

# Knowledge, Attitude and Practice factors associated with condom use among undergraduate Students of a Public University in Kenya (A case of Jomo Kenyatta University of Agriculture and Technology)

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## SUMMARY

Condoms offer protection against unwanted pregnancy and some sexually transmitted infections including HIV. Interventions to promote condom use are essential in efforts to slow the spread of HIV. This study sought to find out factors associated with condom use among undergraduate university students at JKUAT, given that majority of the students fall within the vulnerable 15-24 year's age bracket. The study focused on condom use and students (knowledge, attitudes and practices (KAP) on specific issues of HIV). A cross sectional study design was adopted. Simple random sampling was used to obtain the required sample size for both quantitative data (461 respondents) and snowball sampling for qualitative data (64 respondents). Data analysis was conducted using MS Access, SPSS and MS Excel applications. The findings of this study revealed among 461, 66.2% (305) had experienced sexual intercourse. The overall level of condom use was high 72.8% (222). There was a significant relationship between condom use and general attitude ( $P < 0.001$ ). However, there was no significant relationship between condom use and (knowledge on specific issues of HIV and practices). Continuous health education campaigns on sexuality, proper usage and advantages of condoms should be enhanced.

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## Introduction

Sexually Transmitted Infections are a group of contagious diseases commonly transmitted through sexual intercourse. Many categories of sexual practices permit transmission from "person to person." Vertical transmission from mother to newborn is also possible [1]. Sexually transmitted infections are critical in transmission of HIV [2]. The global summary of the AIDS epidemic indicates a total of 33.3 million people living with HIV/AIDS. 22.5 million people from Sub-Saharan Africa are living with HIV/AIDS and 1.8 are newly infected [3]. HIV prevalence in Kenya is currently estimated at 7.4 percent in the age group 15-49 and at 7.1 percent in age group 15-64. Incidence remains high and an estimated 200 new HIV infections per day between 76,000 – 104,000 new infections per year. It is estimated that there are 1.3 – 1.4 million Kenyans living with HIV [2]. Some STIs are life

threatening (HIV, Syphilis), others pre dispose to malignancy (Hepatitis B, Human Papilloma virus, HIV), and others destroy fertility (Gonorrhoea, Chlamydia) [4]. The risk of becoming infected with HIV as a result of sexual intercourse depends on: the probability that the sexual partner is infected, number of sexual partners, type of sexual contact involved, amount of virus present in the blood or secretions of the infected partner, presence in either partner of other sexually transmitted infections and/or genital lesions [5]. Abstinence from sexual intercourse or maintaining a mutually monogamous relationship between partners known to be uninfected is the surest way to avoid transmission of HIV and other STDs. Correct and consistent use of condom reduces the risk of HIV and other STDs. Scientific studies of sexually active couples, where one partner is infected with HIV and

the other partner is not, have demonstrated that the consistent use of latex condoms reduces the likelihood of HIV infection by 80 to 90 percent. Failure to use condoms correctly with every act of intercourse increases the risk of HIV transmission [6]. This study therefore aims at determining the KAP factors associated with condom use among undergraduate students at JKUAT.

## **Materials and Methods**

### **Study site**

The study was conducted at Jomo Kenyatta University of Agriculture and Technology (main campus), a public university in Kenya, situated in Juja, Kiambu county, 36 kilometers North East of Nairobi, along Nairobi-Thika highway. JKUAT main campus has approximately 9084 undergraduate students.

### **Study population**

The study population consisted of undergraduate students from JKUAT main campus in Juja, Thika District.

### **Study design**

A cross-sectional study design was used which adopted both quantitative (through self-administered questionnaires) and qualitative (through Focus Group Discussions (FGDs)) approaches.

### **Sample size and sampling technique**

Simple random sampling was used to obtain the required number of respondents from the sampling frame using computer generated random numbers. A sample size of 461 (for quantitative data) and 64 (for qualitative data) was established. The randomly selected students (461 and 64) were traced through their Faculties/Departments/Courses.

### **Data collection procedures**

Pre-tested questionnaire were used to collect data. The questionnaire had 3 parts which asked respondents about knowledge on HIV and condom use, Attitude (beliefs on HIV and condom use) and practices (Risky sexual behavior and condom use). The FGDs were mainly on attitudes and practices of the students. To ensure that the data collected was of quality, research assistants were trained prior to data collection. All questionnaires issued were serialized. The principal investigator went through all questionnaires at the end of each day. A check-list to monitor the issued and returned questionnaires was also used. Data entry,

coding and cleaning was done using the statistical package for social sciences (SPSS) Version 11.5.

### **Data analysis**

All variables were subjected to descriptive data analysis. Bivariate analysis was carried out to determine the relationship between condom use and associated factors using Pearson's chi-square test. Factors that were found to be associated with the outcome were considered for multivariate analysis. P-value less than 0.05 were considered significant. FGDs were sorted manually according to themes and then discussed.

### **Ethical considerations**

Approval to carry out the study was sought from the Board of Postgraduate studies of Jomo Kenyatta University of Agriculture and Technology, the Scientific Steering Committee (SSC) and Ethical Review Committee (ERC) through Center for public health research (CPHR) at KEMRI. Only those participants who consented participated in the study.

## **Results**

### **Characteristics of the study population**

A total of 461 participants were interviewed, majority of them were males (64.2%; 296). Mean age of the study participants was  $21 \pm 2$  ranging between 18 and forty years. The highest proportion (33.4%; 154) of the participants were aged 20 years, and the smallest proportion (18.4%; 85) being 23 years or more. As regard marital status, a majority (94.6%) were single. Year of study varied between year 1 and higher than year 4 of the university education, with 49.7% (229) of the participants being at year 1. A small proportion (12.2%; 56) was in year 4 or higher (Table 1).

Religious affiliation revealed majority (64.9%; 299) to be Protestants, followed by Catholics (30.4%; 140), the rest were Muslims or other. Among the study participants, 43.2% (199) were living with their parents while 10.2% (47) were living with guardians, 31.7% (146) were living with schoolmates. A very small proportion (1.5%; 7) was living with their spouses and 13.4% (62) were living alone (Table 1).

### **Knowledge and awareness on HIV among the study participants**

Participant's knowledge on HIV was probed using five questions. Majority of the participants (90.0%; 415) indicated that HIV is not a flavi virus belonging to the family flaviviridae, 58.6% (270) indicated that it is a lentivirus, 91.8% (423) said it is a virus that causes AIDS, 84.2% (388) indicated that it is a virus that

attacks the immune system while 94.8% (437) correctly indicated that it is not a virus that can be transmitted by air, insect bites, physical touch. A summary of all the questions revealed that 79.8 % (368) had adequate knowledge on what is HIV. Assessment on why HIV is a Kenyans serious public health problem was probed using five questions.

**Table 1:** Selected socio-demographic characteristics of the study participants

Variables	N=461	%
<b>Gender</b>		
Male	296	64.2
Female	165	35.8
<b>Age in years</b>		
<20	81	17.6
20	154	33.4
21	87	18.9
22	54	11.7
23	42	9.1
24 or more	43	9.3
<b>Marital status</b>		
Single	436	94.6
Married	25	5.4
<b>Year of study</b>		
1	229	49.7
2	89	19.3
3	87	18.9
4	45	9.8
>4	11	2.4
<b>Religion</b>		
Muslim	10	2.2
Catholic	140	30.4
Protestants	299	64.9
Others	12	2.6
<b>Residence</b>		
Within the campus	203	44.0
Off campus	258	56.0
<b>Live with who</b>		
Parents	199	43.2
Guardian	47	10.2
Schoolmates	146	31.7
Spouse	7	1.5
Alone	62	13.4

Majority of the participants (83.1%; 383) indicated that HIV is rapidly spreading, 65.7% (303) indicated that it is its ability to suppress reproductive system, 51.4% (237) indicated that with HIV death is inevitable, 85.9% (396) indicated that HIV affects national development and welfare while 51.2% (236) indicated that HIV is related to T.B. A summary of all the questions revealed that 78.2 % (361) had adequate knowledge.

Assessment on ways in which HIV/AIDS and other STIs are interlinked was probed using five questions. A small proportion of the participants (18.4%; 85) correctly indicated that HIV and all the other STIs are not always transmitted the same way, 85.7% (395) said both are co-factors, 94.1% (434) correctly indicated that both do not have a cure only STIs are curable, 80.5% (371) correctly indicated that both HIV and STIs do not cause AIDS only HIV does while 96.1% (236) indicated that their main route of transmission is through sexual intercourse. A summary of all the questions revealed that 70.9 % (327) had adequate knowledge on ways in which HIV/AIDS and other STIs are interlinked.

#### **Knowledge on condom use among the study participants**

Participant's knowledge on what they know about a condom was probed using four questions. Majority of the participants (94.4%; 435) indicated that a condom is a barrier device used to prevent pregnancies and STIs, 90.2% (416) indicated that it is not a barrier device used only for prevention of pregnancies since other methods exist, 94.6% (436) indicated that it is not a barrier device used only for prevention of STIs since other methods exist while 92.2% (425) indicated that it is a device used to prevent contact with body fluids during sexual encounter.

Assessment on safe use and handling of a condom was probed using seven questions. Majority of the participants (96.1%; 443) indicated a condom is not safe irrespective of their storage, 68.7% (317) agreed that a condom promotes cleanliness, 63.8% (294) indicated that a condom protects against STIs if they are properly and correctly used, 96.7% (446) indicated that single condom should not be used more than once, 74.8% (345) agreed that it is important to store condoms safely, 96.3% (444) indicated that it is not proper to store condoms next to sunlight while 91.3% (421) agreed that it is proper to open and apply the condom package properly. A summary of all the questions revealed that 76.4% (352) had adequate knowledge on condom use.

### **Attitude towards condom use among study participants**

Majority of the respondents (69.0%;318) disagreed to the fact that condoms inconvenience sex, 54.9% (253) agreed that people should plan when they are going to have sex, 83.9% (387) disagreed that a mans penis may be too large for a condom, 88.9% (410) disagreed that condoms are expensive, 60.1% (277) disagreed to the fact that they get embarrassed to buy a condom. 95.2% (439) also disagreed that the correct way to use a condom is to put it on a soft penis, 82.0% agreed that it is alright for men to refuse sex if a woman doesn't want to use a condom, 88.7% indicated that condoms help to stop the spread of STI, 86.8% (400) agreed that it is easy to obtain a condom within the campus, 79.0% (364) indicated that their friends were concerned about getting infected by the AIDS virus, 82.9% (382) agreed that condoms help to stop the spread of AIDS virus while 86.3% (398) indicated their concern about getting infected by the AIDS virus.

Majority of the respondents (83.9%; 387) disagreed that religious people don't use condoms, 95.0% (438) disagreed that only men should decide if a condom is used during sex, 98.3% (453) disagreed that only gay people get AIDs, 90.0% (415) indicated that its alright for women to insist that men use a condom, 87.6% (404) agreed that its alright to insist that your sexual partner use a condom, 82.4% (380) indicated that its alright for woman to refuse sex if a man does not want to use a condom, 53.8% (248) positively disagreed that condom decrease sexual pleasure for men. 65.5% (302) participants indicated that their male friends used condoms when having sex, 25.2% (116) agreed that they are not likely to be infected by AIDS virus if they use a condom, 46.4% (214) indicated that their female friends used a condom when having sex while 67.2% (310) disagreed that condoms decrease sexual pleasure for women, 95.0% (438) disagreed to the fact that using other contraceptives apart from condom cannot contract HIV while 24.1% (111) disagreed that many girls are still brought up to be submissive to men a

culture that increases their difficulty in avoiding sexual contact especially with older men without use of a condom. A summary of all the attitude variables revealed that 55.5% (256) had positive attitude to majority of the issues used to measure participant's attitude.

### **Risky sexual practices**

Among 461 interviewed respondents, 33.8% (156) reported to have never experienced sexual intercourse. Risky sexual practices were assessed on the remaining 305 participants who had experienced sexual intercourse. Majority (72.8%; 222) of the respondents indicated that they/their partners had used a condom during the last sexual intercourse mainly to prevent pregnancy.

Risky sexual practice was assessed using six variables. 3.9% (12) agreed to the fact that they had ever participated in sex with someone of the same gender, 15.7% (48) indicated to have ever participated in sex with more than one partner, 25.2% (77) indicated to have ever participated in sex while intoxicated, 12.8% (39) indicated to have ever participated in sex while intoxicated without use of condom, 50.2% (153) indicated to have ever participated in sex without use of condom while 3.0% (9) indicated to have ever participated in sex for money. A summary of all the sexual practices variables revealed that 62.3% (190) were at risk.

### **Bivariate analysis**

Bivariate analysis showed that none of the socio-demographic factors was significantly associated with condom use ( $P>0.05$ ). However, marital status revealed an association ( $P=0.074$ ). Majority of the single students (74.1%; 209) were using a condom while having sex compared to married or otherwise (56.5%; 13). Indicating that single students were 2.20 [95% CI = 0.93 – 5.24] times more likely to use a condom while having sex compared to students that were married or otherwise (Table 2).

**Table 2:** Relationship between condom use and socio-demographic characteristics

Variables	Used a condom (n=222)		Did not use a condom (n=83)		O.R	95% CI of O.R		p value
	N	%	N	%		Lower	Upper	
<b>Gender</b>								
Male	155	71.4	62	28.6	0.78	0.44	1.39	0.403
Female	67	76.1	21	23.9	1.00			
<b>Age in years</b>								
<20	30	75.0	10	25.0	1.83	0.69	4.85	0.227
20	83	76.9	25	23.1	2.02	0.91	4.50	0.085
21	42	76.4	13	23.6	1.97	0.79	4.89	0.145
22	27	73.0	10	27.0	1.64	0.61	4.40	0.322
23	17	60.7	11	39.3	0.94	0.34	2.58	0.905
24 or more	23	62.2	14	37.8	1.00			
<b>Marital status</b>								
Single	209	74.1	73	25.9	2.20	0.93	5.24	0.074
Other	13	56.5	10	43.5	1.00			
<b>University year of study</b>								
1	110	74.8	37	25.2	0.37	0.04	3.07	0.358
2	46	74.2	16	25.8	0.36	0.04	3.10	0.352
3	37	67.3	18	32.7	0.26	0.03	2.21	0.216
4	21	65.6	11	34.4	0.24	0.03	2.16	0.202
>4	8	88.9	1	11.1	1.00			
<b>Religion</b>								
Muslim	3	37.5	5	62.5	0.45	0.06	3.57	0.450
Catholic	66	68.0	31	32.0	1.60	0.34	7.57	0.556
Protestants	149	77.2	44	22.8	2.54	0.55	11.78	0.234
Others	4	57.1	3	42.9	1.00			
<b>Residence</b>								
On campus	100	74.6	34	25.4	1.18	0.71	1.97	0.523
Off campus	122	71.3	49	28.7	1.00			
<b>Lives with</b>								
Parents	91	75.2	30	24.8	1.33	0.63	2.81	0.460
Guardian	26	83.9	5	16.1	2.27	0.72	7.15	0.159
Schoolmates	69	69.0	31	31.0	0.97	0.46	2.08	0.945
Spouse	4	57.1	3	42.9	0.58	0.12	2.96	0.515
Alone	32	69.6	14	30.4	1.00			

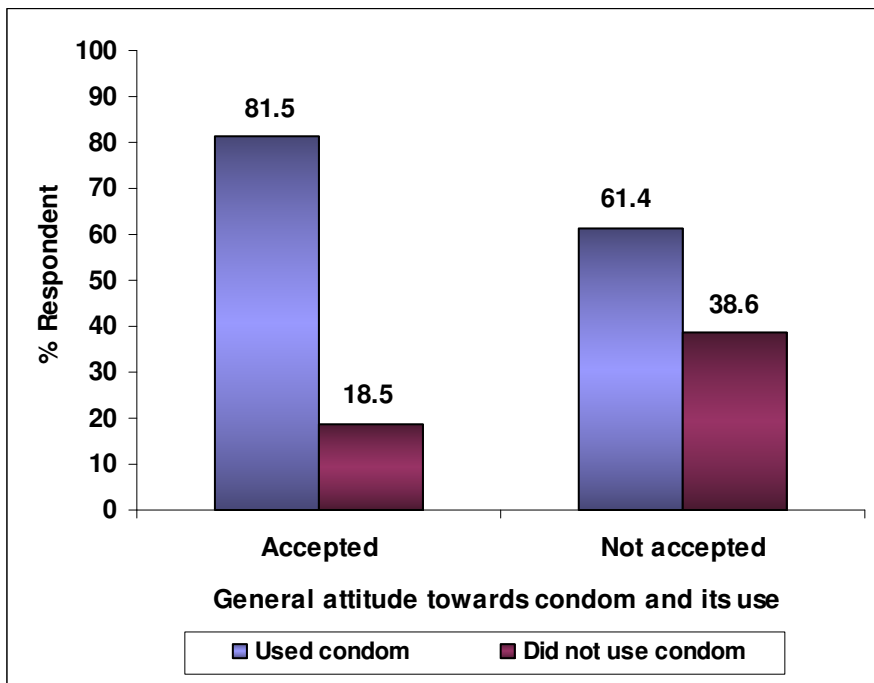
None of the factors on knowledge about specific issues of HIV and condom use was significantly associated with condom use ( $P>0.05$ ) (Table 3).

**Table 3:** Condom use in relation to knowledge

Variables	Used condom (n=222)		Did not use a condom (n=83)		O.R	95% CI of O.R		P value
	N	%	N	%		Lower	Upper	
<b>Overall knowledge on what is HIV</b>								
Adequate knowledge	177	72.2	68	27.8	0.87	0.45	1.66	0.668
Inadequate knowledge	45	75.0	15	25.0	1.00			
<b>Overall knowledge on why HIV is a Kenyans serious public health problem</b>								
Adequate knowledge	172	72.9	64	27.1	1.02	0.56	1.86	0.945
Inadequate knowledge	50	72.5	19	27.5	1.00			
<b>Overall knowledge on ways in which HIV/AIDS and other STIs are interrelated</b>								
Adequate knowledge	161	74.2	56	25.8	1.27	0.74	2.20	0.387
Inadequate knowledge	61	69.3	27	30.7	1.00			
<b>Overall knowledge on condom and its use</b>								
Adequate knowledge	172	73.2	63	26.8	1.09	0.6	1.98	0.771
Inadequate knowledge	50	71.4	20	28.6	1.00			

There was a significant relationship between use of condom and general attitude towards condom use ( $P < 0.001$ ) (Figure 1). A significant majority of students (81.5%; 141) who generally accepted use of a condom as a protective product used it while having sex compared to those that generally did not accept use of a

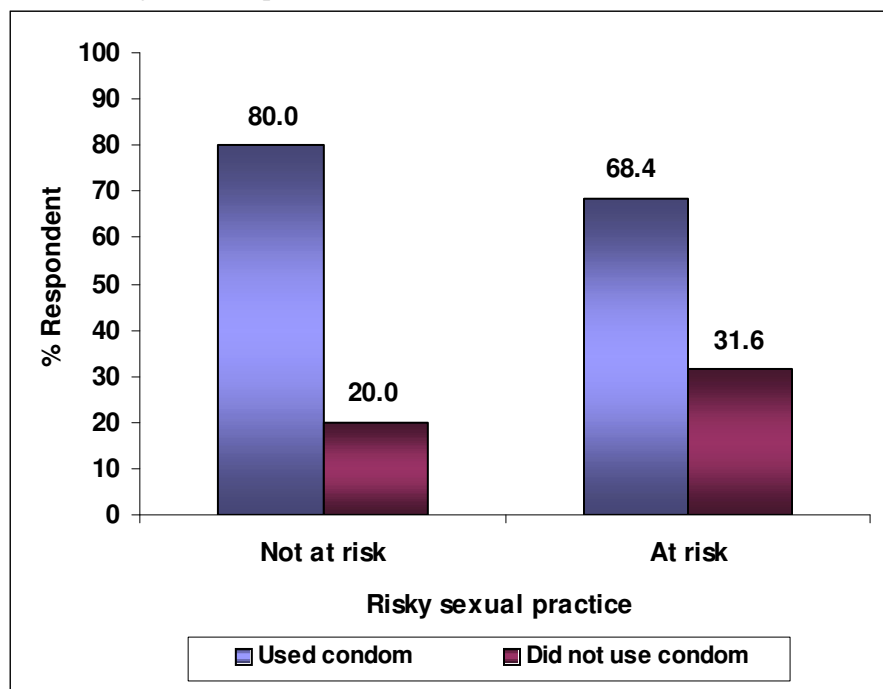
condom as a protective product (61.4%; 81). A student who accepted use of a condom as a protective product was 2.77 [95% CI = 1.65 – 4.66] times more likely to use a condom while having sex compared to one that did not accept.



**Figure 1:** Condom use in relation to general attitude

There was a significant relationship between condom use and risky sexual practice (P=0.029). Majority of the students (80.0%; 92) not at risk as far as risky sexual practice is concerned were using a condom while having sex compared to those at risk (68.4%;

130). A student that was not at risk of having risky sexual practice was 1.85 [95% CI = 1.07 – 3.20] times more likely to use a condom while having sex compared to one at risk (Figure 2).



**Figure 2:** Condom use in relation to risky sexual practices

### Multivariate analysis

Binary logistic regression was used to model condom use (1= Used a condom, 0= Did not use a condom). Three factors associated with condom use at P<0.1 during bivariate analysis were considered for

multivariate analysis. Upon fitting the factors and specifying 'backward conditional method' with removal at P<0.05, only one factor was retained in the final model.

**Table 4:** Logistic regression predicting condom-use using general attitude on condom and its use

Predictor variables	$\beta$	S.E. ( $\beta$ )	df	AOR	95% CI for AOR		P value
					Lower	Upper	
<b>General attitude on condom and its use</b>							
Accepted	1.02	0.27	1	2.77	1.65	4.67	<0.001
Not accepted	Reference						

**Focus Group discussions (FGDs)**

64 participants took part in the FGDs, 32 male and 32 female students equally distributed in year of study (Year 1-Year 4). The FGDs had two main themes

(attitude and practices), Multiple responses came out of the participants from the FGDs (Table 5).

**Table 5:** Themes and responses

Theme	Response/s
<p><b>1.Attitude</b></p> <p><b>a. Reasons for condom use</b></p>	<p><b>Prevention of unwanted pregnancies and HIV/STIs.</b></p> <p><i>“..... Though we enjoy sex, our mission here is to complete our studies and that with pregnancy we will not be able to achieve our goals.”</i></p> <p>Other responses: No idea/Not sure why?, for fun (Curiosity), condoms are free of charge</p>
<p><b>b. Whether condoms increase or decrease sexual pleasure</b></p>	<p><b>Depends on the brand used.</b></p> <p><i>“..... the feeling experienced during intercourse is not altered and it increases sexual pleasure, they make some of us last longer.”</i></p> <p>Other responses: Decrease sexual pleasure, depends on the fitting .....</p>
<p><b>c. Views about the need for HIV testing</b></p>	<p><b>Stigma: Fear of reactions of peers.</b></p> <p><i>“What will our colleagues say when they see us going to the VCT? Everybody will think we are sick.”</i></p> <p>Other responses: As long as one is tested no need for the other to be tested, no need to test because they use a condom .....</p>
<p><b>2.Practices</b></p>	<p><b>Response/s</b></p>



<p><b>a. How university students negotiate with their partners to use condoms</b></p>	<p><b>Telling them the risks of unwanted pregnancies/STIs</b></p> <p><i>“ ..... may not agree at first when you say that you want to use a condom . For example some may think you do not trust them, but you can tell them that trust is not the point but one can get infected without realizing it.”</i></p> <p>Other responses: No negotiation under influence if intoxicated with drugs/alcohol</p>
<p><b>b. Factors influencing sexual behavior among university students</b></p>	<p><b>Drugs and alcohol</b></p> <p><i>“..... ever slept with bar maid without a condom.....”</i></p> <p>Others responses: Peer pressure, religion, mass media, money , weather.....</p>

## Discussion

In this study, there was no significant relationship between condom use and socio-demographic characteristics of the respondents ( $P>0.05$ ). The mean age of the sample population in this study was  $21 \pm 2$  years. This could explain why there was no difference in responses. The following statement emerged from the FGDs;

*“It does not matter whether you are young or old, sex is the order of the day here. This is attributed to higher maturity rate experienced by students and the media around. Most of our young ladies push with ‘wazees’. Some are even as young as 19 years with an old man of 40 years. Greedy for money drives many to sex without the use of condoms”*

A study carried out in Kenya indicated that condom use at last sex was 40% among men aged 20-24 years, 35% among men aged 15-19 years. This is in contrast to women who are more likely to have used a condom if they were in the 15-19 year age group. Condom use among men declined among 30-39 age group (12%) and 6% of men aged 40-49 used a condom at last sex [7]. In addition, a study carried out in Brazil indicated that young people from 16 to 24 years of age protected themselves more in sexual intercourse [8]. However, the difference between the findings of this study with

the findings of other studies could be attributed to the age distributions of the study populations.

In regard to gender both male and female participants gave a similar view that male students use condoms more than female students in the FGDs.

*“The ladies think it’s a man’s job to make sure he uses a condom, why aren’t they using condom so that they feel how we men feel”*

However, in-availability of female condoms was attributed to high costs. Despite the cost, female students argued that they use condom through their male partners. A study in Kenya and Nigeria showed that condom use was more amongst men compared to women [2, 9], the latter with a population of students in institutions of higher learning. This could explain the findings in a study amongst the Latino community that female are at a risk of unprotected sex compared to their male counterparts [10].

Marital status was not significantly related to condom use ( $P>0.05$ ). This was confirmed by the FGDs findings where according to the study participants, marriage relationships may be traditionally based on trust but of late things are different. The following statement emerged from the FGDs:

*“There is a high perception of risk of infection in relationships these days; therefore we have to use condoms whether married or not married”*

Studies carried out in Kenya, Ghana and Brazil [2, 11, 12] indicated that condom use was less among married couples compared to those who were single. This differs with the findings of this study. The difference could be attributed to the distribution of the marital status in the study population.

Quantitative findings in this study showed that religion was not significantly associated with condom use ( $P>0.05$ ). However, there were different opinions with regard to condom use in the FGDs. The following statement emerged: specifically, protestants noted the following:

*“Our religion allows the use of condom but only to married couples as a means of contraceptive and protection from HIV”*

In addition, Catholics noted that condom use was not accepted initially but;

*“... but since the top clergy Pope in Rome mentioned that condoms should be allowed when used to prevent the spread of STDs including HIV, we are now using them”*

Muslims on the other hand have opposed the use of condom arguing that the practice will boost promiscuity.

*“We cannot bend God’s laws to make them conform to the passions of man”*

The above findings concur with a study carried out in Africa where in some areas condom promotion had been impeded by anti-condom campaigns from muslims and catholics [13]. A study carried out in Denver, Colorado [14] indicated that distributing condoms was seen to be religiously wrong. Alternatively, another study in Brazil showed that people who have no religious affiliation have higher rates of protection against STIs during sexual intercourse [8].

This study showed no significant relationship between condom use and knowledge ( $P>0.05$ ). This was confirmed by the FGDs. Some participants made these statements:

*“..... STDs are so common here condoms have to be used”*

*“.... Greedy for money drives many to sex without the use of condoms”*

The findings of this study are similar to findings of studies carried out in Kampala and Jamaica which indicated that the level of knowledge about STDs and their prevention was not matched by sexual behavioral patterns [15, 16]. Knowledge about the effectiveness of condom use and concern about being at risk for HIV infection, was reported to be unrelated to safe sex [17,18,19, 20].

However, findings of this study differ with a study carried out in Vietnam [21] where low levels of STI knowledge was associated with poor practices. A study in Mexico [22] showed that among young men, high levels of HIV/AIDS knowledge increased likelihood of condom use and among young women high levels of knowledge decreased likelihood of using condoms. A study carried out among young African American women [23], indicated that knowledge on STIs exhibited inconsistent condom use.

This study showed a significant relationship between use of condom and attitude ( $P<0.001$ ). This was confirmed by the FGDs where most students had an overall positive attitude towards condom use. For instance, on reasons for condom use, nearly all the students stated that condoms prevented unwanted pregnancies and HIV/STIs. However, very few students were not sure why condoms are used. The following statements were made by some participants:

*“Though we enjoy sex, our mission here is to complete our studies, with pregnancy we will not be able to achieve our goals. Most of us fear STDs which are so common here so condoms have to be used”*

When participants were asked whether condoms increase or decrease sexual pleasure, majority stated that it depended on the brand used. Few participants stated that condom use decreases sexual pleasure;

*“.... do not feel our sexual partners when using condoms. Just putting them on interrupts everything so we rather not use them”*

The above findings concur with findings of a study carried out in Nigeria among University students [24] indicated negative attitude to be associated with less condom use. The findings of this study also agree with

a study carried out among African-American men [25] which showed that perceptions of condom fit and feel were related to the use.

The findings of this study showed no significant association between sexual practices and use of condoms. However the FGDs gave an indication that some students indulge in risky sexual behavior without using condoms. The FGDs noted the following;

*“Majority of us have slept with bar maids or our partners without using a condom after taking alcohol. We have realized this and have been really ashamed of ourselves. Some of us men intentionally refuse to use condoms even with regular girlfriends”*

A study carried out at Kenyatta National Hospital in Kenya among sexually active adolescents in Nairobi, indicated that most sexually active adolescents were involved with many and different partners, some of whom belonged to the high risk groups for HIV

### Acknowledgement

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### References

1. Nelson AL and Woodward JA. A practical Guide for Primary Care 2006. Available at <http://www.cdc.gov/std/stats>
2. National AIDS/STI Control programme (NASCO), Kenya. 2007 Kenya AIDS Indicator Survey: Final Report 2009. <http://www.aidskenya.org>
3. Joint United Nations AIDS Programme (UNAIDS) and World Health Organization (WHO). 2007 AIDS epidemic update (PDF). Available at [http://data.unaids.org/pub/EPISlides/2007/2007\\_ep\\_iupdate\\_en.pdf](http://data.unaids.org/pub/EPISlides/2007/2007_ep_iupdate_en.pdf). Retrieved 2008-03-12
4. World Health Organization (WHO). Guidelines for the management of sexually transmitted infections Geneva 2003. Available at [http://www.who.int/reproductive-health/publications/rhr\\_10\\_mngt\\_](http://www.who.int/reproductive-health/publications/rhr_10_mngt_)
5. Ferris G. M., Mizwa M. B. and Schutze G. E. Prevention of sexual transmission of HIV/AIDS 2002; 120-122. [www.bipai.org/WorkArea/DownloadAsset.aspx?id=137](http://www.bipai.org/WorkArea/DownloadAsset.aspx?id=137).
6. Centers for Disease Control and Prevention (CDC). Study says at least one in four teen girls has a sexually transmitted disease; HPV most common 2008. Available at <http://www.cdc.gov/std>. Accessed on March 12, 2008.
7. Waitthaka M and Bessinger R. Sexual Behavior and Condom Use in the Context of HIV Prevention in Kenya. Population Services International [PSI] 2001; 2: 5-14.
8. Berquo E, Barbosa RM and Lima LP. Trends in condom use. Rev Saude Publica. 2008;42 Suppl 1:34-44.
9. Fadiora SO, Oboro VO, Akinwusi PO, Adeoti ML, Bello TO and Egbewale BE. Sexual Health Matters 2002. Published Quarterly by Express Print Works, Middlesbrough, UK ISSN 1469-7556. Available at <http://www.sexualhealthmatters.com>
10. Gomez, Cynthia A and Marin. Gender, Culture, and Power: Barriers to HIV-Prevention Strategies for Women. *The Journal of Sex Research*. 1996; 4: 355-362.
11. Adih WK and Alexander CS. Determinants of condom use to prevent HIV infection among youth in Ghana. *Journal of Adolescent Health*. 1999; 1: 63-72.

12. Calazans G, Araujo TW, Venturi G, Franca and Junior I. Factors associated with condom use among youth aged 15-24 years in Brazil. *AIDS*. 2005; **4**: 42-50.
13. Marcella and Alsan. The Church & AIDS in Africa: Condoms & the Culture of Life Commonwealth: *Review of Religion, Politics, and Culture*. 2006; **8**: 133.
14. Fanburg JT, Kaplan DW and Naylor KE. Student opinions of condom distribution at a Denver, Colorado, high school. *Journal of School Health*. 1995; **65**; **5**: 181-185.
15. Sekirime WK, Tamale J, Lule JC and Wabwire MF. Knowledge, attitude and practice about sexually transmitted diseases among university students in Kampala. *African Health Sciences*. 2001; **1**:16-22.
16. Gillespie JM. HIV/AIDS prevention practices among recent-immigrant Jamaican women. *Ethnicity and Disease*. 2008; **2**: 175-178.
17. Svenson LW and Varnhagen CK. Knowledge, attitudes and behaviors related to AIDS among first year university students. *Canadian Journal of Public Health*. 1990; **81**: 139-140.
18. Oswald H and Pforr P. Sexuality and AIDS: attitudes and behaviors of adolescents in East and West Berlin. *Journal of Adolescence*. 1992; **15**: 373-391.
19. Carmel S, Green MS, Slepon R, Tsur S and Vardi D. Gender differences in AIDS-related behavioral changes among 18-19 year olds in a low incidence country. *Health Education Research*. 1992; **7**: 217-228.
20. Greenlee SP and Ridley DR. AIDS and college students: a survey of knowledge, attitudes and beliefs. *Psychological Reports*. 1993; **73**: 490.
21. Lan PT, Lundborg CS, Mogren I, Phuc HD and Chuc NT. Lack of knowledge about sexually transmitted infections among women in North rural Vietnam. *BMC Infectious Diseases*. 2009; **9**: 85.
22. Tapia AV, Arillo SE, Allen B, Angeles LA, Cruz-Valdez A and Lazcano PE. Associations among condom use, sexual behavior, and knowledge about HIV/AIDS. *Archives of Medical Research*. 2004; **4**: 335-343.
23. Raiford JL, Diclemente RJ and Wingood GM. Effects of fear of abuse and possible STI acquisition on the sexual behavior of young African American women. *American Journal of Public Health*. 2009; **6**: 1067-1071.
24. Ike SO and Aniebue PN. HIV/AIDS perception and sexual behaviour among Nigerian University students. *Nigeria Journal of Clinical Practice*. 2007; **2**: 105-110.
25. Reece M, Dodge B, Herbenick D, Fisher C, Alexander A and Satinsky S. Experiences of condom fit and feel among African-American men who have sex with men. *Sexually Transmitted Infections*. 2007; **6**: 454-457.
26. Lema and Hassan. Knowledge of sexually transmitted diseases, HIV infection and AIDS among sexually active adolescents in Nairobi, Kenya and its relationship to their sexual behavior and contraception. *East African Medical Journal*. 1994; **2**: 122-128.
27. Adefuye AS, Abiona TC, Balogun TA and Lukobo DM. HIV sexual risk behaviors and perception of risk among college students. *BMC Public Health*. 2009; **9**: 281.
28. Tagoe and Aggor. Knowledge, behavior, perceptions and attitudes of University of Ghana students towards HIV/AIDS: what does behavioural surveillance survey tell us? *Journal for Health and Human Services administration*. 2009; **1**: 51-84.
29. Adhikari R. Are Nepali students at risk of HIV? A cross-sectional study of condom use at first sexual intercourse among college students in Kathmandu. *Journal of International AIDS Society*. 2010; **13**: 7.