Comparison between knowledge, behavior and risk perception about the STD/AIDS in medicine and law students from PUC-GO

Comparação entre conhecimento, comportamento e percepção de risco acerca das DST/AIDS nos estudantes de medicina e direito da PUC-GO

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ABSTRACT

Introduction: There has been a rise in the incidence of STIs/AIDS in the young Brazilian population; therefore, college students are a major focus for change of risky sexual behaviors. **Objective:** To analyze knowledge, sexual behavior, and risk perception of students in different years of the medical and law programs at the Pontifical Catholic University of Goiás (PUC-GO), Brazil, with regard to STIs/AIDS. **Methods:** Administration of anonymous questionnaires to students in their first, third, and last years of the medical and law programs at PUC-GO, using probability-proportional-to-size sampling and with margin of error set at 5%. **Results:** Medical students answered 201 questionnaires and law students 441 questionnaires. The comparison of both programs revealed that 40.3% of law students and 19.6% of medical students believe that HIV is transmitted through kissing and that 39.9% of law students and 29.3% of medical students believe that this virus is also transmitted through utensils. Consistent condom use was reported by 21.2% of medical students and 30.1% of law students. Medical students have greater risk perception of sexual behavior, and 83.8% claim they have been exposed to STIs; furthermore, 72.6% of law students believe they are at risk. **Conclusion:** There was an increase in medical students' knowledge about STIs/AIDS throughout the program. Nevertheless, medical students adopt riskier sexual behavior, which is caused by the lower frequency of condom use. Medical students have, however, increased risk perception regarding sexual behavior.

Keywords: acquired immune deficiency syndrome; sexually transmitted infection; health vulnerability; sexual behavior; knowledge; disease prevention.

RESUMO

Introdução: Vem ocorrendo um aumento da incidência de DST/AIDS na população jovem brasileira, assim, os universitários são um importante foco para mudança de comportamento sexual de risco. **Objetivo:** Analisar o conhecimento, o comportamento e a percepção sexual de risco acerca das DST/AIDS dos estudantes de diversos anos dos cursos de Medicina e Direito da Pontifícia Universidade Católica de Goiás (PUC-GO). **Métodos:** Aplicação de questionário anônimo a alunos do primeiro, terceiro e último anos dos cursos de Medicina e Direito da PUC-GO, considerando amostra probabilística proporcional e com margem de erro de 5%. **Resultados:** Foram respondidos 201 questionários pelos estudantes de Medicina e 441 pelos de Direito. Quando comparados os dois cursos, 40,3% dos estudantes de Direto e 19,6% da Medicina consideram que o HIV é transmitido pelo beijo e 39,9% do Direito e 29,3% da Medicina acreditam que esse vírus também seja transmitido por utensílios. O uso consistente do preservativo foi referido por 21,2% dos alunos de Medicina e 30,1% dos de Direito. Os estudantes de Medicina possuem maior percepção sexual de risco, com 83,8% considerando estarem sujeitos às DST; no Direito, 72,6% dos estudantes se consideram sob esse risco. **Conclusão:** Houve aumento do conhecimento acerca das DST/AIDS pelos acadêmicos de Medicina ao longo do curso. Apesar disso, os acadêmicos de Medicina adotam maior comportamento sexual de risco no que diz respeito à menor frequência de uso do preservativo. Os acadêmicos de Medicina apresentam, entretanto, maior percepção sexual de risco.

Palavras-chave: síndrome da imunodeficiência adquirida; doenças sexualmente transmissíveis; vulnerabilidade em saúde; comportamento sexual; conhecimento; prevenção de doenças.

INTRODUCTION

The university years are a transitional period between adolescence and adulthood, presenting big transformations in social, cognitive, and emotional aspects. Among such changes, sexuality and romantic relationships are highlighted. During the university years, a young person comes into contact with new ideas, practices, and thoughts, which awaken their curiosity about trying different experiences, especially sexual ones. Such practices make this group vulnerable to the adoption of risky behaviors, making them susceptible to infections such as sexually transmitted infections (STIs) and acquired immune deficiency syndrome (AIDS)[1].

Young people's sexual behavior must be assessed while considering social inequalities, culture, sex, and education, which are important determinants for risky behavior, as acquired infections resulting therefrom may increase mortality in this population. Therefore, it is important to understand the reality of this group in the different settings in which they are situated, as the use of preventive measures in sexual intercourse not only is scientifically standardized but also supported by behavior[2-4].

Several factors explain young people's increased vulnerability to infection by STIs/AIDS[5], such as misinformation, overconfidence with regard to vulnerability, social and family taboos on sexuality, and information from unqualified sources, which may interfere negatively on their sexual behavior. Adolescents and young adults are also exposed to the risk of acquiring HIV because they often engage in intercourse with multiple partners, and many do not use condoms in all sexual relations[6]. Another common risky behavior for this age group is the beginning of a new relationship, in which many young people unrealistically idealize their partners, deeming

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them perfect, healthy, and incapable of maintaining relationships with other people; thus, these young people conclude they are not at risk[7,8]. In the presence of an HIV/AIDS epidemic, it becomes necessary to monitor the incidence and prevalence of STIs, because genital ulcers facilitate HIV penetration, increasing the risk of infection by up to 18 times if one of the partners is a carrier of an untreated STI. Another reason to monitor STIs is that they reflect a presumed lack of concern with the consequences of unprotected sexual relations, as they are transmitted during sexual intercourse[6,9,10].

According to the Joint United Nations Program on HIV/AIDS (UNAIDS), the use of condoms during sexual intercourse is the most effective method available to prevent sexual transmission of HIV and other STIs. It is a relatively cheap method, with little or no use restrictions; they can be used safely without requiring any particular skills; furthermore, it is an effective method of contraception and prevention of other STIs[11,12].

According to the *Epidemiological Bulletin on HIV/AIDS* published in 2013, 39,185 cases of AIDS were reported in Brazil in 2012. The national detection rate was 20.2 cases per 100,000 inhabitants. The highest detection rate was observed in the South region (39.9/100,000), followed by the North region (21.0/100,000), the Southeast region (20.1/100,000), the Midwest region (19.5/100,000), and the Northeast region (14.8/100,000). Between 1980 and June 2013, 686,478 cases of AIDS were reported, of which 64.9% are male subjects and 35.1%, female subjects[13].

The *2013 Epidemiological Bulletin of the State of Goiás* reported 12,109 cases of AIDS in people over 13 years of age since the beginning of the AIDS epidemic, in 1984, to September 5, 2013, of which 67.4% were in male subjects and 32.6%, in female subjects. From the total, 1,492 cases were young people aged 15 to 24 years (12.3%). The distribution of AIDS cases by sex highlights its feminization from 1988 onward, when the sex ratio, which was 13 male cases to one female case, reached the ratio of 1:8 in 2011, according to the Information System on Diseases of Compulsory Declaration (SINAN). In terms of age, the largest number of cases is in individuals aged between 20 and 49 years, represented by 84% of all cases[3,10,14].

According to estimates from the Department of STIs, AIDS, and Viral Hepatitis, approximately 718,000 people live with HIV/AIDS in Brazil. In the young population, the prevalence rate of HIV infection has a tendency to increase. In the age group between 17 and 21 years, which coincides with the start of university life, the prevalence of HIV infection increased from 0.09% in 2002 to 0.12% in 2007, with the most significant increase in the population of young men who have sex with men (MSM)[10]. In view of that fact, it is necessary to place this population at the top of the public policy priorities.

It is important that universities recognize their role in implementing strategies for the prevention of STIs/AIDS through teaching, research, and extension programs. Studies show that university students are knowledgeable about STI/AIDS transmission. However, some research shows that knowledge does not create change in behaviors related to disease prevention, as students do not have the perception of vulnerability in this regard[3,4,10,15].

As medical students are naturally exposed to specific knowledge owing to more extensive contact and, often, assistance to patients who are carriers of such *pathoses*, a different behavior is expected in comparison with programs outside the biological field. Although law programs do not provide technical knowledge about these infections, it provides information to support change in people's risky behaviors, as the human sciences seek to understand human beings and everything that surrounds them, addressing various aspects related to them as individuals, people, and subjects as well as their behavior in society. Therefore, by studying the human being and understanding their behavior, it is possible to change their actions.

OBJECTIVE

To identify and compare knowledge about STIs/AIDS and the sexual behavior associated with the risk of HIV infection or other STIs among students in their first, third, and last years of the medical and law undergraduate programs.

METHODS

We conducted a descriptive and analytical cross-sectional study that operated under the assumption that there is a variation between risky behaviors related to STIs/AIDS in different university programs. We administered a modified questionnaire[2,7,15] during classes from May to June 2015, clarifying and explaining the purpose of the survey to students. It was a self-administered questionnaire with 38 objective questions related to knowledge, behavior, and risk perception regarding STIs/AIDS, which were answered after participants read and signed the informed consent form. Sample comprised students in their first, third, and last years of the medical and law programs at the Pontifical Catholic University of Goiás (PUC-GO) who were duly enrolled and attending school during the data collection period. Classes were randomly selected, respecting the proportion of the sample number per period.

Precisely 4,430 students were enrolled in the first, third, and fifth years of the law program. With a margin of error set at 5%, the sample consisted of 441 students. Precisely 271 students were enrolled in the first, third, and sixth years of the medical program. With the same margin of error, the sample consisted of 201 students.

We analyzed and compared the results from the three years within the same program and the results from both programs. For the analysis of categorical and nonparametric variables, we used the χ^2-test with 5% significance level.

This study was approved by the Research Ethics Committee of the PUC-GO on May 11, 2015, with the Certificate of Presentation for Ethical Appreciation (CAAE) No. 42351915.4.0000.0037.

RESULTS

Among the 201 students of the medical program at PUC-GO who answered the questionnaire, 81 were enrolled in the first year, 61, in the third year, and 59, in the sixth year. Of the total, 127 were female and 74 male students. There was a significant difference in the age group studied: 85.3% of the first-year students and 63.3% of the third-year students were aged between 18 and 21 years, while 52.2% of the last-year students were aged between 22 and 26 years ($p<0.001$). In the law program, 441 students answered the questionnaire: 158 were enrolled in the first year, 103, in the third year, and

180, in the sixth year. Most first- and third-year students were aged between 18 and 22 years (60.8 and 73.3%, respectively), while most fifth-year students were aged between 22 and 26 years (62.6%). By contrasting students from both programs, there was a significant difference in age, and the majority of law students was over 26 years.

With regard to the characteristics analyzed in medical and law students, respectively, there was no significant difference in gender and former higher education. There was a significant difference in the number of people living with each student and in family income among students in varied years of the medical and law programs. In the law program, there was a significant difference in student's marital status: the majority of the first- and third-year students was single, and the majority of fifth-year students reported being in a serious relationship. By contrasting both programs, there was as a statistically significant difference in relation to marital status, and medical students showed a higher percentage of single individuals. There was also a difference in the employment status during the programs, both between the various years of the law program and between the medical and law programs, as most law students work and most medical students do not.

As to the aforementioned knowledge about STIs/AIDS, there was a difference between programs, and 13% of law students reported not having knowledge about them. In the medical program, there was a significant difference regarding which of the infections in question (AIDS, hepatitis B, syphilis, gonorrhea, candidiasis, chlamydia, genital herpes, Gardnerella, and HPV) were considered STIs, as 77% of third-year students and 77.6% of sixth-year students recognized hepatitis B as an STI, while 50% of first-year students stated otherwise. The same happened with candidiasis, which most first-year students (72.5%) considered an STI.

Among law students, there was a statistical difference in relation to knowledge on gonorrhea and on hepatitis B and candidiasis. Among first-year students, a higher percentage (73.9%) did not consider hepatitis B an STI; this percentage was lower among students enrolled in the remaining years. However, the prevailing answer in all analyzed years was that hepatitis B is not an STI. The opposite happened with gonorrhea, and 87.3% of first-year, 91.2% of third-year and 83.1% of fifth-year students considered it an STI.

By contrasting specific knowledge on STIs between the two programs, there was statistical difference between all infections, with greater knowledge among medical students, except on genital herpes and Gardnerella, as shown in **Table 1**.

First-, second-, and last-year students from both programs were well-informed about the ways HIV is transmitted, as most stated that HIV is transmitted both sexually and vertically and through needle sharing, in addition to being prevented by condom using and not prevented by the sole use of combined oral contraceptive pill (COCP). However, by contrasting the medical and the law programs with regard to HIV transmission through kissing and utensils, there was a significant difference, in which 40.3 and 39.9% of law students believed that AIDS can be acquired through kissing and utensils, respectively, and 19.2 and 28.4% of medical students believed they were transmission routes, respectively. To acquire knowledge on STIs/AIDS, students reported using the following media: the Internet, the media, university, friends, and family.

Most first-year (62%), second-year (69%), and third-year (81%) medical students reported having active sex lives; most revealed the sexarche (age when a person first engages in sexual intercourse) between 16 and 19 years. In the law program, there was a significant difference with regard to having active sex lives because, although most students in all years studied were sexually active, this percentage was higher in fifth-year students (85.8%). The majority of students in all these years and from both programs reported sexual intercourse with people of the opposite sex. In contrast to what happened in the medical program, the majority of law students revealed the sexarche between the ages of 20 and 24 years (55.3%).

By contrasting both programs with regard to risky behavior, there was statistical difference related to active sex life, sexarche, condom use at first intercourse, use of COCP, number of partners throughout life, and when to use condoms and with which type of partner. There was no difference in clinical manifestations of STIs.

In the medical program, 60.8% of first-year students and 78.6% of sixth-year students used a condom at sexarche, while that only happened with 45.9% of third-year students, revealing a significant difference between students in different years. The same happened in the law program, in which 66.9% of first-year students, 55.9% of third-year students, and 68% of fifth-year students used this contraceptive method. However, 27% of first-year medical students always use condoms. That percentage is even smaller in comparison

Table 1 – Sample distribution with regard to knowledge about STIs/AIDS in Medical and Law programs.

	Medical program		Law program		p-value
	n	%	n	%	
HIV					
Yes	195	98.0	396	90.6	0.001
No	4	2.0	41	9.4	
Hepatitis B					
Yes	132	66.3	131	30.0	< 0.001
No	67	33.7	305	70.0	
Syphilis					
Yes	199	99.5	410	93.8	0.004
No	1	0.5	27	6.2	
Gonorrhea					
Yes	190	95.5	378	86.5	0.001
No	9	4.5	59	13.5	
Candidiasis					
Yes	88	44.2	244	55.8	0.007
No	111	55.8	193	44.2	
Chlamydia					
Yes	121	60.8	150	34.3	< 0.001
No	78	39.2	287	65.7	
Genital herpes					
Yes	167	83.9	365	83.5	0.900
No	32	16.1	72	16.5	
Gardnerella					
Yes	40	20.1	64	14.6	0.085
No	159	79.9	373	85.4	
HPV					
Yes	180	90.5	308	70.5	< 0.001
No	19	9.5	129	29.5	

to third- and sixth-year students (88.5 and 26.8%, respectively), who reported using condoms with casual partners more frequently. In the law program, 35.7% of first-year students always use condoms, while the highest percentage of third- and fifth-year students (27.2 and 27.0%, respectively) use condoms in all sexual relations.

Regarding the use of COCP, 60.8 and 54.2% of first- and third-year medical students, respectively, reported not using it, and 29.3% of last-year students did not use this contraceptive method. As for first- and third-year law students, 62.7 and 57.9%, respectively, did not use COCP, in addition to 57.9% of last-year students; thus, the comparison of both programs presents a significant difference. Regarding the number of sexual partners, the majority of students in all years and from both programs reported sexual activity with one to five partners.

When asked about the type of partner with whom they use condoms, 25.7% of first-year medical students answered they only used them with casual partners, while condom use prevailed with steady partners with third- and last-year students; therefore, there is a significant difference between these data. The same situation occurred in the law program as 30.7% of first-year students also used condoms with casual partners, while condom use also prevailed with steady partners with students in other years (**Chart 1**).

When asked about the presence of vaginal discharge, there was a statistically significant difference in both programs; a greater number of discharge reports occurred with last-year students (30.5% in the medical program and 18.5% in the law program). There was no statistical difference with regard to genital warts and sores. However, by contrasting both programs, we found no significant difference between these clinical manifestations.

With regard to the perception of risk, the majority of students in all analyzed years and from both programs deemed necessary to use condoms throughout the entire relationship, whether it lasts for a few months or it is a stable relationship/marriage. There was concordance among the majority of students (83.8% of medical students and 72.6% of law students) when they were asked about the possibility of either them or another person acquiring STIs (98.5% of medical students and 98.8% of law students); there was a significant difference between both programs only with regard to the possibility of acquiring one STI.

DISCUSSION

The majority of medical students, regardless of the year they were in, appropriately responded to questions on the knowledge about the ways HIV is transmitted, as they stated that HIV is transmitted both sexually and vertically and through needle sharing. They also agreed that it is prevented by condom use and not prevented by the sole use of COCP, in addition to not being acquired through kissing and utensils. Although the majority of law students also demonstrated satisfactory knowledge about HIV transmission routes, a higher percentage of them, in comparison with medical students, believed that AIDS can be transmitted through kissing and utensil sharing. This data reveal vestiges of taboos related to the ways the infection is transmitted, which may create separation from and prejudice toward people living with HIV/AIDS. Therefore, it is necessary that students acquire greater elucidation about transmission routes, including those enrolled in programs that are not related to health.

First-year medical and law students proved to reveal less knowledge than those in other years about hepatitis B, as they do not consider it an STI, and candidiasis, as they consider it as such. According to the *Manual de Controle das DST* (Manual STI Control) by the Ministry of Health[17], sexual intercourse is not considered the main mode of transmission of *Candida*, since these organisms may be part of the endogenous vaginal flora in up to 50% of asymptomatic women, while sexual contact is an important transmission route of hepatitis B. Such divergence of knowledge may occur because third-year and sixth-year students have already acquired a greater amount of knowledge throughout the program and through their experiences. It is also possible to assume that more emphasis is being given to AIDS than to other STIs. Werne and Grusin[18] have been discussing the overvaluation of social and educational measures related to AIDS, which neglects other STIs, since 1984. Attempts to control the spread of HIV, without the implementation of parallel measures aimed at the prevention and control of other STIs, are less likely to be effective, because STIs are risk factors for HIV infection. Corroborating the fact that knowledge about AIDS is more valued than knowledge about other STIs, last-year law students did not consider gonorrhea an STI[13].

Most medical and law students are sexually active; medical students showed earlier sexarche (between 16 and 19 years of age) in comparison with law students, which is different from what is seen in the Brazilian population, according to the *Mosaico Brasil* (Brazil's Mosaic) study, conducted by the Sexuality Studies Program, in which the average age of first sexual intercourse occurs at 15 years, indicating that socioeconomic and cultural factors affect sexarche age.

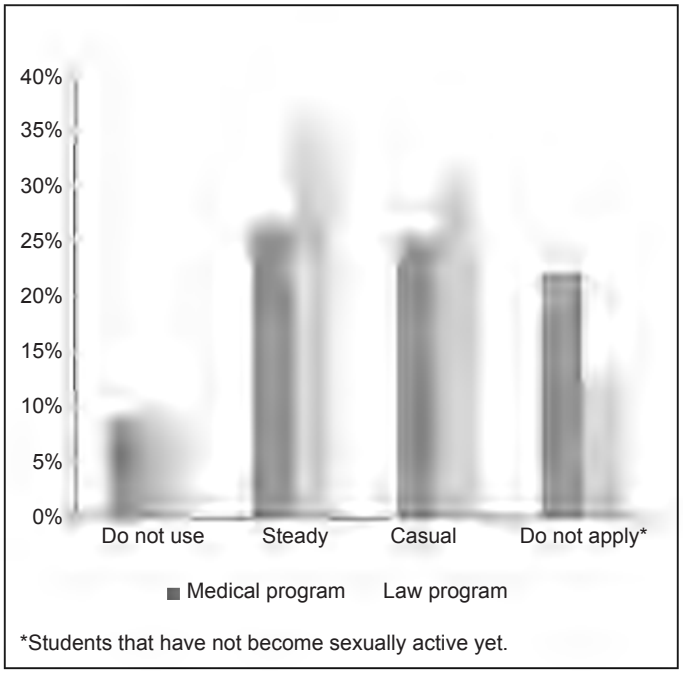

Chart 1 – Sample distribution with regard to the type of partner with whom medical and law students use condoms.

There was a higher prevalence of condom use in the first year of both programs in comparison with the other years. We found a higher percentage of single students in these program years, and condom use is more frequent with casual partners. The majority of students in the last program years are in steady or stable relationship; thus, they use condoms more often with a steady partner. Nevertheless, this frequency is still lower when compared with the frequency of condom use by single students. Studies show that there is a downward trend in condom use throughout relationships as an emotional and trusting bond is established, in which one believes in the partner's fidelity and their incapability of transmitting any infection[3,5,6,19]. There is an increase in the use of oral contraceptives, indicating a greater concern for contraception at the expense of STI/AIDS prevention.

With regard to the frequency of condom use, there was a difference between medical and law students, as the highest percentage of medical students used condoms only occasionally while the highest percentage of law students always used it. Such difference was significant in third-year students from both programs. We expected students from the health-care program field to have less risky behaviors because they have more experience, greater access to information on STIs/AIDS, and additional contact with patients who are carriers of such *pathoses* in hospitals, foreseeing they would have a greater understanding of the consequences of such diseases on the life of carriers. According to Andrade and Tanaka[20], health-care professionals, despite working with people who were diagnosed with STIs/AIDS, are not necessarily more careful in their sexual activities, as they apparently act as patients in their personal lives. Thus, positive behaviors are not only related to social and relational environments but with one's life story and needs. Unequivocally, behavioral changes happen when people perceive themselves at risk of acquiring infections.

The increased exposure corroborates the percentage of abnormal discharge among last-year students from both programs. Through these data, it is clear that last-year students, despite having greater theoretical knowledge about the various sexually transmitted infections, show increased risky sexual behaviors in comparison with first-year students.

The majority of medical and law students, in all years, stated they were vulnerable to STIs/AIDS, demonstrating they have perception of risk. This finding is in line with a study by Dessunti and Reis[3], in which first- and last-year medical students at the State University of Londrina showed low perception with regard to the probability of acquiring STIs or AIDS. Although the majority of law students also show such perception, the related percentage is lower than that found in the medical program.

Different studies show that, although students have more knowledge about STIs/AIDS, preventive measures are seldom adopted. That indicates that knowledge in itself is not enough to change behaviors and make students protect themselves from such infections[3-5,21]. Regardless of being an essential aspect to raise awareness and change behaviors, knowledge is probably not the only factor that influences students' practices. Condom use is determined not only by individual factors but also by sociocultural factors, such as different sexuality concepts and gender, belief, and habit differences. Therefore, we understand that it is necessary to further investigate these factors aiming at conducting specific programs that address the needs of each group, thus creating more effective preventive measures.

Information must reach all university students, regardless of the program, in its entirety because they are the future opinion leaders, and the university is the place where changes in perception and behavior happen.

CONCLUSION

Throughout the medical program, there was an increase in knowledge about STIs/AIDS; however, that did not happen with the law program, as last-year students revealed having less knowledge about some STIs than those enrolled in different years. Despite having greater specific knowledge, medical students adopt riskier sexual behaviors than law students with regard to lower frequency of condom use. Nevertheless, they have fewer sexual partners over a lifetime, perhaps because they are younger. In both courses, there was a lower frequency of condom use among students who were in a steady/stable relationship, indicating a greater concern for contraception at the expense of STI prevention.

We found that medical students have a higher perception of risk than law students, demonstrating that knowledge, despite not changing risky sexual behaviors, alters the perception of risk. Such perception not followed by change in sexual behavior is troubling and raises questions about the reasons to adopt such behavior, indicating the need for more studies related to students' health, especially of those enrolled in medical programs.

It is necessary to better understand the factors that determine the gap between knowledge and risky sexual behaviors by promoting more debate and discussion on the subject, as a paradigm shift is essential to foster the change of habits and beliefs since childhood, while respecting the individual and cultural aspects of each group.

Conflict of interests

The authors report no conflict of interests.

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