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Research Article

Knowledge and Prevention of Sexually Transmitted Infections among University Students in Butembo City

Connaissance et Prévention des Infections Sexuellement Transmissibles chez les Etudiants des Universités de la Ville de Butembo

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Key words: Sexually transmitted infections, students, official university of Ruwenzori, Institut des Techniques Médicales; Butembo City, Democratic Republic of Congo



RÉSUMÉ

Introduction. Sexually transmitted infections (STIs) are infections that are typically transmitted through sexual activity, including vaginal, anal, and oral sex. Young people, including university students, are particularly affected. The aim of this study was to determine the level of knowledge about STIs among students of the Official University of Ruwenzori (UOR) and the « Institut Supérieur des Techniques Médicales » (ISTM) of Butembo city in the Democratic Republic of Congo (DRC), as well as the prevention behaviour of interested students. **Methodology.** We conducted a cross-sectional study during the last three months of 2022. A self-administered structured questionnaire was used as the instrument for data collection. We included 300 students per institution (convenience samples). A stratified simple random sampling by institution was carried out. **Results.** Our study included 346 ISTMs students and 252 UOR, corresponding to compliance's rates of 115.3% and 84.0%, respectively. The mean age was 23.4 years while the median was 23.0 years. The majority were between 19.0 and 24.0 years old (75.6%) and female (53.4%). Among our participants, 98,65% knew the main STIs and the principal means of prevention. On the other hand, only a minority declared to systematically use condoms during sex (18.5%) and have already benefited from the anti-papillomavirus (HPV) vaccine (5.6%). **Conclusion.** Although STIs are very widespread among young people and some are life-threatening, students at the two universities continue to engage in dangerous and irresponsible behavior.

ABSTRACT

Introduction. Les infections sexuellement transmissibles (IST) sont des infections qui sont généralement transmises par des activités sexuelles, y compris les rapports vaginaux, anaux et oraux. Les jeunes, y compris les étudiants universitaires, sont particulièrement touchés. L'objectif de cette étude était de déterminer le niveau de connaissance sur les IST chez les étudiants de l'Université Officielle de Ruwenzori (UOR) et de l'Institut Supérieur des Techniques Médicales (ISTM) de Butembo en République démocratique du Congo (RDC), ainsi que leurs comportements de prévention. **Méthodologie.** Nous avons mené une étude transversale au cours des trois derniers mois de 2022. Un questionnaire structuré auto-administré a été utilisé comme instrument de collecte de données. Nous avons inclus 300 étudiants par établissement (échantillons de convenance). Un échantillonnage aléatoire simple stratifié par établissement a été réalisé. **Résultats.** Notre étude comprenait 346 étudiants de l'ISTM et 252 de l'UOR, correspondant à des taux de conformité de 115,3 % et 84,0 %, respectivement. L'âge moyen était de 23,4 ans tandis que la médiane était de 23,0 ans. La majorité avait entre 19,0 et 24,0 ans (75,6%) et étaient de sexe féminin (53,4%). Parmi nos participants, 98,65% connaissaient les principales IST et les principaux moyens de prévention. En revanche, seulement une minorité déclarait utiliser systématiquement des préservatifs lors des rapports sexuels (18,5%) et avoir déjà bénéficié du vaccin contre le papillomavirus (HPV) (5,6%). **Conclusion.** Bien que les IST soient très répandues chez les jeunes et certaines soient mortelles, les étudiants des deux universités continuent de se livrer à des comportements dangereux et irresponsables.

KEY RESULTS

What this study addresses

Knowledge and prevention of sexually transmitted infections among university students in Butembo city, Democratic Republic of Congo

Key Results

- The sample included 53,4% of female students. The mean age was 23.4 years and 75,6% of them were between 19.0 and 24.0 years old.
- 98,65% of participants knew the main STIs and the principal means of prevention.
- 18.5% of students declared to systematically use condoms during sex
- 5.6% have already benefited from the anti-papillomavirus (HPV) vaccine.

INTRODUCTION

Sexually transmitted infections (STIs) are a group of syndromes and infections caused by pathogenic germs acquired mainly through unprotected vaginal intercourse and sexual contact, anal or oral (1). Almost 30 pathogenic germs are currently known to be responsible of these infections, which vary considerably (2). For the most part, the incidence of STIs is linked to eight pathogens. Of these eight infections, four can be cured: syphilis, gonorrhea, chlamydia, and trichomoniasis. The other four are viral infections incurable so far: hepatitis B virus (HBV), herpes virus (HSV), acquired human immunodeficiency virus (HIV), and papillomavirus (HPV) (3). Some of these STIs can also be transmitted from mother to child during pregnancy, childbirth, and breastfeeding (3). Morbidity includes fetal and neonatal morbidities due to syphilis during pregnancy, the risk of cervical cancer due to the HPV virus, the risk of infertility mainly due to gonorrhea and chlamydia infections, as well as sexual transmission of the HIV virus (4). It is a serious global public health problem, contributing significantly to population morbidity and mortality (4-6). According to the World Health Organization (WHO) (4, 7-8) Every day in the world, more than a million people contract a STI, asymptomatic in the majority of cases. An estimated 374 million people contract one of four following STIs each year: chlamydia, gonorrhea, syphilis and trichomoniasis. It is estimated that more than 500 million people (15-49 years old) have a genital infection by the HSV virus; Sub-Saharan Africa would account for approximately 40%.

HPV infection is associated with more than 311,000 deaths; Nearly one million pregnant women were estimated to be infected with Syphilis in 2016, which resulted in more than 350,000 adverse birth outcomes. STIs have a direct impact on sexual and reproductive health through stigma, infertility, cancers and pregnancy complications and can increase the risk of contracting HIV. Drug resistance is a major threat to reducing disease burden STI in the world". STIs have health, social, and economic consequences. In many cases and circumstances, STIs are hidden by those concerned for fear of social stigmatization (9). In developing countries like those in Africa, the population is more vulnerable to

STIs, and certain social groups are more affected than others. The former includes young women, sex workers, young people and adolescents, students, nomadic workers, orphans, etc. Among the risk factors, we can cite a low level of education, a lack of employment, migrant status, sexual hyperactivity, and unprotected sex (10). The prevention of STIs encompasses a series of measures, the most effective of which is the proper routine and systematic use of condoms, which may also be effective against the HPV virus (11). Other measures include STI screening, adequate care of STIs, vaccination against HBV and HPV viruses, raising awareness, and notification of the sexual partner(s) (11-13). Young people, including many university students, constitute a population with intense sexual activity (14-16). These sexual encounters are not always protected (17-19). The university's students are not only exposed to a very high risk of contracting STIs but are not always prone to getting a medical examination in time (20). In developing countries, young people are at high risk of contracting STIs because of factors such as a lack of adequate knowledge about these infections, their usual inappropriate sexual behavior, and low adherence to preventive measures (21). Information collected in Sub-Saharan Africa shows that 10.0% to 20.0% of young people aged 15-24-year-olds are sexually active before age 15 (22). The results of the second demographic and health survey in the Democratic Republic of the Congo (DRC) (EDS-RDC II) showed that near 9.0% of women and 6.0% of men who had already had sexual intercourse had declared having had an STI during the last 12 months preceding this survey. However, if STI symptoms are taken into account, this prevalence reaches 18.0% in women vs. 10.0% in men (23). In the first edition of the same survey (EDS-RDC I), it was found that the North Kivu (NK) province was among the four provinces of the DRC with a very high declared prevalence of STIs. Reported values ranged from 11.0% among women to 12.0% among men (24). This study aims at determining the levels of knowledge and prevention of STIs among students of the Université Officielle de Ruwenzori (UOR) and the Institut Supérieur Techniques Médicales (ISTM), two public colleges in Butembo, a city located in the eastern part of the DRC. The general objective of the study is to contribute to the prevention of STIs among students from the two colleges, while the specific objectives are to determine their level of knowledge of STIs, their attitude towards STI screening, and their level of STI prevention.

PATIENTS AND METHODS

A cross-sectional study was conducted among students of the UOR and the ISTM colleges in Butembo city, east of the DRC, during the last three months of 2022. The area has suffered decades of recurring humanitarian disasters, some natural (volcanic eruptions) and others man-made (multi-cause wars and conflicts).

UOR had 646 enrolled students during the academic year 2021-2022, while ISTM had 1,749, equivalent to an overall total of 2,395. A convenience sample size of 300 students per institution was adopted, while simple random sampling stratified by institution was carried out.

A self-administered structured questionnaire was used as a means for information collection. After verifying the completeness and consistency of the information collected, the data was entered into the Microsoft Office Excel 2019 application and then transferred into the statistical software STATA 15/SE for analysis (25, 26). A detailed description of the population under study was made (calculation of numerical summary measures for age and proportions for the categorical variables) before proceeding to bivariate analyses (Pearson chi-square) of certain categorical variables. The statistical significance threshold was set at 0.05.

RESULTS

Our study included 346 ISTM students and 252 from UOR corresponding to participation rates of 115.3% and 84.0%, respectively. The average age was 23.4 years (standard deviation: 3.8; minimum = 18.0 years; maximum = 58.0 years). The median age was 23.0 years.

Table 1. Distribution of students by sex, age and marital status

Characteristics	N	%	Cumulative (%)
Sex			
Male	277	46.63	46.63
Females	317	53.37	100.00
Total	594*	100.00	
Age groups (years)			
0-18	2	0.35	0.35
19-24	427	75.58	75.93
25-34	121	21.42	97.35
35-44	13	2.30	99.65
45-54	1	0.18	99.82
>=55	1	0.18	100.00
Total	565	100.00	
Marital status			
Married	42	7.08	7.08
Singles	547	92.24	99.33
Others	4	0.67	100.00
Total	593*	100.00	

The majority of these students belonged to the age group of 19.0 to 24.0 years old (75.6%), female sex (53.4%), Catholic religion (58.6%), single marital status (92.2%), and were enrolled in undergraduate courses (81.8%), health departments including health sciences, medical

techniques, and the management of health institutions (65.6%).

Most of them indicated condoms as the best way to protect yourself (90.5%), while, paradoxically, only 18.5% of these students claimed to always use a condom during sex intercourse. The details of the results are presented in **tables 1 to 5** below.

Table 2. Distribution of students by faculty and grade

Faculty/Grade	N	%	Cumulative (%)
Faculty			
Health sciences	36	6.19	6.19
Psychology	22	3.78	9.97
Social sciences	45	7.73	17.70
Economics	25	4.30	21.99
Communications and information	3	0.52	22.51
Environnemental sciences	1	0.17	22.68
Applied sciences	21	3.61	26.29
Law	30	5.15	31.44
Medical techniques	338	58.08	89.52
Management of health institutions	8	1.37	90.89
Others	53	9.11	100.00
Total	573	100.00	
Grade			
Graduate	469	81.85	81.85
Licence	61	10.65	92.50
Others	43	7.50	100.00
Total	573	100.00	

Table 3. Distribution of students by religious affiliation

Religious affiliation	N	%	Cumulative (%)
Catholics	340	58.62	58.62
No catholic christians	219	37.76	96.38
No christians believers	20	3.45	99.83
Ministère ESAIE	1	0.17	100.00
Total	580*	100.00	

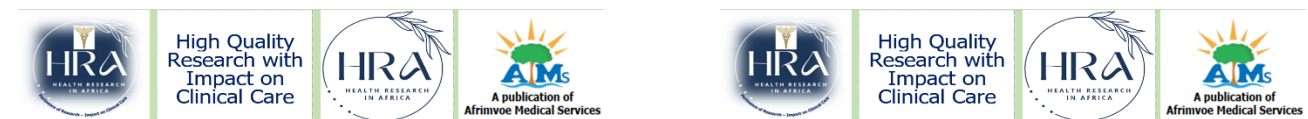


Table 4. Meaning of «STI» acronym by sex, age groups, marital status, faculty, grade and religious affiliation. students from UOR and ISTM Butembo city (DRC) year 2022

Characteristics	Meaning of STI (N,%)			Total
	Untreatable infection	Sexually transmitted infection	I don't know/ don't remember	
Sex				
Male	1 (0.36)	273 (98.56)	3 (1.08)	277 (100.00)
Female	1 (0.32)	312 (98.73)	3 (0.95)	316 (100.00)
Total	2 (0.34)	585 (98.65)	6 (1.01)	593 (100.00)
Pearson chi2(2) =0.0352 Pr =0.983				
Age groups (years)				
<=18	0 (0.00)	2 (100.00)	0 (0.00)	2 (100.00)
18-24	1 (0.23)	421 (98.59)	5 (1.17)	427 (100.00)
25-34	1 (0.83)	119 (98.35)	1 (0.83)	121 (100.00)
35-44	0 (0.00)	12 (100.00)	0 (0.00)	12 (100.00)
45-54	0 (0.00)	1 (100.00)	0 (0.00)	1 (100.00)
>=55	0 (0.00)	1 (100.00)	0 (0.00)	1 (100.00)
Total	2 (0.35)	556 (98.58)	6 (1.06)	564 (100.00)
Pearson chi2(10) =1.2753 Pr = 0.999				

Table 4. Meaning of «STI » acronym by sex, age groups, marital status, faculty, grade and religious affiliation. students from UOR and ISTM Butembo city (DRC) year 2022

Characteristics	Meaning of STI (N,%)			Total
	Untreatable infection	Sexually transmitted infection	I don't know/ don't remember	
Marital status				
Married	1 (2.44)	40 (97.56)	0 (0.00)	41 (100.00)
Singles	2 (0.37)	539 (98.54)	6 (1.10)	547 (100.00)
Others	0 (0.00)	4 (100.00)	0 (0.00)	4 (100.00)
Total	3 (0.51)	583 (98.48)	6 (1.01)	592 (100.00)
Pearson chi2(4) =3.7543 Pr =0.440				
Faculty				
Health departments**	1 (0.26)	375 (98.43)	5 (1.31)	381 (100.00)
Other departments Autres	2 (1.00)	197 (98.50)	1 (0.50)	200 (100.00)
Total	3 (0.52)	572 (98.45)	6 (1.03)	581 (100.00)
Pearson chi2(20) =46.4654 Pr =0.330				
Grade				
Graduate	3 (0.64)	462 (98.72)	3 (0.64)	468 (100.00)
Licence	0 (0.00)	59 (96.72)	2 (3.28)	61 (100.00)
Others	0 (0.00)	43 (100.00)	0 (0.00)	43 (100.00)
Total	3 (0.52)	564 (98.60)	5 (0.87)	572(100.00)
Pearson chi2(4) =5.3993 Pr =0.249				
Religious affiliation				
Catholic	2 (0.59)	333 (97.94)	5 (1.47)	340 (100.00)
No catholic christians	1 (0.46)	217 (99.09)	1 (0.46)	219 (100.00)
No christians believers	0 (0.00)	20 (100.00)	0 (0.00)	20 (100.00)
Ministère ESAIE	0 (0.00)	1 (100.00)	0 (0.00)	1 (100.00)
Total	3 (0.52)	571 (98.45)	6 (1.03)	580(100.00)
Pearson chi2(6) =1.7296 Pr =0.943				

UOR:Université Officielle de Ruwenzori, ISTM: Institut Supérieur des Techniques Médicales, DRC:Democratic Republic of Congo

Table 5. Means of STI prevention by sex, age groups, marital status, faculty, grade and religious affiliation students

Characteristics	Means of STI prevention (N,%)					Total	
	Wash sex 3 times a day	Condom use	Contraceptive pill use	Others (+ sexual abstinence)	Get tested		I don't know/ don't remember
Sex							
Males	1 (0.36)	257 (93.45)	0 (0.00)	9 (3.27)	0 (0.00)	4 (2.91)	275(100.00)
Females	1 (1.61)	273 (87.78)	3 (0.96)	15 (4.82)	1 (0.32)	14 (4.50)	311(100.00)
Total	6 (1.02)	530 (90.44)	3 (0.51)	24 (4.10)	1 (0.17)	22 (3.75)	586(100.00)
Pearson chi2(5) =8.1050 Pr =0.151							
Age groups (years)							
<=18	0 (0.00)	2 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	2 (100.00)
18-24	5 (1.19)	375 (89.29)	2 (0.48)	20 (4.76)	1 (0.24)	17 (4.05)	420(100.00)
25-34	1 (0.83)	115 (95.04)	0 (0.00)	2 (1.65)	0 (0.00)	3 (2.48)	121(100.00)
35-44	0 (0.00)	10 (83.33)	0 (0.00)	2 (16.67)	0 (0.00)	0 (0.00)	12 (100.00)
45-54	0 (0.00)	1 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (100.00)
>=55	0 (0.00)	1 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (100.00)
Total	6 (1.08)	504 (90.48)	2 (0.36)	5 (4.31)	1 (0.18)	20 (3.59)	557(100.00)
Pearson chi2(25) =9.5653 Pr =0.998							
Marital status							
Married	1 (2.44)	38 (92.68)	0 (0.00)	1 (2.44)	0 (0.00)	1 (2.44)	41 (100.00)
Singles	5 (0.92)	487 (90.18)	3 (0.55)	23 (4.26)	1 (0.18)	21 (3.89)	540(100.00)
Others	0 (0.00)	4 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	4 (100.00)
Total	6 (1.03)	529 (90.43)	3 (0.51)	24 (4.10)	1 (0.17)	22 (3.76)	585(100.00)
Pearson chi2(10) =2.1298 Pr =0.995							
Faculty							
Healthdepartments	5 (1.33)	347 (92.04)	0 (0.00)	21 (5.57)	1 (0.27)	3 (0.80)	377(100.00)
Otherdepartments	1 (0.51)	173 (87.82)	2 (1.02)	3 (1.52)	0 (0.00)	18(9.14)	197(100.00)
Total	6 (1.05)	520 (90.59)	2 (0.35)	24 (4.18)	1 (0.17)	21 (3.66)	574(100.00)
Pearson chi2(5) =35.1108 Pr =0.000							
Grade							
Graduate	5 (1.08)	420 (90.71)	2 (0.43)	17 (3.67)	1 (0.22)	18 (3.89)	463(100.00)
Licence	0 (0.00)	53 (89.83)	0 (0.00)	3 (5.08)	0 (0.00)	3 (5.08)	59 (100.00)
Others	0 (0.00)	38 (88.37)	0 (0.00)	4 (9.30)	0 (0.00)	1 (2.33)	43 (100.00)
Total	5 (0.88)	511 (90.44)	2 (0.35)	24 (4.25)	1 (0.18)	22 (3.89)	565(100.00)
Pearson chi2(10) =5.3208 Pr =0.869							
Religious affiliation							
Catholic	5 (1.48)	307 (90.83)	2 (0.59)	15 (4.44)	1 (0.30)	8 (2.37)	338(100.00)
No catholic christians	1 (0.47)	195 (91.12)	1 (0.47)	8 (3.74)	0 (0.00)	9 (4.21)	214(100.00)
No christians believers	0 (0.00)	19 (95.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (5.00)	20 (100.00)
Ministère ESAIE	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (100.00)	1 (100.00)
Total	6 (1.05)	521 (90.92)	3(0.52)	23 (4.01)	1 (0.17)	19 (3.32)	573(100.00)
STI :Sexually transmitted infections, Pearson chi2(15) =34.1309 Pr =0.003							

DISCUSSION

As pointed out in a previous paragraph, STIs are a serious global public health problem (4–7). Indeed, they are associated with populations's high morbidity and mortality. They also greatly affect young people (the childbearing age group!), with the potential to significantly interfere with the reproductive health of communities. This population subgroup is often characterized by sexual hyperactivity, which is not always accompanied by adequate STI prevention measures (4–7). University students belong, in large part, to this population subgroup. They are therefore also exposed to high risks of contracting STIs. Our study showed that students from the two institutions, UOR and ISTM, had a satisfactory level of knowledge of the main STIs and the effective means of their prevention. In fact, in most cases, the majority of the interested students (>50.0%) indicated or identified the right answers both in terms of modes of transmission and means of prevention of STIs. As an illustration, for specific questions asked to students, here below are the proportions of respondents with correct answers: Condoms are the best way to protect yourself (90.5%); getting tested is the best way to know if you are or are not infected (93.5%); you get an STI mainly following unprotected sex (98.1%); being available to get tested (80.6%) and to share with one's partner a possible positive STI result (88.1%). Plausible explanations of this excellent score include the fact that university students are assumed to be better equipped than the general population when it comes to properly seeking, finding, analyzing, and understanding any relevant information potentially useful for life and health. They often have access to more and better sources of information, have more years of school experience, and have solid training. Similar results, albeit of different magnitudes, have been found and reported by other authors (9, 15, 16). Regarding the willingness to be tested, it should be noted that female students showed less inclination to do so compared to male students (77.3% vs. 84.5%; Pearson $\chi^2(2) = 6.1417$, $Pr = 0.046$). This fact could be explained by the fear of a positive result following unprotected sexual intercourses in a context where it is generally the male partner who often decides whether or not to use a condom. This is probably one of several practical translations of the secular imbalance of power in the couple rooted in many cultures. But once they had been screened for STIs, the female students showed more willingness to share a possible positive result with their partner (91.5% vs. 84.5%; Pearson $\chi^2(2) = 7.0090$, $Pr = 0.030$). Men are often culturally assumed to be the main vectors of STIs because of their tendency to have multiple partners and are therefore presumed to be responsible for the infection in the couple. As for the reasons for unwillingness to be tested, the relative majority of students (47.6%) said that fear of a possible positive result was the main one. Regarding this point, the health departments's students scored higher in terms of fear than their colleagues from non-health departments (55.7% vs. 26.3%; Pearson

$\chi^2(4) = 10.6918$, $Pr = 0.030$). Students from health departments are expected to be more aware of the seriousness of certain STIs, notably the acquired immunodeficiency syndrome (AIDS). The concrete possibility of a positive result for HIV is terrifying. Many other aspects of STIs seemed to be poorly mastered by the students, as documented by their rather low or very low scores. First, only 2.7% of them indicated chlamydia as the most common STI germ for young people. Instead, they thought of well-known germs such as those of AIDS (39.3%), syphilis (38.6%), and gonorrhoea (11.6%). It should be recognized that information in relation to chlamydia is rarely available in medical records, probably because the local clinicians rarely think about it and therefore do not systematically look for the germ. Still related to chlamydia, fewer students from health departments than those from non-health departments seemed to know that chlamydia comes first in the young group (2.4% vs. 3.1%; Pearson $\chi^2(5) = 14.4945$, $Pr = 0.013$). We are unable to propose a rational explanation for this paradoxical result except for sampling issues and possible information bias. Similarly, only 21.2% felt that oral sex was associated with a high risk of getting an STI. Here too, paradoxically, the score of the health departments students was significantly lower than that in non-health departments (18.5% vs. 26.4%; Pearson $\chi^2(4) = 16.9010$, $Pr = 0.002$). Only a minority of the students had already had an HIV test at least once, despite their presumed sexual hyperactivity (42.5%). No significant difference in terms of gender (male 42.3% vs female 42.5%; Pearson $\chi^2(3) = 0.8957$, $Pr = 0.826$) or according to whether or not they belong to health departments (health departments 44.2% vs non-health departments 38.6%; Pearson $\chi^2(3) = 3.9962$, $Pr = 0.262$) was demonstrated. The terror of a possible positive result is probably the main reason for this abnormal behavior (low propensity to get tested for HIV), in contrast to their suspected sexual hyperactivity. Finally, only 18.5% of the students said they systematically used a condom during sexual intercourse, and 5.6% of female students have already benefited from the HPV vaccine. As far as consistent condom use is concerned, male students reported a score significantly higher than that of female students (25.2% vs. 12.7%; Pearson $\chi^2(4) = 20.5418$, $Pr = 0.000$), while, paradoxically again, there was no statistically significant difference between health department and non-health department students (17.3% vs. 20.0%; Pearson $\chi^2(4) = 1.4746$, $Pr = 0.831$). As for the HPV vaccination, here too, no significant difference was demonstrated between students in health departments and those in non-health departments (6.3% vs. 4.1%; Pearson $\chi^2(3) = 0.8532$, $Pr = 0.837$). It therefore seems that, according to these results, being a student enrolled in health departments is not an added value in the prevention of STIs at these two academic institutions. These results, if confirmed by other studies, are very worrying. Indeed, they seem to show that not only does mere knowledge of STIs not lead to the adoption of consistent and responsible behavior, but also that these highly educated subjects are apparently unable

or unwilling to systematically proceed with a benefit-risk analysis of their sexual behaviors.

CONCLUSION AND RECOMMENDATIONS

It appears from this exploratory study that the level of knowledge of STIs by UOR and ISTM's students at Butembo City (DRC) is quite good, but their behavior in terms of a systematic adoption of preventive measures is totally inconsistent with their knowledge. The concern is further justified by the fact that the specific sociodemographic group that is interested is expected to serve as a role model in the community they will have to lead or govern in the future. An intensive and more effective targeted and continuous sensitization program should be put in place by the local academic and health sector authorities to solve this serious problem.

ETHICAL CONSIDERATIONS

Appropriate steps were taken to obtain informed consent from participants as well as guarantee their privacy. The ethics committees of both institutions approved the study.

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CONFLICTS OF INTEREST

No conflict of interest.

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