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Knowledge, Attitude, and Practice of Academic Students about STIs and HIV/AIDS at the University of Fianarantsoa: A Cross-Sectional Study

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Abstract

Introduction: Sexually transmitted infections (STIs) facilitate and increase the risk of HIV transmission. This paper focuses on evaluating the

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knowledge, attitude, and practice of academic students about sexually transmitted infections and HIV at the university of Fianarantsoa. Materials: An analytical cross-sectional study was conducted among the students at the Andrainjato University. Knowledge was assessed using a score of one point for each correct answer. Results: 1035 students were included and 67.7% (n=701) had good knowledge about STIs and HIV/AIDS. The sexual transmission (83.9%; n=868) was the most commonly known. On multivariate analysis, being a student at the faculty of medicine (p<0.001, aOR 137.3 [19.1-988]), faculty of Letters (p<0.001, aOR 4.5 [2.8-7.2)]), or the Normal Graduate School (NGS) (p<0.001, aOR 6.7 [3.3-13.7]), being tested for HIV before (p= 0.002, aOR 1.6 [1.2-2.2]), constituted the major factor of good knowledge about sexual infections. Majority (71.8%, n=743) have had sexual intercourse before, and the median age of their first sexual activities was 18 years (17-20). The use of Condom (44.4%, n=460) was the most practiced STIs prevention method. This is followed by fidelity (19.8%; n=205) and abstinence (11.4%, n=118). Among the students, 29.3% (302) had high-risk sexual behavior during the last three months. Conclusion: The proportion of academic students with good knowledge of STIs and HIV was not satisfying. There was also discordance between the knowledge of STIs prevention and the daily university practice of the students.

Keywords: Attitude, Knowledge, Sexually Transmitted Infections, HIV, Academic Students

Introduction

Sexual transmitted infections (STIs) facilitate and increase the risk of HIV transmission. Appropriately managing STIs can significantly reduce new HIV infections (Over & Piot, 1991; Plummer et al., 1991) as more than one million people in the world contract STI every day (*Sexually Transmitted Infections (STIs)*, s. d.). STIs constitute a major public health problem especially among young people (Anwar et al., 2010). Young academic students constitute a sexual active population and therefore are at risk of contracting sexually transmitted infections (Anwar et al., 2010; *Sexually Transmitted Infections (STIs)*, s. d.). In addition, young people are considered to have a higher risk of contracting STIs than older people. In Madagascar, the prevalence of these diseases among this population group is very high (Harms et al., 1994; Leutscher et al., 2005). This group of the population are more likely inclined to engage in unprotected sex with multiple sexual partners. They represent a key population and priority health actions should be initiated and targeted to their daily activities. A lack of knowledge about STIs prevention would be a gap in the fight against these diseases (DiClemente et al., 2009). Thus, knowledge is an essential precursor in reducing STIs. This

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implies that adequate knowledge of STIs/HIV in this age group is a significant help in preventing the transmission of these diseases (Anwar et al., 2010). This study aimed to evaluate the knowledge, attitude, and practice of students about STIs and HIV at the university of Fianarantsoa and to determine the factors associated with good knowledge and practice.

Methods

Population and Sampling

The study was carried out in Madagascar at the region of Fianarantsoa, Andrainjato University. The study population involved students in 2nd and 3rd year at the faculty of the University in order to have a fair level of knowledge. Four thousand one hundred and forty-eight young people were registered at the faculty, while Three thousand six hundred and fifty-one students were enrolled in the faculties. An estimated 70% of students had good knowledge and practice about STI and HIV prevention, with a sample size of 296 students.

Inclusion and Exclusion Criteria

This study involved academic students belonging to one of the faculties and schools of the University of Andrainjato Fianarantsoa, such as Faculty of Medicine, Faculty of Law, Economics, Management and Social Sciences (FLEMSD), Faculty of Letters, Faculty of Sciences, Normal Graduate School (NGS), National School of Informatics (NSCS), and Management and Technological Innovation School (SMTI), who enrolled in the 2nd or 3rd year. They agreed to participate voluntarily by giving their consent or obtaining parental consent for those aged within 15 to 18 years. Students who were missing during the days of the survey were excluded.

Questionnaire

Based on current knowledge, no standard questionnaire concerning knowledge and practice regarding STIs and HIV has been implemented or published so far. The questionnaire was based on a literature review and on questions that had been formulated. Thereafter, the latter was tested on 30 students.

Knowledge of STIs and HIV

There was no international consensus for the definition of level of knowledge about STIs and HIV. One point was awarded for each correct answer. Knowledge was defined as good if a student's total score was above the lower quartile of the median (between 8 and 18), and it was considered poor knowledge if it was below 0 to 7.

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Statistical Analysis

Proportions represent the qualitative variables and the quantitative variables are represented by median. The comparison of qualitative variables was done by the Chi² test or the Fischer exact test. The quantitative variables were compared by the Mann-Whitney-Wilcoxon test. A multivariate analysis using a logistic regression model was performed to determine factors associated with good knowledge as well as STIs practice. Factors identified with a $p < 0.1$ in univariate analysis were included in a logistic regression model. A p-value < 0.05 was considered statistically significant. Statistical analysis was performed with Epi info 7.2.2 software.

Ethical Consideration

This study was conducted in accordance with the ethical Declaration of Helsinki on June 1964 as amended in October 2013 and relevant research ethics guidelines enforced in the country. It has been submitted to an authorization procedure and has gotten the approval of the Biomedical Research Ethics Committee of the Ministry of Public Health Madagascar (N°141-MSANP/CERBM). All students recruited were informed about the nature and objectives of the study. They participated voluntarily in this study, gave written informed consent in malagasy or french, and were guaranteed confidentiality of the data collected and the results. The data collected were anonymized. Only the investigators and the scientific officer had access to the study data.

Results

Characteristics of the Students

There were 1035 students included from seven faculties. Students from the faculty of FLEMSD 232 (22.4%) and SMTI 203 (19.6%) were predominant in the study population. This was followed by NSCS 156 (15.1%), Faculty of Letters 154 (14.9%), Faculty of Medicine 153 (14.8%), NGS 82 (7.9%), and Faculty of Sciences 55 (5.3%). The median age was 21 years (20-23), with extreme of 15 years and 42 years. The sex ratio was 1. Sexual orientation was predominantly heterosexual (n= 886; 85.6%) since homosexual and bisexual students have a proportion of 12.6% (n=130) and 1.3% (n=13), respectively.

Knowledge Score and Factors Related to Good Knowledge

The median score for STIs and HIV knowledge was 9 (7-12) and the maximum score was 18 of 18. More than half of the students (n= 701; 67.7%) had good knowledge about STIs with a score above seven. On multivariate analysis, factors related to good knowledge include students at the faculty of medicine ($p<0.001$, aOR 137.3 [19.1-988]), faculty of Letters ($p<0.001$, aOR

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4.5 [2.8-7.2]), the Normal Graduate School (NGS) ($p<0.001$, aOR 6.7 [3.3-13.7)]), and being tested for HIV before ($p= 0.002$, aOR 1.6 [1.2-2.2]). The main sources of knowledge include the following: courses at the faculty (n=625; 60.4%), consulting health care workers (n=612 ; 59.1%), television (n=524 ; 50.6%), and internet 403 (38.9). Table 1 shows the factors associated with good knowledge on univariate and multivariate analysis.

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Table 1. Factors Associated with Students' Knowledge

Variables	Knowledge		Univariate analysis		Multivariate anlysis	
	Bad 0 - 7 n (%)	**Good 8 - 18 n (%)**	**OR (IC 95%)**	**p-value**	**aOR (CI 95%)**	**p-value**
Faculty of FLEMSD	106 (32.8)	126 (19.1)	0.5 (0.3-06)	< 0.001		
Faculty of Medecine	**1 (0.3)**	**152 (23.4)**	**96 (19-1955)**	**< 0.001**	**137.3 (19.1-988)**	**< 0.001**
Faculty of Letters	**24 (7.4)**	**130 (19.8)**	**3 (1.9-4.9)**	**< 0.001**	**4.5 (2.8-7.2)**	**< 0.001**
SMTI	124 (38.4)	79 (12)	0.2 (0.1-0.3)	< 0.001		
NSCS	59 (18.3)	97 (14.7)	0.7 (0.5-1.1)	0.081		
Faculty of Science	11 (3.3)	44 (6.3)	0.5 (0.2-0.9)	0.02		
NGS	**9 (2.8)**	**73 (11.1)**	**4.3 (2.2-9.3)**	**< 0.001**	**6.7 (3.3-13.7)**	**< 0.001**
Having sexual contact before	237 (71)	506 (68.1)	0.9 (0.7-1.2)	0.112		
Age of first sexual contact ≥ 17 years	**188 (79.3)**	**436 (86.2)**	**0.6 (0.4-0.9)**	**0.01**		
Unprotected sex in the last 3 months	115 (34.4)	238 (34)	1 (0.7-1.3)	0.438		
Being tested for HIV before	**127 (38)**	**357 (50.9)**	**0.6 (0.5-0.7)**	**< 0.001**	**1.6 (1.2-2.2)**	**0.002**
Desire to be tested for HIV	**186 (55.9)**	**459 (65.5)**	**0.6 (0.5-0.8)**	**0.001**		
HBV vaccination	91 (27.2)	211 (30.1)	0.8 (0.6-1.1)	0.173		

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Academic Students' Knowledge of STIs and HIV

Majority, 997 (94.4%), of the students have already heard of STIs. In order of frequency, the sexually transmitted diseases cited by the academics include HIV infection (n=944; 91.2%), syphilis (n=846; 81.7%), gonorrhea (n=461 ; 44.5%), HBV (n=157 ; 15.2), herpes (n=29 ; 2.8%), Trichomoniasis (n=20 ; 1.9%), Chlamydia (n=17 ; 1.6%), HCV (n=14 ; 1.4%), and chancroid (n=9 ; 0.9%). Seven hundred and ninety-five (77%) knew that multi-partnership increases the risk of contracting STIs. However, sexual transmission (oro-genital, anal) was the most known transmissions mode of HIV (n=868 ;83.9%) and vertical transmission was least (n=161 ; 15.6%). In order of frequency, STIs prevention methods mentioned by students include condom use (n=792 ; 76.5%), fidelity (n=480 ;46.4%), and abstinence (n=201 ; 19.4%). According to the gender, prevention by condom use was 401 (50.6) for men versus 391 (49.3) for women, 228 (47.5) versus 252 (52.5) for fidelity, and 88 (43.8) versus 113 (56.2) for abstinence.

Practice of the Students

About 743 (71.8%) students claimed to have already had sexual contact and the median age of first sexual contact was 18 years (17-20), with extremes of 10 years and 28 years. One-third of the students (n=353; 34.1%) had at least one unprotected sexual contact during the past 3 months. The academics students who had ever been tested for HIV numbered 485 (46.8%) and only 323 (31.2%) were aware of their partner's HIV status. Thus, having previous sexual contact increased the initiative to getting tested for HIV (81% versus 63.7%; $p<0.001$; OR (IC95): 2.4 [1.8-3.2]). Among the academic students, 124 or 12% had at least two partners. Condom use (n=467; 45.1%) and fidelity (n=205; 19.8%) were the most commonly practiced STIs prevention methods. According to a gender breakdown, fidelity was 95 (53.7) for men and 82 (46.3) for women. In addition, there was a correlation between female and abstinence practice (60.5% versus 39.5%; p= 0.007; 1.6 [1.1-2.4]). Figure 1 summarizes the STIs prevention methods practiced by students. Amongst these students, 302 or 29.2% were vaccinated against viral hepatitis B.

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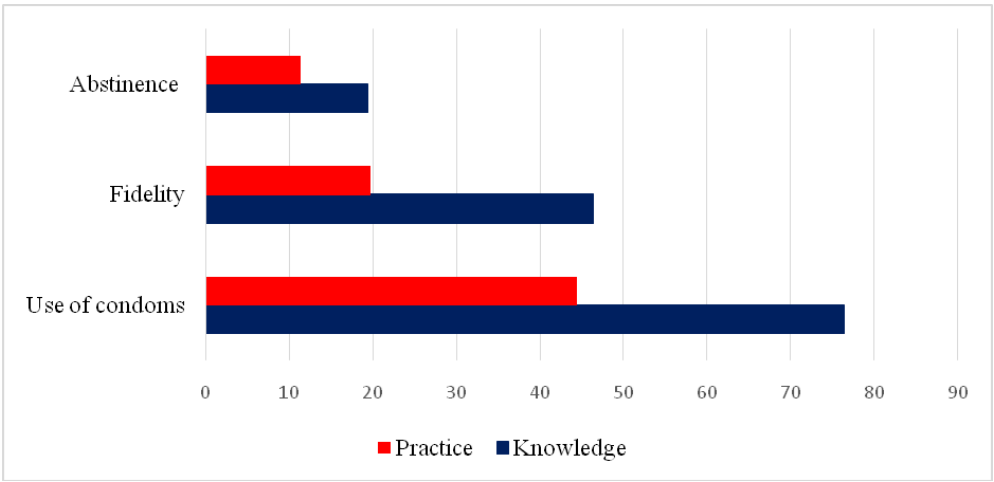

Figure 1. Knowledge, Practice of STIs, and HIV Transmission Pevention

Discussion

The findings show that majority of students (67.7%) had a good understanding of STIs and HIV infection, with 94.4% been aware of STIs. HIV infection (91.2%) was the most known sexually transmitted disease (STD). This could be explained by the fact that HIV infection is the most publicized in health facilities compared to other STIs (Agegnehu & Tesema, 2020; *Effectiveness of Mass Media Interventions for HIV Prevention... : JAIDS Journal of Acquired Immune Deficiency Syndromes*, s. d.; Romer et al., 2009; Samkange-Zeeb et al., 2011). However, the latter promotes and increases the risk of contracting HIV infection and acts as its cofactors (Over & Piot, 1991; Plummer et al., 1991). Delivering more information on other STIs rather than focusing on HIV only should strengthen the existing sexual education programs. The knowledge of STIs prevention methods was from 19.4% to 76.5% depending on the type of method. This knowledge, including prevention methods, among academic students in Fianarantsoa was therefore not satisfying. In this study, being a medical student was the main factor associated with good knowledge, which could be explained by the fact that these students received courses about STIs. Therefore, there is need to increase awareness among students in the faculty of FLEMSD, NSCS, and SMTI. However, knowledge about STIs should not depend on the study field. This implies that everyone should be informed about STIs because those diseases do not make difference between people as anyone could contract them. Some students had at risk sexual behavior because a third of them (34.1%) reported to have had at least one risk sexual contact in the last 3 months. The result confirms and supports the fact that youth are much more exposed to STIs and HIV through their sexual behaviors (Kassie et al., 2019; Sobze et al., 2017; Zizza et al., 2021). The knowledge of STIs has been shown to be a predictor

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of the use of condom among academic students (Agegnehu & Tesema, 2020; DiClemente et al., 2009). However, there was a large gap between their knowledge and their practice about prevention of STIs. Nevertheless, 76.5% of the students knew that the use of condom was one of the method to prevent sexual transmission of STIs and HIV, but only less than a half (45.1%) used it during a sexual contact with an unknown status sexual partner. This reluctance to use condoms could be explained by the fact that people consider that sexual contact without condom was better. This has resulted to discordance between knowledge and attitude as the people prioritize pleasure over safety. Only 46.8% of the population had ever tested for HIV. It was found that having sexual contact before significantly increases the likelihood of getting tested for HIV. This results shows that students have become aware of their risk-taking and the need for HIV testing after an at risk sexual contact. In reality, 34.1% of these young people had at least one unprotected at risk sexual contact during the last 3 months and only 31.2% were aware of the HIV status of their partner. Also, 12% had at least two sexual partners. This shows that academic students in Fianarantsoa were at risk of STIs and the knowledge of their risk-taking has motivated them to getting tested for HIV. Therefore, the importance of raising awareness about the modes of transmission and prevention of STIs is needed. Consequently, early screening and detection will lead to an early discovery of the disease and an early start of treatment. Early detection of HIV and STIs was an essential public health strategy in poor countries like Madagascar. It has been demonstrated that early treatment of STIs such as HIV/AIDS improves the prognosis of the disease and reduces the risk of transmission (Cohen et al., 2011; Eaton et al., 2014; Severe et al., 2010). Thus, academic students were the targeted population group in the fight against STIs transmission. Outreach programs containing key messages about STIs and HIV should also be developed at academic institutions to improve student practice especially on the prevention of STI transmission.

In Malaysia, a cross-sectional study of 600 students in higher education institutions aged 18 to 30 years reported a proportion of students with good knowledge of 78% (« Determinants of Knowledge on Sexually Transmitted Infections among Students in Public Higher Education Institutions in Melaka State, Malaysia », 2020). In Sicily, the factors associated with good knowledge regarding STIs were age and sexual orientation, which is based on 1588 humanistic and technical students studies (Visalli et al., 2019). Interestingly, other authors have found similar results to this study. In Brazil, Caetano et al. found that many academic students (80.4% and 74.8% of men and women respectively) had engaged in high-risk sexual behaviors to contract STIs (Caetano et al., 2010). In Nigeria, 48% of students reported having multiple sexual partners five years prior to the survey (Oladepo & Brieger, 1994). Thus, awareness should be raised among these

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young academic students to screen for and prevent STIs. Another possible bias that could have occurred in this study is information bias. Some respondents may be reluctant to answer questions truthfully due to the sensitive and personal nature of the topic at hand. However, the researcher attempted to reduce this bias by ensuring the reliability of the questionnaires. The main strength of this study revealed that the sample size had greatly exceeded. On the other hand, its monocentric nature is the main limitation. The results of this study, however, does not represent students from all higher education institutions in Madagascar since the study populations were limited to the University of Fianarantsoa.

An attempt was made to determine the level of knowledge of academic students about STIs and HIV. A high knowledge by students of this infectious communicable diseases may in turn influence their attitude towards these diseases. However, awareness should be increased among young people because knowledge does not always mean practice as shown by the results. Thus, the practice of knowledge received with a change of behavior will subsequently help in the fight against the transmission of these STDs. In this study, objectives were outlined to evaluate the knowledge and attitude of academic students in Fianarantsoa concerning STIs and HIV. Academic students were one of the key targets in the fight against STIs and HIV. Knowledge was not satisfying (median score of 9/18) and a significant proportion of the study population had at risk of sexual behavior. On this note, it is opined that another study should be conducted in order to determine the prevalence of HIV infection among University students.

Conclusion

The proportion of academics with good knowledge of STIs and HIV is not satisfying. The best knowledge about STIs was HIV infection and sexual transmission. There was a significant difference in the level of knowledge between students depending on the faculty where they studied. In addition, there was discordance between the knowledge of STIs prevention and the real life practice of the students. Many knew about prevention methods but did not practice them in their daily lives as most of them engaged in STIs risk behaviors. Therefore, awareness among young academic students should be encouraged and strengthened and sex education programs should be strengthened and promoted.

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Ethical Consideration: This study has been submitted to an authorization procedure and has gotten the approval of the Biomedical Research Ethics

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Committee of the Ministry of Public Health Madagascar (N°141-MSANP/CERBM).

Conflicts of Interests: The authors declare no conflict of interest.

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