



REVISIONES

The teenagers' knowledge schooled about the human papilloma virus: integrative review

O conhecimento dos adolescentes escolarizados sobre o papiloma vírus humano: revisão integrativa

El conocimiento de los adolescentes escolarizados sobre el virus del papiloma humano: revisión integrativa

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<http://dx.doi.org/10.6018/eglobal.18.4.362881>

Received: 14/02/2019

Accepted: 24/03/2019

ABSTRACT:

Objective: To analyze the evidences found in the scientific literature regarding the human papilloma virus for the adolescent sexual and reproductive life.

Method: literature integrative review through the search of publications in journals indexed in SciELO, MEDLINE and LILACS databases.

Results/Discussion: The final study sample consisted of 27 articles with a predominance of studies addressing adolescence and human papillomavirus (37%), followed by studies on adolescence and sexuality (33%). Most of the studies were carried out in the American continent (56%) followed by the European continent (22%), evidencing the lack of knowledge about the transmission, prevention, screening and oncogenicity of human papilloma virus in different regions, with more knowledge among girls, homosexual boys and the vaccinated population, which revealed the importance of education.

Conclusion: This review revealed that actions that make possible changes in the current scenario are fundamental to improve education, awareness, reflection about the risks and health promotion of adolescents, building a network of new meanings and behaviors for their lives.

Keywords: Adolescent, Sexuality, Human Papillomavirus, Education, Local Development.

RESUMO:

Objetivo: Analisar as evidências encontradas na literatura científica a respeito do papiloma vírus humano para a vida sexual e reprodutiva do adolescente.

Método: revisão integrativa da literatura por meio da busca de publicações nos periódicos indexados nas bases de dados da SciELO, MEDLINE e LILACS.

Resultados/ Discussão: a amostra final do estudo constituiu-se de 27 artigos com predominância dos estudos que abordavam adolescência e papiloma vírus humano (37%), seguido dos estudos sobre

adolescente e sexualidade (33%). A maioria dos estudos foi realizada no continente americano (56%) seguido do continente europeu (22%), evidenciando o nível deficitário de conhecimento dos adolescentes sobre a transmissão, prevenção, rastreamento e oncogenicidade do papiloma vírus humano em diferentes regiões, sendo maior o conhecimento entre meninas, meninos homossexuais e entre a população vacinada, o que revelou a importância da educação.

Conclusão: esta revisão revelou que ações possibilitadoras de mudanças no cenário atual são fundamentais para melhorar a educação, conscientização, reflexão sobre os riscos e a promoção de saúde dos adolescentes, construindo uma rede de novos significados e comportamentos para suas vidas.

Palavras-chave: Adolescente, Sexualidade, Papiloma Vírus Humano, Educação, Desenvolvimento Local.

RESUMEN:

Objetivo: Analizar las evidencias encontradas en la literatura científica acerca del virus papiloma humano para la vida sexual y reproductiva del adolescente.

Método: Revisión integradora de la literatura mediante la búsqueda de publicaciones en los periódicos indexados en las bases de datos de SciELO, MEDLINE y LILACS.

Resultados / Discusión: La muestra final del estudio está constituida de 27 artículos con predominio de los estudios que abordaban adolescencia y virus papiloma humano (37%), seguido de los estudios sobre adolescentes y sexualidad (33%). La mayoría de los estudios ha sido realizada en el continente americano (56%) seguido del continente europeo (22%), evidenciando el nivel deficitario de conocimiento de los adolescentes sobre la transmisión, prevención, rastreo y oncogenicidad del virus papiloma humano en distintas regiones, siendo mayor el conocimiento entre chicas, chicos homosexuales y entre la población vacunada, lo que ha revelado la importancia de la educación.

Conclusión: Esta revisión ha mostrado que las acciones que posibilitan el cambio en el escenario actual son fundamentales para mejorar la educación, concienciación, reflexión sobre los riesgos y la promoción de la salud de los adolescentes, construyendo una red de nuevos significados y comportamientos para sus vidas.

Palabras clave: Adolescente, Sexualidad, Virus Papiloma Humano, Educación, Desarrollo Local.

INTRODUCTION

The adolescence period is characterized by intense biological, social and psychic transformations, in which the individual pass through the transition from childhood to adulthood, exploring their sexuality more and more, which makes them more vulnerable to health problems, especially Sexually Transmitted Infections (STIs)⁽¹⁾. In this context, the dissemination of information that promotes knowledge about sexual and reproductive health care associated with adolescents' awareness of risks becomes paramount in the school scenario, since adolescents⁽¹⁾ spend most of their time in school searching for knowledge construction and socialization.

To make this knowledge feasible in order to protect adolescents' health, educational actions and reflections that promote changes in attitudes are essential, since studies⁽²⁻⁴⁾. Mention that the early sexual practice, the multiplicity of partners and the deficit level of knowledge are risk factors for the high incidence of human papillomavirus (HPV), considered one of the STI⁽²⁾ that most affects the world population, and its oncogenic characteristic. It is necessary that parents, health professionals and educators provide guidance on sexuality and HPV to adolescents as a strategy to promote health and quality of life, idealizing healthy adults⁽⁵⁾.

Another important factor is the HPV vaccine instituted in the national calendar in the year 2014, initially focused on girls aged between 11 and 13 years and currently, according to a new schedule, the vaccine is provided for girls aged between nine and 14 years and for boys between 11 and 14 years old⁽⁶⁾.

In addition to this recent protective measure of the HPV vaccine, it is relevant to mention the incipient publications regarding vaccine adherence by boys instituted in the year 2017, as vaccinated boys⁽⁶⁾, as well as protecting themselves against the oncogenicity of the virus and genital warts, provide more protection for girls, thereby reducing the incidence of cervical cancer. It is pertinent to point out that male adolescents, due to established society patterns, are forced to have an active sexual life for the sake of virility and empowerment, and that only one among three of them use condoms in their first copulation⁽⁷⁾.

The relevance of this review is summarized in the synthesis of studies about adolescents' knowledge about HPV with a focus on education, since a study⁽⁸⁾ reports that there is evidences that the lack of knowledge about the virus and the vaccine is part of the reasons of the non-adherence to the protective measure, which reinforces the need for educational actions.

Knowing this facts exposed, the following research question is proposed: what does the literature recommend for educated adolescents regarding the transmission, prevention, screening and oncogenicity of HPV for their sexual and reproductive lives? Thus, this study aimed to analyze the evidence found in the scientific publications about HPV for the adolescent sexual and reproductive life.

METHODS

It is an integrative literature review that made possible the synthesis of knowledge related to HPV found in databases and the unification of studies or researches related to this phenomenon. The review allows the researcher to raise the knowledge already constructed and published on a particular topic, to position themselves critically, as well as to be able to show trends and evidences of the topic of study focus⁽⁹⁾.

The design of the study was based on six distinct stages: elaboration of the research problem, search and definition of the sample from the selected descriptors, data collection, analysis of the components related to the theme, analysis and interpretation of the data collected and data dissemination.

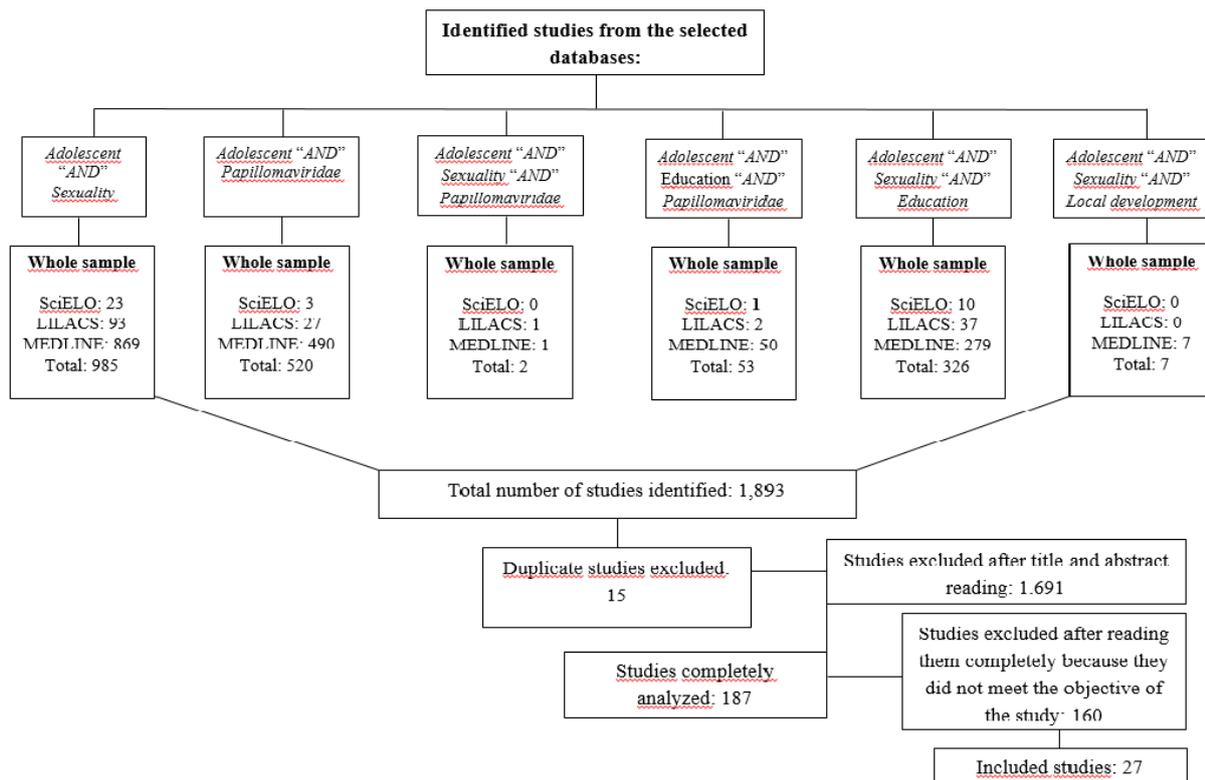
The search for the published studies was conducted in March 2018, at the Virtual Health Library (VHL), through the website www.bvsalud.org, which includes the Medical Literature Analysis and Retrieval System (MEDLINE) and the Latin American Literature Index (LILACS), as well as the Scientific Eletronic Library Online (SciELO) at www.scielo.br. The descriptors used were selected from the consultation to the Descriptors in Health Sciences (DeCS) surveyed in the VHL, were used the foloowing terms: "adolescent"; "Sexuality"; "Papillomaviridae"; "Education" and "local development".

The descriptors were used in the search for studies that involved the topic in the title and the abstract. For the combination, the **Boolean** operator "AND" was used as follows: Adolescent AND Sexuality; Adolescent AND Papillomaviridae; Adolescent AND Sexuality AND Papillomaviridae; Adolescent AND Education AND Papillomaviridae; Adolescent AND Sexuality AND Education; Adolescent AND Sexuality AND Local development.

We included studies that addressed the combination of the descriptors mentioned in the title, abstract and subject, without language restriction, in the last five years (2014-2018). This time period was determined based on the Brazilian HPV vaccine framework established by the Ministry of Health in the National Vaccination Calendar in 2014 (6). We excluded the studies that did not meet the inclusion criteria, those performed with subjects, men or women only in adulthood and with adolescents who only addressed the unwanted pregnancy and the Human Immunodeficiency Virus (HIV), which did not provide abstracts for the initial selection and also editorials, reviews, experiences reports, dissertations, theses, monographs and abstracts published in annals of events.

The synthesis of the selected studies sought to order and evaluate the degree of agreement of the researchers with respect to the subject investigated. To do so, the descriptors were combined in order to guarantee a broad search on the theme. The process of identification, selection and inclusion of the studies occurred in three stages. In the first, duplicate articles were removed. Thus, of the 1,893 articles found, 15 were excluded. In the second stage, after reading the title and abstract, 187 articles were selected. And in the third stage, all of these articles were read and it was selected 27 articles that met the proposed objective, as shown in Figure 1 below.

Image 1: Summary of Selected Studies



Source: survey data, 2018.

RESULTS

The final sample, composed of 27 articles, had most of the studies published in the year 2016 (33%) and 2015 (33%). The other studies were published in 2017 and 2014,

respectively. The most frequent design was the transversal one (59%) followed by literature review (22%). The main language of dissemination was English (78%), followed by Portuguese (11%) and Spanish (11%). As it concerns about where the studies were carried out, a great diversity was verified, with most of them realized in the American continent (56%) followed by the European continent (22%). Of the 27 studies in the sample, 20 were targeted to adolescents between 10 and 19 years (74%) and seven (26%) involved, in addition to adolescents, young adults.

The following table 1 represents the characterization of the 27 studies. For each study, it was presented the main author, the year of publication, the objectives, the variable design of interest to promote the organization of the data and to facilitate the visualization, demonstrating the relevance of the findings.

Tabela 1: Síntese dos estudos

Authors	Objetives	Design	Knowledge of educated adolescents about the transmission, prevention, screening and oncogenicity of HPV for their sexual and reproductive lives
Genz <i>et al.</i> , 2017 ⁽¹⁾	Evaluate the knowledge and the sexual behavior of adolescents about sexually transmitted diseases.	Descriptive / Observational / Quantitative	There was a statistically significant difference in schooling for both girls and boys on knowledge of HPV, which was significant for girls ($p = 0.04$); about thinking that HPV can be cured was significant for girls ($p = 0.006$) and for boys ($p = 0.04$); 61.9% of the girls and 55.2% of the boys did not know the forms of transmission; and 58.6% of the girls and 48.6% of the boys did not know the proper form of prevention.
Contreras-González <i>et al.</i> , 2017 ⁽²⁾	To determine the level of knowledge of an adolescents group from a high school in the city of Queretaro, in the state of Querétaro, Mexico, on the general aspects of HPV, its transmission and consequences	Transversal / Descriptive	The general level of knowledge was low in 80% of participants, regardless of gender; 64.6% were unaware of HPV; 50.4% of adolescents reported being sexually active, 60.3% always use condoms, being the most commonly used method, referred to by 91.4%; and only 58.7% acknowledge that the onset of sexual life is a risk factor for the acquisition of HPV, specifically when it starts at an early age (57%). Regarding HPV screening measures, 72.3% were correct regarding the functions of the Pap smear test and 68.6% did not know what diseases the virus could generate.
Friedrich <i>et al.</i> , 2016 ⁽³⁾	Assess the level of knowledge of	Transversal / Descriptive	91.28% of adolescents have heard about HPV, being the highest percentage found for girls (96.81%);

	adolescents about human papillomavirus and report on prevention, transmission and infection.		91.54% answered that it is a virus; 43.08% knew the meaning of the acronym; 81.03% cited sexual relations as the main mode of transmission; 33.85% answered that only women could be infected with HPV. Regarding prevention, 59.48% remembered the use of condoms, 12.56% of the late onset of sexual activity and a reduced number of partners, 55.38% of the vaccination and 28.20% of sex education. Vaccination and condoms were mainly remembered by the female sex ($p < 0.05$); 70.00% of adolescents knew that cancer and skin and mucosal lesions could be possible clinical manifestations of HPV.
Villegas-Castaño and Tamayo-Acevedo, 2016 ⁽⁴⁾	To determine the prevalence of STIs in adolescents and to know the most frequent risk factors for acquiring them.	Cross-sectional study	28.1% of women had HPV and the risk factors for virus contamination were not having adequate knowledge about sexual health (39.1%), sexual intercourse before age 15 (59.9%), non-use of condoms (58.2%), did not use it in the last sexual intercourse (41.7%), have a history of three or more sexual partners (30.6%), have sexual partners 10 years older than them (20, 4%), having sexual intercourse with persons other than the formal couple (18.8%).
Souza <i>et al.</i> , 2017 ⁽⁵⁾	To analyze knowledge, experiences and beliefs in the sexual field of high school students of public and private schools, that may have repercussions on the social vulnerability of this age group.	Transversal / Descriptive / Analytical	In the three schools surveyed, less than 51% of adolescents identified HPV as an STI, as well as low percentages of recognition of the possible signs and symptoms associated with them. About prevention, it was found that the male condom was the best known method, cited by more than 80% of the students of the three schools, followed by the contraceptive pill.
Albuquerque <i>et al.</i> , 2014 ⁽⁷⁾	To identify the knowledge of male adolescents regarding sexual /	Transversal / Descriptive / Quantitative	Regarding the onset of sexual life, 75.92% of the adolescents had not yet had the first sexual intercourse and 24.07% did; at the time of the first sexual intercourse, 53.84% of the adolescents said they had used a

	reproductive issues and their relation to the sexual practices adopted.		condom and 46.15% did not use it. Only 2.88% of adolescents reported having knowledge about HPV and this knowledge covers the prevention and transmission of HPV.
Zanini <i>et al.</i> , 2017 ⁽⁸⁾	To identify the level of adolescent knowledge about the virus and the vaccine and describe why they did not get vaccinated.	Observational / Transversal / Descriptive	86% of adolescents have heard about HPV, 74% know that their transmission is sexual, and 60% do not believe in the relationship between HPV infection and the age of sexual initiation, while almost 75% acknowledge that there is a relationship between the infection and the number of sexual partners; 74% of the girls cited sexual intercourse as a means of transmitting HPV; 52% are unaware of their relationship to cervical cancer and 41% are unaware of the relationship of HPV with genital warts; 69% believe in cure and 88% have heard of the vaccine.
Vaidakis <i>et al.</i> , 2017 ⁽¹⁰⁾	To identify sexual behavior, attitudes, beliefs and knowledge about STIs, focused mainly on HPV in the Greek adolescent population.	Field research / Pilot study	64.5% of adolescents had had sexual intercourse, at the average age of 15.5 years; 42.8% knew HPV (significant for girls (P <0.001), 75.5% knew cervical cancer (significant for girls (P <0.001), 60.6% were unaware of the relationship between cervical cancer and HPV 33.1% answered that HPV is very common in sexually active women, 21.1% were unaware that condom use reduces the risk of HPV, and 37% did not know that condoms (P <0.001), 40.0% knew about the HPV vaccine, and the proportion was lower among boys (34.5%) than girls (43.9%).
Rodrigues <i>et al.</i> , 2016 ⁽¹¹⁾	Implementar um projeto que visa à promoção da saúde sexual como alternativa contra o risco de HPV na adolescência.	Pesquisa-ação participativa	A grande maioria não conhecia informações básicas sobre o HPV, nem como pode ser transmitido, logo, não adere a medidas preventivas.
Beavis and Levinson, 2016 ⁽¹²⁾	To analyze disparities in HPV vaccination	Literature review	More than 80% of young women (ages 15-25) had heard about the HPV vaccine, but feared its the adverse effects and efficacy. Many

	<p>rates in girls in the United States, influences of patient, physician, and parent attitudes about vaccine uptake and possible interventions that may help the United States achieve its goal of vaccine coverage.</p>		<p>girls and women who did not want to get vaccinated cite the perceived low risk for HPV as their reason against vaccination. On the other hand, young women who reported that they wished to be vaccinated were more likely to have had sex when the timing of vaccination is less optimal. In a study of 388 girls eligible for the vaccine, only 37% received a vaccine recommendation by the physician over the course of a year. Thus, lack of knowledge leads to low rates of initiation to vaccination.</p>
<p>Gichane <i>et al.</i>, 2016⁽¹³⁾</p>	<p>Understand the awareness and willingness of HPV to get HPV vaccination in Haiti.</p>	<p>Field research</p>	<p>27% of participants heard of HPV, more among those with previous STI compared to those without previous STI (OR = 2.38; 95% CI: 1.10-5.13); 79% did not use any method of contraception or were unaware of the method their partner used regularly; and 75% had not heard of genital warts. Participants who had heard of genital warts were also more likely to be aware of HPV compared to those who did not (OR = 4.37, 95% CI: 2.59-7.38). The majority of participants who were already parents classified HPV as a serious threat to the health of their daughters (HPV infection = 75%, cervical cancer = 92%) and only 10% of them had heard about the vaccine.</p>
<p>Lara and Abdo, 2015⁽¹⁴⁾</p>	<p>To assess the implications of an early first sexual intercourse on adolescent health and to identify factors that may protect against the early onset of sexual intercourse.</p>	<p>Literature review</p>	<p>Adolescents who had early sexual intercourse (younger than 14 years) were 3.8 times more likely to have more than 10 sexual partners during their lifetime and were more likely to have two or more recent sexual partners, STIs, and changes in the cervix due to HPV. Girls who initiate sexual activity at a later age are more likely to have better knowledge about STIs and need for intercourse protection, but the study showed that, even with better knowledge, almost all girls denied the possibility of acquiring or transmitting STIs and they had little influence on sexual</p>

			behavior.
Mammas <i>et al.</i> , 2016 ⁽¹⁵⁾	To assess the acceptance of the HPV vaccine among female adolescents in Greece and to investigate sociodemographic reasons for the decline in HPV vaccination.	Pilot research / Cross-sectional questionnaire	The most common factor for non-vaccination against HPV included fear of side effects (67.2%) and financial ones (19.2%), followed by lack of knowledge (10.6%), vaccination not considered necessary (0, 5%), religious taboos (0.5%), fear of exposure to needles (0.3%) and medical contraindications (0.2%).
Patel <i>et al.</i> , 2016 ⁽¹⁶⁾	Assess the level of knowledge about the HPV vaccine and the HPV that exists among European adolescents.	Systematic / Qualitative and Quantitative Review	European teens had little knowledge about HPV and the vaccine against HPV. Girls are more likely to have heard about HPV (OR 2.73, 95% CI 1.86-3.99) and HPV vaccine (OR 5.64, 95% CI 2.43-13.07). There were doubts regarding the level of protection afforded by the vaccine and the need for cervical screening after vaccination. Teens knew that HPV is an STI.
Prayudi <i>et al.</i> , 2016 ⁽¹⁷⁾	To determine the impact of HPV vaccination on knowledge, perception of sexual risk and need for safe and continued sexual behavior among Indonesian girls.	Cross-sectional comparative study	50.7% of the girls had received the HPV vaccine before the study, 76.4% had knowledge about HPV. Vaccination against HPV was a predictor of knowledge (P <0.001); 89.5% of vaccinated girls knew that HPV is the cause of cervical cancer and 97.9% of girls vaccinated were aware that the HPV vaccine can prevent cervical cancer; 89.7% knew that HPV can be transmitted through sexual contact, but only 23.2% knew that HPV could affect men, 57.8% knew that HPV infection could be asymptomatic and 61.8% that the condom can prevent the transmission of HPV. Among the non-vaccinated group, 74.7% had heard about cervical cancer, 33.2% on HPV infection and 24.1% on HPV.
Yörük <i>et al.</i> , 2016 ⁽¹⁸⁾	To investigate knowledge, attitudes, and behaviors regarding cervical cancer, HPV	Transversal	The total average student knowledge score for the risks, symptoms and screening methods for cervical cancer and HPV vaccines was 14.15 ± 6.7. Only 0.9% of the students took the vaccine. A third of the students who did not take the vaccine did not

	and HPV vaccine from women university students in a health-related department and explore variables that affect vaccine use.		know that it was available in our country. It was down to the knowledge of the research group on cervical cancer risk factors, Pap smear, symptoms and forms of cancer prevention, HPV and HPV vaccine.
Viero <i>et al.</i> , 2015 ⁽¹⁹⁾	To analyze the acquisition of knowledge about the themes: oral health, drugs use prevention and sexuality among adolescents enrolled in the public education system in the south of Santa Catarina.	Field Search / Temporal / Prospective / Analytical	The actions, even if they were punctual, presented positive results regarding the increase of knowledge of the adolescents in the drug prevention and sexuality themes, a fact that was not established in the oral health theme. In the study, the frequency of correct answers was more expressive in the questions about: what is sexuality, the period in which it begins and what are the main symptoms of HPV.
Berenson 2015 ⁽²⁰⁾	Identify barriers to vaccination against HPV in adolescents in the USA	Literature review	Teenagers are not well informed about HPV. In a study of 14 to 17 years old girls, many could not define cervical cancer, did not know what caused it, and who was at risk of developing cervical cancer. In addition, unvaccinated adolescents have low awareness compared to vaccinated. Gay male adolescents have more knowledge about the vaccine than heterosexuals.
Beshers <i>et al.</i> , 2015 ⁽²¹⁾	Explore the awareness of HPV and the use of HPV vaccines (Gardasil and Cervarix) by college students.	Transversal	High levels of HPV awareness, as well as highlighted differences between the sexes related to vaccine awareness and acceptance. A great deal of both sexes is unaware of the Cervarix (bivalent) vaccine and the differences between Cervarix and Gardasil (quadrivalent).
Koç 2015 ⁽²²⁾	To determine the knowledge and attitudes of university students	Transversal / Descriptive	Girls have low awareness level and knowledge about risk factors for cervical cancer, HPV, and HPV vaccination. When questioned about the risk factors for cervical cancer,

	regarding cervical cancer, HPV and HPV vaccines in Turkey.		10.0% cited HPV; 90.9% did not know about prevention; 88.7% did not know the modes of transmission of HPV; 90.0% were not aware of the symptoms; 99.7% were not vaccinated against HPV; 94.4% did not believe that the HPV vaccine was a prevention for cervical cancer and only 1.1% underwent a Pap smear.
Onyeabor <i>et al.</i> , 2015 ⁽²³⁾	Assess the level of awareness about HPV, the HPV vaccine, and diseases related to it in African-American adolescents between the ages of 16 and 18 who identify themselves as men who have sex with men.	Snowball sampling / Qualitative	66.7% of the participants do not consider themselves predisposed to HPV only because they are men who have sex with men. They have expressed little knowledge of the HPV vaccine and are also unaware of the complications of HPV infection; 75% of the participants were aware of the HPV vaccine for girls, while 100% of them were unaware of the HPV vaccine; 83.3% were unaware of the natural history of HPV infection and its complications.
Shao <i>et al.</i> , 2015 ⁽²⁴⁾	To describe attitudes and perceptions regarding the acceptability of HPV vaccination among African American children and their parents to identify and discuss correlates that may be associated with these factors.	Transversal	the use of condom was associated with reduced interest in HPV vaccination; those who reported consistent use of condoms had a 88% decrease in the likelihood of being interested in HPV vaccination compared to those who reported inconsistent use of condoms. Interest in receiving the HPV vaccine was significantly associated with an increase in the number of sexual partners; 27% of respondents answered "yes" when they learned that "most cervical cancers in women and rectal cancer in men were caused by HPV"; and 45.5% heard about the HPV vaccine (Gardasil or Cervarix). In addition, while only 64.4% of men knew what HPV was, this knowledge was significantly associated with the interest in receiving HPV vaccination (95%).

Tuhiro <i>et al.</i> , 2015 ⁽²⁵⁾	To investigate the influence of HPV vaccination on adolescents' knowledge about the HPV and HPV vaccine, the perception of sexual risk and the intentions for sexual behavior.	Cross-sectional comparative study	Vaccination against HPV was associated with knowledge ($p = 0.000$). Vaccination against HPV did not predispose to the perception of sexual risk. Knowledge was low (only 22.6% of the vaccinated girls had knowledge), but with the perception of high sexual risk ($p = 0.008$). It was concluded that vaccination against HPV, knowledge of HPV and perceived sexual risk do not predict intentions of sexual behavior.
Zouheir <i>et al.</i> , 2015 ⁽²⁶⁾	To describe the level of knowledge about HPV, the acceptance of the HPV vaccine and its associated factors among adolescents and young adults in Morocco.	Pilot / Transversal Research	86.5% were unaware of HPV; 71.3% were unaware of cervical cancer by HPV and 79.2% had no knowledge about Pap smears; 66.3% have never heard of HPV. Of the participants who reported knowledge about HPV, 62.3% of adolescents and 45% of young adults confirmed their knowledge that HPV affects both men and women. Two-thirds of participants confirmed their prior knowledge of the vaccine; 27% of participants were willing to accept the HPV vaccine. The highest acceptability was observed among young adults compared to adolescents (46.6% X 16.9%) and among men (62%), for only 20.4% of women.
Sepúlveda-Carrillo and Goldenberg, 2014 ⁽²⁷⁾	To carry out a systematic review of the literature on sexuality, knowledge, preventive practices and vulnerability to HPV infection, with a special focus on the segment of adolescents and young adults.	Systematic review	Limited knowledge about HPV, not only about the forms of transmission, but also about the consequences of the infection, highlighted the gender differences, since girls have more knowledge, but less than half of them know what is an STI. Without identifying the personal risk of contracting the infection, they no longer resort to protection compatible with the practice of safe sex, whether in stable relationships or not, or in heterosexual or homosexual relationships.
Coles <i>et al.</i> , 2014 ⁽²⁸⁾	Examine if the HPV vaccination	Systematic review	In general, the level of knowledge surrounding HPV and genital warts was low. Girls had more knowledge

	programs have increased knowledge about HPV and associated disease and whether absorption has influenced sexual behavior.		than boys. And girls vaccinated (or those with intent to vaccinate) have higher levels of knowledge than unvaccinated ones, which shows the importance of education.
Zou <i>et al.</i> , 2014 ⁽²⁹⁾	Investigate the knowledge and attitude toward HPV and HPV vaccination among men who have sex with men recruited from a variety of sources.	Transversal	Most respondents correctly answered questions related to HPV. Almost all participants were aware that HPV can cause cervical cancer and genital warts. Most were correct in believing that condoms could not guarantee 100% protection against HPV.

Source: survey data, 2018.

DISCUSSION

The results of this integrative review reveal the scarce publication about vaccination in boys regarding the recent implantation of the vaccine in the immunization calendar and the absence of studies that meet the proposed objective published in the year 2018. This suggests the need for more research on the adolescents' knowledge about HPV, as well as the acceptance of the vaccine by the boys.

Thus, in search of more understanding of the analysis and discussion, the variables were grouped according to the following sub-themes: knowledge level and knowledge variable; risk factors and prevention factors; transmission and oncogenicity.

Level of knowledge and knowledge variable

Most adolescents have a poor knowledge of HPV regardless of gender^(2,7,10-13,16-18,20,22,25-28). Studies report the low level of knowledge about the virus in several parts of the world, being carried out nationally and internationally, occurring not only in educational institutions, but also in the community and health clinics such as: in schools in Mexico^(2,11), in the city of Crato, in Ceará⁽⁷⁾, of the urban and country territory of Greece⁽¹⁰⁾, from Uganda⁽²⁵⁾, University of Turkey^(18,22), schools and universities of Marrocos⁽²⁶⁾, as the population of the United States^(12,20), da Europe⁽¹⁶⁾, da Indonesia⁽¹⁷⁾ and United Kingdom⁽²⁸⁾ and Haiti's health clinics⁽¹³⁾.

The literature provides a large and significant information about the low level of HPV knowledge independently of the region, evidencing that different societies and cultures characterize this low knowledge among teenagers.

It was noted that among adolescents who had received the HPV vaccine ^(17,20,25,28) knowledge about the virus was deeper than among unvaccinated ones, suggesting the importance of education. There was a relation between the lack of knowledge that HPV affects men⁽¹⁷⁾ as the other finding which mentioned that most adolescents knew that the virus could affect both sexes ⁽²⁶⁾.

The high level of knowledge of girls in relation to boys is preponderant. ^(1,3,10,16,21,27-28) and in adolescents with more school level⁽¹⁾. Some studies have revealed that most of the adolescents surveyed had knowledge about HPV ^(3,8,17,19,21,29), highlighting the ones with high knowledge the girls^(3,21) and homosexual boys⁽²⁹⁾. It should be noted that there was a similar proportion of more knowledge at the national and international levels, considering that they were realized in Santa Catarina^(3,19), Maringá - Paraná⁽⁸⁾, Indonesia⁽¹⁷⁾, United States⁽²¹⁾ and Australia⁽²⁹⁾.

In Brazil, one of the strategies to promote knowledge about HPV and more adherence to protective measures was to associate vaccination with Basic Health Units and schools, which favored the involvement of the entire school community⁽⁶⁾. This strategy determined the success of vaccination in Australia^(12,20), Rwanda and Scotland⁽²⁰⁾, because even as science advances, it is necessary to raise awareness among all stakeholders, such as adolescents, parents, health professionals and educators, to improve acceptance. The importance of education is emphasized.

Risk factors and prevention factors

Considering that most adolescents have a sexually active life ⁽²⁾ ou já teve relação sexual⁽¹⁰⁾ and do not know preventive measures regarding the acquisition of the sexually transmitted infection by HPV^(1,7,11,13,22,27), as opposed to a minority who knows about prevention⁽³⁾, it is salutary that educational actions are implemented in order to reduce the risks to the health of adolescents.

There are adolescents who recognize early sexual intercourse as a risk factor for HPV^(2,4,8,14), also relating this risk to the large number of partners^(3,8,14,24) and lack of education⁽³⁾. When reporting knowledge about condom use^(3,5,10,17,29), they think its use reduces the risk of contamination⁽³⁾, but there is evidence of non-use of the condom at first intercourse⁽⁷⁾. Few adolescents consider homosexuality as a risk factor^(4,23), know that condoms do not guarantee complete prevention against HPV ⁽²⁹⁾, because it only guarantees 70 to 80% protection⁽⁶⁾ and disregard the number of partners as risk⁽⁴⁾.

Another preventive measure is the HPV vaccine, which aims to prevent cervical cancer and the ones related to the vulva, vagina, penis, anus, mouth and oropharynx, reducing morbidity and mortality⁽⁶⁾. The protective measure is known by the majority of the adolescents of a school of Santa Catarina⁽³⁾, in the community of Maringá - Paraná⁽⁸⁾, in the population of the United States⁽¹²⁾, and a child hospital in Atenas⁽¹⁵⁾, in the population of Indonésia⁽¹⁷⁾ and in schools and universities of Marrocos⁽²⁶⁾, but at the same time unknown to most of the adolescents in Greece schools ⁽¹⁰⁾, Haiti clinics⁽¹³⁾, europeans⁽¹⁶⁾, Turkey students^(18,22) and african-americans⁽²³⁻²⁴⁾.

Homosexual adolescents have more knowledge about the vaccine ⁽²⁰⁾, just like girls^(3,10,16,21,28). There is a lack of knowledge about the differences between bivalent vaccines, which protect against HPV types 16 and 18 (Cervarix), and the quadrivalent vaccine, which protects against types 6, 11, 16 and 18 (Gardasil)⁽²¹⁾, and less interest in the vaccine when the teen uses condoms in their sexual relations ⁽²⁴⁾. The use of

condoms, even in the vaccinated population, is extremely important because there are more than 150 different types of HPV, 40 types can contaminate the genital tract, 12 of them are oncogenic and the other types cause genital condyloma⁽⁶⁾.

It is noted that adolescents who received the vaccine against HPV have doubts about whether or not to do the screening test known as a Pap smear⁽¹⁶⁾, and that a significant proportion of adolescents do not know this test^(18,22,26).

The Ministry of Health⁽⁶⁾ recommends that even vaccinated girls should undergo a Pap smear if they are sexually active or when they are in the age group between 25 and 64 years of age, as 30% of the oncogenic types of HPV are not guaranteed in the bivalent or quadrivalent vaccine offered in Brazil. In the United States, the non-invasive vaccine, which guarantees more protection against HPV, is marketed as protecting against types 6, 11, 16, 18, 31, 33, 45, 52 and 58 (Gardasil 9), providing 95% against the virus^(12,20).

Transmission and oncogenicity

Considerable part of adolescents do not know how the transmission of HPV occurs^(1,7,11,22,27) and a small portion mentions HPV as a sexually transmitted infection^(5,27), as well as girls who deny the possibility of acquiring or transmitting a sexually transmitted infection⁽¹⁴⁾.

Some studies have shown that adolescents are knowledgeable about HPV transmission^(3,8,16-17) and know of their oncogenic potential^(3,13,17,20,29), but in other studies they consider that HPV has a cure^(1,8) and were unaware of the virus's oncogenicity^(2,5,8,10,12,17-18,22-24,26-27).

Almost half of women diagnosed with cervical cancer at the age of 35 to 55 years have become infected with the HPV virus in adolescence or, at the very least, in their youth, around the age of 20, due to the natural history of the infection⁽⁶⁾.

Therefore, the articles analyzed in this review reveal the lack of adolescent knowledge about HPV, which justifies the relevance of the promotion of educational measures on the transmission, prevention, screening and oncogenicity of HPV for the sexual and reproductive life of adolescents. The goal is to reduce risk by adhering to protective measures such as condom use in sexual intercourse and the HPV vaccine, linking the triad sexuality, school, and HPV. This is because the school is a favorable scenario for the development of educational actions in search of health promotion and reduction of vulnerabilities, making individuals more prepared to live in society.

However, based on the deficiencies observed, the need for more intervention of education for boys is highlighted, given their limited knowledge about the recent introduction of the vaccine for boys from 11 to 14 years old, as well as the implementation of interdisciplinary strategies that address sexuality, HPV, vaccine adherence and the epidemiology of the disease after vaccination against HPV.

CONCLUSION

This review provided the study about adolescents' knowledge about HPV, evidencing information failures, adherence to preventive measures, and more proximity to the way

it occurs in different regions, clarifying that it is not only a problem of national amplitude. Educational measures are relevant and necessary for the entire world population.

It was highlighted that the Brazilian government's strategy, to promote intersectorality and interdisciplinarity among health, school and school community units, favors local development for the sexual and reproductive health of adolescents, according to data showing the success of this strategy in countries such as Brazil, Australia, Uganda and Rwanda.

Therefore, actions that make possible changes in the current scenario are fundamental to improve awareness, reflection on the risks and health promotion of adolescents, creating a network of new meanings and behaviors.

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ISSN 1695-6141

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