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Original Research Article

Knowledge on safe sex practices among undergraduate university students at Chuka University, Kenya

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ABSTRACT

Background: The youth and adolescents constitute a quarter of the sexually active population and they represent almost half of all new STI cases globally. However, there is limited current data on knowledge of safe sex practices among Kenyan university students. This study sought to assess knowledge on safe sex practices among undergraduate students.
Methods: A cross-sectional analytical study design was adopted for this study. A self-administered questionnaire was used to obtain data from undergraduate students. Simple random sampling method was used to sample the participants. Data were analysed using the statistical package of social sciences (SPSS) v.24.
Results: The mean age of the participants was 21.37 (±1.75) years. There were more males (56.5%) than females. Majority of participants (63.1%) came from rural areas and more than three-quarters were Christians (88.6%). Majority were single (83.8%) and most were residing in private hostels (71.9%). The mean knowledge score was 68.15 (±21.59)%. Significant predictors of knowledge level were the place of birth and place of residence; p=0.027, AOR=1.975 and p=0.026, AOR=0.477 respectively.
Conclusions: The findings indicated that the University students had high knowledge of safe sex practices which was associated with their place of birth and residence. There is a need to assess if the high knowledge translates to practice among the students. The institutions of higher learning should continue to teach age-appropriate safe sexual practices to the students such as sexually transmitted infections, contraception and other related topics.

Keywords: Kenya, Knowledge, Safe sex practices, Undergraduate students

INTRODUCTION

Safe sex practices refer to sexual behaviour, particularly sexual intercourse, in which different precautions are taken to avoid diseases spread through sexual contact and undesired pregnancy.[1] The global incidence of Human Immunodeficiency Virus (HIV) is on a downtrend since 2000 but has remained high in Africa.[2] Adolescents and the youth constitute a quarter of the sexually active population but unfortunately globally, they represent almost half of all new STI cases.[3] In Kenya, it is estimated that about 1.3 million adult citizens live with HIV and higher prevalence in women (5.8%) than in males (3.1%) (National AID and STI Control Programme.[4] In addition, a higher prevalence was reported among the 15–49 age group (4.5%) as compared to 0.9% in the 10–19 years old. Moreover, young people accounted for 27% of HIV infections in 202.[5]

Unsafe sex practices also referred to as risky sexual behaviour (RSB) are practices that pose a great risk of contracting sexually transmitted diseases as well as having unwanted pregnancies.[6] Having intercourse with several sexual partners, having sex while under the influence of alcohol or drugs, failure to or inconsistent use of a condom, having sex with an unknown partner, usage of

pornographic materials, and sexual coercion are examples of these activities.[7,8] Unsafe sexual practices may be associated with individual demographic factors, psychological factors and sociocultural factors.[9] Men are more likely to present with risky sexual behaviour than women. A study in Brazil established that 9% of undergraduate students are involved in risky sexual behaviour whereas men presented riskier sexual behaviour.[10] Additionally, knowledge levels tend to differ according to gender.[11,12]

Other individual factors that may be associated with knowledge on safe sex practices include the student's area of specialization in academics, age, family composition, and parent's level of education. In Nigeria, knowledge level on Sexually Transmitted Infections may be low among art students compared to those from science faculties.[13] Besides younger students had poor knowledge on STIs. Good knowledge levels were more likely to be observed among undergraduate students living with both parents and those whose fathers had secondary education and above. A mixed-method study indicated that in Kenya, RSB among undergraduate students may be associated to socio-economic status, sexual norms and substance abuse.[14]

Medical records at the university medical department showed an increasing trend of STIs treated in the health facility; 214 cases in 2016, 236 cases in 2017, 248 cases in 2018 and 254 cases in 2019. Commonly treated STIs include candidiasis, vulvovaginitis, chlamydia, trichomoniasis, bacterial vaginosis, vulvovaginal warts and genital ulcer disease. Although most undergraduate students are often educated on safe sex practices during induction programs to the university, there is limited recent data on knowledge of safe sex practices among Kenyan university/college students and the associated factors. This study, therefore, set out to establish the level of knowledge on safe sex practices among undergraduate students of Chuka University and its associated factors.

METHODS

This was a cross-sectional study carried out at Chuka University; a public university in the Eastern region of Kenya among 352 participants. The study was conducted in March 2022–April, 2022). The sample size for the participants was determined using Yamane formula.[15]

$$n = N/1 + Ne^2$$

Where: n=sample size; N=population size (undergraduate students); e=margin of error (0.05 at 95% confidence level).

Using a simple random sampling technique, 352 participants were selected to participate in the study. Quantitative data was obtained using a self-administered research questionnaire. The questionnaire assessed the demographic and socioeconomic data of the students and their knowledge of safe sex practices. A correct answer scored one point while a wrong answer scored a zero. Pretesting of study instruments was done at a neighbouring University of Embu. The results were coded and entered in a statistical package of social science (SPSS) v.24 for analysis. Bivariate and multivariate regression analysis were used to determine the association between the demographic and socioeconomic characteristics of the participants and their knowledge level of safe sex practices. A p value of <0.05 was considered statistically significant. Ethical clearance to carry out the study was obtained from Chuka University Ethical Review Committee (CUIERC/NACOSTI 291) and National Commission for Science, Technology and Innovation (NACOSTI) provided a research permit (NACOSTI/P/22/20623). Participants of the study were informed that the data obtained would solely be used for the study. They were also assured of the confidentiality of the information provided. Willing participants signed informed consent to indicate their willingness to participate in the study.

RESULTS

There were 352 participants with more male (56.5%) than female (43.5%) participants. The mean age of the participants was 21.37 (±1.747). The youngest participant was 17 years while the oldest was 29 years. The majority of the participants (61.4%) were in the 20–22 years' age group. The majority studied primarily in the sciences (59.4%). More than three-quarters were single (83.8%). Most of the participants were from rural regions of Kenya (63.1%). There were more Christians (88.6%) than Muslim participants (11.4%).

More than half of the participants (71.9%) resided in private hostels outside the university and approximately half of the participants reported a monthly allowance of <5000 Ksh (49.7%). Participants cut across all years of training and the fourth year had the least number of participants (13.9%). Two-thirds of the participants (66.8%) were sexually active while the rest were not (Table 1).

Knowledge on sexual practices was assessed with 8 questions. Low scores were observed in questions regarding the effectiveness of female condoms as compared to male condoms (44.3%), the likelihood of conception midway menstrual cycle (56.8%) and except condoms, other FP methods do not protect against STIs and HIV/AIDs (55.7%) (Table 2).

Individual knowledge scores were transformed into percentages. Participants demonstrated a knowledge mean score of 68.15 (±21.59) %. Using Bloom's cut-offs, knowledge was classified into poor knowledge (<60 %), moderate knowledge (60–79%) and high knowledge (80–100 %).[16] The majority of the participants had moderate knowledge of safe sex practices (41.2%) (Figure 1).

Table 1: Demographic and socioeconomic characteristics of participants (n=352).

Variable	Frequency (N)	Percentage (%)
Age (years)		
Mean 21.37 (±1.747)		
Median 21		
Mode 22		
Range 17-29		
Age category (years)		
≤19	50	14.2
20–22	216	61.4*
≥23	86	24.4
Sex		
Male	199	56.5*
Female	153	43.5
Place of birth		
Rural	222	63.1*
Urban	130	36.9
Religious affiliation		
Christian	312	88.6*
Muslim	40	11.4
Marital status		
Unmarried	335	95.2*
Married	17	4.8
Year of study		
Year 1	96	27.3
Year 2	101	28.7
Year 3	106	30.1*
Year 4	49	13.9
Major in studies		
Art	143	40.6
Science	209	59.4*
Place of residence		
University hostels	99	28.1
Private residence outside the university	253	71.9*
Monthly allowance (sh)		
<5,000	175	49.7*
5,000–10,000	111	31.5
10,001–20,000	50	14.2
>20,000	16	4.5
Sexually active		
Yes	235	66.8*
No	117	33.2

*Majority

An independent student t-test was used to measure mean knowledge differences according to gender, place of birth, religion, major in studies, place of residence and sexuality. There exist significant differences in mean knowledge levels on safe sex practices about gender (t=-2.82 df=350, p=0.005), place of birth (t=-2.73, df=350, p=0.007), and place of residence (t=2.65, df=350, p=0.008) (Table 3).

Using binary logistic regression analysis, knowledge level was associated with the demographic and socioeconomic characteristics to assess the association between the variables.

There is a statistically significant relationship between participants' knowledge level on safe sex practices and gender, age, place of birth and residence; p=0.018, COR=1.959 CI (95% 1.122–3.419); p=0.028, COR=0.334 CI (95% 0.126–0.886); p=0.004, COR=2.347 CI (95% 1.307–4.215) and p=0.004, COR=0.399 CI (95% 0.212–0.751) respectively.

Furthermore, moderate knowledge level was associated with gender; (p=0.048, COR=1.658 CI (95% 1.004–2.737). Male students were 1.96 and 1.66 more likely to have low and moderate knowledge levels of safe sex practices as compared to female students. Participants, 19 years and below were 0.33 less likely to have a low knowledge level than those 23 years and above. Participants from rural areas were 2.3 more likely to demonstrate low knowledge levels compare to their colleagues from urban areas (Table 4).

Variables that had an association; participants' gender, age group, place of birth, and place of residence were run in a multivariate logistic regression model to assess their variability impact on knowledge level. Place of birth and place of residence are significant predictors of low knowledge level; p=0.027, AOR=1.975 CI (95% 1.081–3.608) and p=0.026, AOR=0.477 CI (95% 0.249–0.913) respectively.

Students from rural areas had 1.975 lower knowledge levels than their counterparts from urban areas. In addition, those who resided in the private hostels within the university neighbourhood were 0.477 less likely to have low knowledge levels than those who resided within the university hostels (Table 5).

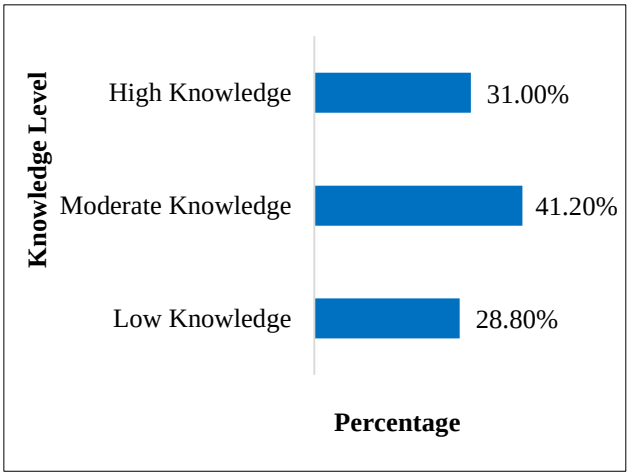

Figure 1: Knowledge levels on safe sex practices.

Table 2: Knowledge scores of Chuka University undergraduate students on safe sex practices.

Question	Correct	
	N	%
Condoms are effective in preventing STIs	286	81.3
Male condoms can be re-used	284	80.7
Female condoms are as effective as male condoms	156	44.3
Multiple sexual partners increase the risk of contracting STIs and HIV	292	83.0
One can easily tell a person with HIV/AIDs without testing	280	79.5
Condoms are effective in preventing pregnancy	225	63.9
A woman is most likely to get pregnant if she has sexual intercourse midway between her menstrual cycle	200	56.8

Table 3: Assessment of mean knowledge differences.

Dependent variable	N	Mean (±SD)	t-value	df	P value	Mean difference	Standard error difference	95% CI of the mean difference	
								Lower	Upper
Sex									
Male	199	65.33 (21.41)	-2.82	350	0.005*	-6.49	2.3	-11.0	-2.0
Female	153	71.81 (21.34)							
Place of birth									
Rural	222	65.77 (21.71)	-2.73	350	0.007*	-6.45	2.36	-11.09	-1.8
Urban	130	72.21 (20.84)							
Religion									
Christian	312	68.27 (21.35)	0.298	350	0.766	1.08	3.63	-6.06	8.22
Muslim	40	67.19 (23.63							
Major in studies									
Art	143	69.06 (18.93)	0.653	350	0.514	1.53	2.34	-3.08	6.14
Science	209	67.52 (23.26)							
Place of residence									
University hostels	99	72.98 (18.36)	2.65	350	0.008*	6.72	2.54	1.73	11.72
Private residence outside the university	253	66.26 (22.48)							
Sexually active									
Yes	235	69.26 (21.4)	-1.37	350	0.172	-3.34	2.44	-8.14	1.46
No	117	65.92 (21.8)							

*Statistically significant at 95%

Table 4: Binary logistic regression showing the association between demographic and socioeconomic characteristics of undergraduate university students and knowledge levels of safe sex practices.

Variable	N (%)	Low knowledge level				Moderate knowledge level			
		β	COR (95% CI)	df	P value	β	COR (95% CI)	df	P value
Gender									
Male	199 (56.5)	0.672	1.959 (1.122, 3.419)	1	0.018*	0.505	1.658 (1.004, 2.737)	1	0.048*
Female	153 (43.5)	1	1			1	1		
Age group									
19 years and below	50 (41.2)	-1.095	0.334 (0.126, 0.886)	1	0.028*	0.528	0.590 (0.266, 1.307)	1	0.194
20-22 years	216 (61.4)	0.009	1.009 (0.526, 1.935)	1	0.979	0.064	1.066 (0.581, 1.955)	1	0.838
23 years and above	86 (24.4)	1	1			1	1		

Continued.

Variable	N (%)	Low knowledge level				Moderate knowledge level			
		β	COR (95% CI)	df	P value	β	COR (95% CI)	df	P value
Place of birth									
Rural	222 (63.1)	0.853	2.347 (1.307, 4.215)	1	0.004*	0.356	1.428 (0.862, 2.367)	1	0.167
Urban	130 (36.7)	1	1			1	1		
Religion									
Christian	312 (88.6)	-0.030	0, 970 (0.420, 2.241)	1	0.944	0.160	1, 174 (0.534, 2.581)	1	0.691
Muslim	40 (11.4)	1	1				1 1		
Marital status									
Married	335 (95.2)	-0.345	0.709 (0.185, 2.717)	1	0.615	-0.427	0.652 (0.191, 2.225)	1	0.495
Unmarried	17 (4.8)	1	1			1	1		
Year of study									
Year 1	96 (27.3)	-0.465	0.628 (0.250, 1.579)	1	0.323	-0.389	0.678 (0.297, 1.548)	1	0.356
Year 2	101 (28.7)	0.236	1.266 (0.498, 3.222)	1	0.620	0.275	1.316 (0.562, 3, 080)	1	0.527
Year 3	106 (30.1)	-0.329	0.720 (0.296, 1.750)	1	0.468	-0.660	0.517 (0.227, 1.176)	1	0.116
Year 4	49 (13.9)	1	1			1	1		
Major in studies									
Art	143 (40.6)	0.045	1.046 (0.595, 1.840)	1	0.875	0.365	1.441 (0.867, 2.396)	1	0.159
Science	209 (59.4)	1	1			1	1		
Place of residence									
University hostels	99 (28.1)	-0.919	0.399 (0.212, 0.751)	1	0.004*	-0.494	0.610 (0.358, 1.041)	1	0.070
Private residence outside the university	253 (71.9)	1	1			1	1		
Monthly allowance (Ksh)									
<5000	175 (49.7)	-0.394	0.675 (0.195, 2.338)	1	0.535	-0.032	0.968 (0.267, 3.513)	1	0.961
5000 – 10000	111 (31.5)	-0.320	0.726 (0.199, 2.648)	1	0.6270. 154	0.536	1.710 (0.458, 6.377)	1	0.425
10001 – 20000	50 (14.2)		1.167 (0.277, 4.913)	1	0.834	0.956	2.600 (0.617, 10.954)	1	0.193
>20,000	16 (4.5)	1	1			1	1		
Sexually active									
No	117 (33.2)	0.291	1.338 (0.753, 2.379)	1	0.321	0.025	1.025 (0.600, 1.751)	1	0.928
Yes	235 (66.8)	1	1			1	1		

*Statistically significant at 95%; 1-reference category; CI-confidence interval; COR – crude odds ratio

Table 5: Multivariate logistic regression showing factors associated with safe sex practices knowledge levels among university undergraduate students.

Variable	N (%)	Low knowledge level				Moderate knowledge level			
		β	COR (95% CI)	df	P value	β	COR (95% CI)	df	P value
Gender									
Male	199 (56.5)	0.511	1.667 (0.926-3.003)	1	0.088	0.442	1.556 (0.923, 2.621)	1	0.097
Female	153 (43.5)	1	1			1	1		

Continued.

Variable	N (%)	Low knowledge level				Moderate knowledge level			
		β	COR (95% CI)	df	P value	β	COR (95% CI)	df	P value
Age group (years)									
19 and below	50 (41.2)	-0.680	0.507 (0.162, 1.409)	1	0.193	-0.259	0.772 (0.336, 1.775)	1	0.542
20-22	216 (61.4)	0.133	1.143 (0.580, 2.250)	1	0.699	0.160	1.174 (0.630, 2.188)	1	0.614
23 and above	86 (24.4)	1	1			1	1		
Place of birth									
Rural	222 (63.1)	0.680	1.975 (1.081, 3.608)	1	0.027*	0.255	1.290 (0.862, 2.367)	1	0.167
Urban	130 (36.7)	1	1			1	1		
Place of residence									
University hostels	99 (28.1)	-0.741	0.477 (0.249, 0.913)	1	0.026*	-0.403	0.668 (0.3387, 1.153)	1	0.147
Private residence outside the university	253 (71.9)	1	1			1	1		

*Statistically significant at 95%; 1-reference category; CI-confidence interval; COR – crude odds ratio.

DISCUSSION

The majority of the study participants had high knowledge levels of safe sex practices which may be attributed to a university induction training on safe sex practices. The high knowledge levels are similar to a study conducted in Ethiopia among the youths in secondary and preparatory schools.[6] This is probably because the studies have been conducted within the same regions and targeted similar participants; school-going youths. However, the results are higher than what was reported by some medical students in Mexico between 19–24 years.[17] The differences may be attributed to the methods of assessment since in Ibarrola-Peña et al study, the participants did a self-evaluation of their knowledge of safe sex practices compared to the present study where the researchers assessed for the specific knowledge of the subject.[17]

There exist significant differences (t=-2.82 df=350, p=0.005) in mean knowledge levels between the female (71.81±21.34) and male (65.33±21.34) students. Besides, gender was associated with low knowledge level where males were more likely to have a low-moderate knowledge level compared to females. The results concur with the results of a previous study where male students had significantly lower knowledge of STIs than their female colleagues.[11] Similarly, there were significant differences in the knowledge level of safe sex practices among male and female university students in China.[12] The similarities in these study results may occur since the study targeted undergraduate university students whose experiences at that stage of life could be related.

The knowledge level of the study participants was significantly associated with their place of birth and place of residence. Students from the urban area and those residing within university hostels had better knowledge levels as compared to their colleagues from rural areas and those residing in private hostels. Similarly, in Nigeria, place of birth was a significant predictor of knowledge of contraceptive pills (AOR=0.66) and female condoms (AOR=0.66).[18] Students from urban areas and living within the university hostels may have more opportunities in terms of knowledge available through health campaigns and posters as compared to those from rural areas and living alone in private hostels. Consistent with a previous study done in South Carolina, sexual activity was not a significant predictor of knowledge level in this study.[19] Most universities have introduced some sexual education programmes for undergraduate students which may bring out the similarities in related subject areas.

Limitations

The study was conducted in a single institution of higher learning and therefore cannot be considered to represent all other universities in Kenya. Future studies should include more institutions including private and religion-affiliated universities. A self-administered questionnaire was used to obtain data in this study, so some respondents may not have answered correctly if they did not understand the question. The use of the cross-sectional study designs could not enable the researchers to explore the causes and effects comprehensively. Further studies should consider other designs such as longitudinal design while exploring this area further.

CONCLUSION

The students demonstrated high knowledge levels of safe sex practices associated with their place of birth and residence. There is a need therefore to assess if the high knowledge level of safe sex practices translates to practice. Institutions of higher learning should continue to give continuous sexual education to the students. The university management should ensure that safe sexual practices

curriculum provides comprehensive age-appropriate and accurate information about sex and sexuality. This should include information about contraception including condoms, the menstrual cycle, sexually transmitted infections (STIs), and other topics related to sexual health.

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REFERENCES

1. Merriam-Webster.com Dictionary. Merriam-Webster. Available at: https://www.merriam webster.com/dictionary/safe%20sex. Accessed on 25 May 2021.
2. World Health Organization. World Health Statistics 2021. Available at: https://www.who.int/data/gho/whs-2020-visual-summary. Accessed on 12 February 2023.
3. Mathur S, Mullinax M, Santelli JS. Prevention of Sexually Transmitted Infections Among Adolescents. In: Cherry A, Baltag V, Dillon M, editors. International Handbook on Adolescent Health and Development. Springer, Cham. 2017.
4. National AID and STI Control Programme (NASCOP). Preliminary KENPHIA Report, Nairobi. 2020.
5. United Nations HIV/AID. UNAIDS Data 2021. Available at: https://www.unaids.org/sites/default/files/media_asset/JC3032_AIDS_Data_book_2021_En.pdf Accessed on 08 December 2022.
6. Tilahun A, Mamo A. Knowledge, attitude and practice towards risky sexual behaviours among secondary and preparatory students of Metu town, Southwestern Ethiopia. BMC Public Health. 2020;20(1):1-8.
7. Dickson KS, Seidu AA, Adde KS, Okyere J, Commey F, Akpeke M, Ahinkorah BO. Does Having Comprehensive HIV and AIDS Knowledge Affect the Risky Sexual Behaviour of Young People in Sub–Saharan Africa: Pooled Analysis of Demographic and Health Surveys. 2021.
8. Kilwein TM, Looby A. Predicting risky sexual behaviours among college student drinkers as a function of event-level drinking motives and alcohol use. Addictive Behaviours. 2018;76:100-5.
9. Gómez Melasio DA, Onofre Rodríguez DJ, Benavides Torres RA, Trujillo Hernández PE. A systematic review of individual, psychological and sociocultural factors associated with safe and risky sexual behaviour in older adults. Am J Sexuality Educ. 2021;16(3):415-34.
10. Gräf DD, Mesenburg MA, Fassa AG. Risky sexual behavior and associated factors in undergraduate students in a city in Southern Brazil. Revista de Saúde Pública. 2020;54.
11. Cegolon L, Bortolotto M, Bellizzi S, Cegolon A, Bubbico L, Pichierri G, et al. A survey on knowledge, prevention, and occurrence of sexually transmitted infections among freshmen from four Italian universities. Int J Env Res Public Health. 2020;9(2):897.
12. Lyu J, Shen X, Hesketh T. Sexual knowledge, attitudes and behaviours among undergraduate students in China—implications for sex education. International J Env Res Public Health. 2020;17(18):6716.
13. Nzoputam C, Adam VY, Nzoputam O. Knowledge, prevalence and factors associated with sexually transmitted diseases among female students of a Federal University in Southern Nigeria. Venereology. 2022;1(1):81-97.
14. Kiprono LA. Perceived influence of selected psychosocial factors on risky sexual behaviours among undergraduate students: a case of Egerton and Kabarak main campuses in Nakuru county, Kenya. Doctoral dissertation, Kabarak University. 2021.
15. Yamane T. Statistics: An introductory analysis. 2nd Edition, New York: Harper and Row. 1967.
16. Benedict MO, Steinberg WJ, Claassen FM, Mofolo N, Van Rooyen C. Knowledge, attitude and practice on screening and early diagnosis of prostate cancer of primary health care providers in the Free State. Afr J Prim Health Care Fam Med. 2023;15(1):3688.
17. Ibarrola-Peña JC, Miranda-Ackerman RC, Almanza-Mena YL, Barbosa-Camacho FJ, López-Zendejas M, López-Reynoso MP, and González-Ojeda A. Sexual Behaviour: Challenges for Prevention and Control among Medical Students in Mexico. Sexuality Research and Social Policy. 2021;1-9.
18. Ezenwaka U, Mbachu C, Okeke C, Agu I, Ezumah N, Onwujekwe O. Socio-demographic and economic determinants of awareness and use of contraceptives among adolescents in Ebonyi State, South-east, Nigeria. Afr J Reprod Health. 2021;25(3):21-9.
19. Kasymova S, Harrison SE, Pascal C. Knowledge and awareness of human papillomavirus among college students in South Carolina. Infect Dis Res Treatment. 2019;12:11786337188250.

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