

A SURVEY ON ADOLESCENT SEXUAL BEHAVIOR IN A PUBLIC BRAZILIAN HIGH SCHOOL: SOME DATA TO HPV VACCINATION INTRODUCTION

*UMA PESQUISA SOBRE O COMPORTAMENTO SEXUAL DO ADOLESCENTE EM UMA ESCOLA PÚBLICA
DE ENSINO MÉDIO: ALGUNS DADOS PARA A INTRODUÇÃO DA VACINAÇÃO CONTRA O HPV*

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ABSTRACT

Introduction: Many evidences have demonstrated the association between human papillomavirus (HPV) infection and cervical cancer, and prophylactic vaccines have been effective to prevent this infection. In relation to the vaccination program of the population, it is important to study the sexual behavior of adolescent students, especially the onset age of sexual activity. **Objective:** To evaluate the sexual behavior of adolescent students from public schools in relation to some associated variables and to link the onset age of sexual activity with HPV vaccination of the population. **Methods:** The study was based on the application of a questionnaire to 500 students of public high schools of the city of Curitiba, aged between 13 and 19 years, to assess their sexual behavior and related questions. Of the 500 questionnaires, 488 were answered and analyzed by statistical methodology. The study was approved by local regulatory bodies. **Results:** Regarding sexual activity, it was observed that it was most frequent along male than female students. It is noticed that 47.8% of boys and 24.6% of girls answered positively to this question. Similarly, 38.7% of boys reported having initiated sexual activity before age 14 compared to only 8.5% of the girls. Other data about the perceived risk of contracting a sexually transmitted infection and contraception condom were assessed. The relation between drug use (tobacco, alcohol and marijuana) and sexual activity was demonstrated. About 45% of sexually active students stated regular use of drugs, compared with less than 20% of those who reported not having initiated sexual activity ($p < 0.001$), whereas this proportion was even more evident when analyzed only the use of marijuana. The “protector” effect of family environment shows an interesting finding: the adolescents who lived with their parents were less sexually active than those who did not report such situation with a percentage of 31.3% versus 59.4% ($p = 0.003$). **Conclusion:** We concluded that sexual activity was more evident among male participants as sexual initiation was earlier among boys. Use of drugs and independence of family environment were related to higher rate of earlier and current sexual activity. According to researches, 90% of the students who already are 17 years old had initiated sexual activity; therefore, we can conclude that the age of vaccination proposed by most governmental authorities and the Brazilian Federation of Gynecology and Obstetrics (Febrasgo) is adequately when it comes to prevent HPV infection.

Keywords: adolescence, sexual behavior, HPV vaccine.

RESUMO

Introdução: Muitas evidências têm demonstrado a associação entre a infecção pelo vírus do papiloma humano (HPV) e o câncer cervical, e as vacinas profiláticas têm sido eficazes na prevenção desta infecção. Quanto ao programa de vacinação da população, é importante estudar o comportamento sexual de adolescentes, especialmente na idade de início da atividade sexual. **Objetivo:** Avaliar o comportamento sexual de adolescentes alunos de escolas públicas em relação a algumas variáveis associadas e relacionar a idade de início da atividade sexual com a vacinação da população contra o HPV. **Métodos:** O estudo se baseou na aplicação de um questionário a 500 alunos de escolas secundárias públicas da cidade de Curitiba, com idade entre 13 e 19 anos, para avaliar seu comportamento sexual e questões relacionadas. Dos 500 questionários, 488 foram respondidos e analisados por metodologia estatística. O estudo foi aprovado pelos órgãos reguladores locais. **Resultados:** Em relação à atividade sexual, observou-se que era mais frequente no sexo masculino do que no feminino. Percebe-se que 47,8% dos meninos e 24,6% das meninas responderam positivamente a esta pergunta. Da mesma forma, 38,7% dos meninos relataram ter iniciado atividade sexual antes dos 14 anos, comparado a apenas 8,5% das meninas. Outros dados relacionados ao risco percebido de contrair uma infecção sexualmente transmissível e uso de preservativos e contraceptivos foram avaliados. Foi demonstrada a relação entre o uso de drogas (tabaco, álcool e maconha) e atividade sexual. Cerca de 45% dos estudantes sexualmente ativos relataram uso regular de drogas, em comparação com menos de 20% daqueles que relataram não ter iniciado atividade sexual ($p < 0,001$), enquanto essa proporção era ainda mais evidente quando analisado apenas o uso de maconha. O efeito “protetor” do ambiente familiar revela uma descoberta interessante: os adolescentes que viviam com os seus pais eram menos ativos sexualmente do que aqueles que não relataram tal situação, com uma percentagem de 31,3 % versus 59,4% ($p = 0,003$). **Conclusão:** Concluiu-se que a atividade sexual foi mais evidente entre os participantes do sexo masculino, já que a iniciação sexual ocorreu mais cedo entre os meninos. Uso de drogas e independência do ambiente familiar foram relacionados a maior ocorrência de atividade sexual anterior e atual. De acordo com estudos, 90% dos alunos que já têm 17 anos de idade tinham iniciado atividade sexual; portanto, podemos concluir que a idade de vacinação proposta pela maioria das autoridades governamentais e pela Federação Brasileira de Ginecologia e Obstetrícia (Febrasgo) é adequada quando se trata de prevenir a infecção pelo HPV.

Palavras-chave: Adolescência, Comportamento sexual, Vacina contra o HPV.

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INTRODUCTION

Sexual activity has become increasingly earlier, and a greater number of partners are reported mainly when analyzing the adolescents⁽¹⁾.

This study was initiated in response to an ongoing surge in sexually transmitted diseases (STDs) and undesired pregnancies among the youth of one of the districts of Curitiba, a city with 1,700,000 inhabitants in South Brazil.

Many evidences have demonstrated the association between human papillomavirus (HPV) infection and cervical cancer, and prophylactic vaccines have warned efficacy in this infection⁽²⁻⁴⁾. In relation to the vaccination program of the population, it is important to study the sexual behavior of adolescent students, especially in the onset age of sexual activity.

It was also designed to assess the sexual profile of a medium- to low-income population sample in the perspective of introducing the prophylactic vaccine against HPV infection, after the promising results announced in several clinical trials and published up to then. The survey was conducted in a public high school chosen as an average Brazilian school parameter during the year of 2008.

OBJECTIVE

The objective of this study was to evaluate factors related to sexual behavior among adolescent students of public schools in medium- or low-income population, trying to correlate with the guidelines of HPV vaccination, especially regarding the onset age of sexual activity in this population.

Therefore, the following four parameters were analyzed:

1. Sexual activity level and debut of sexual activity by gender
2. Educational attainment, knowledge of sexual risks and use of contraceptive methods
3. Use of drugs and sexual activity
4. Family structure and sexual activity

METHODS

Population

Of 500 students of public high schools, aged from 13 to 19 years, 448 answered individual questionnaires composed of multiple-choice questions on gender, age, family structure, level of knowledge, use of drugs and use of contraceptive method. These questionnaires were applied by a group of four students from the infectious transmitted diseases subject in the 4th year of Medical Course at Universidade Federal do Paraná (UFPR). This group received training in Good Clinical Practice and orientations how to teach the students to fill the questionnaires.

Procedure

The data were collected before the activities of the classes with permission of director of schools and after explaining the detail of the survey to the teachers. Confidentiality was kept by non-identification. The data collected were analyzed by Chi-square method. The study was approved by the ethics committee of Clinics Hospital from UFPR according to the Brazilian Research Regulations and Good Clinical Practice.

RESULTS

After analyzing large amounts of raw data, the following trends in sexual behavior among the population studied were found.

Sexual activity level and debut of sexual activity by gender

Talking about the presence or absence of active sexual relationship at the time of visit, we can observe a significant increase in this situation in male students (**Figure 1**). **Figure 2** shows the rate of the sexual onset of male and female students. It also shows that the boys start sexual activities earlier.

The data showed that among the surveyed students 47.8% of the male reported being sexually active, contrasting to 24.6% of the female (**Figure 1**). Boys were also stated being more precocious than girls (**Figure 2**). At the age of 14 years 38.7% of boys against 8.5% of girls were declared being sexually active. It was also observed that of the 20% girls that had their sexual initiation, 11% have their debut up to the age of 16 years. According to the data collected, initiation rates for both genders will be equal at the age of 17 years, when 90% of the students are sexually active.

Educational attainment, knowledge of sexual risks and use of contraceptive methods

According to the answers assembled in **Figure 3**, only less than 8% of the students do not use any contraceptive or preventive method, and almost 85% reported using a barrier method, almost exclusively condoms. However, as research on condom use among adolescents has inherent difficulties⁽⁵⁾, the questionnaire could not convey whether the students were properly using it.

Use of drugs and sexual activity

The association of drugs and sexual activity are well established in **Figures 4 and 5**. While less than 20% of the non-sexually

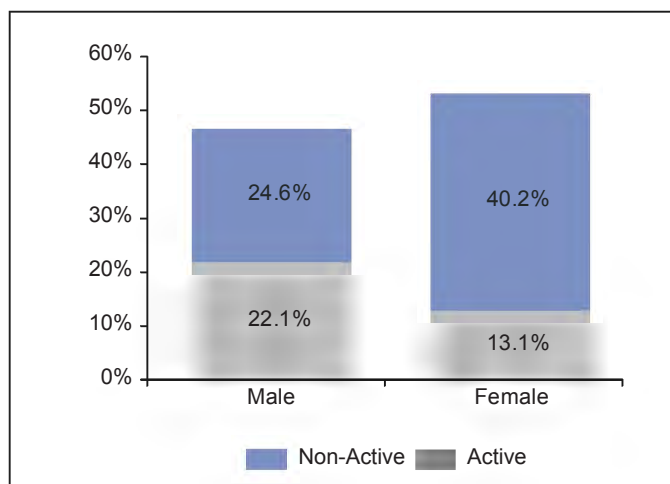


Figure 1 – Students' overall sexual activity by gender (ages 13 to 19).

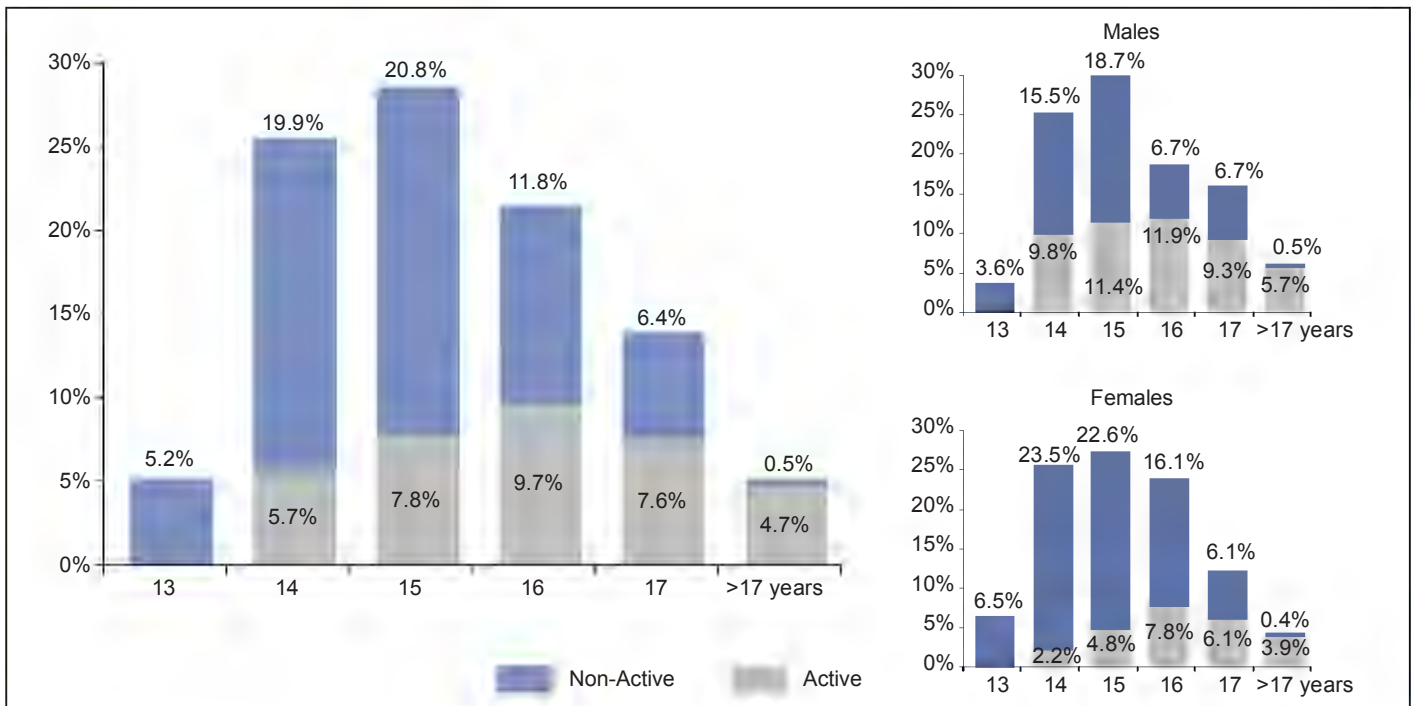


Figure 2 – Age at sexual debut.

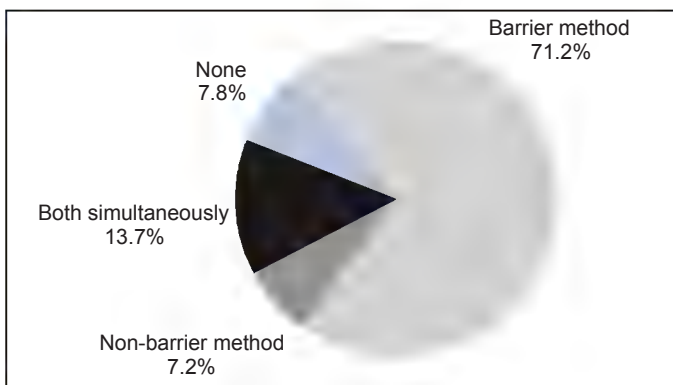


Figure 3 – Use of contraceptive or preventive barrier methods.

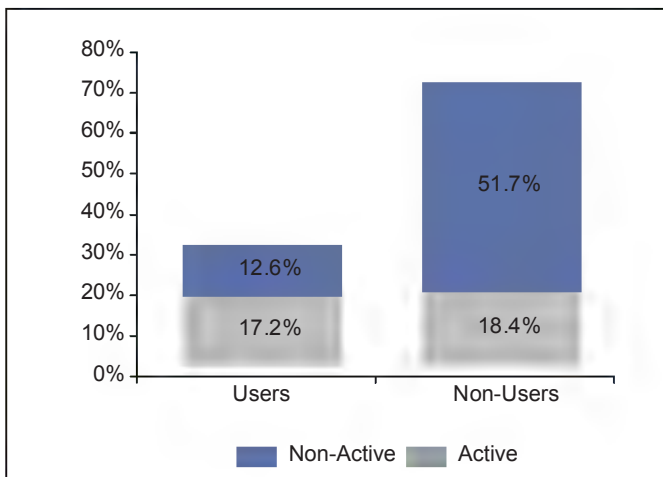


Figure 4 – Use of drugs (tobacco, alcohol, marijuana) and sexual activity.

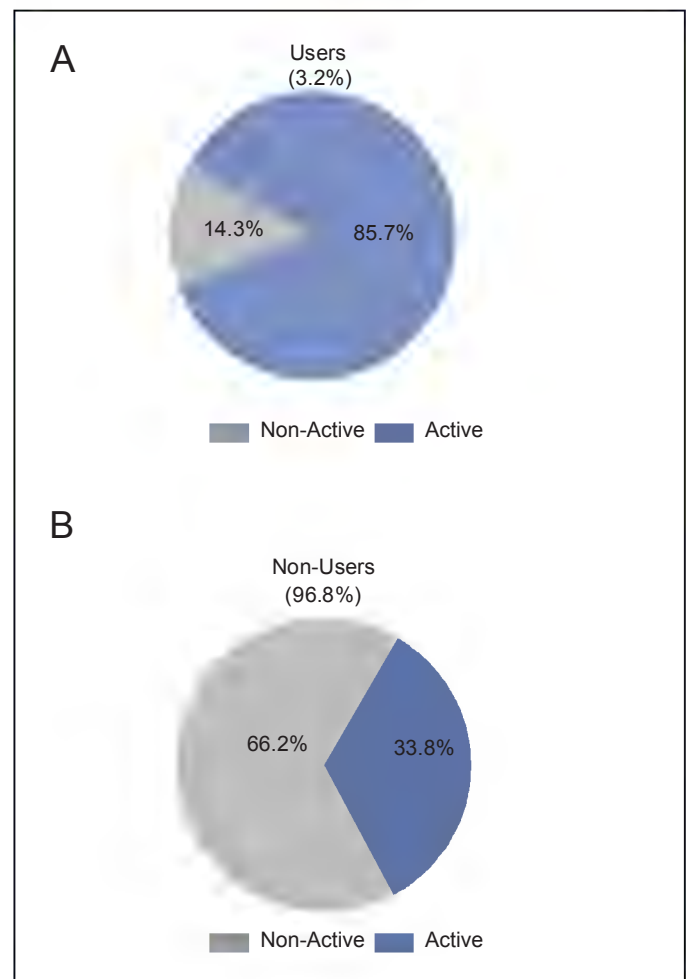


Figure 5 – Use of marijuana and sexual activity.

active group reported using some kind of drug regularly (tobacco, alcohol, marijuana), more than 45% in the sexually active group were regular consumers ($p < 0.001$). What is most striking is the linkage between marijuana use and sexual activity: 85.7% of marijuana users are sexually active, against a 33.8% of sexual activity among non-users of marijuana (**Figure 5**) ($p = 0.0002$) and 44.5% of sexual activity among users of different drugs.

Family structure and sexual activity

The growing number of single-parent families and youngsters living in non-traditional family set ups have great influence on sexual activity level as demonstrated in **Figure 6**. Teenagers living with both parents are less prone to be sexually active (31.3%) than those who do not (59.4%), ($p = 0.003$).

DISCUSSION

The evaluation of some factors selected here was considered with great importance to study the prevention of STDs and the correlating factors such as drugs use. Add to this situation that some sexually transmitted infections (STIs) are strongly linked with genital carcinomas mainly cervical cancer. It is a fact that infection with HPV is necessary for the development of cervical cancer and its precursors. In the last decade, two vaccine trials had demonstrated capacity for prevention of this infection and precursor lesions for cervical cancer^(4,6).

Analyzing the four main groups in the study about sexual activity and its prevalence and precocious puberty in boys, one might well argue that this inequality was overestimated because boys were bound to convey a false image of their sexual behavior. Notwithstanding, the following concerns obviously emerge from this disparity because they substantially increase the risk of spreading STDs.

Such an early and well-spread sexual activity among boys should be considered as a major risk factor for their future marital partners because boys may be “accumulating” a large spectrum of STDs such as HPV, syphilis and chlamydial infection. In a review

of prevalence studies of adolescent and college-aged women repeatedly tested over time for HPV, as many as 90% tested positive for HPV at least 1 time⁽⁷⁾. Older women are also at risk: 34% of a sample of older, postmenopausal women (median age 56), most of whom had had only 1 sexual partner in their lifetime, were HPV positive at some point during a 7-year follow-up, suggesting that the sexual history of the partner(s) may be a co-determinant of risk⁽⁵⁾.

The present survey was unfruitful in highlighting different trends of behavior among the studied group when comparing level of knowledge and sexual activity. Significant patterns, such as whether better informed students behave more safely, could not be drawn out of the raw data collected. The authors found that sample homogeneity with group similar levels of exposure to information concerning sexuality could well be the reason. It has to be noted here that a previous study conducted in Northeast Brazil⁽⁷⁾ had already shown that educational attainment is among the variables that are consistently associated with differential risk of engaging in first intercourse during adolescence, including premarital intercourse, and of contraceptive use during sexual initiation⁽⁸⁾. In this study, the use of contraceptive methods or protective barrier methods against STDs appeared to be suitably spread among the population surveyed, suggesting positive effects of prevention and targeted intervention efforts.

From the point of view about use of drugs, scientific research has demonstrated that the use of alcohol and drugs is related to the occurrence of unsafe sexual behavior that places adolescents at risk for pregnancy or for contracting STDs. The characteristic intransigence of the teenager, the search for recognition and respect from peers and the careless attitude toward the long-term consequences are all well served by the use of drugs and also by sexual activity. The regular use of substances of abuse, young age and sexual activity represent a grave combination: an altered mental status prevents judicious measures of safe sex, not to mention the exposure to unsafe environments.

The supervision from parents showed an important point to control the sexual activity and its correlated situations as drugs use. Lack of supervision from parents and public structures involved

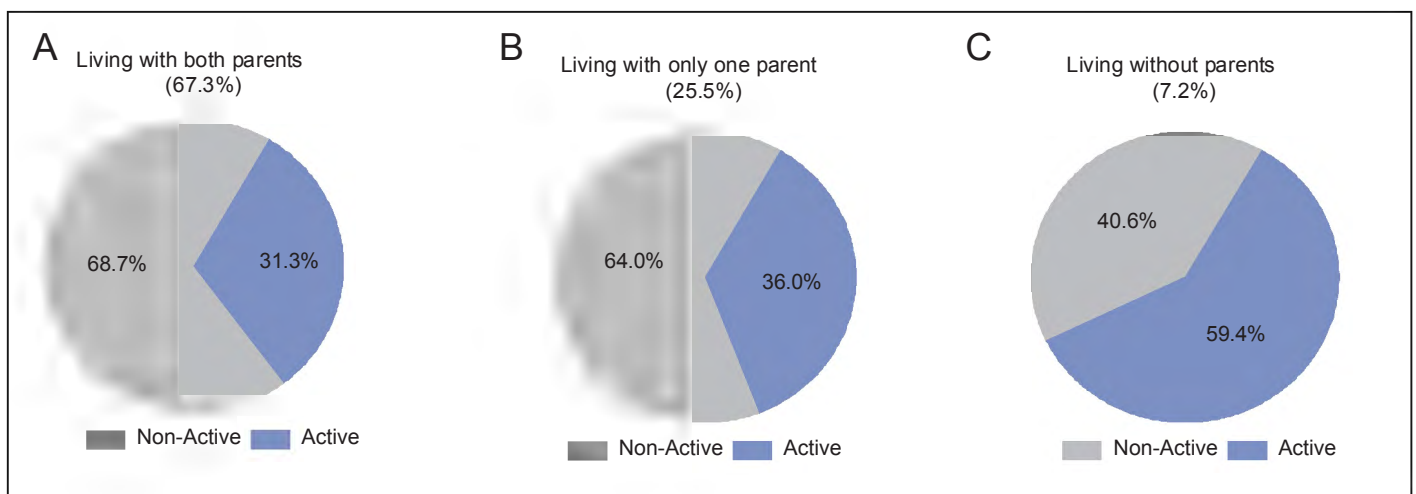


Figure 6 – Students’ sexual activity compared to their family status.

in child upbringing appears to be the most determinant factor for high-risk conduct of adolescents, in mid- to low-income settings, and brings much concern about which role could the public sanitary structures be playing to prevent young people's idleness, ignorance and at the same time which preventive measures in public health, in governmental planning and in clinical practice should be introduced to reduce morbidity rates among low-income population in Brazil.

HPV, one of the most common STDs worldwide, causes nearly 100% of cervical cancers in women and a substantial number of other anogenital cancers and warts. While transmission rates are dramatically expressive among young, sexually active populations, it is estimated that 75% of sexually active individuals will become infected with at least one type of HPV at some point during their lives. The overwhelming majority of women affected by cervical cancer live in developing countries, where screening programs and infrastructures for prevention, diagnoses and treatment are weak⁽⁹⁾.

In the past years, developed vaccines against HPV, which have been licensed in several countries following the determination that they have an acceptable benefit–risk profile⁽¹⁰⁾, provide substantial hope for preventing deaths, psychological stress and expensive treatment costs induced by cervical cancer.

If on the one hand, vaccination against HPV does not eliminate the need for cervical screening to minimize cancer incidence, on the other hand, women who have no evidence of past or current infection with the HPV genotypes present in the vaccines, are likely to have a protection superior to 80% against persistent HPV infection^(2,3).

To prevent peak incidence of HPV, the North American Advisory Committee on Immunization Practices (ACIP) recommends vaccination of girls between ages 11 and 12 years, right before the onset of sexual activity.

The Brazilian Federation of Gynecology and Obstetrics (Febrasgo) recommends this vaccination around 12 years of age, according to regional behavior differences⁽¹¹⁾.

In countries with significant cultural, racial, economic and educational regional dissimilarities such as Brazil, one might suggest that the target age for vaccinating girls should first consider these regional differences. Further studies in this course are of great importance to provide an optimal cost-effectiveness to vaccination programs.

Extending the vaccination more than the target population should be considered in boys and in the women after teenage. We can see a good example for this approach in the Australian HPV Vaccination Program that had shown these benefits⁽¹²⁾.

Moreover, because promoting responsible sexual and health-seeking behaviors among secondary school students of public schools remains a major public health concern, Brazilian government health structures should take every opportunity during future preventive campaigns to provide thorough orientation on STIs to adolescents. Clear information on the need to maintain Papanicolaou testing after HPV vaccination is vital. The possibility of conjugating other age-appropriate vaccines such as Hepatitis B vaccine as suggested by the Centers of Disease Control and Prevention (CDC) should be contemplated as well.

It is of highest importance that low-income target populations, among whom cervical cancer rates are seriously elevated and resistant to prevention programs, have access to this vaccine. Otherwise, at the utmost point, vaccine existence could actually run the risk of being questioned. Tiered pricing, innovative financing mechanisms and multidisciplinary partnerships will be essential⁽⁷⁾ to favor preventive actions where they are remarkably demanded.

If early sexual activity cannot be prevented, at least some of its undesired consequences should, and could, be avoided and the vaccination against HPV is one of the manners to do it.

As a widely referred cultural value that is relevant to gender-related socialization, which supports and stimulates a more liberal behavior for boys than for girls where, 47.8% of the surveyed male students reported being sexually active, contrasting to 24.6% of the female students. Boys were also stated being more precocious. The results showed that among surveyed students, 38.7% of boys against only 8.5% of girls were declared being sexually active at the age of 14 years.

CONCLUSION

That sexual activity was more evident among male participants, like the sexual initiation was also earlier among boys. Use of drugs and independence from the family environment were related to higher early references and have had current sexual relationship. According to researches, almost all of the students who already are 17 years old had initiated sexual activity. Therefore, we can conclude that the age of vaccination proposed by most authorities such as the Febrasgo is adequately when it comes to prevent HPV infection.

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Conflict of interests

Newton Sérgio de Carvalho was a researcher of the GSK vaccine against oncogenic HPV, and he acts lecturing for holders of both vaccines patents (GSK and MSD) companies. The other authors declare no conflict of interests.

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