at .05 or .02.

Therefore sample size was:

$$n = \frac{Z^2 pq}{d^2} = \frac{(2)^2 (0.50 \times 0.50)}{(0.05)^2} = \frac{4 \times 0.25}{0.0025} = \frac{1}{0.0025}$$

= 400 respondents.