Cogitare Enfermagem

ORIGINAL ARTICLE

Analysis of cervical cancer content on Instagram

HIGHLIGHTS

1. Gaps in the reliability of information about HPV and cervical cancer are identified.
2. Regional inequalities in digital health communication are observed.
3. Health misinformation is a form of symbolic violence.
4. Digital literacy is a health equity strategy.

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ABSTRACT

Objective: To analyze the reliability of cervical cancer content published on Instagram. **Method:** A descriptive, documentary research study that analyzed Instagram posts about cervical cancer, selected through the hashtags #câncerdecolodeútero, #hpv, #vacinahpv, and #vacinacontraohpv, in May 2025. The first 50 posts from the "relevant" tab were analyzed for each hashtag. Information reliability was assessed using internationally validated methodologies for measuring health information quality. **Results:** 55% of posts were considered reliable, 33% of moderate reliability, 10% unreliable, and 2% inconsistent. Of all posts, 47.27% were related to the thematic axis of prevention and 14.54% to diagnosis. Widespread circulation of low-reliability information about cervical cancer prevention was identified. **Conclusion:** The identification of content with low informational quality highlights a concern in the context of health communication on social media.

DESCRIPTORS: Digital Public Health; Internet; Disinformation; Uterine Cervical Neoplasms; Human Papillomavirus Viruses.

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INTRODUCTION

Over the past two decades, the rise of social media as a source of health information has reshaped the way knowledge circulates. Social media platforms have become dynamic spaces for the construction and contestation of meanings around self-care practices, disease prevention, and treatment adherence[1-2].

In the Latin American context, and particularly in Brazil, this phenomenon has acquired even greater complexity, given the high penetration of social media across different population strata and the historical inequality in access to qualified health information[3-4]. Health misinformation, the spread of false or distorted claims lacking a scientific basis, deepens social and health vulnerabilities and influences individual and collective decisions[5-6].

In this context, cervical cancer (CC) stands out as a highly sensitive topic for analysis. In Brazil, CC remains among the leading causes of female morbidity and mortality, with the highest incidence rates in the North and Northeast regions, reflecting longstanding inequalities in access to prevention and treatment[7]. Its prevention is directly tied to vaccination against human papillomavirus (HPV)[8], the success of which depends, among other factors, on the circulation of accurate information and the dismantling of communication barriers that fuel vaccine hesitancy[8-9].

Vaccine hesitancy has been significantly influenced by the spread of false information on social media, compromising public health strategies[10,11]. Platforms such as Instagram, Facebook, Twitter, and WhatsApp are primary channels for the propagation of health misinformation, contributing to resistance to vaccination among certain social groups[3,10]. These platforms have gained a broad following among health information consumers, encompassing diverse social groups regardless of gender or age[2].

Against this backdrop, given the epidemiological relevance of CC[7] and the risks associated with the spread of health misinformation on social media[3,10], it is essential to evaluate the reliability of CC-related information on widely used platforms such as Instagram. Despite the growing literature on vaccine misinformation, studies that systematically analyze the quality of CC and HPV information on Instagram remain scarce. The selection of Instagram as the field of analysis is justified by its increasing prominence in disseminating health content, particularly among young and digitally connected audiences[3]. The platform's visual structure, combined with content personalization algorithms, can amplify the spread of both qualified information and misinformation, underscoring the need for critical monitoring of these networks[3].

The scientific literature identifies internationally validated methodologies for measuring the quality of health information, among which three widely used instruments stand out: the *Journal of the American Medical Association* (JAMA), which evaluates authorship, transparency, and clarity of publications; the HONcode; and the DISCERN, which evaluates the accuracy, impartiality, and practical utility of information provided to users[11-13]. Systematic analysis based on these criteria aims not only to characterize the quality of the content identified, but also to point to pathways for educational actions and public policies aimed at promoting evidence-based health information in the digital environment, strengthening the capacity of health systems to respond to misinformation. The objective of this study, accordingly, is to analyze the reliability of cervical cancer content published on Instagram.

METHOD

A descriptive, documentary research study that used hashtags to search for CC-related posts on Instagram.

Searches were conducted from May 12 to 19, 2025. Instagram was selected due to its wide popularity, its high reach in disseminating unreliable information, its impact on people's health, and its potential to promote positive changes in how information is shared[1-2].

This study focused exclusively on informative posts linked to the hashtag selected for analysis. Posts using the following hashtags were included: #cânceredecolodeútero, #hpv, #vacinahpv, and #vacinacontraohpv. Posts that were incoherent, unrelated to the hashtag, or composed solely of personal accounts were excluded. Accordingly, whenever a post did not meet the pre-established criteria, it was automatically disregarded and the analysis continued with the next publication. This methodology enabled the identification of the most widely circulating posts, considering that the frequency and prominence of certain publications are directly associated with their reach.

For sample characterization, the first 50 posts from the "relevant" tab were selected for each hashtag, totaling 200 posts analyzed. This number was determined based on national and international studies that use samples of 30 to 100 posts per hashtag as a valid methodological strategy for social media analysis[3,14].

Platform dynamics were also taken into account, as content with greater reach tends to remain in the top positions of the "Relevant" tab. Additionally, the criterion of thematic saturation, identified in the preliminary analysis, was considered: after 50 posts, themes began to recur with little incorporation of new qualitative elements. A consistency criterion was also applied during selection, including only posts that were consistent with the assigned hashtag.

Post analysis was conducted by two independent reviewers, previously trained in applying the JAMA, HONcode, and DISCERN instruments. The characteristics and aspects assessed are presented in Chart 1.

An adapted instrument[14] was used to analyze the reliability of Instagram posts, comprising five questions (Chart 2). Information was categorized as high, moderate, or low reliability according to the following scale: high reliability — above six points (above 60% reliable); moderate reliability — four to six points (between 30% and 60% reliable); low reliability — zero to three points (between 0% and 30% reliable); inconsistent posts — no correlation with the associated content. Data were also analyzed using descriptive statistics (relative frequency, absolute frequency, mean).

A pilot test was conducted with 20 posts, five per hashtag, for training and alignment of interpretive criteria. Disagreements were resolved by consensus among reviewers and, in specific cases, with the mediation of a third reviewer. Pilot test posts were retained in the study.

Chart 1. Instruments used to assess the reliability of CC posts on Instagram. Macapá, Amapá, Brazil, 2025

Instrument	Aspects assessed	Main characteristics
JAMA criteria[12]	Authorship, source attribution, disclosure of conflicts of interest, currency	Analyzes the transparency, credibility, and editorial accountability present in health publications.
HONcode criteria[12]	Authority, information complementarity, confidentiality, source attribution, substantiation of claims, authorship transparency, sponsorship and advertising	Prioritizes ethics and the quality of health information available online, with emphasis on websites and digital content.
DISCERN criteria[13]	Clarity of objectives, source dentification, information currency, impartiality, evidence-based guidance	Assesses the reliability and quality of health information, with particular attention to treatment options, aimed at lay audiences.
Adapted Instrument[14]	Authorship, information sources, ponsorship/advertising, publication mission, content impartiality	Incorporates the principles of JAMA, HONcode, and DISCERN in the assessment of the reliability of social media content, adapting them to the specific language and dynamics of Instagram.

Source: The authors (2025).

Chart 2. Adapted instrument for analyzing the reliability of CC posts on Instagram. Macapá, Amapá, Brazil, 2025

Categories	Aspects	Score
Authorship	1- Is the author of the post explicitly identified? If so, are they a professional in the field?	Up to 3
Information sources	2- Are the sources used to obtain the information in the post clearly indicated?	Up to 2
Sponsorship and advertising	3- Does the post contain sponsorship or advertising? If so, is it disclosed?	Up to 2
Mission	4- Are the target audience and purpose of the post clearly stated?	Up to 1
Content impartiality	5- Is the content presented in an impartial manner?	Up to 2

Source: The authors, adapted from[14].

Since the data consisted of publicly available internet content and no personally identifiable information was used, ethics committee approval was not required, in accordance with Resolution No. 510/2016 of the National Health Council. Ethical principles were observed in the conduct and reporting of the results.

RESULTS

Over 927,700 posts using the selected hashtags were identified, distributed as follows: #câncerdecolodeútero - 5,000+ posts; #hpv - 900,000; #vacinahpv - 23,200; #vacinacontraohpv - 500+.

Of the 50 posts retrieved using the hashtag #câncerdecolodeútero, 47 (94.0%) were consistent; of these, 27 (57.4%) contained information classified as highly reliable. Among them, 14 (29.7%) addressed prevention specifically, covering measures such as HPV vaccination, condom use, and guidance on safe sexual practices, all fundamental strategies for reducing the incidence of CC.

The remaining high-reliability posts were distributed across the following thematic axes: 4 (8.5%) addressed diagnosis, with emphasis on tests such as the Pap smear and HPV tests; 2 (4.2%) covered treatment modalities, including surgery, radiotherapy, and chemotherapy; 2 (4.2%) focused on symptoms and warning signs; 2 (4.2%) debunked false information; 1 (2.1%) provided information about HPV transmission; 1 (2.1%) presented epidemiological and statistical data; and 1 (2.1%) was classified as "other" for addressing information about precancerous lesions. In addition, 20 (42.5%) posts were considered of moderate reliability. No posts with low reliability levels were identified.

It is relevant to emphasize that 22 (46.8%) posts contained information attributed to medical professionals. However, only one (2.1%) achieved the maximum score by fully meeting all established criteria. Additionally, 15 (31.9%) posts did not achieve the maximum score because they did not indicate the sources used.

Posts retrieved using the hashtag #hpv showed the best reliability results overall. Of the 50 posts assessed, 49 (98.0%) were considered consistent; of these, 33 (67.3%) were categorized as highly reliable, with the majority addressing prevention (n = 14; 28.5%). Another prominent thematic axis was debunking myths and misinformation, with 10 (20.4%) reliable posts. Among the consistent posts, 12 (24.4%) showed a moderate level of reliability and 4 (8.1%) showed a low level of reliability, all related to prevention. Only one (2.0%) post received the maximum score, covering information about HPV transmission, and 20 (40.8%) posts did not achieve a score of 10 because they did not provide the information source.

Of all posts, 35 (71.4%) identified the author, the vast majority, 31 (63.2%), being healthcare providers. The remaining 4 (8.1%) posts were authored by a nurse, a nutritionist, a pharmacist, and a journalist. It was also noted that 17 (34.6%) posts promoted services offered by private clinics, indicating a possible commercial bias in information dissemination. Additionally, among the posts using this hashtag, one highly reliable post targeting LGBTQIA+ individuals was identified, providing guidance on HPV prevention for women who have sex with women.

Regarding the 50 posts analyzed using the hashtag #vacinahpv, 30 (60.0%) were classified as highly reliable, demonstrating adherence to informational quality criteria, such as evidence-based data, clear language, and identified authorship or reliable sources.

Within this group, the majority of posts addressed the thematic axis of prevention, with 13 (26.0%) posts covering topics such as HPV vaccination, condom use, guidance on safe sexual practices, and risk factors associated with HPV infection. Five (10.0%) posts contained reliable information on diagnosis, citing tests such as the Pap smear and specific HPV detection tests; three (6.0%) addressed therapeutic options, including surgery, radiotherapy, and chemotherapy; two (4.0%) addressed symptoms and warning signs; and two (4.0%) provided information on HPV transmission.

One (2.0%) post presented epidemiological or statistical data; three (6.0%) addressed emotional or social support for patients and their families; and one (2.0%) discussed public policies or health campaigns related to the topic.

Among posts with a mean reliability score of 13 (26.0%), a slight predominance of content on prevention (8; 16.0%) and diagnosis (5; 10.0%) was observed. Although these posts contained potentially useful information, their value was limited by factors such as the absence of clear references, excessive simplification of technical content, or ambiguous language, which may undermine full comprehension or the credibility of the messages.

Additionally, seven (14.0%) posts using the hashtag #vacinahpv were classified as having low reliability, and all of them addressed the prevention axis exclusively. This finding raises an important concern, since inaccurate or incorrect information about preventive strategies may generate misinformation, vaccine hesitancy, or the adoption of inappropriate practices by lay audiences. The most common shortcomings in these posts included the absence of sources, the use of sensationalist language, a superficial approach, and, in some cases, the promotion of myths or outdated data about HPV vaccination.

Regarding the hashtag #vacinacontraohpv, of the 50 posts analyzed, 20 (40.0%) were classified as highly reliable. These were distributed primarily within the thematic axis of prevention, accounting for 11 (22.0%) posts. Other themes addressed with high reliability included: diagnosis — 3 (6.0%); symptoms and warning signs — 2 (4.0%); treatment — 1 (2.0%); information on HPV transmission — 1 (2.0%); epidemiological or statistical data — 1 (2.0%); and emotional or social support for patients and their families — 1 (2.0%). These data suggest that, although prevention is the primary focus, there is an effort, albeit limited, to address other relevant dimensions of the topic. Posts classified as moderately reliable totaled 21 (42.0%), representing the largest proportion among the three levels.

As with the highly reliable posts, the majority of moderately reliable posts also concentrated on the prevention axis, 16 (32.0%), followed by diagnosis, 4 (8.0%), and symptoms and warning signs, 1 (2.0%). This concentration reinforces the centrality of prevention-oriented discourse in digital campaigns about HPV, although the consistency and soundness of the information still vary.

Additionally, nine (18.0%) posts were classified as having low reliability. All of them were related to the thematic axis of prevention, showing that even in a field considered a public health priority, inaccurate, incomplete, or evidence-poor information continues to circulate. The presence of content with low informational quality may undermine the effectiveness of public awareness campaigns and reinforces the need for greater regulation and content curation in digital environments.

Considering all 200 posts overall, 110 (55.0%) can be considered reliable; 66 (33.0%) can be considered moderately reliable; 20 (10.0%) cannot be considered reliable; and 4 (2.0%) are inconsistent.

These results highlight the importance of actively monitoring health content disseminated on social media, particularly on sensitive topics such as vaccination, which directly impact public health. The predominance of highly reliable posts is positive, but the presence of low-reliability content underscores the need for more effective strategies to regulate digital information quality and encourage the production of reliable content by healthcare providers and recognized institutions.

DISCUSSION

The spread of moderate- and low-reliability information was identified, particularly within the thematic axis of prevention. These findings are consistent with recent studies investigating the quality and impact of HPV and CC information on social media. A content analysis on Instagram found that, although secondary cancer prevention, such as the Pap smear, receives significant attention, information on primary prevention, specifically HPV vaccination, remains scarce[15].

The scarcity of reliable informational content emphasizing HPV vaccination as a primary prevention strategy has direct repercussions on the current epidemiological landscape, especially among young women. Brazil is currently showing signs of a reversal in the CC mortality trend[16]. A study analyzing the evolution of CC mortality in the country from 1980 to 2020 found that the mortality rate stopped declining in 2014 and has since been rising at a rate of 1.2% per year. Among younger women aged 25 to 39 years of age, the mortality rate stopped declining and began increasing as of 2007, at a rate of 2.5% per year[16].

The high connectivity of young women, while offering opportunities for health information dissemination, also exposes them to low-reliability content. The presence of inaccurate or misleading information about CC prevention, diagnosis, and treatment on social media may contribute to vaccine hesitancy and non-adherence to screening, factors that negatively impact disease prevention and control.

In this regard, health communication cannot be understood in purely instrumental terms, as the simple transmission of correct or incorrect information, but rather as a social and political process that organizes meanings, regulates behavior, influences collective and individual decisions, and ultimately structures ways of living, becoming ill, and dying[17]. The circulation of health misinformation on social media is therefore not a marginal phenomenon; rather, it reflects and materializes the structural contradictions of societies deeply marked by inequalities in access to qualified information, education, health services, and scientific knowledge. It is essential to recognize that informational processes, and misinformation in particular, function as fundamental mediations in the reproduction of health inequities[18].

This study also identified a sensationalist post from a private clinic promoting the HPV vaccine on the grounds that it covers more serotypes. The content omitted the fact that the vaccine provided by the Unified Health System (SUS), though covering fewer serotypes, protects against the types most strongly associated with cancer. This omission may lead to the perception that the public vaccine is inferior, encouraging patients to seek private vaccines without clinical need. Such a practice spreads misinformation and reinforces health inequalities.

Health misinformation cannot be explained solely by an absence of knowledge; it also emerges as a structuring phenomenon of contemporary sociopolitical disputes, operating in the reproduction of inequalities and in the fragility of social and institutional bonds[19]. Here, it is relevant to invoke the concept of symbolic violence[20], understood as the capacity to impose representations of the world in such a way that they are naturalized as legitimate, even when they produce exclusion. Misinformation, in this context, constitutes a contemporary expression of symbolic violence, reinforcing stigmas, fueling vaccine hesitancy, and obscuring health rights. It is an imposition of meanings and hierarchies operating through language, education, media, norms, and cultural symbols, without resorting to physical or explicit coercion.

In Brazil, this violence is expressed in particularly acute ways, with regional inequalities most pronounced in the North and Northeast regions, which present the highest CC incidence rates in the country — 20.48 and 17.59 cases per 100,000 women, respectively, for the 2023–2025 triennium[7]. These regions also face significant challenges related to HPV vaccination coverage, contributing to the persistence of high CC incidence and mortality rates[21].

The spread of low-reliability information on social media may exacerbate these inequalities, particularly in regions where access to quality information is limited. This phenomenon becomes even more problematic when one considers that interpreting inconsistent or unreliable content demands a greater degree of health digital literacy from users. In areas where inadequate access to formal education and health services is a daily reality, the circulation of inaccurate content has the potential to reinforce myths, increase vaccine hesitancy, generate misinformation about preventive methods, and, consequently, perpetuate high CC incidence and mortality rates[22].

Furthermore, a significant gap was identified in the production of content targeting Indigenous, Ribeirinho, Quilombola, and LGBTQIA+ populations, whose CC mortality rates exceed national averages, as reported by recent epidemiological studies[23-24]. A study conducted in Brazil found that the proportion of LGBT+ women who underwent CC preventive screening, such as the Pap smear, was lower than among non-LGBT+ women — 39.0% and 75.0%, respectively[22-23]. Regarding Indigenous women, it was found that they die from CC at a rate 80.0% higher than White women[24].

The absence of targeted campaigns contributes to the invisibility of these populations in CC prevention public policies. Accordingly, the formulation of health communication policies must account for the country's sociocultural plurality as a prerequisite for ensuring the right to information and health. More than a matter of access, the quality of circulating information constitutes a social determinant of health.

This study has limitations that should be considered when interpreting the results. The sample was restricted to posts associated with previously selected hashtags, based on the "Relevant" tab on Instagram, whose sorting criteria are unknown and are influenced by algorithms. This represents a methodological limitation, though it also reflects what effectively reaches users. Moreover, the assessment instruments used were designed for scientific communication environments, which may limit their suitability for the social media context, whose target audience is predominantly lay. The absence of criteria adapted for accessible language is an additional challenge. Finally, this study represents a temporal cross-section, precluding generalization of the results to other periods, given the dynamic nature of social media.

The findings of this study reinforce the importance of professional engagement in promoting and disseminating evidence-based health information in the digital environment. Greater participation of healthcare providers in the production, curation, and dissemination of qualified content on cervical cancer on social media is needed. In this context, Nursing can contribute to strengthening health education, combating misinformation, and expanding the population's access to safe information, supporting informed decisions and adherence to disease prevention and screening strategies.

CONCLUSION

The reliability of CC and HPV information on Instagram still presents significant gaps, with many posts lacking clear authorship, scientific sources, or updated content. This reality is particularly serious given the platform's central role in shaping opinion,

especially among young people. There is an urgent need to involve healthcare providers in promoting health literacy and to hold digital content producers accountable. In the field of education, this study highlights the need to incorporate communication and digital competencies into the training of healthcare providers. Doing so will enable them to act ethically and effectively in the production, analysis, and dissemination of content, respecting diverse contexts and communication styles.

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **Rodrigues LO, Pantoja LJD, Mendes LMC.** Drafting the work or revising it critically for important intellectual content - **Rodrigues LO, Moraes BGA, Barbosa NG, Gozzo TO, Gomes-Sponholz FA, Mendes LMC.** Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **Mendes LMC.** All authors approved the final version of the text.

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The authors have no conflicts of interest to declare.

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