



Knowledge, attitude and practice of African university exchange students about Sexually Transmitted Infections

Conhecimento, atitude e prática de universitários intercambistas africanos acerca das Infecções Sexualmente Transmissíveis

Conocimiento, actitud y práctica de estudiantes africanos de intercambio sobre las infecciones de transmisión sexual

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ABSTRACT

Objective: to evaluate the knowledge, attitude and practice of university exchange students from the African continent about Sexually Transmitted Infections. **Method:** a cross-sectional study, conducted from December 2019 to March 2020, in a public international Brazilian university located in Ceará. The sample consisted of 150 African students from different undergraduate courses. It was used the survey of Knowledge, Attitude and Practice. **Results:** the students showed satisfactory knowledge about the form of transmission of Sexually Transmitted Infections, however, with deficiencies regarding viral hepatitis. An association between sex and attitude about condom use in sexual intercourse with a fixed partner was identified ($p=0.042$). Regarding the practices, there was an association between sex and condom use in the first sexual relation ($p=0.001$), having more than one partner ($p=0.001$) and more than ten partners in the whole life (0.007). Regarding sexual practices in the last 12 months, there was a statistical association between having sex with more than one sexual partner and the participant's sex ($p=0.001$). **Conclusion and implications for practice:** the importance of the university researched carrying out health education activities that address Sexually Transmitted Infections, as well as university extension activities that involve African immigrant students, is emphasized.

Keywords: Africa; Health Knowledge, Attitudes and Practices; Sexually Transmitted Infections; Health Promotion; Universities.

RESUMO

Objetivo: avaliar o conhecimento, a atitude e a prática de universitários intercambistas provenientes do continente africano acerca das Infecções Sexualmente Transmissíveis. **Método:** estudo transversal, realizado de dezembro de 2019 a março de 2020, em universidade pública internacional brasileira localizada no Ceará. A amostra foi constituída por 150 estudantes africanos de diferentes cursos de graduação. Utilizou-se do inquérito de Conhecimento, Atitude e Prática. **Resultados:** os universitários apresentaram conhecimento satisfatório acerca da forma de transmissão das Infecções Sexualmente Transmissíveis, porém, com deficiências a respeito das hepatites virais. Identificou-se associação entre sexo e atitude acerca do uso de preservativo em relação sexual com parceria fixa ($p=0,042$). No que se refere às práticas, houve associação entre sexo e uso do preservativo na primeira relação sexual ($p=0,001$), ter mais que um parceiro ($p=0,001$) e mais que dez parceiros em toda a vida (0,007). No que se relaciona às práticas sexuais nos últimos 12 meses, observou-se associação estatística entre ter relações sexuais com mais de um parceiro sexual e sexo do participante ($p=0,001$). **Conclusão e implicações para a prática:** enfatiza-se a importância de a universidade pesquisada realizar atividades de educação em saúde que abordem Infecções Sexualmente Transmissíveis, bem como de extensão universitária, que envolvam alunos imigrantes africanos.

Palavras-chave: África; Conhecimentos, Atitudes e Práticas em Saúde; Infecções Sexualmente Transmissíveis; Promoção da Saúde; Universidades.

RESUMEN

Objetivo: evaluar el conocimiento, la actitud y la práctica de estudiantes de intercambio del continente africano sobre las Infecciones de Transmisión Sexual. **Método:** estudio transversal, realizado de diciembre de 2019 a marzo de 2020, en una universidad pública internacional brasileña ubicada en Ceará. La muestra estuvo compuesta por 150 estudiantes africanos de diferentes cursos de pregrado. Se utilizó la encuesta de Conocimiento, Actitud y Práctica. **Resultados:** los universitarios mostraron conocimientos satisfactorios sobre la transmisión de Infecciones de Transmisión Sexual, sin embargo, con deficiencias sobre las hepatitis virales. Se identificó asociación entre el sexo y la actitud sobre el uso del preservativo en las relaciones sexuales con pareja estable ($p=0,042$). En cuanto a las prácticas, hubo asociación entre sexo y uso de preservativo en la primera relación sexual ($p=0,001$), tener más de una pareja ($p=0,001$) y tener más de diez parejas en la vida (0,007). En cuanto a las prácticas sexuales en los últimos 12 meses, hubo asociación estadística entre tener sexo con más de una pareja sexual y el género del participante ($p=0,001$). **Conclusión e implicaciones para la práctica:** se destaca la importancia de que la universidad investigada realice actividades de educación en salud que aborden las Infecciones de Transmisión Sexual, así como actividades de extensión universitaria, involucrando estudiantes inmigrantes africanos.

Palabras clave: África; Conocimientos, Actitudes y Práticas en Salud; Infecciones de Transmisión Sexual; Promoción de la salud; Universidades.

INTRODUCTION

Sexually Transmitted Infections (STIs) are a public health scourge due to the magnitude and barriers to access to adequate treatment.¹ An estimated 376.4 million incident cases were identified in 2016, including: 127.2 million cases of chlamydia; 86.9 million cases of gonorrhoea; 156.0 million cases of trichomoniasis and 6.3 million cases of syphilis.² The African region has a high prevalence of this type of infection. For these four curable STIs, the total number of new cases in Africa has been estimated at 63 million, corresponding to about 18% of the global incidence.² As for the age group, every year, four million young people become sexually active, and therefore vulnerable to STIs.^{3,4}

In countries with lower socioeconomic conditions, such as Africa, the public is more vulnerable to STIs, with young women and adolescents being the most affected due to factors related to low education, the migration process, lack of employment, lack of access to quality food, and orphanhood.⁵

In the context of STIs in the university setting, it is clear that the young population is more vulnerable due to less effective behaviors for the prevention of these diseases. Studies have shown that young Brazilian university students have poor knowledge regarding the transmission of STIs and present low risk perception of being infected, as well as have vulnerable practices, making them susceptible to STIs.^{6,7} This occurs because college students are more likely to present inadequate health behaviors, since this is a time considered a time of discovery and initiation of sexual life for most young people, which sometimes end up practicing unprotected sex.⁸

A systematic review conducted in 35 countries on the African continent showed the need to conduct research on STIs, since there is still a knowledge deficit, false beliefs, difficulty in knowing how to acquire infections, and the development of many inappropriate practices, including condom use.⁹

Sexuality is an important issue, especially during adolescence and young adulthood, because in today's society there is a high number of unwanted pregnancies and increased exposure to STIs.³ A research involving Brazilian and African immigrant women in Portugal showed important gaps in knowledge about the transmission and prevention of STIs, especially among African participants. This limitation may result in implications for the adoption of safe sex practices, being fundamental investment in the area of information on preventive measures.¹⁰

Therefore, the knowledge about the use of condoms and the risks that follow unprotected sexual intercourse is fundamental so that young people can practice sex in a safe, correct and healthy way, guaranteeing the prevention of infections.¹¹ In this sense, universities are an appropriate place to disseminate knowledge and raise awareness about proper health practices, ways of dealing with STIs, and training young people.⁷

Therefore, data collection and analysis of knowledge, attitudes and health practices about STIs among young African university students is relevant, since they are more vulnerable to STIs, allowing the profiling of these young people and knowledge of their main vulnerabilities in order to provide important information

regarding the need to implement educational strategies to raise the awareness of this target audience about STI prevention.

The study is justified by the contribution to the existing knowledge and gaps about STIs in university students in African countries, with the purpose of alerting the competent authorities to the development of health care practices and prevention of STIs in the university environment, especially due to the incidence of this problem in the young population. Furthermore, it proposes reflection among the national and international scientific community, managers and professionals regarding the assertive confrontation and management of this public health problem.

In view of the above, we aimed to evaluate the knowledge, attitude and practice of university students from the African continent about STIs.

METHOD

This is a descriptive, cross-sectional study, with a quantitative approach, that used the Knowledge, Attitude and Practice (KAP) survey, which provides a way to collect data from a certain population, favoring the development of interventions focused on the needs identified by the instrument.¹²

The study was conducted from December 2019 to March 2020. Among the universities in Brazil, the University of International Integration of Afro-Brazilian Lusophony (UNILAB) was chosen, a federal public university with administrative and academic activities concentrated in the Brazilian states of Ceará and Bahia, whose mission is to train human resources to contribute to the integration between Brazil and the other member countries of the Community of Portuguese Language Countries.¹³

UNILAB bases its actions on academic and solidarity exchange with Angola, Cape Verde, Guinea-Bissau, Mozambique, Portugal, São Tomé and Príncipe, and East Timor. For the first semester of 2020, it had 4997 students enrolled in undergraduate courses, of which 1,169 were African students.¹³ During the study period, the university residences were under construction, and the university offered the Student Assistance Program, which benefits the student with socioeconomic housing assistance according to the student's vulnerability profile.

The study population consisted of 897 African students from different in-class undergraduate courses at the Ceará campuses in the first semester of 2020: Public Administration, Agronomy, Anthropology, Bachelor of Humanities, Biological Sciences, Natural Sciences and Mathematics, Computer Engineering, Energy Engineering, Physics, History, Literature - Portuguese Language, Mathematics, Pedagogy, Chemistry and Sociology. A non-probability convenience sample was used, totaling a sample of 150 college students, who were approached at the university premises during class breaks or free time.

The study included African students, regularly enrolled in an undergraduate course, aged 18 years or older. Students from Nursing and Pharmacy courses were excluded, since the curricula of these courses include subjects that address the subject, which may generate bias in the research; those who were on leave of

absence at the time of collection and those who had a nationality other than African, such as students from East Timor.

Data collection was developed from December 2019 to March 2020. Initially, the research project was presented to the students, especially the objective and the methodological procedure. The Informed Consent Form was applied, and then they were asked to fill out a structured questionnaire adapted from the Ministry of Health’s manual on the Knowledge, Attitude and Practice Survey (KAPS) 2013, which enabled the analysis and evaluation of the behavior of the study population.⁹ The questionnaire covered socio-demographic information and the assessment of knowledge, attitude and practice about the signs and symptoms, transmission, prevention and treatment of STIs.

The students were recruited in the university spaces, such as the university restaurant, libraries, and classrooms. Afterwards, space was made available for the participants to answer the instruments on their own time. The researcher was present with the respondent during the period, collecting the instrument at the end.

The data obtained were organized in Microsoft Office Excel® spreadsheet and processed in Jamovi® software. Exploratory data analysis was performed using absolute and relative frequencies, measures of central tendency such as the mean, and measures of dispersion such as the standard deviation. Pearson’s chi-square test and Fisher’s exact test were used to verify the association between variables.¹⁴ The results were presented by means of tables. The normality of the sample was not evaluated, because, among the tests used, the mean and standard deviation were not given as parameters.¹⁴

The ethical principles of research involving human beings were considered, according to Resolution No. 466/2012 of

the National Health Council, and approved by the Research Ethics Committee of the University of International Integration of Afro-Brazilian Lusophony, via *Plataforma Brasil*, according to Opinion No. 3,701,529 and Certificate of Submission for Ethics Appreciation No. 19713019.5.0000.5576.

RESULTS

Of the 150 study participants, 70.67% (n=106) were male and 29.33% (n=44) were female. The mean age of the participants was 24.71 years (SD: 2.77), with a minimum age of 20 and a maximum age of 31. 68% (n=102) had no fixed partner and 32.00% (n=48) did. Regarding the country of origin, 78% (n=117) were from Guinea-Bissau, 16.67% (n=25), from Angola, 2.67% (n=4), from Mozambique, 2% (n=3), from Cape Verde and 0.67% (n=1), from São Tomé and Príncipe.

Table 1 shows the distribution of the participants as to their knowledge about the forms of transmission of some diseases.

It was verified a deficit in the students’ knowledge when questioned about the forms of transmission of some pathologies. Most students did not know how hepatitis is transmitted (n=83; 55.33%). HIV/AIDS (Acquired Immune Deficiency Syndrome) was the infection most recognized by the students (n=131; 87.34%).

Table 2 shows the association between attitudes about STIs and the gender of the participants.

In Table 3, a statistical association was identified between condom use at first intercourse and the number of sexual partners of the participants.

Regarding sexual practices in the last 12 months, a statistical association was observed between having sex with more than one sexual partner and the student’s gender as shown in Table 4.

Table 1 - Distribution of study participants according to knowledge about the forms of transmission of some diseases. Redenção, CE, 2020.

Variables	n	%	95%CI
Hepatitis contamination through water or food			
Right	24	16.00	[10.53 – 22.86]
Wrong	43	28.67	[21.59 – 36.61]
Doesn’t know	83	55.33	[47.01 – 63.45]
Contamination by sharing instruments of drug use: needle, syringe, can etc.			
Right	116	77.33	[69.79 – 83.76]
Wrong	18	12.00	[7.27 – 18.30]
Doesn’t know	16	10.67	[6.22 – 16.74]
Contamination from not using condoms during sexual intercourse			
Right	146	97.33	[93.31– 99.27]
Wrong	01	0.67	[0.02 – 3.66]
Doesn’t know	03	2.00	[0.41 – 5.73]

Table 2 - Association between attitudes about Sexually Transmitted Infections and gender of participants. Redenção, CE, 2020.

Variables	Male		Female		p-value*
	n	%	n	%	
A person can become infected with hepatitis B, C, or D viruses by sharing razor blades or shaving razor blades					0.461**
Agree	54	76.06	17	23.94	
Disagree	15	68.18	7	31.82	
Don't know	37	64.91	20	35.09	
A person can become infected with hepatitis B, C, or D virus when having any surgery					0.910**
Agree	41	69.49	18	30.51	
Disagree	15	68.18	7	31.82	
Don't know	50	72.46	19	27.54	
The risk of transmitting the AIDS virus can be reduced if a person has sex only with a faithful, uninfected partner					1.000***
Agree	96	70.07	41	29.93	
Disagree	9	75.00	3	25.00	
Don't know	1	100	0	0	
A healthy-looking person may be infected with the AIDS virus					1.000***
Agree	102	70.34	43	29.66	
Disagree	2	66.67	1	33.33	
Don't know	2	100.0	0	0	
Using a condom is the best way to prevent the AIDS virus from being transmitted during sexual intercourse					0.175***
Agree	94	68.61	43	31.39	
Disagree	10	90.91	1	09.09	
Don't know	2	100.0	0	0	
If I have a steady partner, I don't need to use a condom					0.042***
Agree	27	87.10	4	12.90	
Disagree	77	66.96	38	33.04	
Don't know	2	50.00	2	50.00	
A person can become infected with the AIDS virus by sharing cutlery, glasses, or meals					0.200**
Agree	80	80.00	5	20.00	
Disagree	77	66.96	38	33.04	
Don't know	9	90.00	1	10.00	
A pregnant woman who has the AIDS virus and receives a specific treatment during pregnancy and at the time of delivery decreases the risk of passing the AIDS virus to her child					0.111**
Agree	95	71.97	37	28.03	
Disagree	6	50.00	6	50.00	
Don't know	5	83.33	1	16.67	
There is a cure for AIDS					0.854**
Agree	11	68.75	5	31.25	
Disagree	71	71.00	29	29.00	
Don't know	24	70.59	10	29.41	

* The answer option "Don't know" was not considered for statistical analysis. ** Pearson's chi-square test. *** Fisher's exact test.

Table 2 - Continued...

Variables	Male		Female		p-value*
	n	%	n	%	
A person who is taking medication for AIDS is less likely to transmit the AIDS virus to another person					0.254**
Agree	55	60.07	27	32.93	
Disagree	36	76.60	11	23.40	
Don't know	15	71.43	6	28.57	
AIDS is a chronic disease that can be controlled					0.565**
Agree	75	69.44	33	30.56	
Disagree	21	75.00	7	25.00	
Don't know	10	71.43	4	28.57	

* The answer option "Don't know" was not considered for statistical analysis. ** Pearson's chi-square test. *** Fisher's exact test.

Table 3 - Association of sexual practices and the sex of the participants. Redenção, CE, 2020.

Variables	Male		Female		p-value*
	N	%	n	%	
Have you ever been tested for AIDS?					0.927**
Yes	78	70.27	33	29.73	
No	27	71.05	11	28.95	
Don't know/Don't want to answer	1	100	0	0	
Have you been tested for AIDS in the last 12 months?					0.107**
Yes	25	62.50	15	37.50	
No	76	76.00	24	24.00	
Don't know/Don't want to answer	5	50.00	5	50.00	
Have you ever done a rapid AIDS test?					0.318**
Yes	57	69.51	25	30.49	
No	41	77.36	12	22.64	
Don't know/Don't want to answer	8	53.33	7	46.67	
In the last 12 months, did you receive or get free condoms at the university?					0.291**
Yes	46	75.41	15	24.59	
No	60	67.42	29	32.58	
Have you ever had sex in your life?					0.339**
Yes	97	71.85	38	28.15	
No	9	60.00	6	40.00	
Did you use a condom during your first sexual intercourse?					0.001**
Yes	28	52.83	25	47.17	
No	62	86.11	10	13.89	
Don't know/Don't want to answer	7	70.00	3	30.00	

* The response option "Don't know" was not considered for statistical analysis. ** Pearson's chi-square test.

Table 3 - Continued...

Variables	Male		Female		p-value*
	N	%	n	%	
Have you ever had more than one sexual partner in your entire life?					0.001**
Yes	88	76.52	27	23.48	
No	11	39.29	17	60.71	
Don't know/Don't want to answer	7	100.0	0	0	
Have you had more than ten sexual partners in your entire life					0.007**
Yes	32	86.49	5	13.51	
No	64	62.75	38	37.25	
Don't know/Don't want to answer	10	90.91	1	9.09	

* The response option "Don't know" was not considered for statistical analysis. ** Pearson's chi-square test.

Table 4 - Association of sexual practices in the last 12 months and the sex of the participants. Redenção, CE, 2020.

Variables	Male		Female		p-value*
	(n=101)	%	n	%	
Have you had sexual intercourse in the last 12 months?					0.885**
Yes	74	70.48	31	29.52	
No	27	69.23	12	30.77	
Don't know/Don't want to answer	5	83.33	1	16.67	
Have you had sexual intercourse in the last month?					0.943**
Yes	50	70.42	21	29.58	
No	51	69.86	22	30.14	
Don't know/Don't want to answer	5	83.33	1	16.67	
Have you had sex with more than one sexual partner in the last 12 months?					0.001***
Yes	50	92.59	4	7.41	
No	51	56.67	39	43.33	
Don't know/Don't want to answer	5	83.33	1	16.67	
Thinking back to your last sexual relationship, did you use a condom?					0.765**
Yes	58	71.60	23	28.40	
No	37	74.00	13	26.00	
Don't know/Don't want to answer	11	57.89	8	42.11	
Did you use a condom every time?					0.910**
Yes	33	73.33	12	26.67	
No	63	72.41	24	27.59	
Don't know/Don't want to answer	10	55.56	8	44.49	

* The answer option "Don't know" was not considered for statistical analysis. ** Pearson's chi-square test. *** Fisher's exact test.

It was verified that 44% (n=66) have not had sexual intercourse with a partner who has or has had urethral discharge. When questioned about the occurrence of gynecological problems, 61.54% (n=24) of the women interviewed said that they had had

some type of treatment. In addition, 32.43% (n=12) did not seek care the last time they had any of these problems.

When the students were questioned about the place where they were last tested for AIDS, 30.67% (n=46) said they were

tested at the university, 27.33% (n=41), at the public health network and 25.33% (n=38) never tested or do not remember. The main reason for the last AIDS test was curiosity (37.33%; n=56). Regarding sexarche, the mean age was 16.53 years (SD:2.73).

The quantitative of 84.56% (n=126) of the university students agreed that the use of alcohol or drugs can make people have sex without a condom and that this situation was not experienced by the participants (n=122; 81.33%).

DISCUSSION

It was observed in this study that the university students were young, highlighting that the literature shows that the prevalence of STIs is much higher among the population of young adults and with an active sex life. In fact, this is a phase of life in which several behavioral characteristics of risk are verified, such as sex without the use of condoms, under the influence of alcohol, unplanned sex and/or due to the use of illicit drugs and unprotected sex due to lack of knowledge about barrier methods.^{6,15}

As for gender, it was found that most study participants were male. One study showed that men, due to the fact that they seek health services less, end up being the ones who present more chronic infections, since women seek health services more often and earlier, before any sign and/or symptom, despite being the sex that is more vulnerable to STIs.^{4,15,16}

Regarding descent, African-American adolescents have more active sexual behavior (vaginal, oral, or anal sex) compared to peers of other races, especially because of contextual factors, including poverty and violence.¹⁷ This emphasizes the discussion about the structural racism present in societies marked by the enslavement of the black population and shows that social factors have a significant influence on sexual practice. Thus, one of the factors that can contribute to the reduction of sexual risk behaviors in African-American male adolescents would be better parent-child communication about sex education.¹⁷

In the African context, the population group of blacks is predominant, which strengthens the need for sexual health interventions to improve the sexual well-being of this audience. A meta-analysis involving 29 studies, including 11,918 black adolescents, showed that they face interpersonal, community and systemic barriers to practice safe sexual behavior, such as poverty, discrimination and racism. However, the implementation of sexual health interventions may favor condom use (Cohen d = 0.25; 95% CI, 0.11-0.39) and improve sexual health knowledge (Cohen d = 0.46; 95% CI, 0.30-0.63).¹⁸

It was found that the most effective interventions for this public should be carried out in the school environment, aiming to decrease racial disparities in health and encompass the dual prevention of pregnancy and STIs, since the most recent study points out problematic behavioral pattern of adhering only to hormonal contraceptive methods and intrauterine devices and not to methods that protect against HIV infection and other STIs.¹⁸

The predominance of students without a steady partner was identified, being considered the most vulnerable to STIs when unmarried sex is performed without the use of condoms. A study

conducted in Portugal with university students of 46 different nationalities found that people without a steady partner, especially young people, are more likely to contract some type of STI, mainly due to the multiplicity of partners.¹⁵ In this sense, the university environment becomes fertile to problematize this theme and implement health promotion and STI prevention activities.

It was proven that, in general, students showed adequate knowledge and attitude about the transmission of HIV/Aids; however, there is a deficit in relation to other STIs that are less publicized in social media, such as viral hepatitis. Therefore, they become vulnerable to these STIs, since they showed lack of knowledge about the means of transmission. It is noteworthy that studies have discussed the fragility of the disclosure of other STIs.^{3,8,19} In this sense, we suggest the development of educational activities that empower young people about STIs, forms of transmission and places where they can seek guidance from health professionals.

A study on non-young African immigrant women in Portugal pointed out gaps in knowledge about the transmission and prevention of STIs, arguing that vulnerability to these diseases is related to the sexual behavior adopted by the partner. The cultural issue between peoples is an important factor in sexual relations, being seen among African women the difficulty of "negotiating" condom use with their partner, having limited opportunities to adopt STI prevention measures.⁹

Regarding the students' practice regarding STIs, it was evidenced that most students reported having started their sexual lives during adolescence, a finding similar to the literature, which showed a variation between 16 and 18 years.²⁰ However, it is noteworthy that most did not use condoms during their first sexual intercourse, a factor that can make them more vulnerable and increase the incidence of STIs. It is worth pointing out that young people are taboo to talk about this issue and, many, end up seeking information on websites, with friends and other sources that may hinder the confrontation and management of STIs. Thus, the university needs to highlight issues related to sexuality, STIs, forms of prevention, detection, use of contraceptive methods and STI prevention.²¹

Most of the study participants affirmed having more than one sexual partner in their entire lives, which makes the young population a more vulnerable public, since they are still very curious about the sexual act and, in the academic environment, young people are more likely to make appointments and seek to get to know each other in various ways.^{4,6}

A study carried out in Brazil with young adults regardless of nationality showed that 52% of this population lives at risk of STIs.³ In this study; it was found that most college students do not use condoms in all sexual relations. Thus, the discussion about the importance of condom use for the prevention of STIs becomes relevant, since the habit of use among students shows a percentage far below the recommended, since most of the time condoms are not used and, when they are used, there is a predominance of males.^{20,22,23}

Research conducted at a historically black college in North Carolina involving 498 sexually active first-year students sought to determine reports of sexual risk behaviors. The findings indicated that the element of self-esteem - "I take a positive attitude about myself" ($B=1.12$, $p=0.05$) and "I don't use condoms because of problems with partner" ($B=0.53$, $p=0.05$) - increased the number of these risky behaviors, being fundamental the performance of health professionals and community leaders in the training of peer facilitators, aiming at intervention focused on self-esteem and safe sex.²⁴

In light of the above, it can be noticed that the knowledge of young university students, when compared to the literature, proved to be adequate about some STIs, but this knowledge is not applied to sexual practices. Therefore, it is noted that this behavior shows that, even with the knowledge about the means of transmission of some STIs, adequate sexual practice is not guaranteed.³

CONCLUSION AND IMPLICATION FOR PRACTICE

This study assessed the knowledge, attitude and practice of African university students about STIs. It was observed that the students had satisfactory knowledge about the transmission of STIs, although with deficiencies about others, such as viral hepatitis. A statistical association was observed between sex and attitude about condom use in sexual intercourse with a fixed partner. Regarding practices, there was an association between sex and condom use in the first sexual relation, having more than one partner and more than ten partners in a lifetime. Regarding sexual practices in the last 12 months, there was a statistical association between having sex with more than one sexual partner and the participant's sex.

It is emphasized the importance of the university conducting health education activities that address STIs, as well as university outreach activities that involve African immigrant students, considering cultural aspects. These actions stimulate debates among young university students, encouraging them to adopt habits that promote safe sex practices. Furthermore, this study highlights the need for educational institutions to promote prevention and care for the sexual and reproductive health of students from diverse cultures.

The limitations of this study refer to the convenience sampling, the number of participants and the non-investigation of race, which may give rise to gaps regarding generalizations. However, it is noteworthy that the study has an important role regarding the sexual health care of young people from other cultures.

AUTHOR'S CONTRIBUTIONS

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REFERENCES

1. Pinto VM, Basso CR, Barros CRS, Gutierrez EB. Fatores associados às infecções sexualmente transmissíveis: inquérito populacional no município de São Paulo, Brasil. *Cien Saude Colet*. 2018 jul;23(7):2423-32. <http://dx.doi.org/10.1590/1413-81232018237.20602016>. PMID:30020394.
2. Rowley J, Vander Hoorn S, Korenromp E, Low N, Unemo M, Abu-Raddad LJ et al. Chlamydia, gonorrhoea, trichomoniasis and syphilis: global prevalence and incidence estimates, 2016. *Bull World Health Organ*. 2019 ago 1;97(8):548-562P. <http://dx.doi.org/10.2471/BLT.18.228486>. PMID:31384073.
3. Sales W, Caveião C, Visentin A, Mocelin D, Costa P, Simm E. Risky sexual behavior and knowledge of STIs/AIDS among university health students. *Rev Enferm Referência*. 2016;4(10):19-28. <http://dx.doi.org/10.12707/RIV16019>.
4. Spindola T, Santana RSC, Costa CMA, Martins ERC, Moerbeck NT, Abreu TDO. Não vai acontecer: percepção de universitários sobre práticas sexuais e vulnerabilidade às infecções sexualmente transmissíveis. *Rev Enferm UERJ*. 2020 ago 31;28:e49912. <http://dx.doi.org/10.12957/reuerj.2020.49912>.
5. Comins CA, Rucinski KB, Baral S, Abebe SA, Mulu A, Schwartz SR. Vulnerability profiles and prevalence of HIV and other sexually transmitted infections among adolescent girls and young women in Ethiopia: a latent class analysis. *PLoS One*. 2020 maio 14;15(5):e0232598. <http://dx.doi.org/10.1371/journal.pone.0232598>. PMID:32407394.
6. Fonte VRF, Spindola T, Francisco MTR, Sodré CP, André NLNO, Pinheiro CDP. Young university students and the knowledge about sexually transmitted infections. *Esc Anna Nery*. 2018;22(2):e20170318. <http://dx.doi.org/10.1590/2177-9465-EAN-2017-0318>.
7. Fonte VRF, Spindola T, Lemos A, Francico MTR, Oliveira CSR. Knowledge and perception of risks related to sexually transmissible infections among young university students. *Cogitare Enferm*. 2018;23(1):e55903. <http://dx.doi.org/10.5380/ce.v23i3.55903>.

8. Borges MR, Santos AS, Da Silveira RE, Lippi UG. Sexual behaviour among initial academic students. *Rev Pesqui Cuid É Fundam Online*. 2015 Apr 1;7(2):2505-15. <http://dx.doi.org/10.9789/2175-5361.2015.v7i2.2505-2515>.
9. Badawi MM, SalahEldin MA, Idris AB, Hasabo EA, Osman ZH, Osman WM. Knowledge gaps of STIs in Africa; Systematic review. *PLoS One*. 2019 set 12;14(9):e0213224. <http://dx.doi.org/10.1371/journal.pone.0213224>. PMID:31513584.
10. Rocha CMF, Dias SF, Gama AF. Conhecimentos sobre o uso de contraceptivos e prevenção de DST: a percepção de mulheres imigrantes. *Cad Saude Publica*. 2010 maio;26(5):1003-12. <http://dx.doi.org/10.1590/S0102-311X2010000500022>. PMID:20563400.
11. Almeida RAAS, Corrêa RGCF, Rolim ILTP, Hora JM, Linard AG, Coutinho NPS et al. Knowledge of adolescents regarding sexually transmitted infections and pregnancy. *Rev Bras Enferm*. 2017 out;70(5):1033-9. <http://dx.doi.org/10.1590/0034-7167-2016-0531>. PMID:28977231.
12. Brasil. Ministério da Saúde. Pesquisa de Conhecimentos, Atitudes e Práticas na População Brasileira - 2013 [Internet]. Brasília: Ministério da Saúde; 2016 [citado 2021 maio 10]. Disponível em: <http://www.aids.gov.br/pt-br/pub/2016/pesquisa-de-conhecimentos-atitudes-e-praticas-na-populacao-brasileira-pcap-2013>
13. UNILAB: Universidade da Integração Internacional da Lusofonia Afro-Brasileira [Internet]. 2022 [citado 2022 fev 10]. Disponível em: <https://unilab.edu.br/>
14. Vieira S. Bioestatística: tópicos avançados. 4a ed. Barueri: Guanabara Koogan; 2018.
15. Gravata A, Castro R, Borges-Costa J. Estudo dos Fatores Sociodemográficos Associados à Aquisição de Infecções Sexualmente Transmissíveis em Estudantes Estrangeiros em Intercâmbio Universitário em Portugal. *Acta Med Port*. 2016 jun 30;29(6):360-6. <http://dx.doi.org/10.20344/amp.6992>. PMID:27865215.
16. Bastos VD, Araújo CLF, Loureiro TPC, Torres MS. Projeto Papo Sério: Ações de saúde sexual e prevenção das DST/AIDS entre adolescentes. *Extramur - Rev Ext Univasf* [Internet]. 2015 [citado 2021 jun 16];3(3):51-61. Disponível em: <https://www.periodicos.univasf.edu.br/index.php/extramuros/article/view/817>
17. Harris AL, Fantasia HC, Castle CE. Father 2 Son: The Impact of African American Father-Son Sexual Communication on African American Adolescent Sons' Sexual Behaviors. *Am J Mens Health*. 2019 jan 1;13(1):1557988318804725. <http://dx.doi.org/10.1177/1557988318804725>. PMID:30311826.
18. Evans R, Widman L, Stokes MN, Javidi H, Hope EC, Brasileiro J. Association of Sexual Health Interventions With Sexual Health Outcomes in Black Adolescents: A Systematic Review and Meta-analysis. *JAMA Pediatr*. 2020 jul 1;174(7):676-89. <http://dx.doi.org/10.1001/jamapediatrics.2020.0382>. PMID:32310261.
19. Santos CMA, Oliveira JDS, Lima SVMA, Santos AD, Góes MAO, Sousa LB. Men's knowledge, attitudes and practice regarding sexually transmitted diseases. *Cogitare Enferm*. 2018 Jan 15;23(1):e54101. <https://doi.org/10.5380/ce.v23i1.54101>.
20. Lim MSY, Hocking JS, Sanci L, Temple-Smith M, Lim MSY, Hocking JS et al. A systematic review of international students' sexual health knowledge, behaviours, and attitudes. *Sex Health*. 2022;19(1):1-16. <http://dx.doi.org/10.1071/SH21073>. PMID:35177186.
21. Ciriaco NLC, Pereira LAAC, Campos-Júnior PHA, Costa RA. The importance of knowledge about Sexually Transmitted Infections (STI) among adolescents and the need for an approach that goes beyond biological conceptions. *Rev Em Ext*. 2019 set 18;18(1):63-80.
22. Spindola T, Santana RSC, Antunes RF, Machado YY, Moraes PC. Prevention of sexually transmitted infections in the sexual scripts of young people: differences according to gender. *Cienc Saude Colet*. 2021;26:2683-92. <https://doi.org/10.1590/1413-81232021267.08282021>.
23. Moreira LR, Dumith SC, Paludo SS. Condom use in last sexual intercourse among undergraduate students: how many are using them and who are they?. *Cienc Saude Colet*. 2018;23:1255-66. <https://doi.org/10.1590/1413-81232018234.16492016>.
24. Ellis WL. Risky sexual behaviors among sexually active first-year students matriculating at a historically Black college: Is a positive self-image an instigator? *Soc Work Health Care*. 2016 fev 7;55(2):125-43. <http://dx.doi.org/10.1080/00981389.2015.1108949>. PMID:26865429.