

ORIGINAL RESEARCH ARTICLE

Knowledge and sexual behaviors: A path towards HIV/AIDS prevention among university students

DOI: 10.29063/ajrh2023/v27i9.12

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Abstract

Despite the world's commitment to end HIV/AIDS by 2030, the disease is still prevalent in sub-Saharan Africa. Although awareness is high among the youth, they are the most vulnerable because of their susceptibility to risky behaviors. This cross-sectional correlational study examined HIV/AIDS awareness and sexual behaviors among university students. Nine hundred and ten (910) students, attending an annual health screening exercise, were conveniently sampled to participate in the study by completing a structured questionnaire (Behavioral Surveillance Survey) in addition to socio-demographic information. Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25 to obtain descriptive statistics. Results indicated that HIV/AIDS awareness is very high however, a sizable number of participants engaged in risky sexual behaviors inconsistent with their knowledge. There was a significant positive relationship between students' awareness of HIV/AIDS and their perception of the influence of the awareness on sexual behaviors. Yet, there was no relationship between awareness and actual sexual behaviors and HIV/AIDS attitudes. While students believed that their awareness positively influenced their sexual choices, the actual behaviors and attitudes were inconsistent with the awareness. Implications of findings for HIV/AIDS prevention are discussed. (*Afr J Reprod Health* 2023; 27 [9]: 117-126).

Keywords: HIV/AIDS, knowledge, awareness, sexual behaviors, university students

Résumé

Malgré l'engagement mondial à mettre fin au VIH/SIDA d'ici 2030, la maladie reste répandue en Afrique subsaharienne. Même si les jeunes sont très sensibilisés, ils sont les plus vulnérables en raison de leur susceptibilité aux comportements à risque. Cette étude corrélationnelle transversale a examiné la sensibilisation au VIH/SIDA et les comportements sexuels parmi les étudiants universitaires. Neuf cent dix (910) étudiants, participant à un exercice annuel de dépistage de santé, ont été échantillonnés pour participer à l'étude en remplissant un questionnaire structuré (Enquête de surveillance comportementale) en plus des informations sociodémographiques. Les données ont été analysées à l'aide du progiciel statistique pour les sciences sociales (SPSS) version 25 pour obtenir des statistiques descriptives. Les résultats ont indiqué que la sensibilisation au VIH/SIDA est très élevée, mais qu'un nombre important de participants se sont livrés à des comportements sexuels à risque incompatibles avec leurs connaissances. Il existe une relation positive significative entre la sensibilisation des élèves au VIH/SIDA et leur perception de l'influence de cette sensibilisation sur les comportements sexuels. Pourtant, il n'y avait aucune relation entre la sensibilisation et les comportements sexuels réels et les attitudes face au VIH/SIDA. Alors que les étudiants pensaient que leur conscience influençait positivement leurs choix sexuels, les comportements et attitudes réels étaient incompatibles avec cette conscience. Les implications des résultats pour la prévention du VIH/SIDA sont discutées. (*Afr J Reprod Health* 2023; 27 [9]: 117-126).

Mots-clés: VIH/SIDA, connaissances, sensibilisation, comportements sexuels, étudiants universitaires

Introduction

Despite the advancement in the management and treatment of Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS), and the world's commitment to end AIDS by 2030

(United Nations Program on AIDS/HIV)¹, the scourge of the disease seems unremitting, especially on the African continent. The Sub-Saharan region of the continent has the highest prevalence of the disease², and the youth are among the most vulnerable group, particularly persons within the

teen and young adult age brackets. This is because these have a greater exposure to risky sexual behaviors, sensation seeking, and sexual experimentation^{3,2}.

Research on sexual behavior, AIDS-knowledge, and attitudes are sparse and incongruous^{4,6}. However, certain findings are consistent. Awareness and knowledge about the disease, for example, is high in many countries and among students. Data obtained from several African, Asian, and Latin American countries show a very high percentage of awareness and knowledge about HIV/AIDS⁷⁻¹¹ with a gender disparity of knowledge between men and women in many countries. Males tend to be more knowledgeable about the disease than females¹². Education, urban dwelling, and level of prevalence of the disease are associated with higher knowledge and awareness¹³. Higher education is associated with greater awareness and knowledge and urban dwellers have higher knowledge and awareness compared to those living in rural areas¹⁴.

University students are mostly people in their late teens and young adulthood. Due to their age range, they face a heightened risk for the disease and an increased susceptibility attributable to high exposure to a range of risky behaviors including early engagement in sexual activity^{15,3}. Findings of earlier works reveal a high level of awareness and knowledge among young people at pre-tertiary^{4,9} and tertiary institutions¹⁶. However, even though many university students are well exposed and knowledgeable about HIV/AIDS, given modern technology of fast information exchange and exposure, several studies have shown that high knowledge about the disease does not necessarily translate into safer or better sexual choices and behavioural practices. Some studies have found that knowledge about the illness is transferable to real life choices⁵. However, a substantial body of research on university students indicates that a high knowledge or awareness about the disease is not necessarily associated with positive sexual behaviour choices such as use of protective contraceptives^{8,18,19,16}.

Students may be knowledgeable about prevention or protective measures, such as the use of condom, however, significant numbers have been found not to use protection in their sexual encounters for various reasons other than lack of knowledge¹⁹.

In addition, some students who are knowledgeable about the disease even engage the services of commercial sex workers without the use of protection³. Thus, the evidence suggests that knowledge does not necessarily translate into appropriate behaviour. Some of the reasons given to explain such disparity include a sense of personal invulnerability, denial, optimistic bias, celebration of multiple sexual relations all which have contributed to underestimate the risk of infection among young people⁴.

Ghana recorded its first case of AIDS in March 1986; and since its inception, the country (just like the rest of the world), has not been exempt from the devastating morbidity and mortality effects of HIV. Reports from the Ghana Ministry of Health suggest a continued rise in the prevalence of infection²⁰. Indeed, the Ghana AIDS commission puts the national prevalence at 1.4%. It is also estimated that there are between 250,000 to 330,000 people living with HIV (PLWH) in Ghana, most of whom are aged 15-49 years^{21,22}.

Consistent with findings around the globe, research in Ghana indicates that HIV/AIDS knowledge and awareness is high among different groups of people and very high (at least 90%) among university students^{23,4,24,20,14,25}. The lifestyles of students on university campuses are placing them at risk of contracting the HIV^{26,27,20} because the university environment appears enabling to sexual activity among students^{28,29}. Some university students respond to a peer pressure to maintain a personally unaffordable lifestyle by engaging in transactional sex and sex with multiple partners^{30,31}. It is no wonder that the predominant mode of transmission of the virus within the sub region is sexual intercourse²⁰.

As noted earlier, generally, research findings suggest lack of consistent positive correlation between knowledge and appropriate sexual choices and behaviours. A report from the Ghana AIDS commission and findings from other studies offer a plausible explanation for the observed inconsistency. The findings indicate that people's awareness and knowledge of HIV is fraught with misconceptions; only a small percentage of the youth can correctly identify factual information and reject common misconceptions about the disease^{32,23,4}. This situation has potential negative implications for effective intervention. Therefore, it

is important to assess the accuracy of knowledge possessed by the most vulnerable group – the youth and young adults, such as those in the universities.

In addition to comprehensive knowledge, access to HIV testing is considered a cornerstone to the strategic framework adopted by Ghana for HIV control. Therefore, the Government of Ghana has introduced and implemented various programs to increase voluntary testing. Notwithstanding these interventions, HIV testing uptake is still low and unknown to many Ghanaians^{33,34,21} due to the fear of the testing outcome and the related stigma^{35,36}. The importance of HIV testing among university students and assessment of the quality of knowledge possessed cannot be overemphasized given their vulnerability to infection and their high risk behaviors. Equally important is the understanding of their motivation and factors that influence their sexual choices and behaviours to aid effective intervention. This study was borne out of an annual “*know your status*” program organized to encourage students to uptake voluntary HIV testing.

This study sought to: assess awareness of HIV/AIDS among university students, identify risky sexual behaviors that university students engage in, and assess perceived and real impact of awareness of HIV/AIDS on students’ behavior and attitudes.

Methods

Setting and study design

The study was a cross-sectional correlational research conducted among students of the Kwame Nkrumah University of Science and Technology (KNUST). KNUST is one of the public universities in Ghana, located in Kumasi in the Ashanti Region. It has a student population of over forty thousand. The University enrolls students from all regions of the country as well as outside Ghana. The international student population forms close to three percent of the entire student body. Every year the KNUST Counseling Centre (KCC), in collaboration with the Ghana AIDS Commission, Planned Parenthood Association, Ghana (PPAG), and other Non-Governmental Agencies, organizes a university-wide health screening exercise dubbed ‘*Know Your Status*’ during which students voluntarily test for their HIV/AIDS and Hepatitis B status, as well as blood group, and also donate blood.

This study was conducted as part of the health screening exercise in February, 2023. Using convenient sampling, students who took part in the screening exercise were solicited to participate in the study.

Data collection (measures and procedure)

Students who attended the health screening exercise were solicited to participate in the study. About two thousand (2000) students turned out for the health screening exercise. During the orientation and registration for the health screening exercise, information about the study was provided. Students who were willing to participate were further briefed about the purpose of the study, had their questions answered, and made aware that their participation was voluntary. In all, nine hundred and ten (910) students willingly consented to participate in the study.

A structured closed-ended questionnaire, used to collect data, was administered only after informed consent was obtained. The first part of the questionnaire consisted of demographic information on participants. The second portion of the questionnaire was a Behavioural Surveillance Survey (BSS) adapted to suit the current sample. These included question items that measured awareness of HIV and AIDS such as: “*Are you aware of the meaning, causes, mode of spread, effect, and ways of preventing HIV/AIDS?*” To measure first sexual experiences, the questionnaire included items like “*Have you ever had sex; At what age did you first have sex?*” On current sexual behaviours some of the items included “*Do you use protection when you have sex? Have you had multiple partners at a time? Have you had different sexual partners?*” Items measuring attitude was also included, thus “*What is our general feeling/attitude towards people with HIV/AIDS?*” *Has your HIV/AIDS awareness changed your behaviour?*” Given the sensitive nature of the information, solicited questionnaires were self-administered, privately completed, and placed in a secured ‘drop box’ for collection. No personal or identifying information were to be included on the questionnaire. However, the researchers were present nearby to answer any questions or concerns of participants.

Data analysis

Data were entered, coded and analyzed using SPSS version 25. Non-parametric statistics (descriptive and correlational analyses) were conducted to examine relationships of variables of interest.

Ethical approval

The Committee on Human Research Publication and Ethics of the School of Medicine and Dentistry (SMD) KNUST, reviewed and approved the study protocol (Ref number: CHRPE/AP/092/23).

Results

Although nine hundred and ten (910) students consented to participate in the study and completed the questionnaire, some were excluded from analyses due to substantial incomplete responses. For most of the analyses, a total of eight hundred and seventy-two (872) questionnaires were used. Results are presented below.

Socio-demographic characteristics

Participants ages ranged between 17 to 39 years with majority of them being young adults (Mean = 21.20, SD = 2.78). There were more males (583, 66.9%) than females (289, 33.1%). Many of the students either identified themselves as never married and not in a relationship (525, 60.2%) or never married, but in a relationship (333, 38.2%). Very few were married (14, 1.6%). This distribution was reflective of a predominant first year students (454, 52.1%) relative to second year (174, 20.0%), third year (95, 10.9%) and final year (122, 14.0%) students. There were a few graduate student participants (27, 3.1%). Of the number of students who responded to the question about their sexual orientation, majority indicated they were heterosexual (455, 93.8%) and a few admitted to being homosexual (30, 6.2%). In the category of religious denomination, majority were Christians (802, 92.0%), few Muslims (60, 6.9%), and very few identified themselves as either traditional worshipper (4, 0.5%), non-aligned or does not believe in God or practice any religion (4, 0.5%). Summary of demographics is presented in Table 1.

Table 1: Socio-demographic characteristics of participants

Gender	Number	(%)
Male	583	(66.9)
Female	289	(33.1)
Marital Status		
Never married/Not in relationship	525	(60.2)
Never married/In relationship	333	(38.2)
Married	14	(1.6)
Religious Group		
Christianity	802	(92.0)
Islam	60	(6.9)
Traditional	04	(0.5)
Others	02	(0.1)
No religion/No belief in any god	04	(0.5)
Year		
1	454	(52.1)
2	174	(20.0)
3	95	(10.9)
4	122	(14.0)
Graduate	27	(3.1)
Sexual Orientation		
Heterosexual	455	(93.8)
Homosexual	30	(6.2)

Source: Research data

Table 2: Awareness, and Attitude toward People with HIV/AIDS

Awareness and prevention of HIV	Number	(%)
Yes	756	(86.7)
No	116	(13.3)
Awareness changes behavior		
Yes	504	(74.9)
No	176	(25.1)
Means of Awareness		
Media (Radio, TV, Internet)	305	(37.8)
HIV/AIDS Literature/books	27	(3.3)
HIV/AIDS Outreach programs	106	(13.2)
Family and friends	21	(2.6)
More than one	347	(43.1)
Attitude towards HIV patients		
Accepting	437	(56.7)
Shameful	25	(3.2)
Avoiding	30	(3.9)
Blaming	18	(2.3)
Fearful	82	(10.6)
Indifferent	165	(21.4)
More than one of the above	14	(1.8)

Source: research data

HIV awareness and attitude towards people living with HIV/AIDS

Analysis of information on participants' awareness of and attitude towards HIV/AIDS patients is

Table 3: Participants' first sexual experience

Ever had sex	Number	(%)
Yes	394	(45.2)
No	478	(54.8)
Age		
10-15 years	74	(18.8)
16-20 years	243	(61.7)
21-30+	77	(19.6)
Educational Level		
Primary	41	(10.4)
Junior High	50	(12.7)
Senior high	182	(46.2)
University	121	(30.7)
Motivation		
Curiosity	164	(41.6)
Pressure	77	(19.5)
Fun	82	(20.8)
Appreciation	37	(9.4)
Other	29	(7.4)
More than one	5	(1.3)
Protection		
No	232	(58.9)
Yes	162	(41.1)

Source: Research data

Table 4: Current sexual behaviours

	Number	(%)
Daily/More than once a week	19	(6.3)
Once a week	24	(8.0)
At least once a month	76	(25.5)
Once in six month	116	(37.8)
Once in a year	65	(21.7)
Frequency of protection use		
Never	98	(27.8)
Sometimes	168	(47.7)
All the time	86	(24.4)
Reason for not using protection		
Sex more pleasurable without condom	27	(13.4)
Sex with one partner	44	(21.9)
Condoms not safe	8	(4.0)
I did have condom but did not use it	33	(16.4)
I did not have condom	57	(28.4)
Other	22	(10.9)
More than one reason	10	(1.1)
Different sexual partners		

Yes	217	(55.0)
No	155	(45.0)
Multiple sexual partners		
Yes	98	(24.9)
No	296	(75.1)
Reasons for multiple partners		
Financial	10	(9.3)
Just for fun	35	(32.7)
Boost my sense of pride	8	(7.5)
They were willing/available	31	(29.0)
Other	21	(19.6)
More than one	2	(1.9)

Source: Research data

presented in Table 2. As shown in the table, many students (86.7%) were well informed and aware of the causes, effects, mode of transmission, signs and symptoms, as well as ways of preventing the disease. The means of this information was mostly through the media. A few reported learning about the disease through family or some other means. Students' attitudes towards persons living with HIV/AIDS were mostly positive and accepting of such patients. However, a few felt indifferent. There were others who expressed emotions that suggest stigma, avoidance, shame, blame, or fear. Table 3 presents information on students' first experience of sex. This includes age of first sexual experience, the motivation, and use of protection. The data suggest that first experience of sex occurred mostly during the teenage and young adult years. Majority of the students indicated they had never had sex (478, 54.85%), while some responded in the affirmative (394, 45.2%) as having had sex. However, majority of those who reported ever having sex indicated that they had their first sexual experience between the ages of 16-20 (243, 27.9%) and while still in Senior High School (182, 20.9%); and for many of these, the first sexual experience was motivated by curiosity (164, 41.6%). For some others, it was driven by fun (82, 20.8%) or pressure (77, 19.5%). A few of them reported that their first sexual experience was to show appreciation (37, 9.4%). It is observed with concern that more than half of the participants reported not using protection in their first experience of sex (232, 58.9%) as compared to those who did use protection (162, 41.1%).

Having examined details of students' first sexual experience (Table 3), their current sexual behaviours, especially risky sexual behaviors such as frequency of sex, multiple sexual partners, were examined (see table 4). Of those who reported

Table 5: Perception of impact of HIV/AIDS awareness on behaviour change

HIV Awareness	Perception of Impact on Behavior Change		X ²	Ø	p
	Yes	No			
Not Aware	47	27	4.68	0.85	0.03
Aware	457	149			
Total	504	176			

X² (df = 1; n=680) = 4.68, p=0.03
Source: Research data.

Table 6: Impact of HIV/AIDS awareness on actual frequency of protection use during sex

HIV Awareness	Frequency of Protection Use			X ²	Ø	p
	All the time	Sometimes	Never			
Not Aware	9	26	11	1.66	0.07	0.44
Aware	77	142	87			
Total	86	168				

X² (df = 2; n=352) = 1.66, p=0.44
Source: Research data.

Table 7: Impact of HIV/AIDS awareness on sexual relationship with multiple partners

HIV Awareness	Sexual Relationship with Multiple Partners		X ²	Ø	P
	Yes	No			
Not Aware	12	43	0.03	0.01	0.87
Aware	75	258			
Total	87	328			

X² (df = 1; n=415) = 0.03, p=0.87
Source: Research data

Table 8: Impact of HIV/AIDS awareness on general attitude and feelings towards people with HIV/AIDS

General Attitude and Feelings	Sexual Relationship with Multiple Partners		X ²	Ø	P
	Not Aware	Aware			
Accepting	53	384	3.87	0.71	0.80
Shameful	4	21			
Avoiding	4	26			
Blaming	3	15			
Fearful	15	67			

Indifferent	18	147
Other	0	1
More than one	1	12
Total	98	673

X² (df = 7; n=771) = 3.87, p=0.80
Source: Research data

having had sex, about 300 of them had been sexually active in the last year and frequency of sex for most of these students was once in the last six months (116, 37.8%), followed by at least once a month (76, 37.8%). A few others (65, 21.7%) reported a once a year frequency of sex. A small proportion of students indicated a more frequent engagement in sex on a weekly (24, 8.0%) and daily basis (19, 6.3%). Typical of youthful exuberance and experimentation, some risky sexual practices were reported among the students. Results showed that very few them used protection during sex all the time (86, 21.4%). Many only used protection sometimes (168, 47.7%) and an appreciable number never used any form of protection during sex (98, 27.8) in the last year. The most common reason for not using protection was “sex is not planned; it just happens” (57, 28.4%). Other reasons were: “I have sex with only one partner” (44, 21.9%); “I do not have condoms with me” (33, 16.4%) and “sex is more pleasurable without condom” (27, 13.4%). The least common reason was “I think condoms are not 100% safe” (8, 0.9%). A few others identified a combination of the above reasons for having unprotected sex (10; 1.1%). Several students admitted to having had different sexual partners in the history of their sexual life (217, 55.0%) and multiple sexual partners at a time (98, 24.9%). The most frequent reason they gave for having had multiple sexual partners at a time was “just for the fun of it” (35, 32.7.1%) and that the partners “were available and willing” (31, 29.0%). Financial reasons (10, 9.3%) and “to boost my sense of pride” (8, 7.5%) were less frequent. Findings are presented in Table 4.

The study sought to examine students’ perception of the influence of their awareness of the disease on their behaviour as well as the impact of this awareness on their actual sexual behaviours and attitudes. Results on these are presented in the tables that follow. The results indicated that among those who reported awareness of the meaning, causes, symptoms and prevention of the disease, a

significant number of them perceived or believed that this awareness changed their behaviours as indicated by a significant positive relationship between HIV/AIDS awareness and perception of awareness impact on behaviour change: χ^2 (df = 1; n=680) = 4.68, $p=0.03$.

Table 6 indicates results of the relationship between participants' HIV/AIDS awareness and actual behaviour (for example, the actual behaviour of using protection during sexual intercourse). The results indicate that there is no significant relationship between awareness and frequency of protection use during sexual intercourse χ^2 (df = 2; n=352) = 1.66, $p=0.44$. Likewise, there was no significant relationship between awareness and having sexual relationship with multiple sexual partners at a time: χ^2 (df = 1; n=415) = 0.03, $p=0.87$ as shown on Table 7.

Table 8 presents the relationship between HIV/AIDS awareness and students' general attitudes and feelings towards people with HIV/AIDS. As shown on the table, there was no significant relationship between the two variables, indicating that awareness of HIV/AIDS was not necessarily associated with positive attitudes towards people with HIV/AIDS: χ^2 (df = 7; n=771) = 3.87, $p=0.80$. Taken together, these results suggest that even though students believed or perceived that their knowledge and awareness of HIV/AIDS have influence on their sexual behaviours and attitude towards people with HIV/AIDS, behaviorally there was no association. Thus, suggesting that knowledge and awareness do not necessarily translate into positive behavioural change.

Discussion

The study was conducted to assess students' awareness of HIV/AIDS and to examine the relationship between awareness and actual sexual behaviors. Nine hundred and ten students of the Kwame Nkrumah University of Science and Technology (KNUST) were conveniently sampled during an annual health screening exercise. Descriptive analyses of data showed findings that indicated that the majority of the students who participated were very knowledgeable and aware of the meaning, causes, effects and prevention of the disease mostly through various media sources consistent with information dissemination efforts

about the disease^{14,20}. However, relative to findings from previous studies on university students in Ghana^{14,20}, the number of students who demonstrated high knowledge about the disease in this study was relatively lower. This is plausibly attributable to the high numbers of first year student participants in the current study unlike that reported in the earlier studies.

In this study, we found that family and friends were not a high source of educational information on the disease; a finding corroborated by an earlier study which suggests that parents and family members seem not to play an active role in educating their wards about HIV/AIDS¹⁹. Instead, social media handles featured prominently as sources from where students learned about HIV/AIDS in this study. Another key finding of the current study, corroborated by an earlier research¹², was the finding that the first experience of sexual encounter for many students happened during Senior High School, following graduation from High School and entry into the university³¹. This finding, in addition to the finding that social media was a main source of information for students, are enlightening for more targeted interventions. For example, the use of social media platforms may prove useful in educational programs for university students; and programs that encourage or target education of parents and family members might also be a step in the right direction.

However, in contrast with some previous works^{3,37}, there were many students in this study who reported no experience of sex ever. This was an unexpected finding considering that the average age of participants was above 21 years. Is this finding suggesting that the message of abstinence is being seriously heeded? Or perhaps for some students, abstinence is still possible through self-control⁴? It is unclear from this study what underlies this finding. A follow up study, preferably a qualitative or a mixed method study design could provide detailed information to enlighten and unearth other reasons for the reported behaviour of seeming abstinence.

The pattern of students' attitudes (and feelings towards HIV patients) and sexual behaviour, especially in the use of protection whenever they had sex, was not commensurate with their high level of knowledge and awareness as corroborated in other studies^{27,14}. Findings of this study suggest that influencing factors on sexual

behaviour include social desirability (conformity to peer pressure), youthful exuberance and curiosity, and an undisciplined sexual life. Some sexually active students, though few, engaged in risky sexual behaviours such as unplanned, unprotected sex out of curiosity, peer pressure, or for the mere fun of it. Others used multiple partners simply because “*they were available*.” Youthful exuberance and a sense of invulnerability or misconception contribute to such sexually risky behaviors⁴. Yet, when asked about their perception of the impact of their HIV/AIDS knowledge on sexual behaviour and attitude, students tended to respond in the affirmative. That is, they believed that their awareness would positively influence their behavioural choices. They affirm the knowledge, for example, that having a single sexual partner ensures protection from the disease and yet engage in multiple sexual partner experiences. The apparent cognitive dissonance among the students, knowing and believing one thing and actually doing another, is not uncommon human behavior and may underlie the inconsistencies observed in this study and in the HIV/AIDS literature^{4,5}.

Limitations

This study is not without limitations. For example, the use of a convenient sample potentially accounted for a higher number of first year student participants. Some of the responses to questions could be further explored, for an in-depth understanding of findings, if the study used a mixed method or a qualitative approach. Findings of the study must be taken with caution as far as generalizability is concerned, since this was conducted within a certain period and among students of the KNUST. These limitations notwithstanding, the study provides germinal insights about incongruity between cognition (knowledge or awareness) and behavior regarding the HIV/AIDS pandemic that cannot be dismissed. Further studies are warranted for greater elucidation about knowledge and HIV/AIDS related sexual behaviours to buttress prevention efforts.

Conclusion and recommendation

This study contributes to the understanding of students’ sexual behavior as far as the prevention of HIV/AIDS is concerned. Based on the findings, some lessons are gleaned for consideration in

effective preventive measures in the fight against HIV/AIDS among the youth. For example, while condom use was the most common form of protection among students, some reported failure to use it because of lack of availability. Others cited free distribution of condoms as one of the means to promote protective sexual practice for the prevention of the disease. Therefore, among the youth, it appears that accessibility to condoms may be a useful adjunct to other preventive measures. Whilst not necessarily intending to promote promiscuity or indiscriminate sexual practices, placement of condom vending machines at vantage points on university campuses may enhance ready accessibility and curb rise of risky or unprotected sexual behaviour among students.

In addition to condom availability, psychosocial education towards more intentional behavioural (sexual) choices among students could be a step in the right direction. Active inclusion of parents and family members in preventive educational programs could yield positive results since they are the first agents of socialization in a child's life. Parents could also benefit from education on how to initiate conversations or discussions on profitable sex education with their wards.

Ethics approval and consent to participate

The entire screening exercise, including the study, was supported by the Directorate of Students Affairs and ethically approved. Participants were provided adequate information about the study for their informed consent before questionnaires were administered. Participation was completely voluntary and they could stop participation at any time without any negative consequences to themselves.

Availability of data and material

The data generated and analyzed for the study are available from corresponding author on reasonable request

Competing interests

The authors declare that they have no competing interests.

Funding

The study did not receive any external funding.

Acknowledgment

Authors are grateful to students who willingly participated in the study; and to all administrative assistants who assisted with the research.

Contribution of authors

Frances Emily Owusu-Ansah: Study conceptualization and design, data collection, writing of manuscript. Akua Afriyie Addae: Study conceptualization and design, data collection, data analysis.

Christian Amoah: Manuscript review and editing, Preparation of manuscript for publication.

Correspondence. Victoria D, Adjei: Data collection, ethical clearance application.

Abubakar A. Raman: Study conceptualization and design, data collection.

Esther Ohenewa: Manuscript review and editing, ethical clearance application.

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