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Knowledge, Attitudes, and Practices with Regard to Human Immunodeficiency Virus Infection among Students at the University of Kara

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ABSTRACT

Background: *The Human Immunodeficiency Virus (HIV) is a sexually transmitted infection, a major health issue. Two-thirds of the infections worldwide are found in Africa. In Togo, despite the means to fight against the infection, its prevalence remains high in Kara, Togo's second-largest city. The objective is to find out how this infection is perceived by the student population of the University of Kara.*

Materials and Methods*: This was a descriptive cross-sectional study carried out by distributing a questionnaire via Google forms on the various students' platforms at the University of Kara from January 18 thru 30, 2022. The questionnaire related to the level of knowledge, attitudes and practices about Human Immunodeficiency Virus (HIV).*

Results*: A total of 172 students completed the questionnaire. The median age was 22, and the sex ratio (M/F) was 2.13. Students from the Faculty of Health Sciences (33%) and the Faculty of Arts and Humanities (29%) were the most represented. About 82% of those surveyed were in bachelor's program. 63% of students found that HIV was circulating less nowadays. Only 4% of students had received sex education from their parents. The age of first sexual intercourse was between 17 and 21 for both sexes. Young men (30%) had had more than 2 partners in the last 6 months, compared with 14% of girls. Non-use of condoms was explained by the trust in one's partner in 37% of cases.*

Conclusion*: The Knowledge of University of Kara's students about HIV is good; However, some attitudes should be improved. Information and sex education sessions are needed on the campus.*

Keywords
Knowledge, Students, STI, Practices, HIV, Togo.

Introduction
The Human Immunodeficiency Virus (HIV) is a virus that causes chronic infection. It is a major public health issue. Indeed, by the end of 2022, HIV infection affected 39 million people worldwide, and two-thirds of those living with HIV are in Africa [1]. Since its discovery in 1983 [2], the World Health Organization (WHO) has published a series of measures to combat its spread, and these have been implemented by the various member states. However, HIV is still responsible for a pandemic which incidence and death rate vary from one continent to another, with low-income countries paying the heaviest price. The number of HIV-related deaths

worldwide is 630,000 and 37.5 million PLHIVs are beyond 15 years of age in 2022 [1], leading to the conclusion that the PLHIV population is getting younger and younger.

There are different modes of HIV transmission such as sexual, intravenous and mother-to-child. It is a sexually-transmitted virus responsible for weakening the patient's immune system, making him or her vulnerable to opportunistic diseases that can be found at the stage of AIDS. The infection is usually asymptomatic, so new cases can only be detected through biological analysis. Many people of reproductive age are unaware of their HIV status, but the impacts of HIV infection on sexual and reproductive life remain enormous, even though efforts are being made to follow-up infected people.

In Togo, HIV prevalence was 2.5% in 2020, with teenagers and young adults aged 15-24 affected [3]. Their behavior and attitudes put them at risk. One of the best ways to prevent the disease is through information. Indeed, one of the WHO strategies for 2030 is to eliminate mother-to-child HIV transmission. In addition to the follow-up of the mother-baby pair, this elimination also involves reducing the number of new infections, so young people need to be better informed about sexually transmitted infections, particularly HIV [4]. Kara is Togo's second university town. Given that the HIV-infected population is increasingly young, and the fact that these young students will be the adults of tomorrow, it seemed appropriate to carry out the present study, which objective is to assess the knowledge, attitudes and practices regarding HIV infection among the student population of the University of Kara.

Patients and Method

Data

This was a descriptive cross-sectional study. It took place from January 18 thru 30, 2022 among students at the University of Kara. This is the second largest university in Togo and is located in the north of the country, in the city of Kara, which is 400 km far from the capital city Lomé.

Study Population

An electronic questionnaire developed using Google Forms application was sent to the group of representatives of students enrolled at the University of Kara, regardless of gender or level of study, for distribution on their respective platforms. It was an anonymous electronic questionnaire which required no personal information that could identify the respondent. Completion of the questionnaire was voluntary and spontaneous.

Study Variables

The questionnaire covered socio-demographics (age, gender, faculty and level of education), their perception of HIV/AIDS (severity, means of information, transmission, and prevention) and their practices (testing, safe sex, and knowledge of HIV status).

Data Analysis

Data were analyzed using Epi Info software version 7.2. The median and the interquartile range (25, 75) were used as positional parameters to describe continuous quantitative variables. Fisher's exact test was used to compare proportions between different groups. A significance level of 5% was used. To assess students' knowledge, attitudes and practices, both open-ended and multiple-choice questions were included in the questionnaire. The level of knowledge about HIV was assessed on the basis of the answers obtained for the HIV-related questions. A score of 2 was assigned to each correct answer and 0 for a wrong answer. The sum of the scores obtained corresponded to the level of knowledge about HIV, which is a total score of 10. This data was then categorized into a binary categorical variable: low level of knowledge (score < 5) and good knowledge (score ≥ 5).

Results

Socio-demographics

A total of 172 students completed the questionnaire. The median age of the respondents was 22, with extremes ranging from 18 to 34. The 20-24 age group was the most represented (70% [63-77]). The majority of respondents were male (68% [60-75]), with a sex ratio (M/F) of 2.13. Almost all students were single (97% [92-99]), and most of them were in the bachelor's program (81% [75-87]), with students from the Faculty of Health Sciences (FSS) accounting for 33% [26-40], followed by those from the Faculty of arts and Humanities (FSH) at 28% [22-36] and those from the Faculty of Science and Technology (FAST) at 15%.

Table 1: Socio-demographic characteristics of the respondents.

Characteristics	N = 172	95% CI[2]
Age	Median: 22	[20 – 24]
Age group		
< 20 years	19 (11%)	[7.0 – 17]
20-24 years	121 (70%)	[63 – 77]
25-29 years	31 (18%)	[13 – 25]
30-34 years	1 (0.6%)	[0.03 – 3.7]
Sex		
Female	55 (32%)	[25 – 40]
Male	117 (68%)	[60 – 75]
Faculty		
FASEG	16 (9.3%)	[5.6 – 15]
FAST	26 (15%)	[10 – 22]
FDSP	25 (15%)	[9.8 – 21]
FSH	49 (28%)	[22 – 36]
FSS	56 (33%)	[26 – 40]
Program		
PhD	15 (8.7%)	[5.1 – 14]
Bachelor	140 (81%)	[75 – 87]
Master	17 (9.9%)	[6.0 – 16]
Marital status		
Single	166 (97%)	[92 – 99]
Engaged	6 (3.5%)	[1.4 –7.8]

[2]CI = Confidence interval at 95 %

Table 1 provides information about the age, gender, study program, faculty and marital status of the students surveyed. This information is given in relation to the number of students and the confidence interval.

Perception about HIV

According to the severity of HIV infection, 31% (n=54) of those surveyed found that HIV is severe nowadays, and for 5% (n=10) not severe at all. The majority, 63% (n=103) of students surveyed, found that the virus is circulating less and 11% (n=19) had no idea.

Knowledge of students about HIV and sexual practices

The majority of students surveyed (74%, n=127) had been tested for HIV at least once. Among them, 61% (77/127) claimed to know their HIV status for the current year. The means of testing used by the respondents were the health check-up (44%) and 20% did so in voluntary and anonymous testing centers.

The information channels on HIV identified by students were Internet, television and radio broadcasts (20%, 19% and 18% respectively). Some students (13%) received their information during lectures, and only 4% received it from their parents. Overall, sexually active students have a good knowledge about HIV based on the questions they were asked, with almost 93% (101/109) of respondents scoring 5 or above out of a total score of 10. The proportions of students with good scores were relatively identical in most socio-demographic sub-groups. Thus, HIV knowledge was not related to gender (p=0.5), age (p=0.9), study program (p=0.3) and faculty (p=0.3). Similarly, the number of sexual partners did not differ according to the level of knowledge about HIV. On the other hand, there was a significant relationship (p=0.04) between level of knowledge about HIV and knowledge of respondents' HIV status. Indeed, students with a higher level of knowledge about HIV generally know their partner's HIV status. As for condom use, 80% of students said they used condoms, compared with 20% who did not. Around 80% of respondents are aware of their HIV status.

The median age of sexual debut was 19 years (17-21) for both sexes. Thus 59% (n=70) of boys and 70% (n=39) of girls had already had sexual intercourse. Among male students, 23% had had more than 2 sexual partners in the last six months, while 85% of female students had had only one sexual partner. One third of sexually active students had used couple testing. A total of 79% of all male and female students declared that they had safe sex, although more than half of them did not use a condom every time they had sex. For 37%, the reasons given for unprotected sex were trust in their partner. A partner's refusal was cited by 21% of respondents and a stock-out by 11%. The difference in knowledge about HIV was statistically significant between male and female students (p=0.01). Male students were more knowledgeable than female students (Table 2).

Table 2: Sexual practices and attitudes among sexually active students by level of knowledge about HIV.

Characteristics	**Total**, N = 109[1]	**Good score**, N = 101[1]	**Low score**, N = 81	**p value**[2]
Sex				0.5
Female	39 (36%)	35 (35%)	4 (50%)	
Male	70 (64%)	66 (65%)	4 (50%)	
Age group				0.9
< 20 years	10 (9.2%)	9 (8.9%)	1 (12%)	
20-24 years	76 (70%)	70 (69%)	6 (75%)	
25-29 years	22 (20%)	21 (21%)	1 (12%)	
30-34 years	1 (0.9%)	1 (1.0%)	0 (0%)	
Knowledge of partner's HIV status				0.040*
No	31 (28%)	26 (26%)	5 (62%)	
Yes	78 (72%)	75 (74%)	3 (38%)	
Number of partners				0.12
1	94 (86%)	88 (87%)	6 (75%)	
2-3	7 (6.4%)	5 (5.0%)	2 (25%)	
3 and more	8 (7.3%)	8 (7.9%)	0 (0%)	
Condom use				0.7
No	22 (20%)	20 (20%)	2 (25%)	
Yes	87 (80%)	81 (80%)	6 (75%)	
Knowledge of the respondent's HIV status				0.7
No	22 (20%)	20 (20%)	2 (25%)	
Yes	87 (80%)	81 (80%)	6 (75%)	
Couple testing before the first intercourse				>0.9
No	76 (70%)	70 (69%)	6 (75%)	
Yes	33 (30%)	31 (31%)	2 (25%)	
Severity of HIV				0.080
Very severe	15 (14%)	14 (14%)	1 (12%)	
Severe	30 (28%)	28 (28%)	2 (25%)	
Not severe	9 (8.3%)	9 (8.9%)	0 (0%)	
Don't know	9 (8.3%)	6 (5.9%)	3 (38%)	
Number of safe sex over 10				0.7
Less than 3	22 (20%)	20 (20%)	2 (25%)	
More than 3	87 (80%)	81 (80%)	6 (75%)	

[1]n (%); Median (EI); [2]*p<0.05

Attitudes and practices regarding HIV

The analysis of the results reveals a non-significant difference between the number of safe sex among those with a high level of knowledge about HIV and those with a low level of knowledge about HIV (p=0.4). Students with a good level of knowledge about HIV had more safe sex than those with a low level of knowledge about HIV infection (Figure 1).

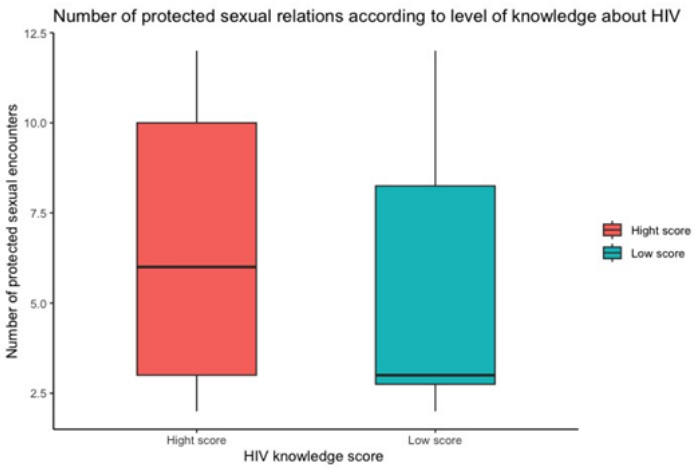

Figure 1: Average number of safe sex by level of knowledge about HIV.

There was a non-significant linear relationship (p=0.4) between age at first intercourse and number of sexual partners. The number of sexual partners decreases when the age at first intercourse increases (Figure 2).

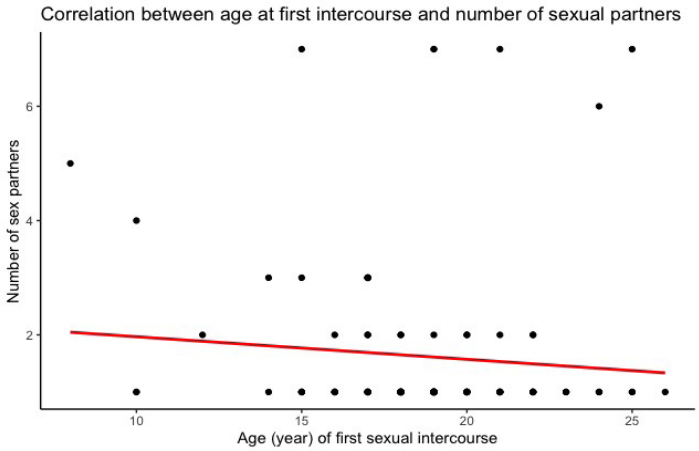

Figure 2: Correlation between age at first intercourse and number of partners.

Discussion

Our study population was predominantly male. This is not surprising, given that few of the women were in higher education. Indeed, most are subject to early pregnancy and dropping out due to lack of financial means. Moreover, in areas such as Kara and the rural surrounding areas, the higher the level of education, the fewer women are found [5,6]. In our study, all levels of education were represented. Bachelor's level students predominated, as only the best are retained for further programs. This was also reflected in their age, since the majority (70%) was between 20 and 24 years of age. Indeed, University of Kara's population is young, barely out of adolescence. Among the various faculties taking part in the study, the Faculty of Health Sciences (33%) was the most represented. A study carried out in Canada [7] found that students enrolled in health studies were the most represented. These students, because of the courses they have taken in the faculty, are more at ease with questions about sex life.

In our study population, one-third (31%) noted the severity of HIV infection, and most found that the virus is circulating less nowadays. Indeed, the efforts made by the government, in association with technical and financial partners, have enabled infected people to be systematically put on treatment, resulting in a reduction in HIV related mortality. While this is a good thing, it seems to have the opposite effect on the population making them lower their guard about HIV infection, and that could paradoxically increase the number of new infections. Indeed in France, 65% of schoolchildren thought that HIV was a seriously fatal infection in 2020, and in Ghana, 61.6% of schoolchildren had a good knowledge about HIV, whereas in Morocco, 2.5% had a good knowledge about STIs, and in Rwanda, 56% of students had little knowledge about HIV [8-11]. The low level of HIV knowledge in Rwanda was linked to a number of factors, including marital status: singles were more knowledgeable than couples. The disparity in the percentage of knowledge in these African countries might suggest that it depends on culture (discussion about sex) and the policy for managing sexually transmitted infections. The earlier sex education is provided, the better informed people are about STIs.

Most of our respondents (57%) received information on STIs and sexual practices through the mass media. Indeed, sex is almost a taboo subject in Togo, so few discuss it with their parents. However, a study carried out by Leroy among schoolchildren shows that their discussion of sexuality most often takes place within the family, and to a lesser degree with health professionals in France [8]. In North Kivu, Senegal and Mali, the majority of PLHIVs claim to have received information on HIV/AIDS from radio and television, and then from health workers [12-15]. In Cameroon, most middle-school students surveyed had received information about HIV at school [16]. Obtaining information about sex outside the family is a risk factor for the child, as these channels remain uncontrolled and a third party can pass on the wrong information to the child [6]. In addition, the fact that sex is not discussed within the family setting leads to "a priori" assumptions about confessing one's HIV status as a couple. Thus, there is a link between knowledge of the partner's HIV status and the level of knowledge about HIV (p=0.04). The conclusion of our study is that good information about HIV leads to better prevention and, in turn, the decrease of new infections.

Our study highlighted the fact that knowledge about HIV was linked to gender (p=0.01). Male students were more knowledgeable than female students. Furthermore, most female students did not know their partner's status. This reinforces the fact that sex remains a taboo subject in the family, and that sex education takes place outside the family circle [6]. As a result, young girls are embarrassed to discuss sex and all that surrounds it, and will only be able to discuss their HIV status if their partner is the first to mention it. This difference has also been noted in South Africa, in Mozambique by Shamu et al. where female respondents were those who did not have safe sex practices [17,18]. Paradoxically, a survey carried out among adults in South Africa and Lesotho showed that, with age, women, and particularly those with university education, had better attitudes and practices regarding sexually transmitted infections [19]. These countries have high HIV prevalence rates, and certainly with age there is likely to be an increase in awareness and improvement in attitudes.

Although around 98% of our respondents knew their HIV status, it should be pointed out that most of them (85%) did not undergo testing as a couple before their first intercourse. In fact, most of those who did their testing did so as part of their university admission health check-up. Thus, the university health check-up is an initiative in the fight against STIs, but it's because it's free of charge that students are able to do it. It should also be pointed out that, in addition to the health check-up, free and anonymous

testing centers are the means by which some people know their HIV status.

The majority of our respondents were single, but however had casually sex with a partner. In North Kivu, despite their status, PLHIVs had casually safe sex, but were reluctant to share their status with their partners [12]. This lack of clarity within the couple is a real obstacle to reducing the rate of new HIV infections, given that these students are young and will soon be having a family.

Condom use was the most widely used means of STI prevention by our study population (79%), as well as by PLHIVs in North Kivu [12]. In Parakou, Benin, condoms were used by 32% of respondents [20]. Condoms are generally well known to the population, thanks to the large posters in our cities and the various audiovisual advertisements broadcast on TV and radio. Although condoms are frequently used, the students revealed that some cases of non-use were due to trust in their partner or to refusal. Trust in one's partner remains a risk factor for HIV infection, especially as most people don't know their partner's status, and often they are casual partners. Refusal to use a condom indicates a lack of information about the risks associated with STIs. In our study, 11% of respondents mentioned stock-outs as a reason for not using a condom. It should be noted that there are free condom distribution areas on campus, set up by associations, so in the event of condom stock-outs, students had to buy condoms outside the campus, for a fee.

The median age at first intercourse was 19 [17-21] for both sexes. These ages are also found in France and Europe [21], and slightly earlier in Yaoundé, Cameroon, and Gao, Mali [15,22]. Although these ages are close to the legal age for the respondents, it should be noted that the number of sexual partners decreases as the age of first intercourse increases (p= 0.4). The age of first intercourse has evolved considerably, if we take into account the worldwide comparisons made by Bozon in 2003 [23]. Globalization and the liberalization of mores have enabled young people to free themselves from parental recommendations on sex. Moreover, since the subject is taboo, young people discover sex out of curiosity, and the sooner they discover it, the more sexual partners they will have over the course of their lives. Without support or protection, the large number of partners is a risk for the acquisition of STIs and therefore of HIV/AIDS. In Mozambique, according to LefèvreChaponnière in 2010, young disabled girls were most at risk of contracting HIV infection due to multiple partners, weak power to request condom use and poor knowledge about HIV [18]. Multiple partners and lack of testing have also been highlighted in studies on STIs in Rwanda, and on HIV in South Africa and Botswana [11,24,25].

Conclusion

More than half of the students surveyed at the University of Kara have a good knowledge about HIV-AIDS. Information on HIV is not received within the family, but mass media advertising plays a major role in informing the student population. Some of their sexual practices, such as the lack of systematic condom use and ignorance of a partner's HIV status, put them at risk of HIV contamination. The results of our study indicate the need to raise awareness about HIV infection in order to promote good prevention among adults of reproductive age, with the aim of avoiding new infections. In addition, a follow-up and counseling unit should be set up within the University.

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Declarations

Ethics approval and consent to participate

This project was approved by the Internal Review Board of Kara University in accordance with the ethical standards in the Declaration of Helsinki. All participants provided informed consent prior to participating.

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