LWATI: A Journal of Contemporary Research, 10(1), 167-186, 2013
ISSN: 1813-2227

Knowledge, Attitudes and Behaviours Related To HIV and AIDS among Students in Higher and Technical Education Institutions in Tanzania

Kitila Mkumbo
Faculty of Education, Dar es Salaam University College of Education
P O Box 2329, Dar es Salaam, Tanzania
Tel. +255 754 301908; kitilam@udsm.ac.tz

ABSTRACT

There is a paucity of studies that have systematically and comprehensively investigated the knowledge level, attitudes and pattern of sexual behaviours related to HIV and AIDS in higher and technical education settings in sub-Saharan African countries in general and Tanzania in particular. This study attempted to fill this void in knowledge. A cross-sectional descriptive design was used employing a self-administered questionnaire as the main data collection tool. More than 500 higher and technical education students completed a questionnaire assessing their knowledge, attitudes and behaviours related to HIV and AIDS. About three quarters of the respondents demonstrated comprehensive knowledge about HIV and AIDS, with a statistically significantly higher proportion of students in higher education reporting higher level of comprehensive knowledge than their counterparts in technical education institutions. More than half of the respondents reported having used condom during their last sexual intercourse. About a third of the respondents reported having two or more sexual partners in the past 12 months. The article concludes that the level of knowledge and the pattern of attitudes and sexual behaviours among students in higher and technical education institutions does not differ significantly from the rest of the youth in the Tanzanian general population. There is, therefore, a need to strengthen HIV and AIDS education intervention in higher and technical education institutions in Tanzania.

Key words: Knowledge, attitudes, sexual behaviours, Tanzania, higher education

BACKGROUND

In sub-Saharan Africa, the HIV/AIDS epidemic continues to exert significant toll on individuals and society, and has had profound effects on the region's economic and social development prospects. Though the sub-Saharan African region is home to just about 12 percent of the total world's population, 68 percent of all people living with HIV resided in the sub-Saharan Africa at the end of 2010 (UNAIDS, 2011).

Though the HIV infection rates in the general population have recently decreased, Tanzania is among the countries in the sub-Saharan African region that still has the highest levels of HIV infection. The Tanzania HIV/AIDS and Malaria Indicator Survey (THMIS) 2007-08 estimates that 5.7 percent of Tanzanian population aged 15-49 are HIV positive (TACAIDS, NBS, OCGS & Macro International, 2008). THMIS further shows that the HIV prevalence rate is higher in urban areas than in rural areas. For example, according to THMIS 2007-08, the HIV prevalence rate for urban women is 11 percent compared to 5 percent, while for urban and rural men is 6 percent and 4 percent respectively. As in other sub-Saharan African countries, in Tanzania young people are most affected by the AIDS epidemic. For example, it is estimated that more than 60 percent of all new HIV infections in Tanzania occur among young people aged 15-24 (TACAIDS, NBS & ORC Macro, 2005).

Given that almost 60 percent of the students at the University of Dar es Salaam, for example, are aged between 20 and 24 years, it implies that the university student population constitutes a significant group that is susceptible and vulnerable to HIV infection. Furthermore, with evidence that urban residence and higher education levels are positively correlated with HIV prevalence, especially in the absence of effective response system, the university context is generally a risk factor for HIV infection. There is therefore a need for an effective HIV and AIDS response strategy in higher education and other education institutions in Tanzania.

National and Sector Response to HIV and AIDS in Tanzania

National response

The Tanzania national response to HIV and AIDS can be traced back to 1985 (United Republic of Tanzania [URT] 2001), when a short-term plan (STP) was developed, followed by medium-term plans that were implemented by the Ministry of Health and Social Welfare (MoHSW) and the National AIDS Control Programme (NACP) under the support of the World Health Organization (WHO) between 1985 and 2002. Amid the growing concerns about the upward trends in HIV infection generally and among young people in particular, in 1999, the then President of the United Republic of Tanzania, Benjamin William Mkapa, declared the HIV/AIDS epidemic a national disaster, calling for a national coordinated multisectoral response to the

epidemic. This declaration was the beginning of a series of HIV prevention strategies starting with the formulation of the Tanzania Commission for AIDS (TACAIDS) in 2001. Since then, the HIV/AIDS crisis has been given a high profile in all sectors in the country, with the office of the Prime Minister charged with the coordination role through TACAIDS.

The national response to HIV and AIDS has been guided by four main thematic areas (URT 2007). These are *enabling environment, prevention, HIV and AIDS care and support* and *social and economic impact mitigation.*

Education sector response

Within the National Multisectoral Strategic Framework (NMSF) on HIV and AIDS, the education sector's response to HIV and AIDS has been characterised by the nature of the management framework of the sector. In this regard, over the past ten years, the education sector has been managed at two levels. Up until 2008, there were two ministries responsible for the management of the education sector in the country-the Ministry of Education and Culture and the Ministry of Science, Technology and Higher Education. However, towards the end of 2008, the education sector was placed under one portfolio and renamed: Ministry of Education and Vocational Training (MOEVT). Accordingly, the management approach in responding to HIV and AIDS has largely been guided by the education sector management framework.

Within the then Ministry of Education and Culture, HIV and AIDS response was managed through an AIDS Coordinating Unit, which was responsible for the development of the policy guidelines within the education sector. In 2004, the Ministry responsible for education developed the 'Guidelines for Implementing HIV/AIDS and Life-skills Education Programme in Schools' with a view to streamlining the responses and efforts towards combating HIV and AIDS in schools and employees at work place (URT, 2010).

For the higher education sector, serious efforts in response to HIV and AIDS began in 1997, when the then Ministry of Science, Technology and Higher Education was involved in the implementation of the MTP III. In response to the NMSF, the Ministry developed the Technical AIDS Committee (TAC), which developed the first HIV/AIDS Strategic Framework 2003-2007. This framework guided the responses to HIV and AIDS among higher education institutions.

In 2008, the Ministry of Education and Vocational Training (MOEVT) developed the Education Sector Strategic Plan on HIV and AIDS (ESSP-HA). In 2011 MOEVT developed a Higher Education and Technical and Vocational Education and Training HIV/AIDS Strategic Plan 2008-2012, with a view to integrating higher education sector in the ESSP-HA. This plan provides guidance with regard to the provision of preventive education, impact mitigation and care and support in higher education institutions. ESSP-HA focuses on four main thematic areas as guided by the NMSF,

namely *prevention education, care and support services, impact mitigation* and *enabling environment.*

Despite the efforts taken by the Government and other agencies in addressing the AIDS pandemic among young people in general and students in particular, there is generally a paucity of studies that have systematically and comprehensively examined the risk sexual behavioural pattern among students in higher and technical education institutions. The main purpose of this study was to establish the level of knowledge, attitudes and behavioural pattern related to HIV and AIDS. More specifically, the study assessed: the level of awareness and knowledge about HIV and AIDS and other related issues; attitudes towards HIV and AIDS and other related matters; and the level of risk taking sexual behaviours among students in higher and technical education institutions

METHODS

A cross sectional descriptive survey design was employed within the quantitative approach, employing questionnaire as the main data collection instrument. Participants participated in the study by completing a questionnaire assessing their awareness and knowledge, attitudes and behaviours related to HIV and AIDS.

Study sites and sampling procedures

This study was limited to mainly two regions that have the highest concentration of higher and technical education institutions in Tanzania. These regions are Dar es Salaam, which has two major universities-University of Dar es Salaam (UDSM) and Muhimbili University of Health Sciences (MUHAS), and several other university colleges and centres. The other region was Morogoro, which has two major universities and a couple of other affiliate higher education institutions. Nevertheless, Tanga Region was also included because of the presence there of Sebastian Kolowa University College, which is the only university in Tanzania offering programmes in special education.

In each of the participating regions, one university and one technical education institution were selected to participate in the study. A special consideration was made for Morogoro by including the Muslim University of Morogoro (MUM) due to its unique feature of strict adherence to Islamic code of ethics. We wanted to learn how this serves a protective factor against risky sexual behaviours among students. Morogoro Vocational and Technical College was selected to represent the technical education institutions in the region. In Dar es Salaam, the University of Dar es Salaam and Dar es Salaam Vocational and Technical College were selected to participate.

The selection of participants was done at four levels. At the first level, regions with the highest concentration of universities were purposively selected; in this case Dar es Salaam and Morogoro Regions were selected. Tanga region was also purposively selected so as to capture SEKUCo due to offering speciality programmes as explained above. At the second level, one university and one technical education institution was selected randomly. All universities and technical colleges in the participating region were listed down. Then one university and one technical education college were picked randomly using a simple random sampling technique. At the third level, the names of student participants were randomly drawn from the students' nominal register.

The sample size for this study was guided by a table of sample size determination (Barlett, Kotrilik & Hignins, 2001). Using a margin error of .03 and .01 alpha, the sample size for a population that ranges from 100 to 10,000 may range from 46 to more than 800. Accordingly, the sample size for each institution would correspond with the size of the student population of a particular institution. This means that sample sizes necessarily varied from one institution to another.

Data collection instrument

As stated earlier, this study was predominantly quantitative employing questionnaire as the main data collection tool. The questionnaire consisted of the following five main sections:

i) *Participants' background information*: This section included such aspects as participants' age, sex, funding sources, marital/relationship status, residence and religion and religiosity.

ii) *HIV and AIDS related awareness and knowledge*: This section included issues regarding students' level of awareness and knowledge about HIV and AIDS. Both basic and comprehensive knowledge level items were included in the questionnaire.

iii) *Attitudes and risk perception related to HIV and AIDS*: This section comprised items assessing students' attitudes and risk perception about HIV and AIDS and related matters.

iv) *HIV and AIDS related risk sexual behaviours*: This section consisted of items assessing students' level of sexual activities, sexual violence experiences and HIV testing experience, as well as use of protection.

Data management and analysis procedures

All questionnaires were numbered to ensure consistent identification. Prior to administration, questionnaire items were coded in a form that can be entered into the analysis programme. Questionnaire data were entered and analysed using SPSS programme version 19.0. Appropriate descriptive and inferential statistics were conducted with respect to the various issues covered in the questionnaire.

Ethical consideration

The ethical clearance for this research was given by the University of Dar es Salaam Ethics Committee, which is responsible for clearing researchers from this institution. The study followed all the basic ethical guidelines for research with humans; participants were thoroughly briefed about the purpose of the study, and they were told that they were free to withdraw from participation anytime without any consequences on their part. Furthermore, participants were allowed to complete the questionnaire only after giving full consent.

RESULTS

Participants' background characteristics

A total of 559 participants completed the questionnaire, with 41 percent female. Almost 70 percent (69.3%) of the participants came from higher education institutions while 30.7 percent came from technical education institutions. The mean age for participants was 25.5 (SD = 6.2). The majority (55%) of students reported living outside their institution campuses. Furthermore the majority of students were either in their first year (47.7%) or second year (31.3%) of their study.

The majority (57.8%) of students who completed the questionnaire were on Government sponsorship, receiving a higher education students' loan between 80 and 100 percent. Furthermore, the majority of respondents (89.3%) reported attending religious services regularly, either daily (31.1%) or at least once a week (58.2%). Just about a quarter (24.9%) of the respondents reported being married (24.5%) or living with a stable partner (4.4%), while the majority of the respondents (57.5%) reported being neither married nor living with a stable partner. Table 1 summarises the participants' demographic information.

Awareness and knowledge of HIV and AIDS

Awareness of HIV and AIDS

On average, compared to the national average, students' awareness level about HIV and AIDS was low, with only 83.1 percent of the respondents reporting having heard of AIDS. According to the Tanzania Demographic and Health Survey (TDHS) 2010, the awareness level about AIDS is almost universal with almost 100 percent of respondents reporting having heard of AIDS (Kirby, Coyle, Rolleri, Alton & Robin 2011).

There was a statistically significant variation in the awareness level between higher education institutions and technical education institutions, with students in higher education institutions demonstrating higher (88.2%) level

of awareness than students (84.1%) in technical education institutions: X^2 (1, n = 515) = 10.16, p = .001.

Table 1: Summary of participants' demographic information.

Demographic Variable	**N**	**%**
Sex		
Male	316	59
Female	220	41
Institution Affiliation		
SUA	73	14
UDSM	80	15.3
MUM	47	9
SEKUCo	154	29.5
Technical Colleges	168	32.2
Institution Category		
Higher Education/University	362	69.3
Technical Education	160	30.7
Age		
Mean = 25.5		
SD = 6.2		
Year of Study		
First	250	47.7
Second	164	31.3
Third	104	19.8
Fourth or higher	6	1.1
Residence		
On Campus	226	42.2
Off Campus	294	55
Other	15	2.8
Are you a recipient of a Higher Education Students' Loan?		
No	207	39.4
Yes	304	57.8
Loan Percentile Received		
100%	72	18.6
More than 90%	42	10.9
80 -90%	116	30
70% or above	57	14.7
60% or above	51	13.2
Less than 50%	49	12.7
Religion		
Catholic	176	32.1
Protestant	191	34.9
Islam	152	27.7
Other	22	4
None	7	1.3
Attendance at Religious Services		
Every day	171	31.1
At least once a week	320	58.2

Demographic Variable	N	%
At least once a month	24	4.4
At least once a year	20	3.6
Never attend	10	1.8
Relationship/Marital Status		
Single(neither married nor having a stable partner)	303	57.5
Married	129	24.5
Living with a regular partner	23	4.4
Have a partner but doesn't live with her/him	62	11.8
Divorced/Separated	8	1.5
Widow/widowed	1	0.2
Other	1	0.2

Knowledge provides the basis for human behaviour and has been identified as one of the significant factors affecting sexual behaviour [Odu et al. 2001). On this background, several items were included in the questionnaire to assess students' awareness and knowledge level related to HIV and AIDS. To assess their knowledge level about HIV and AIDS, participants were provided with 16 statements assessing their knowledge about various aspects of HIV and AIDS indicating the means by which HIV can and cannot be transmitted, as well as the prevention modes. For each statement, they were asked to indicate 'Yes', 'No' or 'Don't Know'.

To get the overall picture of the students' knowledge level, each response was examined and coded as 'correct' or 'not correct', then the percentage for correct and not correct responses were calculated. Generally, students' knowledge level about HIV and AIDS was below the national average, with an average of 73.4 percent of the respondents responding correctly to the statements. A statistically significantly higher proportion (75.6%) of students in higher education institutions responded correctly to the statements on HIV and AIDS than their counterparts in the technical education institutions (65.8%): X^2 (1, n = 418) = 25.58, p<.00005.

0Knowledge of ABC (Abstaining, Being Faithful and Condom Use)

The phrase 'ABC' is a commonly used message for HIV prevention, referring to abstaining, being faithful to one uninfected partner and condom use. Three questions were asked to test students' knowledge about these aspects. These were: 1) can people reduce their chance of getting the AIDS virus by abstaining from having sexual intercourse? 2) can people reduce their chance of getting the AIDS virus by having just one uninfected sex partner who has no other sex partner? 3) Can people reduce their chance of getting the AIDS virus by using a condom every time they have sex?

As Figure 1 shows, the majority (83%) of respondents believed that abstaining from having sexual course would reduce their chance of getting the AIDS virus. Just about 50 percent (52.5%) of the respondents agreed that condom use could reduce the chance of getting the AIDS virus. On average, students in higher education institutions demonstrated higher level of

knowledge about ABC strategy than their counterparts in technical education institutions.

Figures

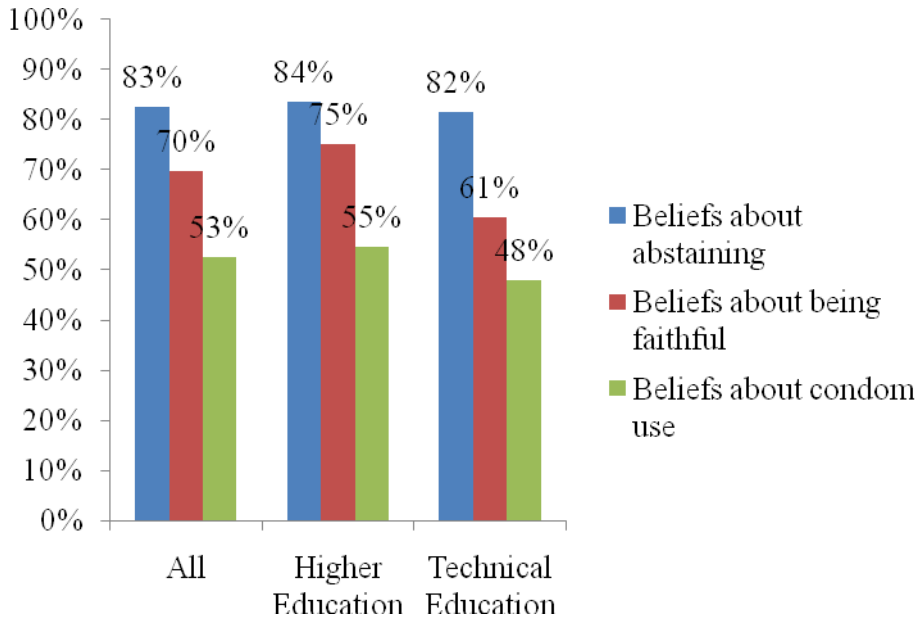

Figure 1: Proportion of students indicating beliefs in ABC as HIV prevention strategy.

Knowledge of prevention of mother to child transmission of HIV (PMCT)

Prevention of mother to child transmission of HIV is critical in reducing the prevalence of HIV and AIDS, and it improves child survival significantly (International AIDS Society 2004; DeCock et al. 2000). To assess their PMCT knowledge, respondents were asked three questions, namely: 1) Can the virus that causes AIDS be transmitted from mother to her baby during pregnancy? 2) Can the virus that causes AIDS be transmitted during delivery? 3) And can the virus that causes AIDS be transmitted from mother to her baby during breastfeeding?

The results are summarised in Figure 2. Only 51.5 percent of respondents knew that the AIDS can be transmitted during pregnancy. Nevertheless, a higher proportion (80% or higher) of respondents knew that the AIDS virus can be transmitted during delivery and breastfeeding. Though the difference was not statistically significant, a higher proportion of female respondents knew about PMCT than male respondents (see Figure 2). For example, 84.5 percent of the female respondents knew that the AIDS virus could be transmitted during delivery compared to 80.6 percent of the male respondents. Similarly, 83 percent of the female respondents reported knowing that the AIDS virus could be transmitted during delivery compared to 76.5 percent of the male respondents. The knowledge level about PMCT was slightly lower than the national average. For example, 89 percent of women and 81 percent of men reported knowing that HIV can be transmitted through breastfeeding during the TDHS 2010, compared to 83 percent of women and 76.5 percent of men reporting so in the present study.

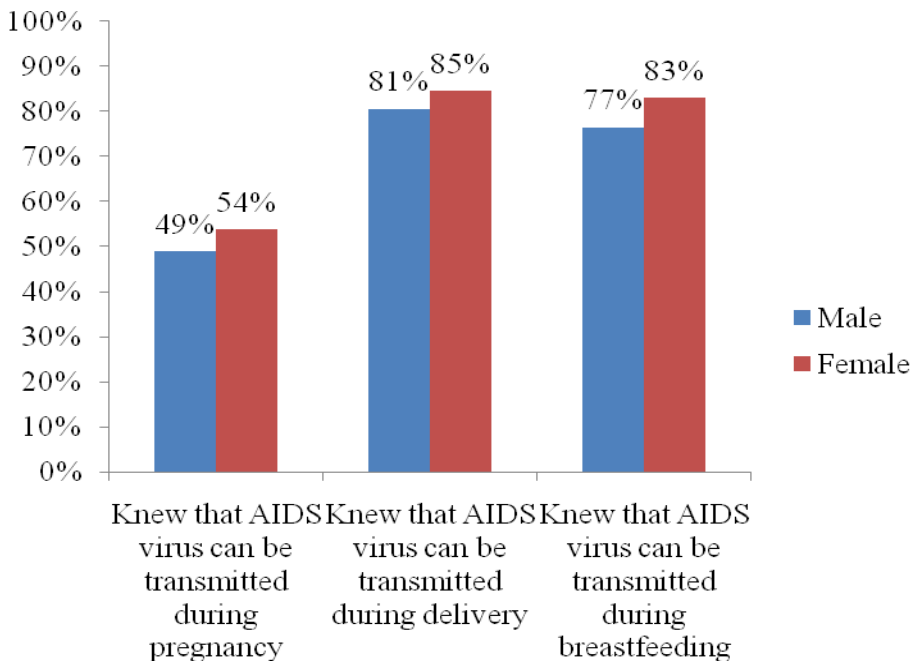

Figure 2: Knowledge level of PMCT by sex.

Rejection of misconceptions about HIV/AIDS

Participants were asked five questions related to common misconceptions regarding HIV and AIDS. These questions were: 1) Can people get the AIDS

virus from mosquito bite? 2) Can people get the AIDS virus by sharing food with a person who has AIDS? 3) Can people get the AIDS virus by shaking hands with a person who has AIDS? 4) Can people get the AIDS virus because of witchcraft or other supernatural means? And 5) Is it possible for a healthy-looking person to have the AIDS virus? The results for correct responses can be seen in Table 2.

Table 1: Percentage of Students who Correctly Responded to Statements Related to HIV and AIDS.

Statement	%Correct Response-All	%Correct Response-Higher Education	%Correct Response-Technical Education
Can people reduce their chance of getting the AIDS virus by abstaining from having sexual intercourse?	82.6	83.6	81.6
Can people reduce their chance of getting the AIDS virus by having just one uninfected sex partner who has no other sex partner?	69.7	75.0	60.6
Can people reduce their chance of getting the AIDS virus by using a condom every time they have sex?	52.5	54.7	48
Can people get the AIDS virus from mosquito bites?	93.0	94.9	91
Can people get the AIDS virus by sharing food with a person who has AIDS?	90.7	96.3	90.8
Can people get the AIDS virus by shaking hands with a person who has AIDS?	90.7	54.4	86.5
Can people get the AIDS virus by kissing someone who has HIV/AIDS?	61.6	62.6	58.3
Can people get the AIDS virus by sharing needles for drug use with someone who has HIV/AIDS?	80.5	88.3	67.1
Can people get the AIDS virus because of witchcraft or other supernatural means?	63.0	67.2	54.2
Is it possible for a healthy-looking person to have the AIDS virus?	64.7	74.4	43.6
Can the virus that causes AIDS be transmitted from a mother to her baby during pregnancy?	50.6	44.7	65.2
Can the virus causes AIDS be transmitted from mother to her baby during delivery?	82.1	88.9	71.3
Can the virus causes AIDS be transmitted from mother to her baby during breastfeeding?	79.5	86.9	68.4
Is there a vaccine available to the public that protects a person from getting HIV?	66.0	76.9	45.3
Is there a cure for AIDS at the present time?	74.1	85.0	55.4
% Average	73.4	75.6	65.8

The majority of respondents (more than 90%) correctly rejected the myths that the AIDS virus can be transmitted by mosquito bites, sharing food with a person who has AIDS or shaking hands with a person who has AIDS. Nevertheless, a substantial proportion of respondents did not believe that it was possible for a healthy-looking person to have the AIDS virus. In this case, more than third (35.3%) of the respondents responded in negation to the question: is it possible for a healthy-looking person to have the AIDS virus? Again, the proportion of respondents who knew that people infected with HIV do not necessarily show signs of infection were lower than the national average figure as reported in the TDHS 2010. In this report, 86.5 percent of the respondents correctly agreed that it was possible for a healthy-looking person to have the AIDS virus.

Again, a substantial proportion of respondents believed that people could get the AIDS virus because of witchcraft or other supernatural means, with only 63 percent of the respondents rejecting this misconception. This figure is far below the national average, where the TDHS 2010 established that 86.5 percent of the respondents correctly rejected the misconception that the AIDS virus can be transmitted by means of witchcraft or supernatural means (NBS & ICF Macro, 2011).

In summary, the comprehensive knowledge of HIV and AIDS is generally low among higher and technical education institutions. Comprehensive knowledge of HIV and AIDS is defined as (i) knowing that both condom use and limiting sex partners to one uninfected partner are HIV prevention methods, (ii) being aware that a healthy-looking person can have HIV, and (iii) rejecting the two most common local misconceptions-that HIV can be transmitted through mosquito bites and by supernatural means. In this case, students in higher and technical education institutions demonstrated low level of comprehensive knowledge compared to the national average.

When the results were analysed by sex, male respondents demonstrated higher comprehensive knowledge than female respondents. For example, 68.7 percent of the male respondents correctly agreed that it was possible for healthy-looking person to have the AIDS virus compared to 60.6 percent. Nevertheless, the variation was not statistically significant: X^2 (3, n = 515) = 5.43, p=.14. Again, a higher proportion (65.6%) of the male respondents correctly rejected the misconception that the AIDS virus can be transmitted by witchcraft or supernatural means compared to 60.7 percent of the female respondents. The variation was, however, not statistically significant: X^2 (1, n = 522) = 1.94, p= .38.

When the results were analysed with respect to the category of institution, it emerged that students in higher education institutions demonstrated higher level of comprehensive knowledge than their counterparts in the technical education institutions. For example, 74.1 percent of the students in higher education institutions correctly responded in affirmative that it is possible for healthy-looking person to have the AIDS virus compared to 43.6 percent of the students in technical education institutions. The variation was statistically significant: X^2 (3, n = 504) =

45.25, $p<.00005$. More than two thirds (67.2%) of the respondents in higher education institutions correctly rejected the misconceptions that the AIDS virus can be transmitted by witchcraft and supernatural means compared to 54.2 percent of the students in technical education institutions: X^2 (1, n = 509) = 7.96, p =.02.

Attitudes towards people living with AIDS

Positive attitudes towards people infected with HIV or living with AIDS has been associated with willingness to undergo HIV testing as well as adherence to antiretroviral therapy (Kalichman & Simbayi ,2003; Kakoko, Lugoe & Lie, 2006). Furthermore, knowledge about HIV status has been associated with increased uptake of prevention, treatment and care services. Therefore, reduction of HIV/AIDS related stigma is at the centre of HIV intervention programmes. To test their attitudes towards people living with HIV/AIDS, respondents were provided with five statements that are commonly used to measure HIV/AIDS related stigma (NBS & ICF Macro, 2011), and they were asked to indicate their level of agreement or disagreement on a five point scale, ranging from 'Strongly Agree' to 'Strongly Disagree'. The statements were: (i) It would not bother me to attend class with a person with AIDS; (ii) A teacher who is infected with the AIDS virus should be allowed to continue teaching; (iii) I could buy fresh vegetables from shopkeeper who has the AIDS virus/living with HIV and AIDS; (iv) I can care for a family member who is living with HIV and AIDS; (v) I would not avoid a friend if she/he had AIDS; and If I discovered that my roommate had AIDS, I would move out.

Overall, as shown in Table 3, the majority of respondents expressed positive attitudes towards people living with HIV and AIDS. For example, 74.1 percent of the respondents strongly agreed (50.7%) and agreed (23.4%) with the statement that 'it would not bother me to attend class with a person with AIDS'. Further, 85.8 percent of the respondents strongly agreed (62%) and agreed (23.8%) with the statement that 'a teacher who is infected with the AIDS virus should be allowed to continue teaching'. Eighty four percent of the respondents strongly agreed (54.6%) and agreed (29.4%) with the statement that 'I could buy fresh vegetables from shopkeeper who has the AIDS virus/living with HIV and AIDS'. More than three quarters (75.2%) of the respondents strongly agreed (48.1%) and agreed (27.1%) with the statement that 'I would not avoid a friend if she/he had AIDS'. Again, less than a quarter (21.4%) of the respondents strongly agreed (12.5%) and agreed (8.9%) with the statement that 'If I discovered that my roommate had AIDS, I would move out'.

Students in higher education institutions and their counterparts in technical education institutions differed significantly with regard to attitudes towards people living with HIV and AIDS (see Table 3). For example, while 94.5 percent of the students in higher education institutions expressed acceptance that teachers who are infected with HIV should continue teaching,

less than three quarters (70.4%) of their counterparts in technical education institutions expressed acceptance. Again, while 93.5 percent of students in higher education institutions expressed acceptance that they would buy fresh vegetables from a shopkeeper who is living with HIV/AIDS, only 69.5 percent of students in technical education institutions expressed such acceptance. Therefore, students in higher education institutions showed more favourable attitudes towards people living with HIV and AIDS than their counterparts in technical education institutions.

Table 2: Attitudes towards People Infected with HIV and Living with AIDS.

Statement	**% Strongly Agreeing + Agreeing**						
	All	***Male***	***Female***	***p***	***Higher Education***	***Technical Education***	***p***
It would not bother me to attend class with a person with AIDS	74.1	73.5	76.5	0.67	84.3	54.9	<.0005
A teacher who is infected with the AIDS virus should be allowed to continue teaching	85.8	88	83.3	0.54	94.7	70.4	<.0005
I could buy fresh vegetables from shopkeeper who has the AIDS virus/living with HIV and AIDS	84	86.4	81	0.27	93.5	69.5	<.0005
I care for a family member who is living with HIV and AIDS	91.3	91.9	90.3	0.84	96.6	83.4	<.0005
I would not avoid a friend if she/he had AIDS	75.2	77.8	71.1	0.18	81.2	64	<.0005
If I discovered that my roommate had AIDS, I would not move out	70.1	71.6	69.3	0.88	76.1	61.2	0.001

Risk perception

If people believe that some behaviour will increase their susceptibility to problems, they are likely to avoid such behaviour (Kirby et al., 2011). Thus, perception of risks for HIV infection is an important step towards taking measures to avoid HIV infection.

Respondents were given four statements to assess their perception of risks for HIV infection. These statements were: i) HIV is a big threat against my personal health; ii) I am likely to get HIV infected if I have sex without using condom; iii) I am likely to get infected with a sexually transmitted disease if I have sex without using condom; and iv) I am likely to become pregnant/impregnate a girl/woman if I have sex without using condom.

Generally, the risk perception about HIV infection was high, with 81.1 percent of the respondents reporting that 'HIV is a big threat against my personal health'. Nevertheless, beliefs about condom use as a protection strategy were not that high. For example, only 67.9 percent of the respondents agreed that 'I am likely to get HIV infected if I have sex without using condom (see Table 4).

Table 3: Students' HIV Risk Perception Level.

	All	***Male***	***Female***	***HE***	***TE***
HIV is a big threat	81%	82%	79%	83%	81%
I am likely to get HIV without using condom	68%	72%	64%	71%	61%
I am likely to impregnate/become pregnant without using condom	69%	72%	66%	73%	62%
I am likely to get STIs i without using condom	77%	79%	75%	81%	67%

HIV and AIDS related behaviours

Information on sexual behaviour is important in designing effective HIV and AIDS intervention programmes. Thus, the questionnaire for this study included a number of questions to assess students' sexual behaviours. These included questions on age for first sexual intercourse, number of sex partners, transactional sex, condom use and self-reporting HIV testing and prevalence of sexually transmitted infections.

Experience of sexual intercourse

On average, 56.6 percent of the respondents reporting having had sexual intercourse in their lifetime. A higher proportion (63.3%) reported having

had sexual intercourse in their lifetime than female respondents (36.7%). Furthermore, students in higher education institutions were more likely to have had sexual intercourse in their lifetime than their counterparts in technical education institutions. Almost three quarters (72%) of the respondents in higher education institutions reported having had sexual intercourse compared to 28 percent of the respondents in technical education institutions.

1. Age for first sexual intercourse

Respondents who reported having had sexual intercourse in their life time were asked to indicate the age at which they had the first sexual intercourse. The mean age for first sex was 22.4 (SD = 5.6), with female respondents reporting earlier age (mean age =20.2, SD = 6.2) than male respondents (mean age = 23.6, SD = 6.1).

There was significant variation in the age for first sex between students in higher education institutions and those in technical education institutions, with a mean age of 23.1 and 23.5 respectively.

2. Use of condom and multiple sex partners

Respondents who reported having had sexual intercourse were asked whether they used condom during their first sexual experience. They were also asked if they had sex in the past six months and whether they used condom or other form of protection. More than half (51.2%) of the respondents reported having used condom during their first sexual intercourse. Furthermore, 61.6 percent of the respondents that they had sexual intercourse in the past six months; of these, 56.7 percent reported having used a condom.

A higher proportion (52.5%) of male respondents reported having used condom during their first sexual intercourse than female respondents (47.7%). Similarly, a higher proportion of male respondents (58.3%) reported having used condom during the last time they had sex than female respondents (49.4%). Students in technical education institutions were more likely to use condom during sexual intercourse than their counterparts in higher education institutions. Less than half (48.5%) of the students in higher education institutions reported having used condom during their first sexual intercourse compared to 58.2 percent of the students in technical education institutions.

Almost a third (30.8%) of the male respondents and 29.7 percent of the female respondents reported having two sexual partners in the past 12 months. Only 3.4 percent of the male respondents reported having three or more number of sex partners in the past 12 months. This is number is generally comparable to the national average whereby in the TDHS 2010, four percent of women and 21 percent of men reported having two or more sex partners in the past 12 months preceding the survey.

DISCUSSION

This study has examined the level of knowledge, attitudes and behaviours related to HIV and AIDS among students in higher and technical education. The results show that, in many cases, the level of knowledge, attitudes and sexual behaviours among young people in university settings are generally comparable to those of young people in the general Tanzanian population. For example, the level of comprehensive knowledge about HIV/AIDS and related issues is generally low, with less than three quarters of respondents rejecting the common misconceptions about HIV and AIDS. Again, the pattern of risk sexual behaviours does not significantly differ from that reported in the general population. For example, students in higher and technical education report poor condom use as is the case with other young people in the general Tanzanian population and elsewhere in sub-Saharan Africa.

There are, however, notable variation in the pattern of risky sexual behaviours between students in higher/technical education and those in the general population. For example, the age for first sex is relatively higher among students in higher/technical education (mean age of 20.2 years for female and 23.6 years for male) than that for young people in the general population (mean age of 15 years for female and 17.4 for male) (NBS & ICF Macro, 2011). This is not surprising because the level of education has been associated with changing social profile of AIDS pandemic, with higher level of education being correlated with low risky sexual behaviours, and particularly age at which young people have first sexual intercourse [Vandemoortele & Delamonica, 2000; Zaba, Pisani, Slaymaker & Boema, 2004).

The results for this study raise questions regarding the nature of sexuality and HIV and AIDS education in Tanzanian education system. The results confirm the findings of previous studies which observed that very little sexuality and HIV and AIDS education is provided in lower levels of education in Tanzania (Rahamefy et al., 2008). Furthermore, the results point out that very little sexuality education may also be provided in higher education institutions.

The results of this study are consistent with findings of previous studies conducted in similar settings. For example, a study involving university students in Madagascar revealed that less than 10 percent of sexually active students reported consistent condom use (Mkumbo, 2009). Another study among Kenyan university students revealed that students in higher education were as vulnerable and prone to HIV risks as other youth in the general population, but there was a tendency for programmes to include university students believing that they had enough knowledge and skills about HIV and AIDS (Adam & Mutungi 2007).

CONCLUSION

It is evident from the findings of this study that the pattern of awareness, knowledge and sexual behaviours of young people in higher and technical education does not significantly differ from those in the general population. Indeed, in several cases, young people in higher and technical education institutions demonstrated lower levels of awareness and comprehensive knowledge about HIV and AIDS than those in the general population. This pattern is partly attributable to the fact that most of the programmes on HIV and AIDS interventions have tended to exclude young people in higher education settings with a belief that that they are already well informed and equipped with the necessary knowledge and skills.

In light of the results of this study, it is strongly recommended that a special HIV and AIDS intervention package should be designed specifically targeting young people in institutions of higher and technical education. This package should aim, among other measures, to: improve the knowledge base about HIV and AIDS; address the myths and misconceptions related to efficacy of condoms in reducing risks to HIV infection; improve the availability of services related to HIV and AIDS and mainstream HIV and AIDS in the higher education curricula.

ACKNOWLEDGEMENTS

This study was commissioned by the Tanzania Ministry of Education and Vocational Training and funded by the United Nations Education, Scientific and Cultural Organization (UNESCO) Dar es Salaam Cluster Office. Their contribution and facilitation in the acquisition of data that led to this article are greatly acknowledged and appreciated.

REFERENCES

Adam, M.B. and M. Mutungi (2007). Sexual risk behaviour among Kenyan University students. Journal of the Arizona-Nevada Academy of Science 39: 91-98.

Barlett, J.E., J.W. Kotrilik and C.C. Hignins (2001). Organisational research: Determining appropriate sample size in survey research. Information Technology, Learning, and Performance Journal, 19(1): 43-50.

Bui, T.D., Pham, C.K., Pham, T.H., Hoang, L.T., Nguyen, T.V., Vu, T.Q. and Detels, R. (2001). Cross-sectional study of sexual behaviour and

knowledge about HIV among urban, rural, and minority residents in Vietnam. Bulletin of the World Health Organization 79 (1): 15-21.

De Cock, K.M., M.G. Fower, E. Mercier, I.de Vincenzi, J. Saba, E. Hoff, D.J. Alnwick, M. Rogers and N. Shaffer (2000). Prevention of mother-to-child HIV transmission in resource-poor countries. JAMA, 283(9): 1175-1182.

International AIDS Society (2004). Prevention of mother-to-child transmission of HIV in Africa. Topics in HIV Medicine 12 (5): 130-134.

Joint United Nations Programme on HIV/AIDS (UNAIDS, 2011). 2010 Global report: Annex 2-country progress indicators and data 2004 to 2010. Geneva: Joint United Nations Programme on HIV/AIDS.

Kakoko, D.C., W.L. Lugoe, and G.T. Lie (2006). Voluntary testing for HIV among a sample of Tanzania teachers: a search for socio-demographic and socio-psychological correlates. AIDS Care 18 (6): 554-560.

Kalichman, S.C and L.C. Simbayi (2003). HIV testing attitudes, AIDS stigma, and voluntary HIV counselling and testing in a black township in Cape Town, South Africa. Sexually Transmitted Infections 79 (6): 442-447.

Kirby, D., K. Coyle, L. Rolleri, F. Alton and L. Robin (2011). Reducing adolescent sexual risk: A theoretical guide for developing and adopting curriculum-based programs. California: ETR Associates.

Mkumbo, K.A.K (2009). Content analysis of the status and place of sexuality education in the National school policy and curriculum in Tanzania. Educational Research and Review 4: 616-625.

National Bureau of Statistic [NBS] and ICF Macro (2011). Tanzania Demographic Health Survey. Dar es Salaam, Tanzania: NBS & ICF Macro.

Odu, B.K. and F. F. Akanle (2008). Knowledge of HIV/AIDS and sexual behaviour among the youths in South West Nigeria. Humanity & Social Sciences Journal 3(1): 81-88.

Rahamefy, O.H., M. Rivard, M. Ravoarinoro, L. Ranaivoharisoa, A.J. Rasamindrakotroka and R. Morisset (2008). Sexual behaviour and condom use among university students in Madagascar. Journal of Social Aspects of HIV/AIDS 5: 28-31.

Tanzania Commission for AIDS (TACAIDS), National Bureau of Statistics (NBS) & ORC Macro (2005). Tanzania HIV/AIDS Indicator Survey 2003-04. Calverton, Maryland, USA: TACAIDS, NBS and ORC Macro.

Tanzania Commission for AIDS [TACAIDS], Zanzibar AIDS Commission [ZAC], National Bureau of Statistics [NBS], Office of the Chief Government Statistician [OCGS], and Macro International Inc. (2008). Tanzania HIV/AIDS and Malaria Indicator Survey 2007-2008. Dar es Salaam, Tanzania: TACAIDS, ZAC, NBS, OCGS and Macro International Inc.

United Republic of Tanzania (URT, 2010). Guidelines for implementing HIV/AIDS and life skills education programme in schools (Version No. 4). Dar es Salaam:, Tanzania: Ministry of Education and Vocational Training.

United Republic of Tanzania (URT, 2007). The second multisectoral strategic framework on HIV and AIDS (2008-2012). Dar es Salaam, Tanzania: Tanzania Commission for AIDS.

United Republic of Tanzania (URT,2001). National policy on HIV/AIDS. Dar es Salaam, Tanzania: Tanzania Commission for AIDS.

Vandemoortele, J. and E. Delamonica (2000). The 'education vaccine' against HIV. Current Issues in Comparative Education 1: 6-12.

Zaba, B., E. Pisani, E. Slaymaker and J.T. Boerma. Age at first sex: understanding recent trends in African demographic surveys. Sexually Transmitted Infections, 80 (Suppl II): ii28-ii35.