OBJECTIVE: To investigate knowledge of HPV and HPV vaccines in men and women, users of the Brazilian Unified Health System, and the intention to get themselves and their teenage children vaccinated.

METHODS: A descriptive, cross-sectional study with 286 women (18-49 years old) and 252 men (18-60 years old), users of five primary health units and two polyclinics in Campinas, SP, Southeastern Brazil, was carried out. Participants were interviewed in 2011 using a structured questionnaire. Bivariate and Poisson regression analysis were performed to identify variables associated with knowledge of HPV and HPV vaccines, and participants vaccination intentions.

RESULTS: Almost 40.0% of the participants reported having heard of HPV and 28.9% mentioned adequate information. The main information source was the media (41.7%). Only 8.6% of the participants had heard of the HPV vaccines. Once the participants were informed of the existence of HPV vaccines about 94% of them said they would get vaccinated and/or vaccinate their teenage children, if the vaccines were available in the public health system. Schooling of over 8 years and being female were the variables independently associated with having heard of HPV, the vaccines and having adequate knowledge of the virus. Advanced age was associated with having heard of HPV vaccines. There were no variables associated with the vaccination intentions.

CONCLUSIONS: These results reinforce the need for educational activities that provide the population with adequate information on HPV and preventive measures.

DESCRIPTORS: Human Papillomavirus 6. Human Papillomavirus 11. Human Papillomavirus 16. Human Papillomavirus 18. Human Papillomavirus 31. Papillomavirus Vaccines. Health Knowledge, Attitudes, Practice. Patient Acceptance of Health Care. Unified Health System.
INTRODUCTION

The HPV (human papillomavirus) is recognized to cause cancer of the uterus and has been linked to various other types of cancer. A recent review of the literature estimated HPV prevalence at 32.1% in 576,281 women, varying between 42.4% in developing and 22.6% in developed countries. It is estimated that between nine and 10 million people worldwide have the virus, with 700 thousand new cases annually. A review of the literature with studies conducted with women in various regions of Brazil showed the prevalence of HPV to be between 14.0% and 54.0% in women in general, and from 10.0% to 24.0% in asymptomatic women.

In diverse populations around the world, levels of knowledge about HPV are poor, especially concerning its link with abnormal Pap smear results, cervical cancer and genital warts. There are few publications evaluating the Brazilian public’s knowledge of HPV. Existing studies involved small samples and indicated that the majority of men and women had little knowledge of the virus.

Another often discussed aspect is the vaccine’s acceptability. It is recommended that both girls and boys be vaccinated, although the age at which this occurs varies according to the country. Immunization before exposure to HPV results in long lasting protection for both men and women. However, this recommendation is not always well received or understood in various countries, not only on the part of the parents, but also on that of pediatricians. Vaccinating adults also involves obstacles, such as high cost for populations in which it is not provided by the public health system; the need for it to be administered in three injectable doses; as well as questions about its effectiveness, needs for men to be vaccinated and the impact of vaccination on preventing cervical cancer.

The two vaccines (quadrivalent, approved in 2006 and bivalent, approved in 2008) were, up to 2013, only available in the private health care sector in Brazil. The Brazilian Immunization Society recommends that the vaccines be administered between nine and 26 years of age. Some municipalities implemented free vaccination for girls aged between 11 and 13 in both public and private schools, with their parents’ permission. In one municipality in the state of Sao Paulo, high levels of acceptance on the part of the parents were observed after detailed information on the vaccine had been provided. Almost all of the girls, whose parents had given permission for the vaccination, completed the course of three doses (97.0%). The Ministry of Health looked into including the HPV vaccination as part of the Brazilian Unified Health System (SUS) National Immunization Program (PNI). In Brazil, there is no consensus on vaccinating boys and men. Specialists defend this vaccination in view of the beneficial effects of protecting men from the consequences of being infected by the virus, but, mainly, to accelerate protection for women. Others consider that the cost-benefit relationship means it is not recommendable to vaccinate men due to lower incidence and mortality, for example, due to cancer of the penis.

The aim of this study was to analyze men and women’s knowledge of HPV and their intentions to get vaccinated and have their adolescent children vaccinated.

METHODS

This was a descriptive cross-sectional study, with a sample of 538 users of primary health care units (PHCU) and two SUS policlinics in Campinas, SP, Southeastern Brazil, in 2011, of which 286 were female (aged 18 to 49) and 252 male (18 to 60). A PHCU was selected in each area of the city and two policlinics with various specialties were also included, as there was a greater chance of finding males with appointments. Individuals were invited to participate in the research while waiting for their appointments.

Data were collected using structured questionnaires, appropriate to the sex of the interviewee and applied by trained interviewers. The questionnaires were developed based on the literature and assessed by two specialists in issues concerned with HPV and the vaccines available in Brazil. The questionnaires were pre-tested on small samples of SUS users with similar characteristics to the study subjects. The questionnaire was revised according to problems that appeared with understanding and with the flow of the questions. This process was repeated until a version was obtained which was deemed suitable. The questionnaires contained four sections: sociodemographic, reproductive and sexual characteristics, knowledge of HPV and vaccines and socioeconomic strata.

The questionnaires were reviewed and double entered. Next, procedures were performed to clean the database and maintain its consistency. The sample size was
calculated at 432 subjects, with an estimated prevalence of individuals (men and women) who had heard of HPV of 23.5%, and an absolute difference between the sample and population proportions of 4.0% and the probability of type 1 error fixed at 5%. While the data were being collected, 13 individuals refused to participate in the research.

The Chi-square test was used in the bivariate analysis and the independent variables were: age at time of the interview, sex, schooling, marital status, skin color, religion, number and sex of children, in paid work and socioeconomic strata.

The dependent variables were: having heard of HPV, information on HPV, having heard of the vaccines, intention of getting vaccinated, intention to have children vaccinated. Those who said they had heard of HPV were then asked questions about the vaccine. Those who had never heard of HPV were informed about it before being asked about their intention to get vaccinated. The variable “information on HPV” was categorized as “adequate information” if the individual gave at least one of the following responses: “it is a sexually transmitted disease (STD)”, “it can cause cervical/penis cancer, it can lead to cancer”, “It causes warts/disease/infection”. Other responses were classified as “not adequate information”.

Six Poisson regression models were developed referring to six dependent variables. There were eight independent variables in the models, with their corresponding categories: age (in years), sex (male; female), marital status (living in union; not living in union), skin color (white; non-white), schooling (eight or fewer years; nine or more years), in paid work (yes; no), socioeconomic strata (A/B; C/D) and children (yes; no).

This study was approved by the Research Ethics Committee of the Medical Science Faculty, Universidade Estadual de Campinas (Report 545/2008). Participation was on a voluntary basis, after signing a consent form. Anonymity of those who responded to the questionnaire was guaranteed, as they contained no identifying data.

RESULTS

Almost half of the population studied (46.0%) were aged 35 or over; 53.0% were female, 54.0% had nine or more years of schooling and 59.0% reported their skin color as non-white. The majority were living in union (71.0%), in paid work (71.0%) and were of socioeconomic strata C and D (62.0%). A little over half of them (54.0%) had one or two living children; among those with a living child, 71.0% had at least one child and 67.0% had at least one daughter. The majority (86.0%) of the interviewees had a poor/medium score for knowledge about STD (data not shown).

A little under 2/5 of the interviewees reported having heard of HPV. The most commonly reported sources of information were: the media (42.0%), school/university (26.0%) and health care services (21.0%). Gynecologists and friends/relatives were mentioned by 13.0% of participants (Data not shown).

In the bivariate analysis, having heard of HPV was associated with: being female (45.5%), having higher levels of schooling (49.3% of those with nine or more years), belonging to socioeconomic strata A and B (46.0%) (Table 1).

A little over 1/4 of participants reported having adequate information on HPV, and the variables associated in the bivariate analysis were: being female (37.2%), having a higher level of schooling (37.2% of those with nine or more years), belonging to socioeconomic strata A and B (35.7%) (Table 2).

Fewer than 9% of participants reported having heard of vaccines against HPV. The main source of information mentioned was the media (29 individuals); gynecologists (five participants) and one person mentioned health center. When questioned about what they had heard about the vaccines, 11 of the participants who knew about their existence stated: that they protect against/prevent HPV, that they are being tested and are only available privately and that, therefore, they are expensive. Six interviewees mentioned that the vaccines were only recommended for adolescents; nineteen thought that these vaccines should be given to those who had already had sexual relations; nine said they should be given to all women, regardless of age, and the same number thought that all men should also be vaccinated. Eight stated that everyone who had not yet had sexual relations should be vaccinated and six that they were aimed at adolescent females. Twenty five interviewees said that the vaccines should be given between the ages of nine and 14; 19 believed that they were recommended for those aged 15 to 18. One interviewee said that the vaccines should be given in the first few months of life, and another stated that they should be given at one year of age (data not shown).

In the bivariate analysis, schooling and socioeconomic strata were variables associated with having heard of HPV vaccines. Participants with nine or more years of schooling and those belonging to A/B strata were those who most commonly reported having heard of the vaccine (Table 3).

The majority of those who had heard of the vaccines said that they would get vaccinated if it was available through the public health care services (94.0%) and that they would have their child vaccinated (95.0%). Of the 12 who said that they would not get vaccinated, the motives cited were: five believed they were not at risk of contracting an STD, two had not had multiple partners, two required further information regarding the
Knowledge of and attitude to HPV virus and vaccines  Osis MJD et al

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vaccines; and one as it was something new. The most commonly cited reason for not having their adolescent child vaccinated was that it was the child’s decision (seven individuals). Two participants said that they would have their daughter, and one their son, vaccinated only if it were recommended by a doctor (data not shown). No variables were observed to be associated with the intention of getting vaccinated or having their child vaccinated in the bivariate analysis (Table 4).

The Poisson regression model showed an association between having heard of HPV and higher levels of schooling (> 8 years) and being female. These variables were also associated with having adequate information on HPV. Schooling (> 8 years), age (being older) and sex (female) were independently associated with having heard of the vaccines, but no variables were independently associated with the intention to get vaccinated and/or have their child vaccinated (Table 5).

DISCUSSION

Most of those interviewed had never heard of HPV or of the vaccines which are available in Brazil, and the proportion of individuals with adequate information on the virus and consequences of infection was even lower. This confirms the literature, showing that knowledge about HPV is inadequate in various populations.1,5,6,13,17

As in other studies, women and those with higher levels of schooling were those who most commonly reported having heard of HPV and knew more about it. These results reinforce the need for educational interventions in the population to provide them with adequate information about HPV and ways of preventing it.17 This does not only mean selecting and transmitting scientifically correct information about HPV, but doing it in a way suitable to the capacities of the different social strata to access and process such information. This is a growing concern in public health, even in developed countries.22 There is no doubt, however, that this presents a huge challenge given social inequalities, especially in education. The mean level of schooling of the population is below eight years of primary education2 and there is a large proportion of functional illiterates.3 Within the SUS, health education is a task which normally takes place at the level of primary care. It is expected that health is promoted according to the principle of comprehensive care. This means working with the entire population and not only with those at risk of falling sick, or those who are already sick. However, there are some obstacles to this approach, both in the lack of training on the part of health care professionals and in the population’s expectations that health care units function as centers to treat illness in their everyday lives.15

Table 1. Public health care services users’ knowledge of HPV, according to sociodemographic characteristics. Campinas, SP, Southeastern Brazil, 2012. (N = 538)

| Variable                        | Had heard of HPV |
|---------------------------------|------------------|
|                                 | Yes n | %   | No n | %   | p    |
| Age (years)                     |       |     |      |     |      |
| 18 to 24                        | 36    | 30.5| 82    | 69.5| 0.058|
| 25 to 34                        | 76    | 44.2| 96    | 55.8|       |
| 35 and over                     | 92    | 37.1| 156   | 62.9|       |
| Sex                             |       |     |      |     | < 0.001|
| Male                            | 74    | 29.4| 178   | 70.6|       |
| Female                          | 130   | 45.3| 156   | 54.7|       |
| Schooling (years)               |       |     |      |     | < 0.001|
| 0 to 8                          | 60    | 24.4| 186   | 75.6|       |
| 9 and over                      | 144   | 49.3| 148   | 50.7|       |
| Marital status                  |       |     |      |     | 0.512 |
| Living in union                 | 141   | 36.9| 241   | 63.1|       |
| Not living in union             | 63    | 40.4| 93    | 59.6|       |
| Skin color                      |       |     |      |     | 0.272 |
| White                           | 90    | 40.9| 130   | 59.1|       |
| Not white                       | 114   | 35.8| 204   | 64.2|       |
| Religion                        |       |     |      |     | 0.480 |
| Yes                             | 183   | 37.4| 306   | 62.6|       |
| No                              | 21    | 43.8| 27    | 56.2|       |
| Total living children           |       |     |      |     | 0.433 |
| None                            | 52    | 41.9| 72    | 58.1|       |
| 1 to 2                          | 103   | 35.6| 186   | 64.4|       |
| ≥ 3                             | 49    | 39.8| 74    | 60.2|       |
| Sex of children                 |       |     |      |     | 0.685 |
| Male                            | 47    | 34.1| 91    | 65.9|       |
| Female                          | 46    | 39.0| 72    | 61.0|       |
| Both                            | 59    | 37.8| 97    | 62.2|       |
| In paid work                    |       |     |      |     | > 0.999|
| Yes                             | 142   | 37.8| 234   | 62.2|       |
| No                              | 59    | 37.6| 98    | 62.4|       |
| Socioeconomic strata            |       |     |      |     | 0.004 |
| A, B                           | 93    | 46.0| 109   | 54.0|       |
| C, D                           | 111   | 33.1| 224   | 66.9|       |

Missing information for two participants on total living children and if they had daughters; for five there was no information about whether they were in paid work, while one gave no information on socioeconomic strata.

1 Instituto Brasileiro de Geografia e Estatística. Censo Demográfico 2010: resultados gerais da amostra. [cited 2013 May 21]. Available from: http://www.ibge.gov.br/home/estatistica/populacao/censo2010/resultados_gerais_amostra/default_resultados_gerais_amostra.shtm
2 Instituto Paulo Montenegro; Ação Educativa. INAF Brasil 2011: indicador de alfabetismo funcional: 2011. São Paulo; s.d. [cited 2013 May 21]. Available from: http://www.ipm.org.br/download/informe_resultados_inaf2011_versao%20final_12072012b.pdf

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The media play a large role as a source of information on HPV and HPV vaccines, compared with health care services and professionals. The proportion of individuals who had mentioned the media as a source of information on HPV was twice that of those who mentioned a health care center. The difference was even greater when it came to information on the vaccines. The SUS is finding it difficult to fulfill its mission regarding health care education and preventive activities. Although the pillars on which the SUS was conceived was the concept of comprehensive care, preventive actions are not developed consistently in all areas. Even with today’s broad access to the media, the messages which are transmitted are not always appropriate and/or sufficient to lead people to adopt preventive behavior. This may occur due to misinformation by the media itself or to difficulties that those who receive the messages have interpreting them.

This study indicates gender-related differences regarding sexual health. Although the need to include men in sexual health initiatives has been emphasized, especially in recent years, it tends to be women who seek more information on the doubts concerning this area. Men have a more distant and resistant attitude to preventive...
practices. In countries such as Brazil, in which more traditional gender relationships prevail, educating men in areas of reproductive and sexual health continues to be a challenge. It is not uncommon for initiative to focus almost exclusively on women. As regards preventing infection with HPV, this also poses a risk to men, but that faced by women is of much greater intensity.

The proportion of men and women who had heard of HPV vaccines was low. This was perhaps because, although both vaccines had been approved in Brazil, at the time of the research they were only available privately.

The results of this study indicate that the majority of interviewees would get vaccinated and would have their children vaccinated if it was available through the public health care network. This is in agreement with the observations of Fregnani et al in a study conducted in another city in the state of São Paulo, in which the quadrivalent vaccine was offered to pupils in the sixth and seventh

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**Table 3.** Public health care services users’ knowledge of HPV vaccines available in Brazil according to sociodemographic characteristics and knowledge of HPV. Campinas, SP, Southeastern Brazil, 2012. (N = 538)

| Variable                          | Had heard of the vaccine | p     |
|-----------------------------------|--------------------------|-------|
|                                   | Yes | No  |     |       |
|                                   | n   | %   | n   | %    |
| Age (years)                       |     |     |     |       |
| 18 to 24                          | 6   | 5.1 | 112 | 94.9 |
| 25 to 34                          | 16  | 9.3 | 156 | 90.7 |
| 35 and over                       | 24  | 9.7 | 224 | 90.3 |
| Sex                               |     |     |     |       |
| Male                              | 15  | 6.0 | 237 | 94.0 |
| Female                            | 31  | 10.8| 255 | 89.2 |
| Schooling (years)                 |     |     |     | < 0.001|
| 0 to 8                            | 10  | 4.1 | 236 | 95.9 |
| 9 to 11                           | 36  | 12.3| 256 | 87.7 |
| Marital status                    |     |     |     |       |
| Living in union                   | 28  | 7.5 | 354 | 92.7 |
| Not living in union               | 18  | 11.5| 138 | 88.5 |
| Skin color                        |     |     |     |       |
| White                             | 24  | 10.9| 196 | 89.1 |
| Not white                         | 22  | 6.9 | 296 | 93.1 |
| Religion                          |     |     |     |       |
| Yes                               | 41  | 8.4 | 448 | 91.6 |
| No                                | 5   | 10.5| 43  | 89.6 |
| Total living children             |     |     |     |       |
| None                              | 14  | 11.3| 110 | 88.7 |
| 1 or more                         | 32  | 7.8 | 380 | 92.2 |
| Sex of children                   |     |     |     |       |
| Male                              | 6   | 4.3 | 132 | 95.7 |
| Female                            | 13  | 11.0| 105 | 89.0 |
| Both                              | 13  | 8.3 | 143 | 91.7 |
| In paid work                      |     |     |     |       |
| Yes                               | 34  | 9.0 | 342 | 91.0 |
| No                                | 11  | 7.0 | 146 | 93.0 |
| Socioeconomic strata              |     |     |     |       |
| A, B                              | 24  | 11.9| 178 | 88.1 |
| C, D                              | 22  | 6.6 | 313 | 93.4 |

Missing information for three participants about being in paid work.
Table 4. Public health care services users’ intentions to get vaccinated or to have their children vaccinated against HPV if the vaccines were available in these services, according to sociodemographic characteristics. Campinas, SP, Southeastern Brazil, 2012.

| Variable                  | Get vaccinated | Have daughter vaccinated | Have son vaccinated |
|---------------------------|----------------|--------------------------|--------------------|
|                           | Yes | No | p | Yes | No | p | Yes | No | p |
| Age (years)               |     |    |   |     |    |   |     |    |   |
| 18 to 24                  | 32  | 91.4 | 3  | 8.6 | 33 | 94.3 | 2  | 5.7 | 33 | 91.7 | 3  | 8.3 |
| 25 to 34                  | 74  | 97.4 | 2  | 2.6 | 73 | 97.3 | 2  | 2.7 | 73 | 97.3 | 2  | 2.7 |
| 35 and over               | 85  | 92.4 | 7  | 7.6 | 86 | 93.5 | 6  | 6.5 | 86 | 93.5 | 6  | 6.5 |
| Sex                       |     |    |   |     |    |   |     |    |   |
| Male                      | 70  | 95.9 | 3  | 4.1 | 69 | 94.5 | 4  | 5.5 | 69 | 93.2 | 5  | 6.8 |
| Female                    | 121 | 93.1 | 9  | 6.9 | 123| 95.3 | 6  | 4.7 | 123| 95.3 | 6  | 4.7 |
| Schooling (years)         |     |    |   |     |    |   |     |    |   |
| 0 to 8                    | 56  | 93.3 | 4  | 6.7 | 57 | 95.0 | 3  | 5.0 | 57 | 95.0 | 3  | 5.0 |
| 9 and over                | 135 | 94.4 | 8  | 5.6 | 135| 95.1 | 7  | 4.9 | 135| 94.4 | 8  | 5.6 |
| Marital status            |     |    |   |     |    |   |     |    |   |
| Living in union           | 131 | 93.6 | 9  | 6.4 | 135| 96.4 | 5  | 3.6 | 135| 95.7 | 6  | 4.3 |
| Not living in union       | 60  | 95.2 | 3  | 4.8 | 57 | 91.9 | 5  | 8.1 | 57 | 91.9 | 5  | 8.1 |
| Skin color                |     |    |   |     |    |   |     |    |   |
| White                     | 84  | 93.3 | 6  | 6.7 | 84 | 93.3 | 6  | 6.7 | 84 | 93.3 | 6  | 6.7 |
| Not white                 | 107 | 94.7 | 6  | 5.3 | 108| 96.4 | 4  | 3.6 | 108| 95.6 | 5  | 4.4 |
| Religion                  |     |    |   |     |    |   |     |    |   |
| Yes                       | 171 | 94.0 | 11 | 6.0 | 171| 94.5 | 10 | 5.5 | 171| 94.0 | 11 | 6.0 |
| No                        | 20  | 95.2 | 1  | 4.8 | 21 | 100.0| 0  | 0   | 21 | 100.0| 0  | 0   |
| Total living children     |     |    |   |     |    |   |     |    |   |
| None                      | 50  | 98.0 | 2  | 2.0 | 47 | 94.0 | 3  | 6.0 | 48 | 94.1 | 3  | 5.9 |
| 1 to 2                    | 95  | 92.2 | 8  | 7.8 | 98 | 95.1 | 5  | 4.9 | 97 | 94.2 | 6  | 5.8 |
| ≥ 3                       | 46  | 93.9 | 3  | 6.1 | 47 | 95.9 | 2  | 4.1 | 47 | 95.9 | 2  | 4.1 |
| Sex of children           |     |    |   |     |    |   |     |    |   |
| Male                      | 45  | 95.7 | 2  | 4.3 | 45 | 95.7 | 2  | 4.3 | 44 | 93.6 | 3  | 6.4 |
| Female                    | 42  | 91.3 | 4  | 8.7 | 45 | 97.8 | 1  | 2.2 | 45 | 97.8 | 1  | 2.2 |
| Both                      | 54  | 91.5 | 5  | 8.5 | 55 | 93.2 | 4  | 6.8 | 55 | 93.2 | 4  | 6.8 |
| In paid work              |     |    |   |     |    |   |     |    |   |
| Yes                       | 134 | 95.0 | 7  | 5.0 | 134| 95.7 | 6  | 4.3 | 135| 95.7 | 6  | 4.3 |
| No                        | 54  | 91.5 | 5  | 8.5 | 55 | 93.2 | 4  | 6.8 | 54 | 91.5 | 5  | 8.5 |
| Socioeconomic strata      |     |    |   |     |    |   |     |    |   |
| A, B                      | 91  | 97.8 | 2  | 2.2 | 90 | 97.8 | 2  | 2.2 | 90 | 97.8 | 2  | 2.2 |
| C, D                      | 100 | 90.9 | 10 | 9.1 | 102| 92.7 | 8  | 7.3 | 102| 91.9 | 9  | 8.1 |
| Score for HPV knowledge   |     |    |   |     |    |   |     |    |   |
| Low                       | 9   | 81.8 | 2  | 18.2| 10 | 90.9 | 1  | 9.1 | 11 | 91.7 | 1  | 8.3 |
| Medium                    | 103 | 97.2 | 3  | 2.8 | 101| 96.2 | 4  | 3.8 | 101| 96.2 | 4  | 3.8 |
| High                      | 76  | 91.6 | 7  | 8.4 | 79 | 95.2 | 4  | 4.8 | 78 | 94.0 | 5  | 6.0 |
| Score for STD knowledge   |     |    |   |     |    |   |     |    |   |
| Low/Medium                | 148 | 94.3 | 9  | 5.7 | 150| 96.2 | 6  | 3.8 | 150| 95.5 | 7  | 4.5 |
| High                      | 43  | 93.5 | 3  | 6.5 | 42 | 91.3 | 4  | 8.7 | 42 | 91.3 | 4  | 8.7 |

STD: sexually transmitted disease

* Not possible to calculate the Chi-square test

b Fisher’s exact test
grade of public and private education. Around 92.0% of parents gave permission for their daughters to be vaccinated after the vaccine had been explained to them. A similar willingness to vaccinate their children was observed in women in Argentina, in a study conducted before the vaccine was included in the public immunization program in that country, in 2011. A recent review of the literature indicated that, after the vaccines were approved by the Food and Drug Administration (FDA-USA) in 2006, studies carried out mainly in Europe and in the United States indicated that the proportion of parents intending to have their children vaccinated reached 80.0% in 2008. This proportion decreased, however, and fell to 41.0% in 2011. In the same review, the authors pointed out that there was evidence of doubt, on the part of the parents, regarding the safety of the vaccine and a desire to have more information before making a decision whether or not to have their children vaccinated. Pitts & Tufts found the same concern in a study in Virginia (USA), the first North American state to make HPV vaccination mandatory in public school, in 2009. In this study, however, no variables were identified as being associated with the intention of getting vaccinated or having their children vaccinated. This was perhaps because the sample size was not calculated with the aim of assessing a possible association.

The results of this study cannot be generalized for adult men and women, as the sample was not probabilistic, nor was it population-based but rather specific to public health care service users in a large city in the state of Sao Paulo, in the Southeast of Brazil, the most developed area of the country. However, as more than 70.0% of the Brazilian population depend on the SUS for health care, we believe that the results of this study are useful in indicating the need for educational actions on HPV for both men and women, users of primary health care services, which corresponds to the greater part of the population.

The results of this research suggest that there is good receptivity towards HPV vaccines in SUS users, although this potential acceptability goes hand in hand with a lack of information and/or inadequate information. As the Ministry of Health is going to include quadrivalent vaccine for girls aged ten and eleven in the National Immunization Program from 2014 onwards, the public in general needs better access to adequate and important information on HPV, the consequences of infection and on the vaccines.

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Table 5. Variables related to knowledge about HPV, the adequacy of knowledge, knowledge about vaccines and the intention to get vaccinated and have children vaccinated (Poisson multiple regression analysis). Campinas, SP, Southeastern Brazil, 2012.

| Model/Variable | PR   | 95%CI        | p    |
|----------------|------|--------------|------|
| Model 1: Had heard of HPV (N = 538) |      |              |      |
| Schooling (> 8 years) | 2.04 | 1.51;2.75    | < 0.001 |
| Female | 1.57 | 1.18;2.08    | 0.002 |
| Model 2: Adequate knowledge of HPV (STD and/or cancer and/or wart) (N = 494) |      |              |      |
| Schooling (> 8 years) | 2.52 | 1.73;3.67    | < 0.001 |
| Female | 1.88 | 1.33;2.67    | < 0.001 |
| Model 3: Knew or had heard about the HPV vaccines (N = 538) |      |              |      |
| Schooling (> 8 years) | 3.56 | 1.75;7.23    | < 0.001 |
| Age (years) | 1.04 | 1.01;1.07    | 0.011 |
| Female | 2.16 | 1.14;4.08    | 0.017 |
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HIGHLIGHT

The Human Papilloma Virus (HPV) is known to cause cancer of the uterus and has been linked to other types of cancer. Studies with women in different regions of Brazil indicate a significant prevalence of HPV, even in asymptomatic women. Few studies, conducted with small samples, indicate that the majority of men and women know little about HPV and its consequences, which makes it difficult to adopt preventative measures. Additionally, the vaccines (bivalent and quadrivalent) against this virus have only become available in Brazil in the last few years and, up until now, only in the private health care sector. From 2014, the Ministry of Health will include the quadrivalent vaccine for girls aged 10 and 11 in the National Immunization Program. Against this backdrop, it is important to discover the population’s knowledge of HPV, the consequences of infection and the acceptability of the vaccine by the parents. This information is of use in drawing up health education strategies and promoting vaccination.

The results show that the majority of those interviewed had never heard of HPV, nor of the vaccines available in Brazil. Still fewer had adequate information on HPV and the consequences of infection. However, the majority of those interviewed stated they would have their adolescent daughter vaccinated if this were available in the public health care system.

The results emphasize the need for educational interventions in order to promote adequate information on HPV and preventative measures.

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Scientific Editor