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Health education and HPV vaccination: the pharmacist's contribution.
Health education and HPV vaccination: the contribution of the pharmacist

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SUMMARY

INTRODUCTION: Human Papillomavirus (HPV) is a highly prevalent sexually transmitted infection worldwide, responsible for various clinical manifestations, including genital warts and precancerous lesions, especially cervical cancer. **OBJECTIVE:** To investigate the pharmacist's contribution to health education actions aimed at promoting HPV vaccination. **METHODOLOGY:** This is a qualitative study with a descriptive and exploratory approach. Data collection will be carried out through research in electronic scientific databases, such as SciELO *(Scientific Electronic Library Online),* LILACS (Latin American and Caribbean Literature in Health Sciences), PubMed/MEDLINE, and Google Scholar. The inclusion criteria focus on articles published in Portuguese, English, or Spanish between 2013 and 2025 (considering the introduction of the HPV vaccine in Brazil in 2014).

EXPECTED RESULTS: It is expected that, after the conclusion of the study, it will be possible to identify effective educational strategies that contribute to increasing HPV vaccination coverage.
Keywords: Education. Health. Vaccination. HPV. Pharmacist.

ABSTRACT

INTRODUCTION: The Human Papillomavirus (HPV) is a highly prevalent sexually transmitted infection worldwide, responsible for various clinical manifestations, including genital warts and precancerous lesions, especially cervical cancer. **OBJECTIVE:** To investigate the pharmacist's contribution to health education initiatives aimed at promoting vaccination against HPV.
METHODOLOGY: This is a qualitative study with a descriptive and exploratory approach. Data collection will be conducted through research in electronic scientific databases, including SciELO *(Scientific Electronic Library Online),* LILACS *(Latin American and Caribbean Health Sciences Literature),* PubMed/MEDLINE, and Google Scholar. Inclusion criteria focus on articles published in Portuguese, English, or Spanish between 2013 and 2025 (considering the introduction of the HPV vaccine in Brazil in 2014). **EXPECTED RESULTS:** Upon completion, the study is expected to identify effective educational strategies to increase HPV vaccination coverage.

Keywords: Education. Health. Vaccination. HPV. Pharmacist.

RESEARCH DESIGN

This is a qualitative literature review with a descriptive approach and exploratory study, which seeks to analyze the scientific production on the role of the pharmacist in the context of Health education and vaccination against Human Papillomavirus (HPV). The goal is to bring together, to interpret and discuss the findings of previously published studies on the proposed topic, offering a A critical synthesis of accumulated knowledge.

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1 INTRODUCTION

Human Papillomavirus (HPV) is a highly contagious sexually transmitted infection.
prevalent worldwide, responsible for various clinical manifestations, including warts.
genital cancer and precancerous lesions, especially cervical cancer (Teles et al., 2024).

According to Moura et al. (2021), the introduction of the HPV vaccine represents a milestone.
significant in public health, as it allows for the prevention of infections caused by HPV types.
most oncogenic. Data from the Ministry of Health shows that Brazil is close to reaching the
HPV vaccination target. Between 2022 and 2023, the number of HPV vaccine doses administered increased.
by more than 42% — from 4.3 million to more than 6.1 million. Among the female audience, the increase
It was 16%. In the male audience, the increase reaches 70%. This is due to the fact that girls...
They should get vaccinated more, since HPV is the main cause of cervical cancer (Ministry).
Health, 2024).

Despite the positive results shown in the research above, vaccination uptake still faces challenges.
Barriers related to misinformation, fear of adverse effects, cultural taboos, and resistance.
on the part of parents, guardians, and even teenagers.

In this context, Health Education proves to be a fundamental strategy for...
confronting these barriers, promoting knowledge and awareness among the population.
According to Carmo et al. (2022), the pharmacist, as an accessible and qualified health professional,
can play a decisive role in this process, both through direct guidance to users.
in pharmacies and basic health units, as well as through their participation in public campaigns and
School vaccination.

The increasing involvement of pharmacists in primary care practices expands their
Responsibilities that extend beyond dispensing medication require an increasingly proactive profile.
in promoting health, preventing disease and providing health education to the population (Karthikeyan
et al., 2022). Given this scenario, this project aims to investigate the contribution of
Pharmacists involved in health education initiatives aimed at promoting HPV vaccination.

2 PROBLEM

Low HPV vaccination rates undermine progress in disease control.
Associated with the virus, especially cancers of the anogenital tract and oropharyngeal tract. Although the
Even though the vaccine is offered free of charge by the SUS (Brazilian public health system), part of the population still hesitates or refuses to get vaccinated.
to receive it for several reasons, including a lack of qualified information (Moura et al., 2021).

Considering that the pharmacist is a healthcare professional present in various locations...

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attention, with adequate technical and scientific training to act in health promotion actions,
The need arises to investigate its specific role in health education focused on vaccination.
against HPV. Thus, the guiding question of this research is: How can the pharmacist contribute,
Through health education initiatives, how can we increase adherence to HPV vaccination?

3 HYPOTHESES

H1: The pharmacist's role as a health educator can represent a differentiating factor in
to confront this scenario, considering their technical training and strategic position as
A trusted professional with close ties to the community (TELES et al., 2024).

H2: Educational strategies conducted by pharmacists, when well planned and
Culturally appropriate measures help reduce HPV-related vaccine hesitancy.

H3: Structural limitations, lack of specific public policies, and gaps in training.
Ongoing issues hinder the pharmacist's full performance in vaccine education.

4. Justification

The subject matter has scientific, social, and academic relevance. In the first aspect, it occurs...
because it is involved in one of the main fronts in the fight against diseases preventable through
Vaccination. The HPV vaccine is one of the most effective public health interventions, with
Studies proving its safety and high efficacy in preventing infections caused by the subtypes.
Oncogenic effects of the virus. Investigating the role of the pharmacist in this context contributes to expanding the...
a body of knowledge about their role in preventive health, addressing topics such as immunization,
health education and pharmaceutical care (Santos, 2018).

It is important to highlight that HPV vaccination is offered free of charge by the Unified Health System (SUS).
Health system (SUS) provides vaccines to adolescents and priority groups. However, vaccination coverage rates in
Many regions of Brazil are still below the levels recommended by the World Health Organization.
(WHO), especially in areas with greater social vulnerability. Among the main reasons for
This low participation rate is due to a lack of adequate information, prejudice, and negligence on the part of...
legal guardians and the scarcity of effective educational campaigns (Homma et al. 2023).

The pharmacist's role as a health education agent has the potential to minimize
These gaps are being addressed by making information about HPV more accessible and promoting changes in attitude.
in the population. Therefore, studying its contribution has direct implications for protection.
public health, the prevention of avoidable diseases and the reduction of inequalities in access to
information and vaccination (Nascimento, 2024).

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Academically, the topic lends itself to multidisciplinary discussions involving areas such as public health, pharmacy, health education, bioethics, immunization policies and communication in health. It is also aligned with the National Curriculum Guidelines for Pharmacy courses, which They emphasize the training of professionals with the skills to work in health promotion initiatives. and disease prevention (Rossoni and Lampert, 2024).

Addressing this topic contributes to strengthening critical and reflective thinking. students and researchers, stimulating the production of knowledge aimed at transforming the social reality and the strengthening of the pharmacist's role as a health educator.

5 OBJECTIVES

5.1 PRIMARY OBJECTIVE

To investigate the pharmacist's contribution to health education initiatives aimed at... Promoting HPV vaccination.

5.2 Secondary Objectives

ÿ To analyze, through literature review, the population's level of knowledge about HPV and the vaccine, considering the influence of educational actions developed by pharmacists;

ÿ Identify health education strategies used by pharmacists in promotion of the HPV vaccination;

ÿ To evaluate the impacts of the pharmacist's role in HPV vaccination adherence in communities served;

ÿ Propose educational interventions that can be implemented by pharmacists for Expand vaccination coverage.

6. THEORETICAL FRAMEWORK

6.1 HUMAN PAPILLOMAVIRUS (HPV): GENERAL ASPECTS

Human Papillomavirus (HPV) is one of the most common sexually transmitted infections. Transmissible sexually transmitted infections (STIs) worldwide. It is estimated that most sexually active people between People come into contact with some type of HPV throughout their lives, often without knowing it. The infection can It can manifest asymptomatically or present with clinical manifestations, such as warts. anogenital and precancerous lesions, especially cervical cancer, the fourth most common type of cancer. The most common cancer among women in Brazil (Teles et al., 2024).

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Carmo et al. (2022) highlight that, given its high prevalence, transmissibility and association With serious diseases, HPV constitutes an important public health issue, being fundamental Investing in strategies for prevention, early diagnosis, appropriate treatment, and education. In health. Conceptually, we have:

HPV is a DNA virus from the Papillomaviridae family, with over 200 identified genotypes. of which at least 40 infect the anogenital region. These genotypes are classified as **Low oncogenic risk** (associated with genital warts and benign lesions) and **high oncogenic risk.** (associated with the development of cancers, mainly of the cervix, anus, penis, mouth and (throat). The infection occurs in the epithelial cells of the skin or mucous membranes and, most often, is spontaneously eliminated by the immune system. However, in persistent cases, Especially in high-risk cases, cellular changes can occur that develop into lesions. precancerous and cancer (Karthikeyan et al., 2022, p. 10).

The following table, numbered 1, lists some of the main HPV subtypes and their... characteristics:

Table 1 - Main HPV subtypes and their characteristics

HIGH ONCOGENIC SUBTYPES RISK	LOW-RISK SUBTYPES
HPV 16: The most oncogenic subtype, associated with a wide variety of cancers, including cervical, vaginal, vulvar, anal, penile, and oropharyngeal cancer. HPV 18: The second most oncogenic subtype, also associated with several types of cancer. HPV 31, 33, 45, 52, 58: Other high-risk subtypes, included in the nonavalent vaccine, which broaden protection against HPV-related cancers.	HPV types 6 and 11 are the main causes of genital warts (condyloma acuminata). They can also be associated with low-grade lesions of the cervix.

Source: Sousa (2021, p. 02).

Santos Junior (2022) explains that identifying the HPV subtype is fundamental for to determine the risk of developing precancerous lesions and cancer, as well as to assist in The choice of medical conduct and patient follow-up. Regarding its structure, it presents- See Image 1 below:

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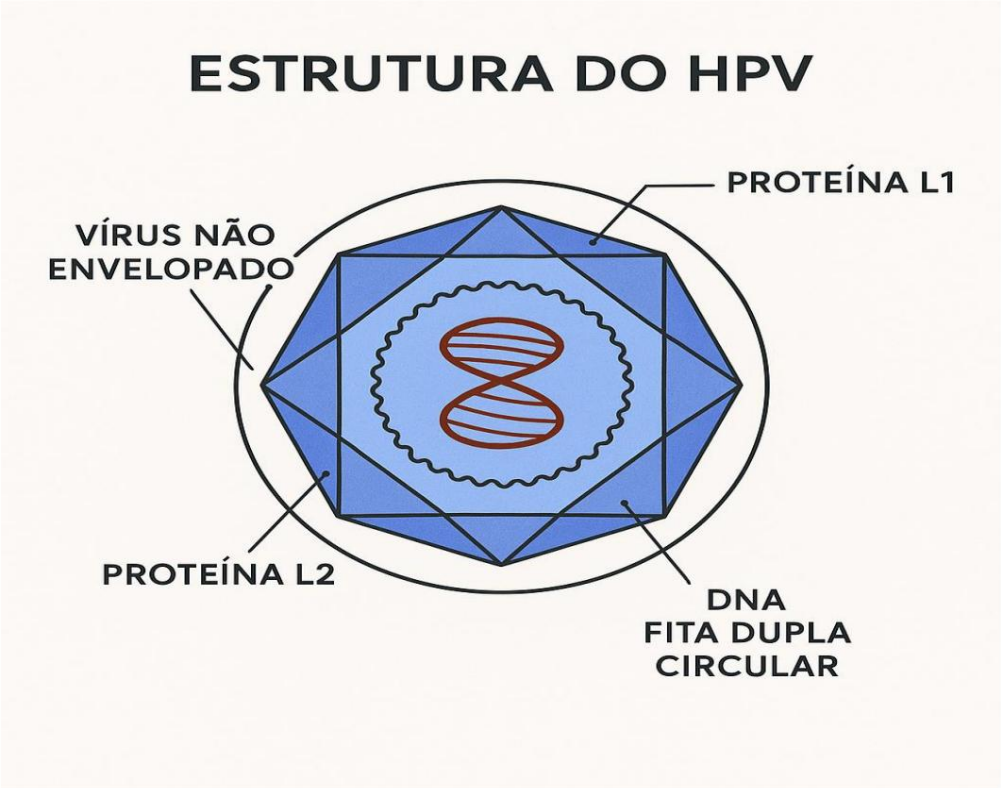
Image 1 – HPV Structure



Source: Silva et al. (2023).

Based on the image above, HPV is a double-stranded circular DNA (dsDNA) virus, not... It is segmented. It has a small genome, with approximately 8,000 base pairs (bp). In its The capsid has an icosahedral structure (20-faceted symmetry) and does not have a lipid envelope (virus). (not enveloped), which makes it more resistant to disinfectants and variations in pH and temperature. The capsid is formed by two main proteins (Teles et al., 2024, p. 12).

According to Teles et al. (2024), L1 (major), the major structural protein, is responsible for to form the majority of the capsid and to induce an immune response (it is the basis of vaccines), and L2 (minor), minor structural protein, assists in capsid assembly and viral DNA entry. in the host cell.

The main way HPV is transmitted is through sexual contact, including vaginal intercourse. Anal or oral sex, even in the absence of penetration or visible symptoms. The virus can also be... transmitted through direct contact with infected skin or mucous membranes, which includes the use shared personal items and, in rare cases, from mother to baby during childbirth (transmission). vertical). (Oliveira; Andrade, 2023).

Risk factors for infection include early onset of sexual activity; multiple partners. sexual; lack of condom use; immunosuppression and smoking (Silva et al., 2023). Regarding Image 2 shows the HPV cycle:

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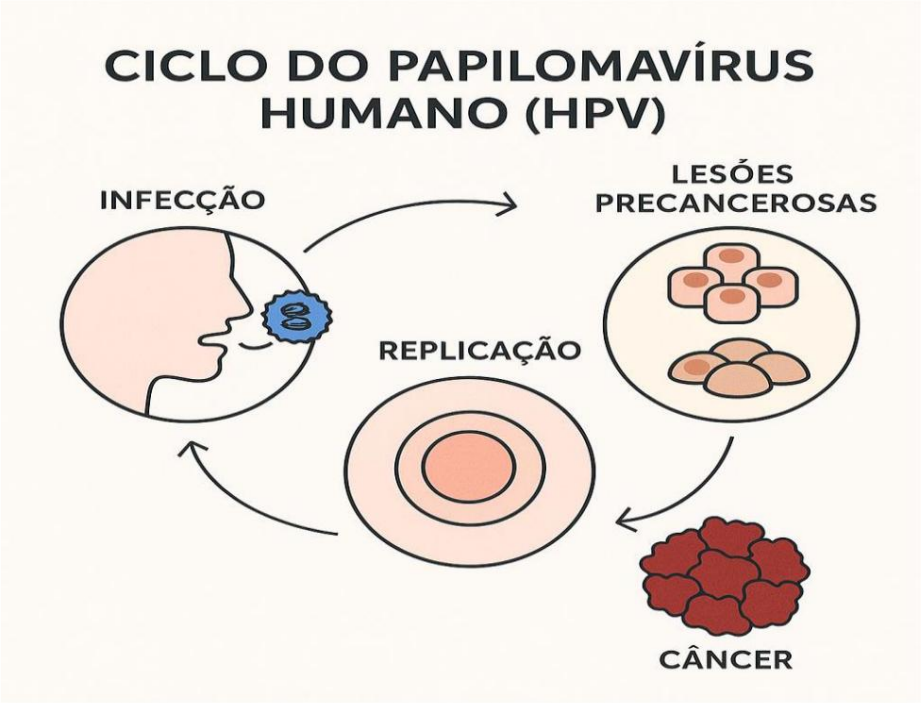
Image 2 – HPV Cycle



Source: Oliveira; Andrade (2023).

As shown in the image above, the cycle begins with the entry of HPV into the body, generally through direct contact with infected skin or mucous membranes during sexual intercourse (vaginal, anal) or oral). The virus enters through microlesions in the epithelium and reaches the basal layer of the skin or mucous membrane. Next, there is replication. Once inside the epithelial cell, the viral DNA uses the machinery of the The virus enters the host cell to replicate. The virus remains in the cell while it differentiates and ascends through the cells. epithelial layers. In low-risk infections, this can result in genital warts; in infections In high-risk cases, viral DNA integrates into the cell's genome, favoring mutations (Sousa, 2021).

If infection with high-risk oncogenic types (such as HPV 16 and 18) persists, the virus becomes... directly interfere with the cell cycle through the viral proteins E6 and E7, which inactivate genes. tumor suppressors, such as p53 and pRb. This can lead to the development of intraepithelial lesions of Low or high grade, also called precancerous lesions. In the absence of treatment or Even after the virus is eliminated by the immune system, these lesions can progress slowly over time. years before becoming an invasive carcinoma. The most common types are associated with cancer of cervix, anus, penis, vulva, vagina and oropharynx (Santos Júnior, 2022).

Although HPV is a viral infection, its onset and progression are associated with Behavioral, biological, and social factors. Among the most common causes are: sexual relations. unprotected; low immunity; lack of information about the disease and its risks; low coverage vaccination and lack of preventive screening (such as the Pap smear) (Santos Júnior, 2022)

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The effects of HPV vary depending on the viral type and the individual's immune response. The most common include genital warts (condylomata acuminata); cervical intraepithelial lesions. (precancerous lesions); cervical cancer; cancer of the penis, anus, vulva, vagina, and oropharynx; and psychological and social complications arising from the stigma associated with STIs (Costa et al., 2024).

There is no definitive cure for HPV, but the symptoms and lesions caused by the virus can be managed. to be treated. Approaches include treating the warts (cryotherapy, laser, trichloroacetic acid). or surgery), the treatment of cervical lesions (conization, cauterization or other procedures gynecological), regular clinical follow-up to monitor persistent lesions and support psychological support, when necessary (Silva et al., 2023).

HPV prevention can be achieved through various strategies, most notably the use of... of condoms, regular preventive checkups, and health education. However, the The most effective method is vaccination, which will be discussed in the next section.

6.2 Health Education and Vaccination in the HPV Prevention Process

HPV is among the leading viruses that cause STIs worldwide. Although many Although these infections are asymptomatic and transient, the high-risk oncogenic types of HPV are... directly associated with the development of various types of cancer, including cervical cancer. The uterus is the most significant in terms of incidence and mortality. Therefore, strategies of Primary prevention — including vaccination — and health education are fundamental to the addressing this public health problem (Oliveira; Andrade, 2023).

According to Moura et al. (2021), HPV vaccination is considered one of the more effective preventive interventions, with a proven ability to reduce the incidence of Infections caused by more oncogenic viral types, such as HPV 16 and 18. In Brazil, the vaccine is... offered free of charge by the SUS (Brazilian Public Health System), primarily intended for girls and boys aged 9 to 14, in addition to other priority groups.

However, vaccination uptake is still below ideal levels in several regions of the country. Among The factors contributing to this low coverage include misinformation and fear of negative effects. adverse factors include myths about encouraging early sexual activity, parental hesitancy, and the absence of... continuous and effective educational campaigns (Moura et al., 2021).

In this context, Health Education emerges as an essential tool to promote the knowledge, deconstructing taboos and strengthening the protagonism of the population in the adoption of preventive behaviors. This is a continuous, dialogical, and participatory process that aims to... To broaden people's understanding of their health and encourage them to make informed decisions.

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According to Carmo et al. (2022), when applied to the context of HPV, education in

Health makes it possible to explain, in an accessible way, what the virus is, how its transmission occurs, and what its characteristics are.
the risks of infection and, especially, how to prevent it — through the use of condoms,
preventive exams (such as Pap smears) and vaccinations are performed.

Carnut and Mariel (2023) highlight that the actions of health professionals, including doctors,
Nurses, community health workers, and pharmacists are fundamental to this educational process.
Pharmacist, for example, as a professional accessible to the population and present in various
healthcare services and pharmaceutical establishments have great potential to act as agents.
A multiplier of reliable information. He can guide users on the importance of
vaccination, clarify doubts, identify situations of vaccine hesitancy and contribute directly to
Promoting health and preventing disease.

In addition to individual guidance, it is essential to invest in collective and intersectoral actions.
such as lectures in schools, vaccination campaigns in community settings, production of
Accessible informational materials and the use of social media to disseminate educational content.
(Costa et al., 2024).

These strategies should take into account the cultural, social, and economic specificities of
target population, seeking to build a horizontal and welcoming dialogue that values popular knowledge.
and encourage care for the body and sexual health (Costa et al., 2024).

Therefore, linking vaccination and health education is strategic for strengthening
The HPV prevention process. Prevention cannot depend solely on the availability of the vaccine,
but also the capacity of health services and civil society to engage, inform and
Empowering the population. Investing in education is, therefore, investing in autonomy, health, and life.
(Santos et al., 2019).

6.3 The Role of the Pharmacist in the Context of HPV

Despite the existence of a safe and effective vaccine against the main oncogenic types of
Despite the virus, vaccine uptake still faces barriers ranging from misinformation to prejudice.
In this context, the importance of healthcare professionals in promoting knowledge and in... stands out.
Raising public awareness, especially through health education initiatives. Among these
In the professional field, the pharmacist has assumed an increasingly relevant role (Santos et al., 2019).

According to Otoni (2020), traditionally linked to the dispensing of medicines, the
The contemporary pharmacist has begun to act more comprehensively in primary health care.
actively participating in health promotion, disease prevention, and guidance.

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population. This transformation is in line with the National Curriculum Guidelines of

Pharmacy courses aligned with the principles of the Brazilian Unified Health System (SUS), which value comprehensive and humanized care.

Therefore, pharmacists can and should actively participate in educational initiatives about HPV and...

Preventive vaccination contributes to increased vaccination coverage and disease control.

associated with the virus.

As explained by Pontes et al. (2024), the role of the pharmacist in health education

It occurs in multiple spaces: basic health units, community pharmacies, schools, fairs,

health and digital platforms. He is able to clarify frequently asked questions from the public about HPV.

To explain how the vaccine works, combat myths and fake news, and encourage early vaccination.

Vaccination, especially in adolescents. The educational approach carried out by pharmacists.

It can be more accessible and frequent, considering that the pharmacy is often the first point of contact.

The citizen's contact with the health system.

Furthermore, pharmacists can work in an integrated manner with multidisciplinary teams in

vaccination campaigns, assisting in planning, logistics, and conservation of

immunobiologicals and post-vaccination guidance. Their technical and scientific training enables them to work...

with safety, quality and responsibility in the context of immunization (Rodrigues; Ferreira, 2022).

Monteiro et al. (2024) add that another fundamental aspect is qualified listening.

Many patients, especially teenagers and their legal guardians, have concerns about vaccination.

against HPV, often based on misinformation or unfounded fears.

The pharmacist, being a trusted professional within the community, can act as a link to...

Welcoming, empathetic, and guiding individuals, contributing to informed decision-making. Furthermore,

By identifying risky behaviors or vaccine hesitancy, the pharmacist can promote

referrals and reinforcement of targeted educational actions (Pontes et al., 2024).

To better understand the actions of this professional, see Table 2:

Table 2 – Main actions of the pharmacist in cases of HPV

AREA OF EXPERTISE	PHARMACIST'S ACTION
Health education	- Provides individual and group guidance on HPV and the vaccine. - Promotes lectures and discussion groups in schools, primary health care units, and communities. - Distributes and/or creates educational materials (brochures, posters, videos, posts) Combating misinformation and myths about vaccination.
	- It adopts accessible and culturally sensitive language. - Promoting vaccination - Encourages vaccination among adolescents, parents/guardians, and priority groups. - Provides information about the availability and importance of the vaccine in SUS

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Promoting vaccination	- Participates in local vaccination campaigns
Vaccination (where permitted)	- Administers HPV vaccines at authorized pharmacies or primary health care units. - Ensures the proper storage and preservation of immunobiologicals. - Provides pre- and post-vaccination guidance
Welcoming and qualified listening	- Addresses doubts, fears, or hesitation in an ethical, empathetic, and informed manner. - Refers complex cases to other professionals or services when necessary.
Registration and monitoring	- Records vaccination data in official systems (when involved in public service) - Participates in epidemiological surveillance activities related to vaccination coverage.

Source: Rodrigues; Ferreira (2022, p. 02).

Therefore, the pharmacist's contribution to the HPV prevention process goes far beyond... of the technique — it involves social commitment, ethical sensitivity, and educational capacity. It is up to this Professionals are taking on their role as health educators, acting proactively in the fight against Preventable diseases, especially those with a high social and emotional impact, such as cancers associated with cancer. to HPV (Rodrigues and Ferreira, 2022).

7. PROPOSED METHODOLOGY

This is a qualitative literature review with a descriptive approach and exploratory study, which seeks to analyze the scientific production on the role of the pharmacist in the context of Health education and vaccination against Human Papillomavirus (HPV). The goal is to bring together, to interpret and discuss the findings of previously published studies on the proposed topic, offering a A critical synthesis of accumulated knowledge.

7.1 INCLUSION CRITERIA

The inclusion criteria for the research will be: articles published in Portuguese, English, or Spanish, between 2013 and 2025 (considering the introduction of the HPV vaccine in Brazil in 2014); studies that address, directly or indirectly, the role of the pharmacist in health education, in promotion of vaccination or in primary care; academic sources available in full; and Publications in indexed scientific journals, theses and dissertations.

7.2 EXCLUSION CRITERIA

The exclusion criteria are: articles repeated in different databases; works with exclusive focus on other healthcare professionals (doctors, nurses, etc.), without mentioning their role.

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Pharmaceutical; studies that do not address vaccination or HPV, and opinion pieces, editorials, and abstracts. without complete text or with insufficient methodology.

7.3 RISKS

Because this is documentary and bibliographical research, it does not involve human subjects. directly; therefore, it does not present ethical or physical risks to the participants.

7.4 BENEFITS

The main benefit is the scientific and academic contribution, since the results They can assist in formulating educational strategies and strengthening the performance of Pharmaceuticals in HPV prevention.

7.5 METHODOLOGICAL PROCEDURES AND DATA COLLECTION INSTRUMENT

Data collection will be carried out through research in scientific databases. electronic databases, such as SciELO *(Scientific Electronic Library Online),* LILACS (Latin American Literature- The search terms used will be: American and Caribbean Health Sciences), PubMed/MEDLINE, and Google Scholar. Keywords combined with Boolean operators (AND, OR) are used to expand and refine. the results, such as: “HPV” AND “vaccination” AND “pharmacist”; “health education” AND "Primary care" and "HPV vaccine".

7.6 DATA ANALYSIS METHODOLOGY

The analysis will be conducted using thematic content analysis techniques. The steps They include:

ÿ Preliminary analysis: a cursory reading of the selected texts to familiarize oneself with the material;
ÿ Coding: categorizing content based on central themes (health education, vaccination, the role of the pharmacist, challenges, *strategies, etc.);*
ÿ Data interpretation: critical discussion of the findings in light of the literature and the study objectives. identifying gaps, convergences, and relevant contributions.

7.7 Ethical Aspects

This work will not need to be submitted for approval to the Ethics Committee in Research, in accordance with CNS Resolution 466/2012, as it is a survey whose information will be...

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obtained from materials already published and available in the literature, therefore there is no intervention or direct approach to human beings. Furthermore, it will be carried out based on... Data from the Women's Clinic system, without contact with third parties or animals.

8 OUTCOMES

8.1 Primary Outcome

To identify and analyze the role of the pharmacist in promoting HPV vaccination by through health education initiatives.

8.2 Secondary Outcome

After the study is completed, the aim is to gain a better understanding of the work. developed by the pharmacist within the scope of health education, prevention and treatment of HPV in patients.

9. SCHEDULE

ACTIVITIES		**YEAR: 2025**								
		FEB	**MAR**	**APR**	**MAY**	**JUN**	**AUG**	**SEP**	**OCT**	**NOV**
1	Readings for choosing a topic						**X**			
2	Research project development						**X**			
3	Project defense before the panel.						**X**			
4	Drafting the article outline						**X**			
5	Initial Review							**X**		
6	Collection and analysis of studies							**X**		
7	Study development								**X**	
8	Final considerations								**X**	
9	Final Review									**X**
10	Presentation of the preliminary project									**X**

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10 BUDGET

10.1 HUMAN RESOURCES

	Description:	**Amount**
01	Researcher,	1
02	Professor, Advisor	1
03	Co-supervisor Prof.	1

10.2 MATERIAL AND FINANCIAL RESOURCES

	Description	Quantity: 84	Value
01	A4 paper	sheets, 3	R$50.40
02	Printing	units,	R$50.00
03	Xerox	84 units,	R$50.40
04	Binding	3 units.	R$80.00
05	Gasoline	12 L.	R$81.36
06	Translation	1 unit.	R$25.00

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