

Knowledge and attitudes of parents of children/adolescents about human papillomavirus: cross-sectional study

Conhecimento e atitudes de pais de crianças/adolescentes sobre papillomavirus humano: estudo transversal

Conocimiento y actitudes de padres de niños/adolescentes sobre el virus del papiloma humano: estudio transversal

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Abstract

Objective: Analyze the characteristics associated with the parents of children and adolescents who have heard about the human papillomavirus, as well as the knowledge about the infection and the intention to vaccinate their children.

Methods: Cross-sectional study with quantitative approach, conducted through a structured interview. We interviewed 376 parents of children and adolescents who were awaiting pediatric care at health services in Três Lagoas/MS. The collected data (sociodemographic characteristics; reproductive and sexual characteristics; knowledge about human papillomavirus and intention to vaccinate the child) were analyzed using descriptive statistics, Fisher's exact test or the chi-square association test and Student's t-test.

Results: Among the respondents, 327 (87.0%) said they had heard about the human papillomavirus. An association was identified between parents who had never heard of the infection and male sex, age between 18 and 25 years and unfinished primary education. Among the parents who had heard about the human papillomavirus, 152 (46.5%) stated that it is a sexually transmitted infection, 245 (74.9%) assured that the transmission occurs through unprotected sexual intercourse, 275 (75.5%) are unaware of its signs and symptoms, 218 (66.7%) mistakenly stated that this infection is curable and 283 (86.5%) know of the existence of the vaccine. Among all respondents, 98.1% would take their child to get vaccinated against the virus.

Conclusion: Gaps were observed in the knowledge of the parents of children and adolescents about the human papillomavirus, showing the need for health education and dissemination of actions to cope with the infection in the media and social networks.

Resumo

Objetivo: Analisar as características associadas aos pais de crianças e adolescentes que ouviram falar sobre o Papillomavirus humano, bem como o conhecimento sobre a infecção e a intenção de vacinar seus filhos.

Métodos: Estudo transversal com abordagem quantitativa, realizado por meio de entrevista utilizando instrumento estruturado. Entrevistaram-se 376 pais de crianças e adolescentes que aguardavam atendimento pediátrico em unidades de saúde de Três Lagoas/MS. Os dados coletados (características sociodemográficas; características reprodutivas e sexuais; conhecimento sobre o Papillomavirus humano e intenção de vacinar o/a filho/a) foram analisados por meio de técnica de estatística descritiva, teste de associação Qui-quadrado ou exato de Fisher e Teste T Student.

Resultados: Dentre os entrevistados, 327 (87,0%) afirmaram ter ouvido falar sobre o Papillomavirus humano. Identificou-se associação entre os pais que nunca ouviram falar sobre a infecção e sexo masculino, idade entre 18 e 25 anos e ensino fundamental incompleto. Dentre os pais que ouviram falar sobre o Papillomavirus

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Humano, 152 (46,5%) afirmaram que é uma infecção sexualmente transmissível, 245 (74,9%) garantiram que a transmissão ocorre através da relação sexual desprotegida, 275 (75,5%) desconhecem seus sinais e sintomas, 218 (66,7%) afirmaram erroneamente que tal infecção tem cura e 283 (86,5%) sabem da existência da vacina. Dentre todos os entrevistados, 98,1% levariam seu(u) filho(a) para vacinar contra o vírus.

Conclusão: Observaram-se lacunas no conhecimento dos pais de crianças e adolescentes sobre o Papillomavirus humano, mostrando a necessidade de educação em saúde e divulgação de ações de enfrentamento à infecção em meios de comunicação e redes sociais.

Resumen

Objetivo: Analizar las características asociadas a padres de niños y adolescentes que escucharon hablar sobre el virus del papiloma humano, así como el conocimiento sobre la infección y la intención de vacunar a sus hijos.

Métodos: Estudio transversal, con enfoque cuantitativo, realizado por medio de encuesta con instrumento estructurado. Se encuestaron 376 padres de niños y adolescentes que esperaban atención pediátrica en unidades de salud de Três Lagoas, estado de Mato Grosso do Sul. Los datos recopilados (características sociodemográficas, características reproductivas y sexuales, conocimiento sobre el virus del papiloma humano e intención de vacunar al hijo/a) se analizaron por medio de técnica de estadística descriptiva, prueba de asociación ji cuadrado o prueba exacta de Fisher y test-T Student.

Resultados: Entre los encuestados, 327 (87,0 %) afirmaron haber escuchado hablar sobre el virus del papiloma humano. Se identificó relación entre los padres que nunca escucharon hablar sobre la infección y el sexo masculino, edad entre 18 y 25 años y educación primaria incompleta. De los padres que escucharon hablar sobre el virus del papiloma humano, 152 (46,5 %) afirmaron que es una infección de transmisión sexual, 245 (74,9 %) aseguraron que la transmisión ocurre a través de las relaciones sexuales sin protección, 275 (75,5 %) desconocen sus signos y síntomas, 218 (66,7 %) afirmaron erróneamente que tal infección tiene cura, y 283 (86,5 %) saben de la existencia de la vacuna. Entre los encuestados, el 98,1 % llevaría a su hijo/a vacunarse contra el virus.

Conclusión: Se observaron vacíos de conocimiento en los padres de niños y adolescentes sobre el virus del papiloma humano, lo que muestra la necesidad de educación para la salud y difusión de acciones para enfrentar la infección en medios de comunicación y redes sociales.

Introduction

Human papillomavirus (HPV) infection is the Sexually Transmitted Infection (STI) with the highest global incidence. It is estimated that approximately 80% of sexually active people have already come into contact with this virus.^(1,2)

In response to the high prevalence of HPV infection, its association with the development of cancer, especially cervical cancer, and the high mortality observed due to the oncogenic potential of the virus, the Brazilian Ministry of Health introduced HPV vaccination in the national immunization calendar.⁽²⁻⁴⁾

Initially, in view of evidence that the peak incidence of HPV occurs after the first sexual intercourse (usually in the second decade of life) and that mortality as a result of infection occurs mainly among women. The first vaccination strategies incorporated female adolescents and currently covers the public of girls and boys from 9 to 14 years.^(1,3,5) Since its incorporation, however, low coverage of the HPV vaccine has been observed among children and adolescents, which may influence the prevalence of HPV among young people, which remains high.⁽⁵⁻⁷⁾

Erroneous information, taboos and lack of information about HPV infection and its vaccine,

which cause concern about side effects, adverse post-immunization reactions and the stimulation of sexual initiation of vaccinated children and adolescents, have been pointed out as the main reasons for hesitation to get the vaccine against HPV.⁽⁸⁾

A recent systematic review of the international literature on this topic revealed good acceptance and attitude towards HPV vaccination among parents, although their levels of knowledge about the infection and aspects of vaccination were considered poor. In a Brazilian study, the relationship between knowledge, sociodemographic aspects related to parents and acceptance of vaccination was evidenced.^(9,10) These data arouse questions about the characteristics, knowledge and search for preventive care, such as vaccination, among parents of children and adolescents.

Considering that the effectiveness of the HPV vaccine is higher among children and adolescents who have not started sexual activities, that getting information makes parents and responsible caregivers less hesitant in the decision to vaccinate their children⁽¹¹⁾ and in view of inquiries on the influence of the parents' profile and of their knowledge of HPV in the implementation of practices to prevent this disease, as well as the lack of information as to the real reasons for the low adherence to the HPV vaccination, the objective of this study is to analyze

the characteristics of the parents of the children and adolescents who have heard of the human papillomavirus, as well as to review their knowledge of the infection and the intent to vaccinate their children.

Methods

A cross-sectional study with a quantitative approach was conducted from December 2018 to December 2019 in all primary health care units and in a secondary care service offering pediatric care in the city of Três Lagoas/MS.

To calculate the sample size, the estimated number of parents of children and adolescents in Três Lagoas/MS in 2019 was used as a basis. Therefore, information was surveyed on the population of children and adolescents in the city and the fertility rate of the Brazilian population. As the HPV vaccine is applied to children and adolescents in the age group between 9 and 14 years (girls from 9 to 14 and boys from 11 to 14 years) and, as the IGBE does not provide specific information on the population estimate of this age group, the population size in the age group between 5 and 14 years was surveyed for the city, which was 16,327. In addition, it was found that the Brazilian fertility rate is 1.72.⁽¹²⁾ Thus, to estimate the number of parents, the estimated number of children and adolescents from Três Lagoas/MS was divided by the Brazilian fertility rate, resulting in 8,163.5 parents of children and adolescents in the age group of 5 to 14 years.

After collecting these data, the minimum sample was calculated, considering the estimated number of parents by children and adolescents in the age group of 5 to 14 years ($N = 8,163$) and the following parameters: sample error of 0.05; 95% confidence interval and P (population proportion) of 50%:

$$n_0 = \frac{p \cdot (1-p) \cdot Z^2}{e^2} = \frac{3,84 \times 50 \times 50}{25} = 384$$

Because it is a finite population, the minimum sample calculated was corrected in relation to the estimated number of parents by means of the equation:

$$n = \frac{n_0}{1 + (n_0 - 1/N)}$$

Thus, a minimum of 365 parents of children and adolescents from Três Lagoas/MS should be interviewed.

A convenience sampling process was executed until reaching the N set in the sample calculation. The study included parents of children and adolescents who were waiting for care with a pediatrician in the waiting rooms of the health services and who agreed to participate in the study. As a criterion for inclusion in the study, it was defined that parents should be over 18 years old. Data collection took place through interviews conducted by undergraduate students properly trained for this purpose and conducted in rooms provided by the aforementioned health services in order to protect the privacy of the interviewees.

For the interviews, a structured data collection instrument was used, elaborated based on the literature on the topic.⁽¹³⁻¹⁵⁾ It was composed of three sections: I. socio-demographic characteristics (gender, age, level of education, self-declared skin color, marital status, religion, occupation, and monthly family income); II - reproductive and sexual characteristics (history of STI, number of children, age at first sexual intercourse, number of sexual partners); and III - knowledge about HPV, and the intent to vaccinate the child (have you heard about HPV, classification of one's own knowledge about HPV, what it is, how it is transmitted, symptoms and signs, whether it is treatable, how the treatment takes place, whether it is curable, the relationship between HPV and genital warts, the relationship between HPV and cervical cancer, the relationship between HPV and the age of sexual initiation, the relationship between HPV and the number of sexual partners, knowledge on the existence of a vaccine against HPV in primary healthcare, and intention to take one's child to be vaccinated against HPV). These variables are qualitative, except for age, monthly family income, number of children, age of onset of sexual life, number of sexual partners. In Section III, depending on the answers given to the questions involving knowledge about HPV, that knowledge was classified as correct or incorrect or does not know.

To verify the fitness and representativeness of the items in the data collection instrument for the subject in question, it was submitted to the assessment of five professional experts on the subject and to adjustments in its content according to their suggestions. The collected data were double-typed in Microsoft Excel spreadsheets, Office version 2007 and later imported into Statistica software version 12.0.

In the descriptive analysis of the data, the frequency distribution was applied to all the variables in the study, and central trend (mean) and variability (standard deviation) measures were presented for the quantitative variables.

To verify whether the outcome variable (having X not having heard about what HPV is) and the sociodemographic variables, reproductive and sexual profile were associated, Chi-Square and Fisher's exact tests were applied. "Having heard about what HPV is" was considered as parents who indicated they had read material or had participated in educational actions on the subject. If the p-value was significant (i.e. lower than 0.05) in one of the two tests mentioned, the pattern of interdependence between the variables was analyzed by means of residue analysis (difference between observed and expected), in a standardized and adjusted manner. If the residue was greater than 1.96, it was interpreted that evidence of a positive association between the categories of the variables studied was found at a statistical significance level of 5%, and if it was smaller than -1.96, evidence was identified of a negative association between the categories of the variables studied. In the tables, to identify significant standardized residues (greater than 1.96 and smaller than -1.96), the symbols (+) and (-) were used, respectively.

Student's t-test was used to compare the studied groups (having x not having heard about what HPV is) in relation to their means for the quantitative variables. This test was performed as it met the assumptions of homoscedasticity by the Levene test in all the variables studied. Normality was not tested, as $N \geq 30$. In all tests, a 5% significance level was adopted.

For the variables that involved knowledge about HPV, descriptive analyses were done and includ-

ed only parents who had already heard about the infection.

This study received approval from the Research Ethics Committee of the Federal University of Mato Grosso do Sul, under opinion No. 2.892.095 (CAAE: 91324818.4.0000.0021), in compliance with the recommendations in National Health Council resolution 466/2012, and with the guidelines and regulatory standards for research involving human beings.

Results

During the data collection period, 376 parents of children and adolescents agreed to participate in the study and 41 refused. Among the respondents, 327 (87%) said they had heard about HPV, 347 (92.3%) were female, 259 (68.9%) were between 18 and 35 years old, 184 (48.9%) had completed secondary education, 218 (58.0%) declared themselves multato and 165 (43.9%) were married. As for religion, most were evangelical (178 – 47.3%) and Catholic (136 – 36.2%) and, in relation to occupation, 164 (43.6%) were homemakers and 126 (33.5%) were employed. The average monthly household income was R\$2,159.40 among parents who said they had heard about HPV and R\$1,993.00 among those who had never heard about the virus (Table 1). Those who had never heard of HPV were male, age between 18 and 25 years and unfinished primary education. The parents' average age was lower in the group of those who had not heard about HPV (28.7 years) than among those who had (31.8 years) (Table 1).

In Table 2, among the respondents, 352 (93.6%) never had an STI and 264 (70.2%) had 1 to 2 children. In addition, among those who have heard of HPV, the average age of onset of sexual life was 16.6 (SD 3.1) years and the average number of partners was 4.5 (SD 5.8). None of the variables of the reproductive and sexual profile was associated or showed differences of means when comparing the groups studied (Table 2).

The parents who have heard about HPV classified their own knowledge about the virus as reg-

Table 1. Sociodemographic characteristics of parents of children and adolescents who have heard/not heard about human papillomavirus

| Variables | Have heard about HPV | | Total N(%) | p-value |
|----------------------------------|----------------------|-------------|------------|-----------|
| | Yes N(%) | No N(%) | | |
| Gender | | | | |
| Female | 307(93.9)+ | 40(81.6)- | 347(92.3) | 0.0068* |
| Male | 20(6.1)- | 9(18.4)+ | 29(7.7) | |
| Age (years) | | | | |
| From 18 to 25 | 73(22.3)- | 23(46.9)+ | 96(25.5) | 0.0034** |
| Between 26 and 35 | 148(45.3) | 15(30.6) | 163(43.4) | |
| Between 36 and 45 | 91(27.8) | 9(18.4) | 100(26.6) | |
| From 45 to 65 | 15(4.6) | 2(4.1) | 17(4.5) | |
| Mean (standard deviation) | 31.8 (7.7) | 28.7 (8.5) | | 0.0108*** |
| Minimum-maximum value | 18-65 years | 18-58 years | | |
| Education | | | | |
| Primary Education Unfinished | 65(19.9)- | 17(34.7)+ | 82(21.8) | 0.0239** |
| Primary Education Finished | 66(20.2) | 13(26.5) | 79(21.0) | |
| Secondary Education Finished | 166(50.8) | 18(36.7) | 184(48.9) | |
| Higher Education Finished | 30(9.2) | 1(2.0) | 31(8.2) | |
| Self-declared skin color | | | | |
| Mulatto | 187(57.2) | 31(63.3) | 218(58.0) | 0.5386** |
| White | 84(25.7) | 8(16.3) | 92(24.5) | |
| Black | 47(14.4) | 8(16.3) | 55(14.6) | |
| Yellow/indigenous | 9(2.7) | 2(4.1) | 11(2.9) | |
| Marital Status | | | | |
| Married | 140(42.8) | 25(51.0) | 165(43.9) | 0.7433** |
| Fixed Partner/Stable Union | 93(28.4) | 12(24.5) | 105(27.9) | |
| Single | 75(22.9) | 10(20.4) | 85(22.6) | |
| Divorced/separated/widowed | 19(5.8) | 2(4.1) | 21(5.6) | |
| Religion | | | | |
| Evangelical | 148(45.3) | 30(61.2) | 178(47.3) | 0.0922** |
| Catholic | 124(37.9) | 12(24.5) | 136(36.2) | |
| None | 42(12.8) | 7(14.3) | 49(13.0) | |
| Others | 13(4.0) | - | 13(3.5) | |
| Occupation | | | | |
| Homemaker | 138(42.2) | 26(53.1) | 164(43.6) | 0.2866** |
| Employed | 115(35.2) | 11(22.4) | 126(33.5) | |
| Self-employed | 48(14.7) | 9(18.4) | 57(15.2) | |
| Unemployed/student | 26(7.9) | 3(6.1) | 29(7.7) | |
| Monthly household income (reais) | | | | |
| Mean (standard deviation) | 2159(1316) | 1993(1401) | | 0.4113*** |
| Minimum-maximum value | 0-8,000.00 | 0-5,000.00 | | |

* Fisher's exact test; ** Chi-square Test (+ standardized residue >1.96, means that there is evidence of association between the categories of the variables studied; - standardized residue <1.96, means that there is evidence of negative association between the categories of the variables studied); *** Student's T test

ular (148 – 45.3%) or bad (94 – 28.7), with 152 (46.5%) stating that the human papillomavirus is an STI and 245 (74.9%) ensuring that the form of transmission is through unprotected sexual intercourse (see below). Table 3). More than half (275 – 75.5%) of the participants who have heard about HPV are unaware of the signs and symptoms, and 25 (7.6%) answered that the clinical manifestation is the development of warts. In addition, the majority (290 – 88.7%) stated that HPV is treatable, but

Table 2. Reproductive and sexual profile of parents of children and adolescents who have heard/not heard about human papillomavirus

| Variables | Have heard about HPV | | Total N(%) | p-value |
|-----------------------------|----------------------|--------------|------------|-----------|
| | Yes N(%) | No N(%) | | |
| History of STI | | | | |
| No | 306(93.6) | 46(93.9) | 352(93.6) | 0.6170* |
| Yes | 21(6.4) | 3(6.1) | 24(6.4) | |
| Number of children | | | | |
| 1 | 115(35.2) | 20(40.8) | 135(35.9) | 0.3204** |
| 2 | 112(34.2) | 17(34.7) | 129(34.3) | |
| 3 | 68(20.8) | 5(10.2) | 73(19.4) | |
| 4 | 17(5.2) | 5(10.2) | 22(5.9) | |
| 5 to 9 | 15(4.6) | 2(4.1) | 17(4.5) | |
| Mean (standard deviation) | 2.1 (1.2) | 2.0 (1.1) | | 0.5306*** |
| Minimum-maximum value | 1-9 children | 1-5 children | | |
| Age of onset of sexual life | | | | |
| Mean (standard deviation) | 16.6 (3.1) | 15.9 (3.9) | | 0.1452*** |
| Minimum-maximum value | 8-36 years | 11-38 years | | |
| Number of sexual partners | | | | |
| Mean (standard deviation) | 4.5 (5.8) | 3.5 (3.0) | | 0.2921*** |
| Minimum-maximum value | 0-50 | 1-15 | | |

* Fisher's exact test; ** Chi-square Test; *** Student's t test

226 (69.1%) could not tell how it takes place and 218 (66.7%) erroneously stated that this infection is curable (Table 3). Among the people who have heard about the disease, 199 (60.9%) believe that there is a relationship between HPV and genital warts, 239 (73.1%) that there is a relationship with cervical cancer, 205 (62.7%) with the age of sexual initiation and 265 (81.0%) with the number of sexual partners. Most (283-86.5%) of parents who have heard about HPV know that there is a vaccine against human papillomavirus (Table 3). Among the interviewees, including those who had never heard of HPV, 98.1% affirmed that they would take their child to be vaccinated against the virus.

Discussion

The sociodemographic profile of the parents of children and adolescents who participated in this study was similar to other studies, in which the female gender prevails in the application of the research instrument and that they have greater knowledge about HPV and the vaccine in relation than the male gender.^(10,14,16-18)

An association was identified between parents who had heard about HPV and the female gender. This result is confirmed in other studies that identify heterogeneity in relation to knowledge about

Table 3. Knowledge of parents of children and adolescents who have already heard about the human papillomavirus

| Variables | N(%) |
|--|-----------|
| Classification of their own knowledge regarding HPV | |
| Good/very good | 85(26.0) |
| Regular | 148(45.3) |
| Bad/very bad | 94(28.7) |
| What HPV is | |
| Correct (it is an STI) | 152(46.5) |
| Incorrect | 101(30.9) |
| Does not know | 74(22.6) |
| How HPV is transmitted | |
| Correct (sexual intercourse) | 245(74.9) |
| Incorrect | 30(9.2) |
| Does not know | 52(15.9) |
| Signs and symptoms of HPV | |
| Correct (genital warts) | 25(7.7) |
| Incorrect | 55(16.8) |
| Does not know | 247(75.5) |
| HPV is treatable | |
| Correct | 290(88.7) |
| Incorrect | 9(2.7) |
| Does not know | 28(8.6) |
| How treatment takes place | |
| Correct | 9(2.7) |
| Incorrect | 92(28.1) |
| Does not know | 226(69.1) |
| HPV is curable | |
| Correct | 81(24.7) |
| Incorrect | 218(66.7) |
| Does not know | 28(8.6) |
| Relationship between HPV and genital warts | |
| Correct | 199(60.9) |
| Incorrect | 61(18.6) |
| Does not know | 67(20.5) |
| Relationship between HPV and cervical cancer | |
| Correct | 239(73.1) |
| Incorrect | 48(14.7) |
| Does not know | 40(12.2) |
| Relationship between HPV and age of sexual initiation | |
| Correct | 205(62.7) |
| Incorrect | 101(30.9) |
| Does not know | 21(6.4) |
| Relationship between HPV and number of sexual partners | |
| Correct | 265(81.0) |
| Incorrect | 50(15.3) |
| Does not know | 12(3.7) |
| Existence of HPV vaccine in primary healthcare | |
| Correct | 283(86.5) |
| Incorrect | 44(13.5) |

HPV and the respondents' gender as women attend health services and gynecological consultations more regularly, and also show greater interest in seeking information and obtaining health-related knowledge.^(10,14,18,19) In addition, the dominance of female knowledge occurs due to the fact that men restrict the search for care to advanced stages of illness and associate this act with the female figure.⁽²⁰⁾

Contrary to the findings of other studies on the subject, it was observed that the average age of those who had not heard of HPV was young adults.^(14,18) This may be related to the fact that parents do not represent a source of information for their children and to the interference of access to information and health education strategies in the knowledge level of the population.⁽¹⁰⁾ Thus, health services' investment in innovative pedagogical and health education strategies are considered valid, including the incorporation of digital sources of communication (social networks) in the dissemination of health information, as well as the use of intersectoral partnerships between health and education for the young public to understand these issues.

Also regarding the socio-demographic profile, the association between lower level of education and never having heard about HPV stands out, suggesting higher levels of knowledge about the disease in individuals with longer education time. The hypotheses raised for this finding are that these individuals have greater access to reliable sources of information and interest in obtaining scientific knowledge, understanding information transmitted by educational actions in health campaigns or television more appropriately.^(10,18)

It was also verified that the other sociodemographic variables, such as self-reported skin color, marital status, religion, occupation and monthly family income are not determinants for people to have heard or read something about the infection in question. In addition, it was found that this also occurs regardless of the reproductive and sexual profile of the children and adolescents' parents, so that the actions of health education and coping with infection should target all, and especially those who reported having never heard about HPV, as already mentioned in this study.

Although most of the sample of those who have heard about HPV described it as an STI, a significant portion answered incorrectly or did not answer this question, in line with their self-assessment in relation to their own knowledge about the infection, which 74.0% of the respondents reported as regular or bad/very bad. In addition, 90% of the parents did not know how to answer or gave im-

proper answers regarding the signs and symptoms of the infection, thus evidencing, like another study, the contradiction between the predominant “hearing” among the interviewees and the provision of rarely fit and sufficient information about HPV.⁽²¹⁾

Knowledge about the relationship between infection and cervical cancer obtained a 33.3% increase in a previous study⁽²²⁾ for 73.1% in this study. This finding may be related to the increase in the dissemination on the subject, the interviewees’ educational level and social factors, such as access to quality information, which have granted them better knowledge about the subject.

Knowledge about the relationship between HPV and the age of sexual initiation and the number of sexual partners occurred in more than 60% of cases and was similar to recent study results.⁽¹⁵⁾ The lack of knowledge on these risk factors may favor the adoption of behaviors/attitudes that lead to health risks though, also jeopardizing the health of partners and the children themselves.⁽¹⁶⁾

This study showed a significant increase in the knowledge of the population about HPV when compared to a study prior to the inclusion of the vaccine against the virus in the National Immunization Program of the Federal Health Department (PNI-MS).⁽¹⁴⁾ Since the availability of the vaccine, however, coverage is below 80% in the target audience, as evidenced by the incomplete vaccination schedule of approximately 5.5 million adolescents in Brazil.^(23,24) It should be noted, therefore, that the population should at least be aware that HPV is a virus whose transmission occurs sexually and whose carcinogenic potential is high, and that its prevention is carried out through vaccination, which does not exclude protective measures in sexual relationships, such as the use of condoms.⁽¹⁸⁾

When discussing HPV vaccination, studies show that although its effectiveness is high, the main concern of those responsible is its effect against the precursor lesions of cervical cancer, its side effects and its safety,⁽²⁵⁾ pointing to the need for more comprehensive knowledge about the infection itself, its consequences and prevention measures.^(15,26,27) In this study, the main motivator for a significant proportion of parents of children and adolescents

to (possibly) take their children to get vaccinated is the fact that the vaccine represents a form of disease prevention and is mandatory. In this sense, it is necessary to demystify some points regarding vaccination for parents who, often because they assume that some “punishment” will come from the public sectors involved (such as the guardianship council, for example) for not vaccinating their children, consider vaccination as “compulsory”. Thus, actively involving them in a conversation that permits introducing new information, correcting false concepts and breaking with taboos is as an awareness-raising strategy regarding the disease itself and its preventive methods.

Although high acceptance of the vaccine was reported in this study, it should be noted that this acceptability goes hand in hand with the presence of erroneous/improper information. When analyzing the reasons for refusal to vaccinate boys and girls, the taboo remains that the vaccine stimulates the non-use of other prevention methods and early sexual initiation. Thus, it is important to emphasize that HPV vaccination before sexual initiation is scientifically more effective, evidencing the need for a more comprehensive and effective knowledge on the subject.⁽¹⁾

Thus, health campaigns by social media and health services that address educational issues to the population need to be expanded as a way to promote health and prevent diseases, as many parents stop taking preventive measures and refuse to vaccinate their children due to lack of information about the infection problem.^(21,28) Thus, in this study, it is observed that the primary healthcare actions, as well as the Health Department campaigns through social media are significant for the participants to have some knowledge about the virus and the vaccine.

The accomplishment of educational activities was also identified as important in a study conducted in Serbia after the acknowledgement that the gaps in the knowledge of the population about HPV and the vaccine was related to the health services’ lack of disclosure about the virus and its related diseases, thus causing resistance and low adherence to the vaccination of children.⁽¹⁷⁾ In the mean-

time, the potential of the Unified Health System (SUS) stands out, being one of the largest universal health systems in the world with intervention possibilities that include health promotion and disease prevention actions, which broaden the possibility of offering educational strategies to the population. Nevertheless, campaigns are needed that are able to reach a wide range of social classes to complete the gaps between knowledge and action, that is, to reach a degree of depth on the theme for preventive actions to take place in the daily reality of health services and the family context.⁽¹⁸⁾

Thus, effective health education strategies are needed to increase and qualify the information disclosed on the importance of vaccination against HPV and the adoption of safe behavior consistent with the transmission form of the disease, as this can entail consequences for female and male people. In this regard, the health teams of SUS, and particularly the primary care and nursing teams, need to use the School Health Program, given its potential for intersectoral activities to promote health and prevent diseases and the influence that children and young people exert on their parents through the information shared between health and school.

In this study, the cross-sectional design made it impossible to use temporality as one of the causal criteria. In addition, a possible selection bias is highlighted as a function of convenience sampling. With regard to the intention to take one's child to get vaccinated, the respondents' responses may have a possible information bias, as this answer may reflect the common sense of what people think about vaccines. As a potential, we highlight the size of the sample interviewed, which was slightly larger than calculated and permits generalizing the results to the entire city studied.

Conclusion

The study showed that most of the parents interviewed reported having heard about HPV, and among these, the mothers stand out, with a higher age and higher education level. "Having heard about the infection" was not consistent with proper

knowledge about what it represents though, as well as about its form of transmission, risk factors, signs and symptoms, and treatment. In addition, despite not knowing important information about HPV, the parents reported that they intended to take their children to get vaccinated against the infection. In view of the above, it is essential to carry out actions aimed at health education about HPV for parents of children and adolescents, especially fathers, younger parents and parents with a lower education level, as a way to improve the effective adherence to vaccination and the control of the morbidities that occur as a result of infection by the virus. In addition, it is essential to link the health sector with other social sectors, such as education and the use of the media and social networks, which can constitute important means of disseminating information on the subject in question.

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Collaborations

Matos LFSF, Campelo GS, Silva AS, Andrade RLP, Santos EM, Mendez RDR, Santos MA and Wysocki AD contributed with the design of the study, analysis and interpretation of the data, writing of the article, relevant critical review of the intellectual content and approval of the final version to be published.

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