Saúde Reprodutiva

Human Reproduction Archives

ISSN 2595-0711

RESEARCH ARTICLE

FACTORS ASSOCIATED WITH THE USE OF CONDOM AND KNOWLEDGE ABOUT HIV / AIDS AMONG MEDICAL STUDENTS

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Abstract

Objective: To analyze the use of condoms and sexual vulnerability among university students of medicine at the Pontifical Catholic University of Goiás, Brazil. **Methods:** a cross-sectional study was performed with medical students. They were evaluated through a questionnaire (applied between November 2018 and March 2019) self-filled and confidential. The inclusion criterion was students enrolled in the Medicine course of the PUC Goiás who were present at the time of application of the questionnaire and agreed to sign the Free Consent Form (TCLE). Data were processed and bivariate analyzes were performed to evaluate the association between the variables under study and the consistent use of condoms. The chi-square test was used, with a 95% confidence interval and *p-value*<0.05 to verify if the associations found were statistically significant. **Results**: 394 students were included in the study. According to the students, the main reason (43.5%) for condom use is to avoid an unwanted pregnancy. More than half (55.3%) consider that they are not at risk of contracting the virus/disease. As for the STI/AIDS questions, the students of the second half of the course had a higher chance of success compared to the first half of the course (p<0.0001). There was no association between consistent condom use and knowledge about HIV/AIDS (p=0.8685). **Conclusion**: The present study revealed that the respondents adopt a sexual risk behavior even when they have knowledge about STI.

KEYWORDS: Sexual behavior, Knowledge, HIV, AIDS, STI, Condoms, Medical students.

INTRODUCTION

Acquired Immunodeficiency Syndrome (AIDS) is an advanced clinical manifestation of the disease caused by the Human Immunodeficiency Virus (HIV). It is characterized by a disorder of cellular immunity, resulting in greater susceptibility to opportunistic infections and neoplasms. The transmission of this syndrome is predominantly sexual, although there are other forms of exposure to HIV, such as blood and vertical transmission[1].

In the 1990s, according to the Ministry of Health, a record of AIDS was set. After this period, the incidence of the disease fell, especially in the female audience. Although there is progress in the evolution of the epidemic, AIDS continues to be a major health concern as approximately 37,9 million people of different races, creeds and age groups are living with HIV[2,3].

In Brazil, the virus has spread rapidly, reaching 982,129 cases notified to the Ministry of Health from 1980 to June 2018. From 2007 to June 2018, it was observed that the majority of cases of HIV infection were in the aged 20 to 34 years, with a percentage of 52.6% of the cases[4].

In this context, many Sexually Transmitted Diseases (STI)/AIDS prevention programs have been implemented worldwide in an attempt to contain these infections. The courses in the health area have tried to address the subject, although what is observed is a tendency to a biologicist approach to the issue, to the detriment of a preparation for preventive

Financial support: Authors declare that they have no conflict of interest and have not received any research grants. All the costs were payed by them.
Conflicts of interest: The views and opinions expressed by the authors are their own and do not necessarily reflect the view of the Pontifical Catholic University of Goiás or any of its officials. If you have any questions about this disclaimer, please contact the Corresponding Author.
Received: 03 apr. 2020
Accepted: 02 sep. 2020
Study carried out at Pontifical Catholic University of Goiás, Goiânia, GO, Brazil.

education. Because of the impact of sexuality on the general health of individuals associated with the demand of professionals trained to promote the sexual health of the population, the topic of sexuality deserves greater prominence in medical education. The university therefore plays a key role in STI/AIDS prevention strategies through its teaching, research, care and extension functions[5,6].

The aim of this study was to identify condom adherence among the participants of the questionnaire, to analyze the possible association between condom use and knowledge about STI/AIDS, to verify the association of knowledge about STI/AIDS and condom use with the semester studied, in addition to evaluating the epidemiological profile of the students.

METHODS

This present study was characterized as a cross-sectional analytic developed in a private University in Brazil, Pontifical Catholic University of Goiás, from November 2018 to March 2019. Although 518 students enrolled in the medical school, attending from the 1st to the 12th semester in 2018/2, there was a significantly decreased in number of samples where only 394 students (67.4%) were able to answer the questionnaire. Due to the last year where students were rotating in hospitals.

The research involved a questionnaire, prepared by the researchers themselves, self-filled and confidential with questions related to the theme: sociodemographic information; sexual history; life skills and knowledge about HIV/AIDS.

The questionnaires were applied between November 2018 and March 2019, according to the period studied and during a weekly test after the research presentation and explanation of the collection instrument. It was ensured that the answers would be confidential, with the objective of a greater commitment of the students and trustworthiness to the study.

The inclusion criterion was students enrolled in the Medicine course of the Pontifical Catholic University of Goiás who were present at the time of application of the questionnaire and agreed to sign the Free Consent Form (TCLE) were able to participate of the research.

Human rights statements and informed consent: All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national). Informed consent was obtained from all patients for being included in the study.

At the end of the data collection, they were entered and stored in spreadsheets in the program Microsoft Excel® 2013, processed and analyzed in the statistical package BioEstat 5.3. In a first step, the frequency distributions of each variable that integrated the instrument used in the study were generated and examined. Then, bivariate analyzes were performed to evaluate the association between the variables under study and the consistent use of condoms. We used the chi-square test (X^2), with a 95% confidence interval and *p-value*<0.05 to verify if the associations found were statistically significant.

In accordance with resolution 466/2012, the research was registered in the Brazilian Platform of the Ministry of Health under protocol CAAE: 99539018.7.0000.0037, approved by the Ethics Committee in Research of the Pontifical Catholic University of Goiás, by means of the Report substantiated nº 3.002. 485.

RESULTS

In Table 1, we demonstrated the social demographic characteristics such as the mean age of the students (SD: 3.4) minimum and maximum values of 17 and 40, respectively; gender; sexual orientation and marital status of 518 students enrolled at Faculty of Medicine, Pontifical Catholic University of Goiás, in 2018/2, where only 394 (67.4%) answered the questionnaire (Table 1).

Sexual behavior was demonstrated in Table 2 including a total of 394 students. The mean age of the first sexual (SD: 2,3) minimum and maximum values of 11 and 25, respectively. The students included more than one option while answering "Wich method was used in the first intercourse?", that's why N>394* in this question (Table 2).

In the last part of the questionnaire the research was about knowledge about HIV/AIDS. Five questions were elaborated that addressed the themes: prevention; transmission; post-exposure prophylaxis; diagnosis and treatment. The average total score of the 5 questions proposed was 3.2 questions with average frequency equal to 63.6% of respondents (SD=23.5). Thus, students who scored three or more questions were considered with adequate knowledge about HIV/AIDS and the students who scored none, one or two questions with inadequate knowledge.

The students in the module 1 to 6 represented an average of 2.8 questions with hit frequency equivalent to 56.2% (SD=21.8), while students in module 6 to 12 presented an average of correct answers of 3.7 with a frequency of 73% (SD=22.2). Therefore, the students of the second half of the course (> 6th period) showed a statistically significant difference, that is, a greater chance of reaching questions about HIV / AIDS in relation to students from the first half of the (≤ 6th period) to one *p-value*<0.0001 (Table 3).

Table 1. Medical students sample according to sociodemographic characteristics, Goiânia, Goiás, Brazil, 2018.

Socio-demographic data	*n (394)*	*f(%)*
Age (years old)		
Up to 22	239	60.7
Above 22	155	39.3
Gender		
Female	266	67.5
Male	128	32.5
Sexual Orientation		
Heterosexual	361	91.6
Homosexual	17	4.3
Bisexual	16	4.1
Marital status		
Single	236	59.9
Dating	144	36.5
Married / Stable Union	14	3.6
Semester		
MOD <6	219	55.6
MOD ≥6	175	44.4

Table 2. Medical students sample according to sexual behavior, Goiânia, Goiás, Brazil, 2018.

Sexual Behavior	n (394)	f (%)
Have started sexual life?		
Yes	318	80.7
No	76	19.3
Age of the first sexual intercourse?		
Up to 17	182	46.2
Above17	134	34.0
Did not answer	78	19.8
Has used any contraceptive method on the first sexual intercourse?		
Yes	288	73.1
No	30	7.6
Did not answer	76	19.3
Which method was used in the first intercourse?*		
Contraceptive pill	130	33
Male condom	237	60.2
Female condom	7	1.8
Withdraw method	13	3.3
Periodic abstinence	4	1.0
Emergency contraceptive pill	17	4.3

Table 2. Continued...

Sexual Behavior	n (394)	f (%)
Frequency of condom use currently?		
All sexual intercourse (5)	89	22.6
Almost all intercourse (4)	120	30.4
Almost any sexual intercourse (3)	65	16.5
I do not currently use (2)	37	9.4
I have never used (1)	3	0.8
Did not answer	80	20.3
What is the main reason for using condoms?		
To avoid pregnancy	172	43.7
To protect against STIs	150	38.1
To protect against HIV/AIDS	53	13.4
Other	2	0.5
Did not answer	17	4.3
Do you consider it necessary to use a condom if your partner uses contraception?		
Yes	303	76.9
No	59	15.0
Did not answer	32	8.1
Are you at risk for HIV / AIDS?		
Yes	158	40.1
No	218	55.3
Did not answer	18	4.6

Table 3. Association between the average of hits and semester in a medical course, Goiânia, Goiás, Brazil, 2018.

Module	(n) Average	Hits	f(%) Average	SD	*p-value*
		SD			
< M06	2,8	1,1	56.2	21.8	
> M06	3,7	1,1	73.0	22.2	**<0.0001**

In order to perform the comparative analyzes, the qualitative variables regarding condom use were transformed into quantitative ones in a gradual scale of 1 to 5, 1 representing students who never used the condom and 5 who used it in all sexual relations: (1) Never use; (2) Use in almost any relation; (3) I do not use more; (4) Use in almost all; (5) Use in all. Thus, students who use inconsistent condom use were considered those who answered 1, 2 and 3 and consistent use those who answered 4 or 5.

Figure 1 shows a tendency of low adherence to condom use with passing the modules, but without statistical relevance (p=0.195), that is, the frequency of condom use is not related to the semester. While the number of correct answers

Table 4. Association between condom use and knowledge about HIV/AIDS among sexually active students of a medical school, Goiânia, Goiás, Brazil, 2018.

Variables	No	Consistent use of condom	Yes		
	n	*f(%)*	*n*	*f(%)*	*p-value*
Knowledge					
No (<3)	22	31.9	47	68.1	
Yes (≥3)	83	33.9	162	66.1	0.8685

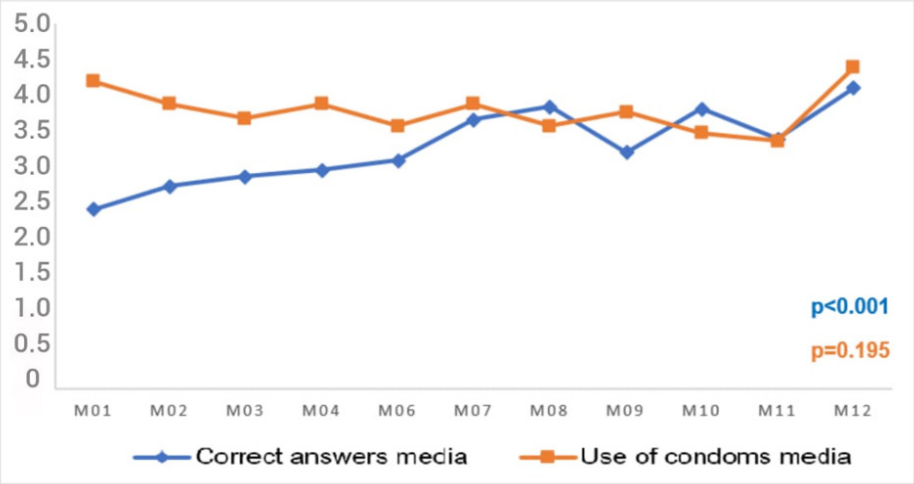

Figure 1. Average number of correct answers and use of condoms per module attended by students of a medical school, Goiânia, Goiás, Brazil 2018.

presents a growing trend with statistical relevance (p<0.001), that is, the extent to which the modules advance the frequency of correct answers increases (Figure 1).

Table 4 shows that in the present study there was no statistically significant association between consistent condom use and knowledge about HIV/AIDS (p=0.8685).

DISCUSSION

The literature suggests that teenagers and young adults (13-24 years of age) are more likely to be at risk compared to older people and are less likely to recognize themselves as vulnerable as a result of the risks involved.[7] In addition, university students are referred to as a group of adolescents and young adults at high risk for STIs, including HIV, since they are initiating early sexual activity and often changing partners[8-10]. Thus, the study sample is characterized by a vulnerable group, since it is inserted in the university environment and presents an average age of 22.3 years.

Regarding the age of sexual initiation, the results of the present study corroborate with other studies that analyzed the sexual profile of students of a higher education institution through questionnaires and obtained 17 years, as the average age of the first sexual intercourse of the participants[11,12]. According to data from the Ministry of Health, the average age of the first sexual intercourse in Brazil is 14.9 years, therefore, the sample studied starts later sexual life than the Brazilian population.

A study carried out in a course of Medicine of a private university in a municipality of the interior of the State of Rio de Janeiro identified that some contraceptive method was used in the first sexual relation in 85.0% of the cases, being condom the most frequent (90.1%)[13]. In the present study, 73% used some contraceptive method, the condom being the most frequent (82%). Both studies converge to the claim that condom is the most used method of pregnancy prevention and STI among adolescents.

Strategies to prevent HIV infection and other sexually transmitted infections (STIs) are still largely based on the use of condoms[14]. The promotion of condom use was part of a non-suppressive approach to prevention, which characterized most successful national responses to the HIV epidemic, differently from other contexts where preventive work persisted in the idea of sexual abstinence[15].

On the other hand, since the end of the 1990s and throughout the 2000s, there have been frequent complaints and findings about what is known as "condom fatigue" or "fatigue of prevention", as can be seen in articles international media and within the scope of introductions and justifications of some scientific articles that are based in this social phenomenon to research the prevention of HIV/AIDS[16].

As a result, it was found that 28% of the students always used the male condom in all sexual relations, a result lower than other studies conducted with adolescents from public and private schools that revealed that around 50 to 60% of the respondents reported using condom in all sexual relations[17]. These results can be explained by the fact that the university period is characterized by emotional, social and psychic changes that expose young people to risky behaviors, for example alcohol and drug use, as well as unprotected sex. Such a stage of life may thus represent a time of great vulnerability and incidence of sexually transmitted diseases[18].

A survey conducted by the students of the Barbacena School of Medicine on condom use has shown that the main reason for adopting the contraceptive method is to avoid an unwanted pregnancy (94.6%), and the concern about avoiding AIDS comes second with 87.1%[19]. Another study that sought to evaluate the knowledge, contraceptive practice and prevention of STI/HIV/AIDS among university students in the health area, found that condom use is seldom linked to the prevention of STIs / AIDS by students[20]. In the current study, when questioned about the main reason for condom use the majority (43.7%) also responded "avoid pregnancy", 38.1% consider the method protection against STIs and 13.4% protection against HIV/AIDS. These results demonstrate that the university students in the health area, even with all theoretical background and guidelines recommended and given daily, do not associate condoms with the prevention of AIDS or other STIs. This data is therefore alarming since these students play a fundamental role in promoting the health of the population and may end up not emphasizing the importance of the use of condom in the prophylaxis of STIs during the stages and orientations.

On trust in the contraceptive partner, a study of adolescents with active and uninitialized sexual life found that trust in the partner provides security in unprotected intercourse[21]. Similar data were found in a survey of adolescents in three Brazilian capitals on condom use, in which the majority of girls with stable partners reported not using condoms.[22] In the study in question, 303 (76.9%) of the respondents said they considered it necessary to use a condom if their partner used contraception, showing that students know that condoms are not just contraceptives. However, most pointed to avoiding pregnancy as the main reason for condom use, rather than care for STI/AIDS.

When analyzing the students' knowledge about HIV/AIDS, the average number of correct answers showed an increasing tendency with the advancement of the modules. Thus, students in the second half (MOD>6), showed a higher level of knowledge than first-half students (MOD≤6) with a value of $p<0.001$. This result shows that students are constantly learning about the forms of transmission, prevention and treatment of STIs, so that in the last period the average accuracy was of 4.1 with a frequency of 82.4%.

It was hoped that the greater the students 'knowledge about HIV / AIDS the greater the students' concern about using condoms as prevention. However, while the number of successes grew as the modules advanced, adherence to condom use fell, increasing in the last module. Module 1 students, despite having inadequate knowledge about the issues, were more concerned about using condoms than students from more advanced modules.

In addition, the lack of association between HIV/AIDS knowledge and prevention was also observed when comparing consistent condom use among students who scored three or more questions with students who were below average (<3 hits) with one value of $p=0.86$. It should be noted that, when compared to the literature, university students have adequate knowledge about STIs, however, they do not use condoms in all sexual relations. This demonstrates that holding knowledge does not guarantee safe sex practice[20].

A survey conducted in the public and private schools of the city of São Paulo also showed that the factors associated with greater knowledge about STI were not the same that influenced the consistent use of the condom[17]. Given the magnitude of AIDS and the sexual revolution observed in recent years, it is difficult to understand this distance between the fear of AIDS and the use of condoms. The issue of whether or not to use condoms involves much more than knowing, involves myths, beliefs and too much self-confidence[19].

A study conducted among university students of medicine and nursing at the State University of Londrina showed that students, both first and last year, consider little or no probability of acquiring STI/AIDS[5]. In the current study, more than half of the students (55.3%) felt that they did not have a risk of acquiring AIDS, whereas only 22.6% reported using condoms in all sexual relations. That is, there is a feeling of invulnerability among the students, because even if they expose themselves to risky behavior, they do not consider themselves subject to a possible infection.

CONCLUSION

The study in question showed that a minority of young university students in the sample reported using condoms in their sexual relations. Considering high schooling and daily living in basic health care services, it is worth noting that the percentage found was low, since it was stated that the knowledge is increasing throughout the course. Added to this, the fact that the majority think there is no risk of contracting HIV/AIDS illustrates vulnerable behavior.

Thus, the results found in this research can help identify the factors that lead students to adopt risky sexual behavior when they have knowledge about STIs. Therefore, it is a tool for academic institutions to reach this risk group and develop strategies that promote awareness about the subject, since as seen, graduation is an environment conducive to the emergence of these attitudes.

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Author contributions

IRB and IBG were responsible for the development of the research project, elaboration of the questionnaire, data collection and analysis and writing of the article. AMTCS participated in data analysis, structuring of information. GMF and AMTCS contributed by reviewing and supporting the group