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Students in Kenya**

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## **Abstract**

### **Introduction**

It is estimated that approximately 1.4 million adults aged 15 – 49 years are infected with HIV in Kenya (NASCO, 2008). The prevalence of HIV has increased from 5.1% in 2007 to 7.4% in 2008 (NASCO, 2008). In view of the high prevalence rates, great emphasis has been given especially to VCT services and the government has increased the number of VCT centers. The scale-up effort was meant to provide all Kenyans with the possibility of accessing VCT services within 5km from their homes at a cost of no more than Ksh.50 or the services brought to the people through mobile facilities (NASCO, 2004). The government projected to increase the VCT centers from 410 sites in 2004 up to 700 sites which were targeted to test 840,000 clients by the end of 2007. The VCT services are complemented by mobile services and VCT centers established by NGOs (NASCO, 2004). The government has been training counsellors, counsellor supervisors and laboratory supervisors from each district so as to create a national pool of competent staff to run the VCT centers (Ministry of Health, 2006).

It is notable that institutions of higher learning have not been left behind in the fight against the spread of HIV infection. Institutions like Daystar University and Kenyatta University have come up with comprehensive HIV and AIDS policies. Most of the Kenyan Universities normally hold a VCT services' week when both students and staff are encouraged to undertake the voluntary HIV counseling and testing. In particular Daystar University has actively communicated the need for behaviour change and launched an annual HIV and AIDS voluntary counselling and testing day. It is believed that this is a milestone in stigma reduction and the entry into the care and support programmes (Daystar, 2007).

Counselling and HIV testing is key to sexual behaviour change strategy. Individuals who test HIV negative are motivated to guard their sero-status, while those that test positive can be counselled on how to protect their partners from infection or be referred for anti-retroviral treatment where appropriate (NASCO, 2001). It is hoped that the promotion of VCT services would greatly contribute to the decline in the spread of HIV in Kenya.

Unfortunately, only 36 percent of Kenyan adults ages 15-64 have tested at least once for HIV and received results (NASCO, 2008). Nearly two-thirds of Kenyans report never having

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been tested for HIV, and are therefore unaware of their status and may not access appropriate services for prevention, care and treatment of HIV (KAIS, 2008).

### **Problem statement**

Higher education institution campuses are reported to constitute a potentially fertile breeding ground for HIV and AIDS (Katahoire, 2004). They bring together in close physical proximity devoid of systematic supervision a large number of young adults at their peak years of sexual activity and experimentation (Katahoire, 2004). HIV prevalence data suggest that a majority of the non-pediatric infections occur among the youth, especially young women aged 15 – 24 years and among young men less than 30 years. It is observed that very few young people are infected with the HIV before their 15<sup>th</sup> birthday (NASCOP, 2005a). Yet the youth ages 15 – 24 years are reported as the most vulnerable to HIV infection.

Considering the significant role that VCT services play in the control of HIV and AIDS, it was important to examine the attitude of university students towards VCT services. It was hoped that the study would reveal the factors that motivate, as well as deter the youth in seeking VCT services. Going for voluntary counselling and testing for HIV would help the students to be knowledgeable about their status, which would encourage those not infected to safeguard themselves while those infected would seek medication (NASCOP, 2001).

### **General objective**

The study assessed the students' attitude towards VCT services using Boshamer and Bruce's (1999) scale to measure attitudes toward HIV antibody testing.

#### *Specific objectives*

1. To determine the university students' attitudes and beliefs towards VCT services in Kenya.
2. To assess the students' level of perceived susceptibility to HIV and AIDS infection.
3. To determine the factors influencing the students' utilization of the VCT services.

### **Theoretical framework**

Like Boshamer and Bruce (1999), this study used concepts from the theory of the Health Belief Model (Rosenstock, 1961; Janz & Becker, 1984), theory of Reasoned Action (Ajzen, & Fishbein, 1980) and the Information-Motivation Behaviour Skills Model (Fisher & Fisher, 1992).

The Health Belief Model (HBM) has guided prevention model for a variety of health behaviours, including HIV (Rosenstock, 1961; Boshamer & Bruce, 1999). According to HBM, behaviour is mainly influenced by four components; how susceptible a person feels to a negative health condition, the perceived severity of the condition, the perceived benefits and efficacy of a protective action and the probable barriers to that preventive action (Rosenstock, 1961, Boshamer & Bruce, 1999). There are other modifying factors in the model, which include: cues to action (e.g. a physician or a close reference's advice to take a test), self-efficacy (one's ability and competency to take action, such as being tested for HIV), not to mention demographic factors like age, sex etc.

The theory of Reasoned Action (TRA) is based on an assumption that people use the information provided to them to make decisions on their behaviour (Ajzen & Fishbein, 1980; Boshamer & Bruce, 1999). The theory distinguishes between beliefs, attitudes, intentions and behaviours and shows how they are related to predict behaviour (Ajzen & Fishbein, 1980).

The theory suggests that the main determinant of any behaviour is the intention to perform that behaviour. The stronger a person's intention to perform a behavior is, the greater the likelihood that the person will perform the behaviour (Ajzen & Madden, 1986). Ajzen (2002) further observed that the intention to perform a behaviour is mainly influenced by the attitude toward behaviour, subjective norms and perceived behavioural control. Attitude towards the behaviour refers to the person's attitude toward his own performance of the behaviour, in this study, whether it is favourable or unfavourable to attend VCT services. Subjective norms refer to the perceived social pressure to perform or not to perform the behaviour, while the perceived behavioural control refers to the person's confidence that they are capable of performing the behaviour under investigation (Ajzen, 2002). In combination, attitude toward the behaviour, subjective norm, and perception of behavioural control lead to the formation of a behaviour intention, in this study, seeking VCT services (Ajzen, 2002).

The Information-Motivation-Behavioural Skills model (Fisher & Fisher, 1992) was designed specifically to address HIV prevention and some of its components are similar to those of HBM and TRA. The model has three components. First the need for AIDS risks reduction information regarding the means of HIV transmission and methods of preventing the infection. Secondly, the need for motivation to change or decrease AIDS risk behaviour (Fisher & Fisher, 1992). Even individuals who are well informed about HIV infection and are skilled in risk reduction behaviours need motivation to maintain behaviour change. It is this component that considers an individual's attitude towards the behaviour and the social norms surrounding the behaviour, as well as the individual's perceived susceptibility to HIV infection. Thirdly, one needs the behavioural skills to perform the AIDS prevention behaviour. This includes public behaviours like HIV testing. An individual must also have the confidence to perform the behaviour – HIV testing. The model assumes that information and motivation activate behavioural skills which result in risk reduction behaviour (Boshamer & Bruce, 1999).

### **Overview of literature**

The HIV and AIDS pandemic is posing challenges for the academic institutions since the infection is currently killing young economically productive people thus depriving the country of qualified and productive labour force. The pandemic indeed has not spared the young adults who are the majority in the Kenyan universities. Majority of the students in the universities are aged 19 – 25 years and are identified as one of the most vulnerable groups to HIV infection. Some academic institutions like the University of Nairobi have as many as 35,000 students, while Kenyatta University has approximately 14,000 (University of Nairobi, 2003). These students are at a high risk of getting infected with HIV since the standards of discipline and control of students are a challenge in public institutions of higher learning.

It is noted that the students at the university experience increased freedom from parental and school control. This, coupled with alcohol and substance abuse, environmental influences (urban life style, discos and low social economic status), are some of the factors that facilitate HIV infection among university students (University of Nairobi, 2003). It is also observed that young people at the university are generally sexually active, which puts the university population at a great risk of HIV infection (Kamaara, 2005).

Population Council (2006) identified several factors that deter youth from seeking HIV tests such as stigma, lack of youth-friendly services, fear of being found out, fear of positive result, beliefs, peer influence, provider attitudes, and a feeling that they are not at risk of HIV infection. Further findings indicated that VCT sites are not equipped to respond to youth

issues. Service providers interviewed in Kenya and Uganda reported that counseling young people requires special training and improved youth-oriented referral services. Because many youth do not easily open up when asked to explain their problems or answer sensitive questions, providers require training to develop the skills needed to work with these clients.

Voluntary counselling and testing is performed with the aim of informing people of their HIV status (NASCO, 2004). The goal of VCT is to prevent the spread of HIV and AIDS; therefore testing is a critical first step for people to know what actions they should take to prevent getting infected or transmitting HIV infection and to gain access to proper medical treatment for the infection (Ministry of Health, 2006). It is notable that knowledge of personal HIV status offers significant benefits to those infected, particularly with the recent availability of anti-retroviral drugs that could reverse the immunological destruction from HIV and prolong and improve quality of life (Ministry of Health, 2006).

Critical to the provision of VCT services are the principle of (1) voluntary attendance, so that VCT is initiated by the client seeking to learn their HIV status. (2) informed consent, in which verbal consent is obtained before testing and (3) maintaining confidentiality (NASCO, 2004; NASCO, 2005b).

## **Methodology**

### *Research Design*

This study was a quantitative survey which used questionnaires among students in public and private universities.

### *Sampling of the Universities*

Four chartered universities were purposively selected for the study. They were two public universities, namely University of Nairobi and Egerton University, and two private universities, namely Daystar University, and African Nazarene University. The University of Nairobi was selected for the study because of its location in Nairobi City, a typical urban environment where cost of living is high and there is easy access to entertainment facilities. Egerton University was selected because of its sub-urban location. The two public universities have an open admission system that is representative of the entire Kenyan population. The private universities were selected on the basis of their admission criteria, so that one university that upholds Christian values (Daystar University) was selected. The other private university was selected because it has an open-door policy on admission of students. Robson (2002) observed that the principle of selection in purposive sampling is the researcher's judgment and the sample selected enables the researcher to satisfy the specific needs in a research project (Robson, 2002).

### *Sample size*

Participants in the study were randomly selected and a total of 980 out of the expected 1000 filled the questionnaires. The participants were distributed as follows: University of Nairobi, 276; Egerton University, 308; Nazarene University, 208; and Daystar University, 188.

### *Research tool*

A self-administered questionnaire was used to collect the data. Questionnaires provide a relatively simple and straightforward approach in the study of attitudes, values, beliefs and motives (Robson, 2002). The questionnaire for this study was also expected to produce more accurate results on such a sensitive topic as counselling and testing for HIV (Robson, 2002).

The likert scale questionnaire was modified from a scale developed to measure attitudes towards HIV antibody testing (Boshamer & Bruce, 1999; Peltzer & Mpono, 2002a). The measurement scale was developed with the aim of understanding more about people's attitude about HIV testing, so that intervention programmes could focus on the specific concerns of the target population. The scale was tested for reliability and validity using data from two samples of heterosexual college students. The scale was observed to have high internal consistency with cronbach's alpha .88. Hair *et al.* (1995) suggests that .7 is the accepted cut-off. The pre-tested data in this study was analyzed for reliability and the instrument was found to measure a high internal consistency of cronbach alpha .81.

#### *Data analysis*

The data was analyzed using the SPSS programme. The programme was used to generate descriptive statistics, cross-tabulations across selected variables and work out the factor loadings required to identify the factors influencing the students' utilization of the VCT services.

#### *Ethical considerations*

This research was approved by the Ministry of Education in Kenya. The data collected was handled confidentially and the respondents were not required to identify themselves when filling the questionnaire.

### **Results**

The study involved 980 participants, who filled questionnaires in the four universities selected for the study. The average age of the respondents was 22 years. A majority (88.8%) of the respondents were 19 – 24 years, 2.3% were between 17 - 18 years and 8.9% were 25-42 years. Both genders were fairly represented in the study with 52.3% females and 47.7% males. A majority (93.2%) of the respondents were single, 5.0% were married while 1.8% were divorced. The respondents were also fairly distributed across the years of study with 28.2% first years, 33% second, 23.2% third, 14.8% fourth and 0.9% fifth years respectively. A majority (87.8%) of the respondents were regular day students, 11.1% were students registered in the evening classes, while 1.1% were enrolled in the external studies programme. The demographic characteristics of the study population is as shown in Table 1.

It interesting to note that only 377 (38.5 %) of the respondents had tested for HIV in the last 12 months, while 603 (61.5%) had not been tested. There were no major differences in the response to the HIV testing patterns among students in the four universities since the University of Nairobi had 41.7% respondents who had tested, Egerton, 39%; Daystar, 37.8%; and Nazarene 34.1% . There was no significant difference between the number of female (39%) and male (37.9%) students who had tested for HIV.

A majority (71.7%) of the respondents who had not tested for HIV reported that they intended to go for the testing in the next 12 months. However 28.3% of the respondents reported that they had no intention of going for the HIV test in the next 12 months. Again a majority (82%) of the respondents felt that one should test for HIV at any time, while some (34.1%) felt that one should test for HIV before marriage. Another 32.7% felt that one should test for HIV when one has multiple sexual partners.

A majority (89.7%) of the respondents were of the opinion that one should seek VCT services in order to know one's HIV status. However, 34.7% of the respondents felt that one should

seek VCT services so that one does not transmit HIV to others. A majority (65.3%) did not respond to that question. At the same time only a minority (27.8%) felt that one should seek VCT services in order to protect oneself from getting infected with HIV.

Overall, a majority of respondents realized the need for HIV testing. Most of them (91.9%) agreed that it was extremely useful to test for HIV. The responses to similar questions elicited similar answers with a majority (89.4%) of the respondents agreeing that testing and counselling for HIV was extremely beneficial. Again a majority (83.3%) reported that they considered going for HIV counselling and testing as extremely important.

Most of the respondents, however, disagreed with statement that portrayed HIV testing negatively, as the majority (81.8%) said that it would be embarrassing to get tested for HIV. Again a majority (70%) disagreed that going for HIV counselling and testing was extremely humiliating. About 13.3%, however, agreed with the statement and a minority (10.1%) was neutral. The results indicate that respondents have different attitudes to the testing for HIV and AIDS. While 38.8% respondents considered HIV testing as extremely threatening, 41.9% disagreed with the statement, with the remaining (18.2%) being neutral. Similar results were obtained when respondents were asked whether HIV counselling and testing was extremely frightening and was considered to an unpleasant experience as shown in Table 4.

Concerning the accuracy of HIV tests, only 41.3% of the respondents indicated that HIV tests gave accurate results as shown in Table 1. However, 37.6% were neutral to the statement, while 19.2% felt that HIV tests did not give accurate results. With regard to confidence in counsellors and nurses, 49.9% of the respondents reported that they trusted the HIV test counsellors and nurses to keep their information confidential. A total of 29% respondents gave a neutral response while 18.2% doubted the counsellors' trustworthiness. A majority (52.1%) felt that they could comfortably talk to a counsellor about personal behaviours that might place them at risk for HIV infection. The rest of the scores were distributed between respondents who remained neutral (24.1%) and those (22.2%) who reported that they would not comfortably discuss their behaviour with the counsellors.

Table 1. Attitudes of respondents towards confidentiality in HIV testing.

	Frequency (N=980)	Percent
HIV tests give accurate results		
Disagree	189	19.3
Neutral	368	37.6
Agree	405	41.3
Missing system	18	1.8
I trust the HIV test counselor and nurses to keep my information confidential		
Disagree	178	18.2
Neutral	284	29.0
Agree	489	49.9
Missing system	29	3.0
I would be comfortable talking to an HIV counselor about personal behaviors that place me at risk for HIV infection		
Disagree	236	24.1
Neutral	218	22.2
Agree	511	52.1
Missing system	15	1.5

The respondents seemed certain that they would receive the necessary support from their friends once they decided to test for HIV (Table 2). A total of 63.5% respondents reported that their friends would support their decision to get a HIV test while 76.3% felt that they would not be embarrassed if their friends found out that they had decided to test for HIV. On the other hand, 63.1% felt that their friends would not treat them badly if they tested for HIV.

Table 2. Respondents' Attitudes towards friends' support in HIV Testing

	Frequency (N=980)	Percent
My friends would support my decision to get a HIV test		
Disagree	93	9.5
Neutral	252	25.7
Agree	622	63.5
Missing system	13	1.3
I would be embarrassed if my friends found out I had decided to have an HIV test		
Disagree	748	76.3
Neutral	121	12.3
Agree	78	8.0
Missing system	33	3.4
My friends would treat me badly if I were tested for HIV		
Disagree	618	63.1
Neutral	252	25.7
Agree	91	9.3
Missing system	19	1.9

A majority (68.6%) of the respondents agreed that their family would support them if they decided to be tested for HIV. Only 10% disagreed that they would have their family support in the testing for HIV, while 20.2% were neutral to the statement. However, 48.4% of the respondents agreed that they could easily discuss HIV antibody testing with their family. The

other respondents were almost equally distributed between those who disagreed (24.3%) and those who were neutral (24.9%).

About half (52.7%) the number of the respondents did not mind if people (public) knew that they had gone for HIV test but some respondents (22.7%) felt that they would mind while 23.1% were neutral. Similarly, 51% reported that people did not assume that everyone tested for HIV was infected with HIV. However, a relatively high percent (32.4%) felt that people assumed that everyone going to be tested for HIV was infected with HIV, and other respondents (14%) were neutral to the statement. A majority (72.4%) disagreed with the statement that their schooling would be in danger if the university found out that they had tested for HIV, while a minority (12.4%) felt that their schooling would be in danger if the university found out that they had tested for HIV, and 13.6% constituted neutral responses.

#### *Students' level of perceived susceptibility to HIV infection*

When the respondents were asked about the possibility that they could have HIV and AIDS, a majority (68.5%) disagreed, while only 10% agreed with the statement, and 20.3% were neutral. Five hundred and seventy-eight (59%) respondents reported that they had not had sex with someone who was at risk of HIV and AIDS. Another one hundred and eighty-five (18.9%) felt that they may have had sex with someone who was at risk for HIV and AIDS, while one hundred and eighty nine (19.3%) gave neutral responses.

The study also sought to find out whether the respondents perceived if they were at risk of contracting HIV and AIDS. There were mixed reactions with 39.9% reporting that they were at risk for HIV and AIDS, 36.8% felt that they were not at risk, while 19.6% were neutral to the concern. A majority (68.5%) of the respondents disagreed that there might be a possibility that they would have HIV and AIDS. Only 10% agreed that there is a possibility that they might have HIV and AIDS, while the rest (20.3%) were neutral.

Five hundred and seventy-eight (59%) respondents reported that they had not had sex with someone who was at risk for HIV and AIDS. Another one hundred and eighty five (18.9%) felt that they may have had sex with someone who was at risk for HIV and AIDS, while one hundred and eighty-nine (19.3%) were neutral. The study also sought to find out whether the respondents perceived if they were at risk of contracting HIV and AIDS. There were mixed reactions with only 39.9% reporting that they were at risk for HIV and AIDS, while 36.8% felt that they were not at risk, and 19.6% were neutral.

#### *Factors influencing students' utilization of VCT services*

Preliminary factor analysis using a principal component factor analysis with varimax rotation was used on the final scale items to identify factors that might reflect the underlying relationships among the items (Boshamer & Bruce, 1999). Using the Scree test, five factors were cleared to interpret, resulting in a minimum eigenvalue of 1.5. The five factors accounted for 32.8% of the variance in scores. Table 3 presents the individual items and their factor loadings. Only items that had a factor loading of at least 0.4 were considered in the factor identity. In total 33 items met this criterion and were included as factors influencing the students' utilization of the VCT services.

The cut-off factor loadings acceptable in this study were reached using Norman and Streiner's (1994) formula for calculating the minimum loading when the sample size, N, is 100 or more:  $\text{Min FL} = 5.152/\text{SQRT}(N-2)$ . In this study N=980 respondents, which resulted in a minimum 0.165 was the minimum cut-off. It has been observed that common social science practice uses a minimum 0.3 or 0.35 (Rummel, 1970; Peltzer & Mpofo, 2002a). However, loadings less than 0.4 are generally termed as 'weak', those more than 0.6 are 'strong' especially in a likert scale. Thus 0.4 was considered as the minimum cut-off in this study. The factors below are ranked in order of their strengths.

The first factor (eigenvalue = 6.90) accounted for 15.7% variance in the responses and contained items concerned largely with how people might react to their HIV testing, and how an individual feels towards HIV testing. Items such as; 'Testing and counseling for HIV is extremely intimidating', and 'Admitting that you should be tested for HIV means that you have engaged in immoral behaviour' loaded highly in this factor, (Table 3).

The second factor (eigenvalue = 2.2) accounted for 5.0% of the variance in responses and included items that were mainly concerned with how friends might react to HIV testing. Items that loaded highly included; 'My friends would treat me badly if I were tested for HIV' and 'My friends would look down on me if I were tested for HIV'.

The third factor (eigenvalue = 2.0) accounted for 4.6% variance in the responses and included items that were mainly concerned with importance of HIV testing. Items such as; 'It is extremely useful to test for HIV' and 'Testing and counseling for HIV is extremely beneficial' scored highly.

The fourth factor (eigenvalue = 1.7) accounted for 4.0% variance in the responses and contained items mainly concerned with confidentiality and support. Items that loaded high included; 'HIV test information is kept very confidential by the medical staff that do the testing', 'HIV tests give accurate results', 'I trust the HIV test counselor and nurses to keep my information confidential'.

The fifth factor (eigenvalue = 1.5) accounted for 3.5% variance in the responses and contained items mainly concerned with perceived susceptibility. The following items loaded highly; 'There is a possibility that I have HIV and AIDS', 'I may have had sex with someone who was at risk for HIV and AIDS' and 'I am at risk for HIV and AIDS'.

Table 3. Items and factor loadings for the HIV antibody testing attitude scale

	Factor Loading
<i>Factor I. People's and personal concerns</i>	
I consider going for HIV counselling and testing extremely frightening	.462
People assume that everyone who is tested for HIV is infected with HIV	.416
Testing and counselling for HIV is a pleasant experience	-.503
It would be embarrassing to get tested for HIV	.497
I would not consider getting a HIV test because I would be asked about things I have done that could get me into trouble	.467
I consider going for HIV counselling and testing extremely humiliating	.479
Testing and counselling for HIV is extremely intimidating	.568
I could easily discuss HIV antibody testing with my family	-.420
People would assume I have HIV if I decided to get tested	.473
Admitting that you should be tested for HIV means that you have engaged in immoral behaviour	.554
<i>Factor II. Friends concerns</i>	
My friends would not look down on me if I were tested for HIV	-.533
My parents would be upset if they knew I was planning to get tested for HIV	.441
I am afraid that if I were tested for HIV, my name would go into public records	.445
My friends would look down on me if I were tested for HIV	.680
I am afraid someone would find out I was tested for HIV	.486
I would be embarrassed if my friends found out I had decided to have an HIV test	.446
My friends would treat me badly if I were tested for HIV	.645
My friends would not treat me any differently if I were tested for HIV	-.484
<i>Factor III. Value of HIV testing</i>	
It is extremely useful to test for HIV	.528
Anyone who is tested for HIV is disgusting	-.441
Testing and counselling for HIV is extremely beneficial	.559
Anyone who is tested for HIV is dirty	-.472
I do not have time to get an HIV test	-.430
I consider going for HIV counselling and testing extremely important	.479
<i>Factor IV. Confidentiality and support</i>	
HIV test information is kept very confidential by the medical staff who do the testing	.643
My friends would support my decision to get a HIV test	.415
HIV tests give accurate results	.535
I trust the HIV test counsellor and nurses to keep my information confidential	.671
HIV counseling and testing is not really confidential	-.454
<i>Factor V. Perceived susceptibility</i>	
There is a possibility that I have HIV and AIDS	.666
I may have had sex with someone who was at risk for HIV and AIDS	.668
I am at risk for HIV and AIDS	.656

## DISCUSSIONS

In recognition of the role played by VCT services in mitigating the negative impact of HIV and AIDS, this study sought to establish the attitude towards VCT services among university students, after which factors that influenced the use of VCT services were extracted through factor analysis.

The findings revealed that a majority (61.5%) of the students had not tested for HIV. Cross-tabulations across gender, year of study, age of participants and the universities showed no

significant statistical difference in the HIV testing patterns in the universities. Most universities had less than 40% students who had tested for HIV with differences of one to three percentages, which is not significant given a margin of error of three points. The observations also seemed to indicate that the Christian faith did not seem to have much influence on the utilization of VCT services since students in public universities and private Christian universities had almost the same levels of HIV testing patterns.

Mwiria *et al* (2007) observed that Kenyan universities have actively promoted the utilization of VCT services within and outside their campuses. The University of Nairobi, Egerton University, Daysta University and African Nazarene University have equally promoted the use of VCT services. Indeed, a majority (72.4%) of the respondents in the four universities felt that their schooling would not be endangered if the university found out that they had tested positive for HIV. That showed the students' confidence in their universities' support in seeking the voluntary counseling and HIV testing. Unfortunately, the positive attitude on the support from their universities did not seem to influence their going for the actual HIV testing. Thus, there seemed to be a gap between the perceived support and the actual behaviour of going for HIV testing.

The low testing for HIV was also contradicted by the fact that a majority (82%) of the students acknowledged that one should test for HIV at any time. The findings also showed that 89.7% of the students were aware that one should seek VCT services in order to know their HIV status. It was therefore evident that the students' knowledge of when and why to test for HIV did not again translate to the expected behaviour of seeking the voluntary counselling and HIV testing services.

At the same time, it was observed that only 34.7% students thought that one should seek VCT services so that if one was found positive, one could take measures to avoid transmitting the HIV virus to others. Again, only 27.8% thought that one should seek VCT services so as to protect themselves from HIV infection. The results were contrary to the idea that seeking voluntary counselling and HIV test as an important means of preventing the transmission of HIV infection (Kalichman & Simbayi, 2003; Alemu *et al.*, 2004; Ministry of Health, 2006). A similar study carried out among 760 university students in four African countries revealed that only 17.3% of the students had tested for HIV, and of those who went for the HIV test (16.2%) did not get the results of the last test (Peltzer *et al.*, 2002b). The two studies seemed to suggest that university students might not have fully embraced the need for seeking VCT services as a preventive measure against the spread of HIV virus.

The students generally seemed to have a positive attitude towards most of the items measuring attitudes and beliefs about the VCT services. Concerning the general attitudes, a majority (92%) felt that it was extremely useful to test for HIV. Others (89.4%) felt that testing for HIV was extremely beneficial. At the same, time most of the students did not support the statement that portrayed HIV testing negatively. A majority (81.8%) disagreed that it was embarrassing to test for HIV. Unfortunately, their positive attitude did not seem to influence the majority (61.5%) to test for HIV.

According to Rosenstock (1961), Janz and Becker (1984), Boshamer and Bruce (1999), there are modifying factors that may hinder the expected behaviour. This can be explained by the fact that some respondents (38.8%) felt that testing and counselling for HIV is extremely threatening, 41.1% felt that it is not a pleasant experience, while 45.4% said it is extremely frightening. All these factors may act as barriers to the intended behaviour and eventually the

respondents might end up not going for the HIV test although they know its importance (Rosenstock, 1961; Janz & Becker, 1984).

About half of the respondents (47.8%) expressed no confidence in the HIV counsellors although the Ministry of Health (2006) in Kenya assures the public that health workers maintain the highest standards of confidentiality. That might explain to some degree why some respondents (37.6%) seemed less confident about the accuracy of the HIV results. The lack of confidentiality in the counselors and the accuracy of the HIV testing seemed to be a hindrance to the utilization of the VCT services.

The respondents affirmed that they expected family and friends to support them in HIV testing. At the same time, the respondents (52.7%) did not seem threatened should the public know that they had gone for HIV test. However, the respondents had more confidence in their family and friends compared to the public support. According to Ajzen (2002), these are subjective norms, which refer to the perceived social pressure or support to perform or not to perform the required behaviour. Individuals who are informed about the importance of the voluntary counselling and HIV testing also need motivation from family, friends and the public in order to perform the required behaviour (Fisher & Fisher, 1992; Boshamer & Bruce, 1999).

It was observed that most of the respondents felt that they were not susceptible to HIV infection since 68.5% disagreed that there was a possibility that they might be infected with HIV and AIDS. Their confidence might have been pegged to the fact that many (59%) of the respondents reported that they had not had sex with someone at risk of HIV and AIDS. Janz (1984) observed that individuals vary widely in their feeling of personal vulnerability to a health condition. Some people (low perceptible) believe it is very unlikely that they would contract a particular disease or health related condition (Rosenstock, 1961; Infante et al., 2003). Still others who are moderate in their perceptions of susceptibility may admit to the statistical possibility of its occurrence and see the probability of them suffering the condition. In regard to HIV and AIDS, Freimuth et al. (1990) observed that some people would be concerned about the increase of the scourge in the general public but they would hardly think of the infection affecting them. Thus the infection is seen as other people's problem but not theirs. It was therefore observed that those who felt more susceptible were likely to feel threatened by the health condition, thus would be keen to know their HIV status unlike those who felt less susceptible (Rosenstock, 1961; Boshamer & Bruce, 1999; Population Council, 2007).

Results from the factor analysis revealed that having gone for voluntary counseling and HIV testing and the intention to seek the services was associated with five attitude subscales that were ranked as follows: people's and personal concerns, friends concerns, value of HIV testing, confidentiality and support, and lastly, perceived susceptibility. Confidentiality and support plus perceived susceptibility were weakly associated with the motivation to test for HIV. The most important factors were the public and personal concerns, followed by friends' concerns, all of which were associated with stigma and discrimination. Value of HIV testing together with confidentiality and support were related to the positive or negative consequences of undertaking the VCT services. Perceived susceptibility relates to personal behaviour that would make one perceive that one could be in danger or not in any danger of getting the HIV infection. It is noteworthy that an individual's attitude towards HIV testing is crucial in seeking VCT services.

On the other hand, the factor analysis eliminated family concerns as significant influence on the HIV testing patterns of the respondents. That might have been caused by the fact that most university students are considered mature enough to make their own decisions, and the fact that they are away in college for several months, which could limit their family influence. The study among university students in four African countries showed that going for an HIV test was associated with: general concerns, trust and support, and fears. In the same study, 'Confidentiality' and 'Friends concerns' subscales were also weakly associated with the intention to go for an HIV test (Peltzer *et al.* 2002b).

#### *Conclusion and recommendations*

Considering that the young people account for a majority of new HIV infections in Kenya, and the fact that universities are reported to constitute a potentially fertile breeding ground for HIV and AIDS, it is important for university students to know their HIV status. The study has, however, revealed that the provision of VCT services in campuses and holding VCT days is not a guarantee that students will seek VCT services because some students do not perceive themselves to be at risk of infection with HIV.

Results from this study indicate that more students can be encouraged to make use of VCT services if universities take advantage of their peers to motivate them to seek the services. On the other hand, HIV education is necessary to increase confidence in the HIV testing procedures and results among university students and to persuade the students of their vulnerability to HIV infection. Since personal and public concerns discourage students from seeking VCT services, it is important to reduce the levels of HIV and AIDS stigma and discrimination in Kenyan universities and encourage students to seek VCT services within and outside the campuses.

Further studies could evaluate the impact of VCT services on HIV and AIDS prevention and control in institutions of higher learning. In addition, there is need for further research on the impact of VCT on risk behaviour change.

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