

# THE INTRODUCTION OF THE HPV VACCINE IN BRAZIL, THE PRINT MEDIA, AND MISINFORMATION

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## ABSTRACT

The introduction of the HPV vaccine in Brazil was initially well received, achieving a high national coverage rate in the first half of 2014. Despite the efforts of the Ministry of Health, a significant decline in uptake was observed over the subsequent six months, with the causes still under investigation. Given the influence of the print media, this study aims to describe the discursive strategies used in the narratives conveyed by the print media in order to elucidate their role in shaping public debate during the introduction of the HPV vaccine between 2014 and 2018. The methodology adopted was qualitative, involving a discourse analysis of articles and texts published in the print media, as well as the statements from professional organisations featured in various journalistic reports. Additionally, a public action filed by the Federal Public Prosecutor's Office against the HPV vaccine, which received substantial media coverage, was included as a source of analysis. The findings revealed the discursive strategies employed by both proponents and opponents of the vaccine. The public debate was predominantly centred around issues of effectiveness, safety, and economic costs, with each side offering its own interpretation of the existing scientific evidence. However, despite the wealth of data and scientific evidence available, the media debate did not explore the controversial and critical aspects of vaccination. The study concluded that the media struggled to distinguish between science and pseudoscience, converting scientific evidence into opinion. It missed the opportunity to contribute to clarifying the effectiveness and safety of the public health strategy.

## KEYWORDS

HPV vaccine, print media, discourse analysis, vaccine refusal, controversies

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# A INTRODUÇÃO DA VACINA DO HPV NO BRASIL, A MÍDIA IMPRESSA E A DESINFORMAÇÃO

## RESUMO

A introdução da vacina contra o HPV no Brasil foi inicialmente bem recebida, registrando alta taxa de cobertura nacional durante o primeiro semestre de 2014. Apesar dos esforços do Ministério da Saúde, uma queda significativa em sua aceitação foi observada no semestre seguinte, cujos fatores ainda são objeto de investigação. Considerando a importância da mídia

impresa, o objetivo deste estudo foi descrever as estratégias discursivas das narrativas veiculadas por ela, a fim de elucidar o seu papel no debate público durante a introdução da vacina contra o HPV, entre 2014 e 2018. A metodologia adotada consistiu em uma abordagem qualitativa, que incluiu a análise de discurso de matérias e textos publicados pela mídia impressa, bem como dos discursos de entidades de classe presentes em diversas reportagens jornalísticas. Além disso, considerou-se como fonte de análise uma ação pública impetrada pelo Ministério Público Federal contra a vacina do HPV, a qual recebeu ampla cobertura em diversos veículos de comunicação. Os resultados mostraram as estratégias discursivas de atores favoráveis e desfavoráveis à vacina. Conteúdos sobre a eficácia, a segurança e os custos econômicos dominaram o debate público, com cada lado trazendo a própria interpretação dos conhecimentos científicos acumulados. Porém, o debate da mídia não se aprofundou quanto aos aspectos controversos e críticos relativos à vacinação, mesmo diante da variedade de dados e evidências científicas disponíveis. Concluiu-se que a mídia não foi capaz de diferenciar ciência de pseudociência, transformou evidências científicas em opiniões e perdeu a chance de contribuir para a elucidação da eficácia e da segurança da estratégia de saúde pública.

#### PALAVRAS-CHAVE

vacina contra HPV, mídia impressa, análise de discurso, recusa de vacinação, controvérsias

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## 1. INTRODUCTION

Infection with the human papillomavirus (HPV) is directly linked to a significant proportion of neoplasms, including cervical, anogenital, and oropharyngeal cancers (Martel et al., 2017). These types of cancer account for 4.5% of all global diagnoses of neoplasms, totalling approximately 630,000 new cases annually (Roman & Aragonés, 2021). Beyond the risk of mortality and side effects of cancer treatment, the financial burden on the healthcare system is high: an average cost of US\$140,000 per patient in the first two years of therapy for oropharyngeal cancer (Lairson et al., 2017). To address this issue, strategies such as screening and vaccination against HPV, along with informational campaigns targeting risk behaviours associated with sexually transmitted infections, have been implemented. Among these strategies, vaccination is particularly notable for its proven effectiveness in reducing oral, cervical, vulvar and vaginal HPV infections (Timbang et al., 2019)

One of the major challenges in the effective implementation of immunisation programmes is establishing a dialogue based on factual, reliable, and balanced information among all sectors crucial to the success of the initiative (Shen et al., 2014). Given its constant and pervasive presence in people's daily lives, with individuals increasingly seeking health information, entertainment, and interaction (Oliveira, 2014), the news media plays a key role in guiding the debate. It translates scientific knowledge about vaccines for a broader audience and assists both authorities and the public in making informed decisions (Catalán-Matamoros, 2015). Due to its ability to construct a description of reality and reconfigure everyday experiences, identities and values, the news media exerts a significant influence on society, culture and health-related issues (Lerner, 2014). As a watchdog in multi-party democracies, the media has the power to shape public opinion, influence agendas, and affect those in power (Fonseca, 2004; Singer, 2000). Its relevance stems from its

role as a mediator between politicians and citizens, who trust and rely on journalism for information on public policies. Politicians, in turn, are sensitive to news cycles that can impact their reputations, as well as those of their parties and governments. In this context, journalism wields considerable symbolic power by managing and highlighting social demands and group claims; it can even address certain violations of social rights (Gomes, 2018). Furthermore, the media continues to advance with innovations in information technology, enhancing its influence in the public and transnational spheres (Fonseca, 2004).

Studies on health journalism underscore the increasing importance of the field in contemporary news broadcasts, highlighting the critical role of the media in translating scientific knowledge for the public and influencing health decisions and behaviours (Schwitzer et al., 2005; Viswanath, 2006). Additionally, the quality of journalism remains a major concern, particularly with the rise of social media, which facilitates the rapid and widespread dissemination of fake news, intensifying the need for effective methods to analyse and mitigate the negative effects of misinformation (Azevedo, 2012; Guerra, 2003). Some journalists view their responsibility in covering health topics as equivalent to covering other subjects, often neglecting the broader social implications and needs in a balanced and comprehensive manner. Nevertheless, this approach can lead to poor-quality journalism and potentially harm the public (Schwitzer et al., 2005). Failures and successes in health journalism have been characterised by sensationalism, trivialisation, bias, and malpractice in the coverage of topics. Additionally, the treatment of these topics has become increasingly uniform across different media outlets, with little critical analysis from any of them (Azevedo, 2012). In light of this and the overwhelming amount of information generated by digital transformation, some researchers have called for improvements in health journalism to enhance its quality, credibility, and relevance, particularly in countries where mass communication is prevalent but health literacy is low (Sharma et al., 2020).

In Brazil, the HPV vaccine was incorporated into the national immunisation programme in 2014, with the goal of enhancing efforts to prevent cervical, anogenital, and oropharyngeal cancers. The initiative aimed to vaccinate adolescents aged nine to 15 (Ministério da Saúde, 2019). This introduction occurred against a backdrop of high cervical cancer mortality rates in Brazil, which increased from 6.86 to 7.18 in the 50–54 age group between 2012 and 2016, based on the total female population by age group (Tallon et al., 2020).

The introduction of this vaccine was initially successful in the first half of 2014, achieving an average national coverage of 94.4%. However, coverage fell significantly (to 40.8%) in the second half of the year. This decline was linked to media reports of adverse events following school vaccinations in Bertioga, a coastal city in the state of São Paulo (Mauro et al., 2019).

Despite investment in official communication during the second phase of the vaccination campaign, the Brazilian government's responses were delayed. The media spotlighted the risks associated with the vaccine and facilitated public debate that included religious concerns and apprehensions about the vaccine's effects on adolescent health (Quevedo et al., 2016).

The topic of HPV poses a challenge for the media as it encompasses two closely related issues: sexually transmitted infections and cancer (Krakow & Rogers, 2016). Moreover, journalists frequently struggle to deliver content that offers an objective view of reality, often falling short of providing accurate information and clear, comprehensible language.

Given these factors, it is essential to analyse the public debate presented by the print media. Research on media coverage in low-income countries remains largely underexplored in the international scientific literature (Catalán-Matamoros & Peñafiel-Saiz, 2019). This study aims to describe the discursive strategies used in the narratives conveyed by the print media, with the goal of clarifying their role in the public debate surrounding the introduction of the HPV vaccine between 2014 and 2018.

## 2. METHODOLOGY

Drawing on the frameworks of Michel Pêcheux (1975/1995) and Eni Orlandi (2020), this qualitative study employed discourse analysis to examine the narratives disseminated by the print media. The study was grounded in the premise that media's symbolic production provides a crucial basis for understanding the social circulation of meanings and for interpreting social discourse in its historical context and alignment with prevailing beliefs. Discourse analysis is seen as a method that enables the understanding of media statements as social constructs (Pachi Filho, 2013). The research was organised into three phases: data collection and the creation of the *corpus*; identification and coding of the core meanings within the excerpts; and, finally, the interpretation of the discourses. Using the term "HPV vaccine", we identified articles and texts published between 2014 and 2018 from the following sources: *Folha de S. Paulo*, the UOL (Universo Online) website, *Gazeta, O Dia*, and *Extra Classe*. An analysis of the stories allowed us to identify public statements from the Brazilian Society of Family and Community Medicine (Sociedade Brasileira de Medicina de Família e Comunidade, 2012, 2017), a public action initiated by the Uberlândia Public Prosecutor's Office<sup>1</sup>, and the statements condemning this public action issued by professional bodies such as the Brazilian Society of Paediatrics (Sociedade Brasileira de Pediatria, 2015) and the Brazilian Immunization Society (Sociedade Brasileira de Imunizações, 2015), which express the scope of the public debate. In addition, the Brazilian Immunization Society and Brazilian Society of Paediatrics, together with the Brazilian Society of Infectious Diseases and the Brazilian Federation of Gynecology and Obstetrics Associations, published a "Carta aos Médicos" (Letter to Physicians) reinforcing the importance of vaccination (Sociedade Brasileira de Imunizações et al., 2015), which highlights the scope of the public debate. The selected period covers the vaccine's introduction into the Brazilian national immunisation calendar up to the decline in HPV vaccination coverage. The criterion for selecting sources was based on ensuring a socially diverse range of media outlets. To choose the news publications,

<sup>1</sup> Uberlândia (city). Federal Public Prosecutor's Office (6th Region). Case no. 0015053-68.2015.4.01.3803, of December 15, 2015. Public action required the Federal Government to cease supplying the HPV vaccine through the public health system to all states in the Federation and prohibit its use nationwide, including suspending any vaccination campaigns.

we relied on data from the Communication Verification Institute (IVC; Instituto Verificador de Comunicação, 2023)<sup>2</sup> regarding the distribution of print media in the country between 2014 and 2018. According to the IVC, *Folha de S. Paulo* had the largest circulation and was ranked first nationally. Additionally, the newspapers *Gazeta* and *O Dia*, from the states of Espírito Santo and Rio de Janeiro, respectively, were chosen for their established tradition and significant local influence.

The newspaper *Gazeta* ranked second in its state, while *O Dia* was sixth in the ranking of publications in the state of Rio de Janeiro. The news website UOL was chosen due to its significant relevance and reach in Brazil's digital media landscape during the period in question. According to Comscore data from 2014<sup>3</sup>, nearly half of the Brazilian online audience (46%) spent at least two hours a day online engaging in activities related to social interaction, followed by access to music and news (IAB Brasil, 2014). The newspaper *Extra Classe* was selected for its targeted editorial focus on specific audiences, notably public school teachers in Rio Grande do Sul. Given that the HPV vaccine campaign was implemented in the school environment, teachers were crucial for supporting and disseminating the vaccine information.

The public statements issued by the Brazilian Society of Family and Community Medicine were used for several reasons: the organisation's presence in various journalistic reports between 2014 and 2018, its significance for doctors working in primary health care, and its prominent role in public debate. Additionally, the Brazilian Society of Paediatrics and the Brazilian Immunization Society, which represent professionals and experts in the field, were considered as data sources in the context of the public action initiated by the Federal Public Prosecutor's Office in Minas Gerais. This action sought a federal court order to ban the distribution of the HPV vaccine nationwide, which gained important repercussions in the written press.

The second phase involved coding and categorising the data. We started by reading each source, employing a method of "floating attention and familiarisation" with the content of the narrative (Lima et al., 2017, p. 3). This approach allowed us to consider the discursive formations as reflections of meaning representative of values and power structures within a specific societal context (Orlandi, 2020). We extracted excerpts that mentioned the HPV vaccine, preserving their linguistic materiality. We then sought to identify patterns and inconsistencies, focusing on paraphrases, polysemy, and the interactions between discourses. This procedure allowed for the classification of discourses into two main categories: in favour of and against the HPV vaccine. Within each category, subcategories were established (core meanings and persuasion strategies) to capture the range of perspectives, the conflict over interests and values, and to distil the tension within the arguments regarding the vaccine, which is interpreted as a symbolic object "imbued with significance for and by individuals" (Orlandi, 2020, p. 24). Following the

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<sup>2</sup> The Communication Verification Institute (<http://www.ivcbrasil.org.br>) is responsible for auditing the circulation of major newspapers and magazines in Brazil and serves as the primary reference in this field. It also audits websites.

<sup>3</sup> Research conducted by Comscore, a global media measurement and analysis company, in association with IAB Brasil, whose aim is to promote the development of digital advertising in Brazil (see IAB Brasil, 2014).

analysis of these discursive formations, the interpretation process in the third phase involved identifying the discourse's properties concerning its functioning — namely, the effects of the meanings produced by the symbolic material in relation to historical context and prevailing beliefs. The scientific literature on the role of the media in mediating public debate further supported the theoretical framework used to interpret the findings.

### 3. FINDINGS

Excerpts both supporting and opposing HPV vaccination were extracted from the selected materials, which included five news publications, one public action, and three statements issued by professional associations.

Table A1 (Appendix) presents the excerpts opposing vaccination, enabling a detailed analysis of the statements, core meanings, and persuasive strategies. Multiple doctors, a judge from the Federal Public Prosecutor's Office, and a representative of the *Sou Contra a Vacina HPV* (I Am Against the HPV Vaccine) group made these statements. Analysis of these excerpts reveals several core meanings unfavourable to the vaccine, including concerns about its safety and effectiveness, weighing the risks of adverse effects against its benefits, the perception that the vaccine does not provide any clear benefits, safety, or economic advantage, fears of serious adverse effects, arguments for individualised risk assessment in vaccine use, and scepticism regarding the economic interests of the vaccine manufacturers.

To advance these discourses against the HPV vaccine, the individuals employed several persuasive strategies. Doctors leveraged their professional authority to amplify scientific uncertainty about the vaccine's effectiveness and safety, cited isolated cases of severe reactions in other countries to undermine evidence supporting the vaccine's safety and highlighted its limited effectiveness against various HPV subtypes and among individuals who have already been sexually active. Additionally, they questioned the credibility of scientific studies on the vaccine and criticised the widespread vaccination campaigns, advocating instead for an approach tailored to individual needs. They also drew on their personal experiences, such as raising their own daughters, to support their stance.

The magistrate highlighted his authority and responsibility as a judge to ensure that government decisions align with women's right to health. He argued that, even if studies demonstrate the vaccine's effectiveness and safety, its distribution should be halted if any doubts about its effects remain, justifying his position with the precautionary principle. To support his arguments against the vaccine, the magistrate cites a mother's account of her daughter's severe reactions. He references the expertise of a neurologist who reported a case of severe neurological symptoms following HPV vaccination. He also highlights the economic interests of researchers associated with vaccine manufacturers and the lack of a solid scientific basis for the vaccine's approval.

Finally, the administrator of the *Sou Contra a Vacina HPV* group combined personal accounts with the advice of a health professional to bolster the group's argument

from authority, aiming to provide a safe space for discussing the vaccine, particularly for concerned parents. To enhance the impact of this discourse, she established a close rapport with her audience by addressing them as “friends” and assuming the responsibility of informing them about the vaccine.

Table A2 (Appendix) presents excerpts supporting the HPV vaccine, along with the core meanings and persuasive strategies employed. Government authorities at both the federal level (agencies affiliated with the Ministry of Health) and the state level (agencies associated with the governments of Rio de Janeiro and Rio Grande do Sul) issued the excerpts supporting the HPV vaccine. They were also endorsed by scientific authorities and consultants from the World Health Organisation (WHO), as well as representatives from various medical and scientific organisations, including the Brazilian Society of Paediatrics, the Brazilian Federation of Gynaecology and Obstetrics Associations, the Brazilian Society of Infectious Diseases, and the Brazilian Immunisation Society.

In Table A2, the core meanings in favour of the HPV vaccine emphasise its proven effectiveness and safety, its relevance to public health, the similarity of its adverse effects to those of other vaccines, and the fact that vaccination is not compulsory and that it does not promote early sexual activity.

In order to advocate for the core messages regarding the effectiveness and safety of the HPV vaccine, government authorities employed persuasive strategies that highlighted the vaccine’s long-term effectiveness and its protective benefits on both individual and collective levels. They also referenced the successful adoption of the vaccine in developed countries and framed it as an advocacy for women’s rights. Statements from respected health organisations were used to bolster confidence in the HPV vaccine, including scientific evidence showing substantial protection against cervical cancer. The persuasive strategy of the gynaecology professor centred on presenting credible scientific data to demonstrate the vaccine’s effectiveness and leveraging the authority of international health bodies, such as WHO and the Pan American Health Organisation (PAHO). This approach aimed to address challenges stemming from a lack of scientific information.

Finally, several medical and scientific organisations united to raise awareness among health professionals and the public about the reliability of the HPV vaccine. They challenged the arguments put forward in the Federal Public Prosecutor’s public action, pointing out that this current, isolated action was inconsistent with the institution’s usual stance.

#### 4. DISCUSSION

The results revealed the strategies behind both the supportive and opposing discourses presented by key actors during the introduction of the HPV vaccine. They highlight how the print media facilitated and shaped this public debate. The findings also indicate that both favourable and unfavourable narratives employed similar themes, albeit with contrasting signals.

Discussions on the effectiveness, safety, and economic costs were central to the public debate, with each side offering its own interpretation of the available scientific

knowledge. Critics, on one hand, expressed concerns about the vaccine's safety and questioned its long-term effectiveness, pointing to reports of severe adverse reactions in other countries. As one primary care physician (PG1) stated:

they raise doubts about the safety of the vaccine and argue that there is insufficient scientific evidence to prove it will protect women against cervical cancer ( ... ) in countries like Spain, the USA, and Japan, there have been reports of serious reactions, including paralysis and deaths.

On the other hand, the favourable narratives emphasised the economic and public health benefits of vaccination. A representative of an immunisation organisation highlighted: “the impact of the vaccine in reducing cancer cases and mortality will be seen in the long term. The tumour is the fourth leading cause of cancer death among women, with 9,000 deaths annually”. There were also narratives suggesting that scientific research is inconclusive regarding the vaccine's effectiveness and safety, leading to questions about whether the economic costs are justified, as illustrated by an excerpt from a doctor (M3):

any medical intervention should meet two criteria: demonstrating that it provides benefits and that it causes no harm. ( ... ) Managers would add a third criterion: whether it is financially reasonable. ( ... ) The answer is negative on all counts. ( ... ) It takes an average of 30 years, from the onset of lesions to the development of cancer, to determine if the vaccine truly protects women. Studies should last at least that long.

Lastly, arguments supported by scientific evidence and endorsed by reputable institutions such as the WHO, PAHO, and the United States Food and Drug Administration were presented, highlighting the vaccine's effectiveness, safety, and cost-effectiveness. A professor of gynaecology and WHO consultant stated:

the Ministry of Health endorsed the campaign based on the positive global coverage recommended by the WHO and PAHO. The vaccine is also recommended by the FDA, the leading regulatory body in the United States. “It prevents lesions that can become malignant”. ( ... ) It [the vaccine] provides 80% to 90% protection against cancer and other HPV-related diseases, ( ... ) the most crucial aspect is its benefit in preventing cancer in women.

International institutions such as the WHO are renowned for their role in strengthening immunisation programmes, particularly in developing countries, by promoting and coordinating technical cooperation to enhance vaccination coverage and introduce new vaccines (Homma et al., 2011).

Despite the print media's efforts to mediate the discourses from both sides, the public debate lacked significant depth. The media outlets primarily disseminated narratives rather than engaging with the full range of available data and scientific evidence. Consequently, they missed the opportunity to help the public discern which arguments



were based on facts and which were merely opinions. As a result, the media's mediation of the public debate failed to differentiate between science and pseudoscience — false knowledge presented as legitimate science. This approach transformed scientific evidence into mere opinions, thereby missing the opportunity to clarify the effectiveness and safety of the public health strategy.

Few studies have examined the role of print media in the public debate surrounding the introduction of the HPV vaccine in Brazil, and research has largely overlooked the role of commercial media in this context. One study investigated the Ministry of Health's communication strategies and the social reactions reported by the print media. However, it did not explore the discursive strategies used or the role of the media in the HPV vaccination campaign (Quevedo et al., 2016). Another study highlighted the lack of in-depth discussion on citizens' rights and the operations of the National Health Service in newspapers, which instead prioritised sensationalising negative news with a biomedical and medicalising bias (Moraes et al., 2017).

The relationship between public health policies and citizens is frequently mediated through communication. According to Gomes (2018), the media plays a crucial role in shaping social priorities (agendas) and framing issues through the dominant interpretations it provides. Additionally, the author highlights that the media offers both cognitive and emotional mediation, facilitating interactions between citizens, various societal groups, and public policies, operating through both bottom-up and top-down processes.

In the implementation of the HPV vaccine, the public debate failed to thoroughly explore both the unfavourable and favourable perspectives on the vaccine, neglecting to address the controversial and critical aspects of these views in order to distinguish facts from opinions. This shortcoming in the print media's coverage may not have provided clear answers regarding the effectiveness and safety of the HPV vaccine, potentially leading to decreased public uptake. Consequently, the media's role in this instance underscores the limitations of news organisations, which, rather than fostering a thorough public debate, primarily focused on codifying and disseminating information. This approach may have impeded society's ability to fully comprehend health policies and the intricacies of health and disease processes (Oliveira, 2014).

Although comprehensive coverage of HPV can be labour-intensive due to its complexity and the need to translate dense scientific reports into accessible information, effective communication should strive to deepen the public debate. In addition to seeking input from experts and authorities across various fields and institutions related to the topic to ensure a diversity of perspectives, the credibility of news and effective dissemination of knowledge (Langbecker & Catalan-Matamoros, 2021) should involve interpreting information, evaluating initial data, and continuously seeking additional information throughout the process. The most relevant information is then used to craft the news story. This process demands three key competencies: cognitive, involving the understanding of facts and the application of relevance criteria; behavioural, referring to the objective verification of facts and the maintenance of impartiality; and discursive, which encompasses the ability to translate knowledge into effective news discourse (Guerra,

2003). In the case examined in this study, the media primarily focused on disseminating narratives both in favour of and against the public health strategy, often converting facts derived from scientific evidence into contentious opinions.

A review encompassing 24 studies on the decline in HPV and measles-mumps-rubella vaccination rates in developed countries such as the United States, Canada, and New Zealand, revealed that print media frequently relied on sources expressing opinions rather than facts and propagated factual and logical inaccuracies in vaccine coverage (Catalán-Matamoros & Peñafiel-Saiz, 2019). This distortion of scientific data leads to misinformation, often driven by editorial decisions that prioritise the dissemination of the outlet's own views, whether substantiated or not, in order to serve hidden interests linked to influential politicians and advertisers.

Often at the expense of upholding the fundamental duty to provide truthful and accurate information, the media's commitment to advertisers shifts its focus from delivering a comprehensive view of the world to framing health issues as market-driven concerns. This approach situates health within the realm of consumerism and personal subjectivity rather than focusing on public well-being and comprehensive understanding. This individualisation is further amplified by the sensationalism of suffering and the focus on personal experiences, creating an intimate space that is perceived as more "authentic" and "legitimate" (Lerner, 2014, p. 159) due to the fact that news makes a profit (Kuscinsky, 2002).

In this study, the individualised perspective is evident among the vaccine detractors who sought to cast doubt on its effectiveness and the risks of adverse effects. They did so by using personal stories, including those of a doctor and parent, as well as a mother's testimony. This strategy aims to lend credence to their opposition to the vaccine and to challenge the evidence supporting its safety and effectiveness. It implies that the personal experiences of individuals can be given equal weight in health decisions and the adoption of infection control technologies as the broader body of accumulated scientific knowledge and evidence. Research on media coverage of the measles-mumps-rubella vaccine, for instance, found that such a false balance contributed to public uncertainty regarding the vaccine's safety (Speers & Lewis, 2004). A falsely balanced debate — one that lacks additional context about the strength of the evidence — suggests that opposing arguments are equally supported by evidence despite significant disparities in their factual basis.

The emphasis on biographical narratives amplifies emotional appeals, which can overshadow the news's ability to present broader social facts. This superficial treatment of information often leads the media to fuel fear and panic inadvertently, spread misinformation, and create distorted impacts on people's daily lives (Moraes et al., 2017). Errors in interpreting facts and events can occur (Oliveira, 2014). It is important to note that the press's tendency towards superficiality and lack of interest in thoroughly exploring significant societal issues is not confined to health-related topics alone (Singer, 2000).

These limitations of the print media are particularly detrimental in the context of a specific immunisation programme. They not only undermine public confidence in health

policies as effective mechanisms for addressing societal issues but also erode trust in vaccination as a structured public health strategy for controlling neoplasms linked to HPV infection. Furthermore, the distortion of scientific evidence undermines the credibility of science by reducing it to the realm of controversial reports and opinions. A study in Spain revealed that many science journalists were dismissive of the implicit threat posed by pseudoscience in the media (Cortiñas-Rovira et al., 2015).

Some experts argue that communication remains an underdeveloped aspect of citizenship rights in Brazil, largely due to the dominance of a media oligopoly in the telecommunications and journalism sectors. Some owners of these media conglomerates are also involved in other economic sectors, including finance, real estate, education, agriculture, transport, and health. This cross-sector involvement can influence the public agenda and lead to the omission or distortion of information to serve their own interests. Any attempt to address these conflicts of interest or to decentralise media power is often framed as authoritarianism or oppression, given that Brazilian communication is rooted in a liberal political paradigm (Santos et al., 2022).

Therefore, public debate is a multifaceted and comprehensive process that involves not only the media but also a diverse range of social actors, including citizens, civil society organisations, academics, and the state with its public health policies (Fuks, 2000). Stakeholders find favourable channels for particular issues to be present in public spaces, thereby significantly influencing media mediation. While the media plays a central role in disseminating and interpreting information, it is not the sole determinant in shaping public opinion and framing the debate.

In this context, scholars argue that health authorities should be transparent about their decision-making processes when evaluating the potential risks associated with health strategies and technologies (Dixon & Clarke, 2013). Additionally, they contend that the print media should adopt a more professional approach by acting with greater criticality and responsibility in mediating public health debates (Azevedo, 2012).

## 5. FINAL CONSIDERATIONS

This study explored the role of print media in shaping public debate on the HPV vaccine amid declining routine vaccination coverage in Brazil. Through discourse analysis, the research examined the core meanings and persuasive strategies employed by subjects in journalistic productions that influenced vaccine-related narratives, including public statements from institutional sources that gained traction in the print media. The findings revealed that both pro- and anti-HPV vaccine discourses employed similar narrative strategies, though with opposing signals on the same themes.

Based on the findings, it is possible to conclude that the print media's mediation of the public debate, to help the public judge what arguments put forward in favour and against were facts, was limited to presenting a polarised view of opinions despite having access to a range of scientific data and evidence. This approach did not adequately clarify the effectiveness and safety of the HPV vaccine as a public health strategy. As a result, the print media has shifted towards a simulacrum of journalism, moving away from its

original role of providing critical and informative reporting. This shift is a significant concern for public health authorities.

One limitation of this study lies in the number of sources investigated. Although a significantly larger number of sources produced news about the HPV vaccine during the period, the selected sources aimed to represent a socially diverse set of outlets. This approach allowed us to identify the individual and collective players who participated in the public debate, as mediated by the print media, including experts, judges and representatives of collective organisations (anti-vaccine groups, health agencies, scientific bodies, and professional associations). Public statements from institutional sources that supported the news stories were included in the *corpus* to provide a more accurate understanding of each discourse. As a result, the web of discourses and persuasive strategies was clarified, offering a framework that deepened understanding of the phenomenon under investigation.

Future research could extend the analysis to include digital media and social networks, as well as explore public responses to various forms of coverage. This broader approach could provide a more complete understanding of how different platforms influence opinions on vaccines and other health policies.

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## APPENDIX

INDIVIDUALS (CODE)		
EXCERPT FROM STATEMENT	CORE MEANING	PERSUASIVE STRATEGY
<b>GROUP OF PRIMARY CARE PHYSICIANS (GM1)</b>		
“And ( ... ) they raise doubts about the safety of the vaccine and argue that there is insufficient scientific evidence to prove it will protect women against cervical cancer ( ... ) in countries like Spain, the USA, and Japan, there have been reports of serious reactions, including paralysis and deaths”.	Doubts about the vaccine’s safety and effectiveness.	Arguments to amplify scientific uncertainties about effectiveness and reports of severe reactions to undermine safety evidence.
<b>GENERAL PRACTITIONER (M1)</b>		
“Cervical cancer is deadly, but the vaccine has yet to demonstrate that it prevents these deaths. It does prevent warts and lesions on the cervix, which do not kill. The absolute majority of them regress”.	Doubts about the vaccine’s effectiveness.	It casts doubt on the vaccine’s effectiveness against a significant problem like cervical cancer. Such an argument, voiced by a teacher and doctor, could heighten uncertainty about immunisation among both health professionals and the public.
<b>FAMILY PHYSICIAN (M2)</b>		
“There is some controversy. ( ... ) We have the studies conducted by the vaccine manufacturers and recommendations from the CDC [Centers for Disease Control and Prevention] ( ... ); however, there are reports of more severe health issues and lawsuits in France filed by those affected by the vaccine ( ... ) is it worth risking even a small chance of serious illness if the vaccine does not offer significant improvements over our current strategy for controlling cervical cancer?”.	Evaluating the potential risk of severe adverse effects compared to the benefits of the vaccine.	It emphasises the endorsements from the Centers for Disease Control and Prevention the vaccine while also noting isolated incidents of severe reactions in other countries. This suggests the need for a thorough risk-benefit analysis for adolescent vaccination, encouraging the public to weigh both the advantages and potential drawbacks of the vaccine.

<b>FAMILY PHYSICIAN (M2)</b>		
<p>“Just the thought of my daughter potentially being paralysed by such vaccines makes me quickly reject the idea. I plan to focus on providing my daughters with comprehensive sex education so that they understand the importance of using condoms (not least because other problems, such as unwanted pregnancy, HIV, and hepatitis B, among others, are knocking on the door all the time). And without this expensive and questionable vaccine. I will offer the same advice to my patients and their families”.</p>	<p>Doubts about the vaccine's safety and effectiveness.</p>	<p>It describes personal experience raising three daughters to convince parents concerned about their children's well-being.</p>
<b>FAMILY PHYSICIAN (M2)</b>		
<p>“The problem is that HPV has more than 100 subtypes, and the vaccines still cannot cover all of them, although they cover the main ones ( ... ). In other words, it does not provide a 100% guarantee that women will not get cervical cancer. The adverts do not explain that, do they?”.</p>	<p>Doubt about the vaccine's effectiveness.</p>	<p>By highlighting the vaccine's limitations, the physician not only increases uncertainty about its effectiveness but also fosters scepticism, implying that the information presented in advertisements may not be completely clear.</p>
<b>FAMILY PHYSICIAN (M2)</b>		
<p>“If the person is no longer a virgin, taking the vaccine will not have any effect because the response it provokes in the body does not eliminate existing viruses; it just prevents contagion. However, many doctors have recommended the vaccine for these people, which contradicts the manufacturer's own recommendations”.</p>	<p>Doubt about the vaccine's effectiveness.</p>	<p>It addresses scenarios where the vaccine's effectiveness might be questioned, such as in people who have had sexual intercourse, and challenges the doctors who recommend the vaccine for these individuals.</p>
<b>FAMILY PHYSICIAN (M2)</b>		
<p>“I am not even going to discuss the vaccine's effects on mortality because there has not even been time to study this properly ( ... ) well, ok. Still, if it prevents infection, it is already of some benefit, right? After all, it will not cause any harm. Won't it? Let us move on”.</p>	<p>Doubts about the vaccine's effectiveness.</p>	<p>It aims to provoke reflection by expressing uncertainty about the vaccine's impact on mortality and suggesting that research on its effectiveness remains inconclusive. It reinforces this argument by questioning and challenging those who advocate for vaccination (“let us move on”), which in turn heightens doubts and uncertainties.</p>
<b>FAMILY PHYSICIAN, PHD IN EPIDEMIOLOGY, MEMBER OF THE BRAZILIAN SOCIETY OF FAMILY AND COMMUNITY MEDICINE (M3)</b>		
<p>“Any medical intervention should meet two criteria: demonstrating that it provides benefits and that it causes no harm. Or that the balance between these two factors is highly favourable. Managers would add a third criterion: whether it is financially reasonable. ( ... ) The answer is negative on all fronts”.</p>	<p>The vaccine shows no benefit, safety, or economic advantage.</p>	<p>The argument aims to promote a more cautious assessment of the proposed intervention, encouraging an examination and informed approach to this health issue.</p>
<b>FAMILY PHYSICIAN, PHD IN EPIDEMIOLOGY, MEMBER OF THE BRAZILIAN SOCIETY OF FAMILY AND COMMUNITY MEDICINE (M3)</b>		
<p>“It takes an average of 30 years, from the onset of lesions to the development of cancer, to determine if the vaccine truly protects women. Studies should last at least that long”.</p>	<p>Doubt about the vaccine's effectiveness.</p>	<p>It cites the average time it takes for cancer to develop to challenge the credibility of the studies.</p>
<b>FAMILY PHYSICIAN, PHD IN EPIDEMIOLOGY, MEMBER OF THE BRAZILIAN SOCIETY OF FAMILY AND COMMUNITY MEDICINE (M3)</b>		
<p>“Notes that the vaccine provides protection against only four of the approximately 100 HPV subtypes, and only two of these are linked to cancer”.</p>	<p>Doubt about the vaccine's effectiveness.</p>	<p>The argument regarding the vaccine's limited protection may raise doubts about its effectiveness and prompt reflection on its usefulness, encouraging individuals to consider vaccination based on their personal risk profiles.</p>



<b>FAMILY AND COMMUNITY MEDICINE ORGANISATION (GM2)</b>		
“Warns about the risks of over-prevention due to the widespread use of vaccines, specifically the provision of immunisation without assessing which groups would benefit most. It advocates for an individualised assessment of risk ( ... ) the best strategy for each person, thereby enhancing the quality of care provided and reducing costs”.	Advocating for the individualisation of risk in vaccine administration.	It aims to persuade the public to consider an individualised approach to vaccination risk. This strategy would enhance the quality of care and improve the efficiency of public resources.
<b>FAMILY AND COMMUNITY MEDICINE ORGANISATION (GM2)</b>		
“There is still no evidence to confirm that the vaccine effectively protects people against cervical cancer or reduces mortality from this condition, which is the primary goal of such public investment. ( ... ) Releasing it could expose a group [adolescents] with known specificities and vulnerabilities to a risk that has not yet been fully assessed”.	Doubt about effectiveness and safety.	It argues that there is no evidence of cancer prevention or mortality reduction, which could put a vulnerable group at risk.
<b>FAMILY AND COMMUNITY MEDICINE ORGANISATION (GM2)</b>		
“The vaccine, although deemed safe by the most recent scientific evidence ( ... ) has been associated with cases of fainting, type 1 diabetes, neurological disorders, and even deaths, as observed in monitoring systems in some countries and still under study”.	Risk of serious adverse effects.	The tactic involves disseminating a contradictory narrative by asserting that while vaccines have historically been safe, the current vaccines may cause adverse effects.
<b>JUDGE OF THE FEDERAL PUBLIC PROSECUTOR’S OFFICE</b>		
“The current claim [public action] seeks to protect the right [of women] to health by preventing the Government from continuing to supply the HPV vaccine due to the absence of studies proving its effectiveness and potential side effects”.	Doubts about the vaccine’s safety and effectiveness.	The judge’s argument aims to convince his peers by highlighting the need to safeguard women’s health rights, given that the vaccine’s effectiveness and safety have not been established.
<b>JUDGE OF THE FEDERAL PUBLIC PROSECUTOR’S OFFICE</b>		
“In fact, since its introduction in several countries, over 2.000 side effects have been reported. For instance, the Japanese Government withdrew its support for HPV vaccines following numerous reports of side effects ( ... ) the Indian Council of Medical Research in New Delhi called for a suspension of the HPV vaccination programme after four deaths were linked to GARDASIL, a vaccine distributed by MERCK in Brazil ( ... ). In the United States, GARDASIL is associated with 61% of serious adverse reactions and 80% of cases of permanent disability among women”.	Risk of serious adverse effects.	Arguments that cast doubt on the vaccine’s safety by highlighting reports of expected reactions in various countries, thereby undermining the evidence supporting its safety.
<b>JUDGE OF THE FEDERAL PUBLIC PROSECUTOR’S OFFICE</b>		
“The testimony [of a mother], given on August 6, 2014, at the Public Prosecutor’s Office, ( ... ) reported that after receiving the HPV vaccine through the public health system in January of that year, her daughter ( ... ), developed several health issues that resulted in permanent sequels”.	Risk of serious adverse effects.	It uses the testimony of a mother to support his stance on the vaccine and to challenge the evidence regarding its safety.
<b>JUDGE OF THE FEDERAL PUBLIC PROSECUTOR’S OFFICE</b>		
“According to a neurosurgeon ( ... ), there are numerous reports worldwide of patients who received the HPV vaccine and subsequently developed neurological conditions”.	Risk of serious adverse effects.	It relies on a medical expert’s statement, which offers scientific backing for the claim that the HPV vaccine is unreliable and questions the decision to distribute it through health services.

<b>JUDGE OF THE FEDERAL PUBLIC PROSECUTOR'S OFFICE</b>		
"The doctor explained that the studies included in the Civil Inquiry are highly biased because the researchers who conducted them receive payments from the laboratory that produces the HPV vaccine. This situation clearly undermines the scientific impartiality of the research".	Economic interests of the vaccine manufacturers	Alleged conflicts of interest between the researchers and the vaccine manufacturer aim to undermine the validity and reliability of the scientific evidence surrounding the HPV vaccine.
<b>JUDGE OF THE FEDERAL PUBLIC PROSECUTOR'S OFFICE</b>		
"The doctor explained that the vaccine was first used clinically in 2006, which was nine years ago. However, cervical cancer typically takes about 10 years to develop. Therefore, the assertion that the vaccine prevents this type of cancer is speculative and lacks scientific foundation".	Doubt about the vaccine's effectiveness.	It relies on the doctor's testimony to cast suspicion on the objectivity of scientific research regarding the vaccine and its effectiveness.
<b>JUDGE OF THE FEDERAL PUBLIC PROSECUTOR'S OFFICE</b>		
"Also because its reputation for protecting against cervical cancer is questioned by the fact that the connection between HPV and the disease is not very strong. According to the National Cancer Institute [INCA], there are over 100 types of HPV, but only 13 of these can cause cancer. Additionally, INCA notes that cervical cancer is a rare outcome even in the presence of HPV infection".	Doubt about the vaccine's effectiveness.	The argument draws on information from a major national cancer institute regarding the relationship between HPV and neoplasms.
<b>REPRESENTATIVE OF THE GROUP SOU CONTRA VACINA HPV</b>		
"Many years ago, my obstetric nurse advised me against getting the vaccine. Now that the topic has come up again, I have reviewed studies on its advantages and disadvantages and have concluded that it is not a fair vaccine for those who receive it".	Doubts about effectiveness and safety.	It leverages personal experiences and advice from a health professional to reinforce the group's authoritative argument, aiming to influence parents who have doubts.
<b>REPRESENTATIVE OF THE GROUP SOU CONTRA VACINA HPV</b>		
"Friends needed to 'wake up' to the potential side effects and understand the limitations of the vaccine, which only protects against four types of HPV. I wanted to encourage each person to be a bit more critical and cautious".	Risk of serious adverse effects.	It draws on anti-vaccine activism rhetoric ("wake up"), connects closely with the public ("friends"), and takes on the responsibility of informing them about the vaccine.
<b>Table A1. Excerpts from statements, core meanings and persuasive strategies unfavourable to the HPV vaccine</b>		
<b>INDIVIDUALS (CODE)</b>		
<b>EXCERPT FROM STATEMENT</b>	<b>CORE MEANING</b>	<b>PERSUASIVE STRATEGY</b>
<b>REPRESENTATIVE OF A GYNAECOLOGY AND OBSTETRICS ORGANISATION</b>		
"The vaccine is safe and (...) the serious reactions may have been mere coincidences".	The vaccine is safe, and the observed reactions are within expected norms.	It relies on the authority of specialists in gynaecology and obstetrics to downplay concerns about the risks associated with adverse reactions.
<b>REPRESENTATIVE OF AN IMMUNISATION ORGANISATION</b>		
"The impact of the vaccine in reducing cancer cases and mortality will be seen in the long term. The tumour is the fourth leading cause of cancer death among women, with 9,000 deaths annually".	The vaccine is effective.	It draws on the authority of experts to persuade the public of the importance of vaccination in preventing cervical cancer and reducing mortality.

<b>COLLECTIVE ENTITY 1 (MINISTRY OF HEALTH AND THREE MEDICAL SOCIETIES*)</b>		
“The Ministry of Health and three medical societies counter the criticism, affirming that immunisation is both effective and safe”.	The vaccine is safe and effective.	It leverages the combination of government and scientific authority to encourage greater adherence to vaccination.
<b>REPRESENTATIVE OF THE MINISTRY OF HEALTH</b>		
“The HPV vaccine will have an impact of preventing deaths that will be seen in 20, 30 years ( ... ). Another benefit of HPV vaccination seen in countries that have adopted it for longer is the so-called ‘herd effect of collective immunity’ ( ... ) the Brazilian strategy is new and has already been adopted by other countries, such as Switzerland, as a way of extending immunity”.	Relevance of the vaccine for public health.	It is founded on the idea that the vaccine provides long-term protection for both individuals and the community, referencing the successful implementation in a European country.
<b>REPRESENTATIVE OF THE MINISTRY OF HEALTH</b>		
“There is indeed a lack of evidence [impact of preventing deaths], but on the other hand, it is hard to say that this will not happen, given the vaccine prevents most HPV-related infections”.	The vaccine is effective.	It emphasises the reasoning behind the effectiveness of vaccination in preventing infections, downplaying the significance of the lack of conclusive data on its impact on mortality.
<b>REPRESENTATIVE OF THE MINISTRY OF HEALTH</b>		
“The argument from family physicians that it does not prevent mortality does not make sense. If HPV is responsible for cervical cancer, why should we wait three decades to begin using a vaccine that could already be protecting these girls? ( ... ) Would that be ethically acceptable?”.	The vaccine is effective.	It encourages the public to consider the importance of early vaccination to protect young girls.
<b>REPRESENTATIVE OF THE MINISTRY OF HEALTH</b>		
“There are no confirmed reports of death or serious sequels related to the vaccine. Even in Japan, where the vaccine is no longer recommended due to reports of serious adverse effects, no direct connection to immunisation has been proven... It may have been due to a specific batch or other factors present during the vaccination period. Other countries with stringent surveillance systems have not recorded any serious issues ( ... ) when you vaccinate millions of people, the following week many will end up in the hospital or even die for reasons entirely unrelated to the vaccine”.	The vaccine is safe.	It relies on the absence of adverse effects records in other countries to attest to the vaccine’s safety.
<b>REPRESENTATIVE OF A STATE GOVERNMENT BODY</b>		
“Reassures parents by stating: the expectation is that this immunisation now will protect her in the future when she becomes sexually active”.	The vaccine is effective.	Uses prolepsis (anticipation of future benefits) to highlight that the vaccine’s positive effects will be enduring, thereby reinforcing the need to adopt vaccination as an effective and long-lasting preventive measure.
<b>REPRESENTATIVE OF A STATE GOVERNMENT BODY</b>		
“The vaccine will in no way encourage earlier initiation of sexual activity”.	The vaccine does not influence early sexual activity.	The persuasive power lies primarily in the emphatic denial (“in no way”) to dispel concerns and assure parents that vaccination is not linked to early sexual activity.
<b>REPRESENTATIVE OF A STATE GOVERNMENT BODY</b>		
“The number of women with cervical cancer is high, and the HPV virus is very difficult to manage, which is why it is crucial to offer the vaccine to these girls ( ... ) immunisation is a priority because it addresses the high mortality rate among women”.	The vaccine is effective.	It employs the same gender identity to appeal to women and mothers, emphasising the critical importance of vaccination as a crucial preventive measure.

<b>REPRESENTATIVE OF A STATE GOVERNMENT BODY</b>		
“The (...) criticism [of the vaccine], from a scientific perspective, is valid and must be considered. However, there is an unyielding opposition, which we know is tied to a conservative agenda. We must ensure women’s rights, which involves discussing their freedom and autonomy”.	Vaccination represents a fundamental right for women.	Based on the values of women’s freedom and autonomy, the strategy aims to counter potential threats to women’s rights through vaccination. The message highlights the importance of ensuring that women have the freedom to make informed health choices, including the option to receive the HPV vaccine.
<b>REPRESENTATIVE OF A STATE GOVERNMENT BODY</b>		
“Of course, it will have some side effects, like any other vaccine, but it effectively protects women’s health”.	The vaccine is safe, and the observed reactions are within expected norms.	It emphasises that the benefits outweigh the potential risks, making a significant contribution to the protection and well-being of the population.
<b>REPRESENTATIVE OF A STATE GOVERNMENT BODY</b>		
“They are recommended by the Health Organisation and the Ministry of Health. We need to clarify that we are not imposing anything; rather, we are offering an alternative method of prevention”.	Vaccination is not compulsory.	It draws on the authority of international and governmental organisations to address concerns about impositions, fostering an atmosphere of autonomy in the decision to get vaccinated.
<b>PROFESSOR OF GYNAECOLOGY AND CONSULTANT TO THE WORLD HEALTH ORGANISATION (WHO)</b>		
“The Ministry of Health endorsed the campaign based on the positive global coverage recommended by the WHO and PAHO. The vaccine is also recommended by the FDA, the leading regulatory body in the United States. ‘It prevents lesions that can become malignant’ (...) it [the vaccine] provides 80% to 90% protection against cancer and other HPV-related diseases, (...) the most crucial aspect is its benefit in preventing cancer in women. That is why it is justified”.	The vaccine is effective.	It relies on reputable institutions such as the WHO, PAHO, and the US FDA. It aims to persuade by providing information supported by reliable data on the vaccine.
<b>PROFESSOR OF GYNAECOLOGY AND CONSULTANT TO THE WHO</b>		
“It is normal for new information to be contested, and this applies to the vaccine as well. (...) Much of the criticism arises from a lack of information”.	Criticism of the vaccine stems from a lack of information.	It is based on the idea that disseminating reliable scientific information leads to more transparent and balanced decision-making.
<b>PROFESSOR OF GYNAECOLOGY AND CONSULTANT TO THE WHO</b>		
“Women now have the opportunity to be vaccinated against a disease that is a public health problem (...) the vaccine has undergone years of development and primarily focuses on prevention (...) this represents a level of protection for women that has never been seen in human history”.	Relevance of the vaccine for public health.	It is grounded in gender equality policy, targeting women who cannot afford to forgo protection against HPV through immunisation. It serves as a means of raising awareness among peers, including mothers, women, and adolescents.
<b>REPRESENTATIVE OF A MEDICAL ORGANISATION</b>		
“Concerning (...) the public civil action requesting that the Federal Court prohibit the public health network from administering the HPV vaccine nationwide (...) based on current scientific evidence, the benefits of vaccination are clear and unequivocal. We reaffirm our unconditional support for the Ministry of Health in maintaining the vaccination programme for Brazilian girls to prevent HPV-related diseases. Any decision contrary to this would lack scientific support and could jeopardise the health of millions of Brazilians”.	Relevance of the vaccine for public health.	It draws on the credibility of an organisation dedicated to children’s health and the country’s health authority to advocate for the protection of children and adolescents’ health.

REPRESENTATIVE OF A MEDICAL ORGANISATION		
“The [public] action [by the Federal Public Prosecutor’s; MPF] jeopardises the health of thousands of Brazilians ( ... ) the justifications presented ( ... ) lack, to say the least, any scientific foundation and are inconsistent with the MPF’s history of defending societal interests. It is difficult to accept that such a serious measure should be based on the claims of a single professional who reports numerous cases of neurological damage from the vaccine, which starkly contradicts both global and Brazilian experiences”.	The vaccine is safe and effective.	It is based on the perplexity generated by unfounded concerns about vaccination.
COLLECTIVE ENTITY 2		
“[Medical organisations] have been recommending HPV vaccination in their schedules since 2007, which was finally adopted by the national immunisation programme [of the Ministry of Health] in 2013”.	Relevance of the vaccine for public health.	It relies on the recommendations of respected health organisations to support confidence in HPV vaccination.

**Table A2.** Excerpts from statements, core meanings and persuasive strategies favourable to the HPV vaccine

Note. \* medical societies of paediatrics, gynaecology, and immunisation.

## BIOGRAPHICAL NOTES

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