



IMMUNIZATION AGAINST HUMAN PAPILLOMAVIRUS (HPV): KNOWLEDGE OF PARENTS/GUARDIANS

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ABSTRACT

Objective: To analyze the knowledge of parents/guardians about the HPV vaccine. **Materials and methods:** This is an observational, descriptive and quantitative study, conducted in municipal schools located in Belém-PA, Brazil; from april to june 2019. It consisted by the application of a questionnaire with 18 closed questions divided in two parts. **Results:** The study consisted of 363 parents/guardians. Most are between 31-40 years old, are female, have completed high school, are single, have 2-3 children, are evangelical and have a family income between 1 and 2 minimum wages. Most parents/guardians have heard about HPV through television. They said HPV is a sexually transmitted infection, transmitted by sex, with the vaccine age range for girls from 9 to 14 years and for boys from 11 to 14 years, indicating 2 doses. **Conclusion:** Because HPV is associated with the development of cancer, especially uterine cancer and according to the study only 69.1% of children are vaccinated, further studies are needed to better clarify which factors influence immunization or not of children and adolescents against HPV.

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INTRODUCTION

Human Papillomavirus (HPV) is part of the family *Papillomaviridae*, genus *Papillomavirus*; with approximately 8000 base pairs encoding their viral functions; having no lipid envelope and measuring about 55 nanometers in diameter in their icosahedral symmetry (CARVALHO et al, 2018). HPV infection is one of the most prevalent sexually transmitted infections in the world; affecting most women with active sex life at some point in their lives (ZANINI et al, 2017). The etiological agent in question is a DNA virus with about 200

types already identified, of which 40 can infect the genital tract (PEREIRA et al, 2016). Viral types with high oncogenic potential, such as 16 and 18, may be related to cervical, vagina, vulva, anus, and penile carcinomas. When an individual is infected, epithelial cells undergo maturation and accelerated multiplication; induced by viral oncoproteins (E1 to E7, L1, L2 and CSF), generating a benign neoplastic process that, if undetected and properly treated, may progress to a malignant neoplastic process (LIBERA et al, 2016). The cancer itself is slowly evolving, affecting mainly women over 25 years of age; developing from changes in the cervix called

precursor or intraepithelial lesions; and that in an average period of 5 to 6 years, they can turn into an invasive carcinoma. HPV infection is linked to cancer development in about 94% of cases (SILVEIRA *et al*, 2017). Vaccines against the most aggressive types of HPV are currently available, thus providing protection against approximately 70% of cervical cancers, in proportion to vaginal, oral and anal cancers. Given that the virus is primarily sexually transmitted, the vaccine becomes more effective if given before the onset of sex. Thus, promoting the immunization of children and adolescents in the indicated age group becomes extremely important (KRAWCZYK *et al*, 2015). Interest in the theme emerge from the scarcity of related research, after bibliographic search in databases, the reality known through news; and through the experience in practical classes of Community Health Nursing and Women's and Child Health Nursing disciplines. Therefore, this study aimed to analyze the knowledge of parents/guardians about the HPV vaccine, considering that their adherence to the vaccination of children and adolescents is necessary.

MATERIALS AND METHODS

This is an observational, descriptive and quantitative study, conducted in municipal public elementary schools, located in the metropolitan region of Belém-PA, Brazil, in the administrative district of Guamá (DAGUA); composed by the following neighborhoods: Cremation, Canudos, Condor, Guamá, Jurunas and Montese (Terra Firme). Ten institutions from this district were selected, corresponding to an age group of students from 9 to 14 years old. The target population corresponded to 6116 children/adolescents enrolled in educational institutions; from which 363 parents/guardians of children/adolescents in the age range stipulated for HPV vaccination were selected as research participants; stratified between schools; over 18, and who had children regularly enrolled in educational institutions. Visits were made to the institutions chosen for data collection, with the school staff and the board of directors, to present the study, the explanation of the study, its objectives, risks and benefits. During the meeting, and with the approval of the schools to conduct the research; specific dates were set for parent/guardian meetings and subsequent data collection during parent-teacher meetings; thus making a systematized schedule for the study. For contact with the appropriate research participants; by mutual agreement and through the schools, invitations were sent to them, made by the researchers; containing the basic explanation about the research; their objectives, risks and benefits and inviting them to participate on that date; making clear the non-mandatory nature of their participation. The approach to the participants was taken collectively; succinctly and objectively, during the meeting in a room provided by the chosen institutions. Prior to the actual data collection, the Informed Consent Form was delivered; with consequent signature of copies and return of the original terms to the researchers. Subsequently, the data collection for the research began through a questionnaire containing 18 closed questions. All due questions were answered by the researchers prior to the completion of the questionnaire. After data collection, educational actions promoted by the researchers in the schools were performed to clarify the HPV; vaccination and the importance of its accomplishment through the method of conversation wheel; with consequent elucidation of remaining doubts on the subject. Finally, after collection, the study data were organized and transcribed for statistical analysis; with

their subsequent tabulation through the Microsoft EXCEL 2013 program, and the other statistical tests were applied using the SPSS software; for subsequent elaboration of the synthesis and favoring the chosen analysis methods. In compliance with Resolution CNS 466/2012 - guidelines and regulatory standards for research involving human subjects, the research project was submitted to the Ethics Committee for Research on Human Beings of the State University of Pará (UEPA), and approved by opinion n° 3,241,622/2019.

RESULTS

The study consisted of 363 parents/guardians who have children at the age stipulated by the vaccine; enrolled in the educational institutions contained in the Guamá Administrative District (DAGUA).

Table 1. Distribution of sociodemographic data (n=363)

Variables	Frequency	(%)
Age range		
<20 years	1	(0,3)
21-30 years	66	(18,2)
31-40 years	169	(46,6)
41-50 years	73	(20,1)
51-60 years	26	(7,2)
61-70 years	15	(4,1)
71+ years	5	(1,4)
Did not inform	8	(2,2)
Gender		
Male	55	(15,2)
Feminine	303	(83,5)
Did not inform	5	(1,4)
Neighborhood		
Canudos	1	(0,3)
Condor	87	(24,0)
Guamá	111	(30,6)
Terra Firme	124	(34,2)
Jurunas	25	(6,9)
Cremação	7	(1,9)
Others	3	(0,8)
Did not inform	5	(1,4)
Educational attainment		
Incomplete Elementary School	87	(24,0)
Elementary School	46	(12,7)
Incomplete high school	54	(14,9)
High school	153	(42,1)
University education	14	(3,9)
Did not inform	9	(2,5)
Marital status		
Single	170	(46,8)
Married	103	(28,4)
Divorced	10	(2,8)
Stable union	65	(17,9)
Widowed	8	(2,2)
Did not inform	7	(1,9)
Number of children		
1	76	(20,9)
2-3	218	(60,1)
4-5	52	(14,3)
6-7	9	(2,5)
8+	3	(0,8)
Did not inform	5	(1,4)
Religion		
Catholic	153	(42,1)
Evangelical	165	(45,5)
Spiritist	2	(0,6)
No religion	29	(8,0)
Other	7	(1,9)
Did not inform	7	(1,9)
Family income		
Less than 1 minimum wage	125	(34,4)
1-2 minimum wage	201	(55,4)
3 + minimum wage	9	(2,5)
Did not inform	28	(7,7)

Most of these parents/guardians are between 31-40 years old (46,6%), are female (83,5%), live in Terra Firme neighborhood (34,2%), have schooling until complete high school (42,1%), are single (46,8%), have between 2-3 children (60,1%), are evangelical (45,5%) and have family income between 1 and 2 minimum wages (55,4%) (Table 1). Regarding knowledge about HPV, most parents/guardians heard about HPV (92,8%) and, among them, 143 obtained information through television (39,4%) and 126 through health professionals (34,7%). Most said that HPV is a Sexually Transmitted Disease (sexually transmitted infection) (37,2%), transmitted by sexual intercourse, from mother to baby or contact with contaminated objects (57,9%) (Table 2).

Table 2. Parent/guardian knowledge of HPV (n=363)

Variables	Frequency	(%)
Have you heard of HPV		
Yes	337	(92,8)
No	24	(6,6)
Did not inform	2	(0,6)
Where did you get information		
Internet	19	(5,2)
Television	143	(39,4)
Friends and family	20	(5,5)
Health professionals	126	(34,7)
Did not inform	29	(8,0)
Omission*	26	(7,2)
What is HPV		
Virus that can cause various diseases	117	(32,2)
Cancer type	39	(10,7)
Sexually transmitted disease	135	(37,2)
I do not know how to answer	50	(13,8)
Did not inform	22	(6,1)
How is HPV transmitted		
Cough and sneeze	18	(5,0)
Sexual intercourse, mother to baby, contact with contaminated objects	210	(57,9)
Through direct contact with infected person (eg handshake)	21	(5,8)
I do not know how to answer	101	(27,8)
Did not inform	13	(3,6)

Note:*Omission (Checked more than one option); HPV, humanpapillomavirus.

Most parents/guardians state that the age of the vaccine for girls is 9 to 14 years and for boys is 11 to 14 years (44,6%), with 2 doses (42,1%), however, do not know the possible adverse effects (52,9%). Most parents/guardians believe in the effectiveness of the vaccine (91,); would vaccinate their children (93,7%) and the child is already vaccinated (69,1%) (Table 3). Regarding the knowledge of parents/guardians about HPV and the vaccine, only 137 participants have knowledge (37,7%), in contrast to the vast majority who have no knowledge about HPV and the vaccine (62,3%) (Table 4). Regarding the relationship between knowledge and vaccination, 251 children/adolescents (71,7%) are vaccinated, among which 155 parents/guardians (44,3%) are unaware of HPV and/or vaccine. And only 96 (27,4%) obtain knowledge on the subject. In contrast, 99 children/adolescents are not vaccinated, among them, 59 parents/guardians (16,9%) have no knowledge about HPV and/or vaccine and 40 (11,4%) have knowledge about the subject (Table 5).

DISCUSSION

Most participants were female (83,3%); this corroborates the study by Sousa (2017), conducted at a school in São Luís-MA; whose sample comprised 83 parents/guardians, most of them also female (86,75%).

Table 3. Vaccine Knowledge (n=363)

Variables	Frequency	(%)
Age range indicated for HPV vaccination		
Girls 10-15 years, boys 10-15 years	88	(24,2)
Girls 18-25 years, boys 18-25 years	7	(1,9)
Girls 09-14 years, boys 11-14 years	162	(44,6)
Over 25 years	4	(1,1)
I do not know how to answer	87	(24,0)
Did not inform	15	(4,1)
Number of vaccine doses		
1 dose	14	(3,9)
2 doses	153	(42,1)
3 doses	50	(13,8)
4 or more doses	9	(2,5)
I do not know how to answer	123	(33,9)
Did not inform	13	(3,6)
Omission*	1	(0,3)
Possible adverse effects of HPV vaccine		
Arm standstill	9	(2,5)
Pain at the site of application, swelling and redness, mild to moderate in intensity	123	(33,9)
Fainting, nausea and vomiting after application	22	(6,1)
I do not know how to answer	192	(52,9)
Did not inform	17	(4,7)
Believe in the effectiveness of vaccination		
Yes	332	(91,5)
No	21	(5,8)
Did not inform	10	(2,8)
Vaccinate the son		
Yes	340	(93,7)
No	10	(2,8)
Did not inform	12	(3,3)
Omission*	1	(0,3)
The son is already vaccinated		
Yes	251	(69,1)
No	99	(27,3)
Did not inform	13	(3,6)

Note: Note: * Omission (Checked more than one option); HPV, humanpapillomavirus.

Table 4. Parent/guardian knowledge of HPV and vaccine (n=363)

Variables	Frequency	(%)
Parent Knowledge		
Aware	137	(37,7)
Not aware	226	(62,3)

The research conducted by Matos (2018), in a school in Tubarão-SC also obtained prevalence with the female population (84,7%), contributing to the affirmative of the present study. This data is justified by the mother's accountability in relation to the education of her children, as a historical and social issue; which according to Simionato *et al* (2016) reflects the fact that women are not totally detached from social totality, since the political, economic and social context, for example, materializes in the representations of gender relations; through the overload of double hours and the accountability of women for their children and domestic issues. Regarding the place of residence, there is a predominance of the Terra Firme neighborhood (Montese), among 124 research participants (34,2%) and it is located in an area covered by Primary Health Care, by the Family Health Strategy teams, according to data provided by the Belém City Hall (2019). It is known that; according to Pereira, Souza (2017), screening and vaccination strategies as a way to prevent the emergence of possible diseases are linked to these representative health units within the SUS; in 2014, vaccination campaigns were initiated in schools and UBS's nationwide. In the research, it is emphasized the prevalence of parents who have completed high school (42,1%); the study by

Sousa (2017) corroborates the obtained data; whereas 57,83% of participants had the same level of education; result also found in research by Neto *et al.* (2016) in Juiz de Fora-MG, where 44,4% of parents/guardians had education up to the middle level. In contrast, the study by Matos (2018) reports a higher prevalence of parents/guardians with higher education; thus highlighting the social inequality existing throughout the territory.

Education is one of the factors that influence knowledge about HPV and the HPV vaccine; whereas higher educated people have more access to information from reliable sources such as books and teachers. Studies report that parents with higher education also find it easier to talk to their children about safer sex, sexually transmitted infections and early pregnancy. (MATOS, 2018; SOUSA, 2017; ABREU *et al.*, 2018). Regarding marital status, 46.8% of parents/guardians of the research declared themselves single; given that it presents a disparity in relation to the studies by Matos (2018), in which 80,6% of the participants were married or in a stable union, Sousa (2017), in which 50,6% of the participants were married; and the research conducted by Abreu *et al.* (2018), in which 52,59% of participants reported having a partner. The importance of the marital status of the study participants lies in the prerogative that children and adolescents whose parents are in the same home are easier to talk to; clarify doubts, reveal life stories, wills and decisions; resulting in greater compliance with parental guidance regarding precepts concerning child rearing and health (SOUSA, 2017). Regarding religion, 45,5% of parents/guardians declared themselves evangelical. This data is most significantly expressed by the research by Krawczyk *et al.* (2015) in which 71,4% of participants declared christians reported not accepting the vaccine. Thus, according to the exposed author, religion stands out as a contributing factor for the acceptance or not of the vaccine by parents/guardians, especially in the international scenario, based on the complex and multifactorial process of understanding the decisions of parents/guardians about HPV and vaccination.

In relation to knowledge about HPV, 92,3% of participants reported having heard about the term; this is in line with research conducted by Abreu *et al.* (2018) and Matos (2018). With reference to sources of information about HPV and the vaccine, 143 (39,4%) participants reported television as the main means of information; although, according to Quevedo *et al.* (2016) there is a growing number of people who search the internet for information about health and particularly vaccines. Second, as the most frequent source of information, health professionals were described (34,7%). According to research by Grandahl *et al.* (2017) 49,5% of participants reported that the primary source of information about HPV and virus vaccination was the school nursing professional; followed by the mass media and finally the internet; showing disparity in national survey data. According to the obtained data; parents/guardians who refused the vaccinations of their children have listed the internet as their main source of information. Therefore, the importance of the participation of health professionals in the scenario of immunization and primary prevention is highlighted; because according to the study by McRee *et al.* (2014) apud Leite and Sousa *et al.* (2018); the healthcare professional gives parents the assurance of the safety of the HPV vaccine and influences them in their children's vaccination decision.

Pereira *et al.* (2016) show that from the moment the health professional moves away from his role as instructor and knowledge provider to the population, acting in preventive practice and not only curative; the population is allowed to seek knowledge in other less accurate means; disadvantaging adherence to health resources; like immunization. Concerning knowledge about HPV, 135 participants (37,2%) reported that it was an sexually transmitted disease (sexually transmitted infection); this can be corroborated by the research conducted by Abreu *et al.* (2018) in which it was observed that less than half of respondents (40,1%) said they knew what HPV is, and of these, 93,25% had minimal knowledge of the virus infection. In contrast, in the study by Sousa (2017), 75,9% of participants stated that HPV is a virus that causes genital warts and can cause cervical cancer. The research conducted by Matos (2018) also presented similar results, with an index of 91,6% of participants who presented satisfactory knowledge about the virus and the vaccine.

Measuring knowledge about HPV, according to Abreu *et al.* (2018) is important since it allows the evaluation of the results obtained and the selection of appropriate strategies for the construction of effective planning with promotion, prevention and early diagnosis of the alterations caused by the virus. It is noted, however, that although knowledge about HPV is prevalent in several studies; its quality is not adequate, since superficial and misconceptions about the theme are identified (PEREIRA *et al.*, 2016). In relation to knowledge about HPV vaccine as a way to prevent cervical cancer, in a study by Leite and Sousa *et al.* (2018), the level of correct answers between parents/guardians was considered high (88,4%). However, according to Neto *et al.* (2016), the level of knowledge of those guardians for the outcomes of the disease caused by the virus are still low. In the study by Ganczak *et al.* (2018) knowledge about HPV was considered insufficient in 77,8% of participants. Regarding the transmission of the virus, 57,9% of participants reported that it occurs through sexual intercourse, from mother to baby and through contact with contaminated objects; this was confirmed by the research by Matos (2018), in which 95,8% of participants reported that HPV can be transmitted during sexual intercourse and 80,6% reported that the virus can also be transmitted directly through skin contact genital parts. As shown in table 3, regarding the possible adverse effects caused by the vaccine, 192 parents/guardians (52,9%) reported not knowing the subject; this corroborates with the study by Quevedo *et al.* (2016), reporting that no information was provided by the Ministry of Health from Brazil about the possible risks during the vaccination campaign.

About the vaccination or not of their children, there was a significantly higher number of parents/guardians who affirmed the question positively, 340 in all (93,7%), corroborating the research by Neto *et al.* (2016) in which 90,1% of the guardians answered positively when asked about the possibility of vaccination of their daughters. In a lower proportion, there were parents/guardians who denied the statement, 10 in all (2,8%); which according to Quevedo *et al.* (2016) may be associated with the complexity of vaccine application, added to the disease linkage and sexual activity; media dissemination of side effects and diverse scientific opinions about it, leading to public controversy; Leite and Sousa *et al.* (2018) report that many parents are against vaccinating their children for fear of possible side effects, therefore, there is lack of knowledge about the safety and

positive impact of their children's health. When analyzing knowledge about the HPV vaccine as an available and proven effective prevention measure, according to Pereira *et al*, (2016) we note a lack of knowledge about its existence and prophylactic purpose; corroborating with the international literature, which also highlights the lack of information to both the vaccination target audience and their parents/guardians.

We analyzed the relationship established between parents and guardians' knowledge about HPV and the vaccine, and their children's vaccination, as shown in table 5. Among the data, it was noted that most children were already properly vaccinated against the virus (71,1%), however, 155 parents/guardians (44,3%) did not have adequate knowledge on the subject; only 96 participants (27,4%) showed adequate knowledge. The relationship between parent/guardian knowledge and whether they believe in the effectiveness of vaccination was assessed; as well as the relationship established between parents/guardians' knowledge and whether they would vaccinate their children, however, no statistically significant differences were obtained for the analyzed variables ($P > 0,05$).

Conclusion

As presented in the study, the HPV virus is directly associated with cancer development, especially cervical cancer; considered the third most frequent tumor in the Brazilian female population, and the fourth leading cause of cancer death among women in the country, according to data provided by the INCA (2019). Therefore, this scenario is a public and social problem, confirming the need for prevention through available vaccines. In the research, it was noted that 92.8% of parents/guardians had heard about HPV, however 37.2% reported that it is a sexually transmitted infection; and although most participants demonstrated adequate knowledge about age and doses for vaccine indication, 52.9% were unaware of the possible adverse effects caused by the vaccine; according to the research, 62.3% of participants have insufficient knowledge about HPV and the vaccine. And it was noted that only 69.1% of the children had been vaccinated; rate considered inadequate before the parameters established by the PNI, whose coverage recommends 80% vaccination of the target population. Therefore, it is possible to infer the need for further studies in this area, to better clarify which factors influence the immunization or not of children and adolescents against HPV; aiming at the construction of strategies to improve vaccination coverage.

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