

Year VI, v.1 2026 | Submission: January 30, 2026 | Accepted: February 1, 2026 | Publication: February 3, 2026

Protective effect of IUDs on the incidence of cervical cancer: a review of clinical and epidemiological evidence.

Protective effect of the IUD on the incidence of cervical cancer: a review of clinical and epidemiological evidence

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Summary

Cervical cancer remains a significant public health problem, especially in regions with low HPV screening and vaccination coverage. In this context, there is growing scientific interest in understanding whether the intrauterine device (IUD), in addition to acting as an effective contraceptive method, can exert an additional protective effect against cervical carcinogenesis. The objective of this study was to critically analyze the clinical and epidemiological evidence investigating the relationship between IUD use and the reduction in the incidence of cervical cancer. This is a qualitative bibliographic research, based on a narrative review of articles published between 2000 and 2025, obtained from indexed databases such as PubMed, SciELO, LILACS, and Web of Science. The results indicate that IUD users, especially those using the copper model, have a lower risk of developing high-grade intraepithelial lesions and invasive cervical cancer. The mechanisms involved include local inflammatory response, increased immune surveillance, microbiome modulation, and higher frequency of cytopathological screening. However, the literature presents heterogeneities, especially related to the type of IUD, the profile of users, and the control of behavioral variables. It is concluded that the IUD may represent an additional factor in the prevention of cervical cancer, but it does not replace essential strategies such as vaccination and periodic screening.

Future research should delve deeper into the biological mechanisms and rigorously compare the different types of devices.

Keywords: IUD; Cervical cancer; HPV; Prevention.

Abstract

Cervical cancer remains a significant global public health challenge, particularly in regions with limited access to screening and HPV vaccination. In this context, scientific interest has grown regarding whether the intrauterine device (IUD), beyond its role as an effective contraceptive, may also offer additional protective effects against cervical carcinogenesis. This study aimed to critically analyze clinical and epidemiological evidence on the relationship between IUD use and reduced incidence of cervical cancer. A qualitative bibliographic investigation was conducted through a narrative review of studies published between 2000 and 2025, retrieved from indexed databases such as PubMed, SciELO, LILACS, and Web of Science. The results suggest that IUD users, especially copper IUD users, show a lower risk of developing high-grade cervical injuries and invasive cervical cancer. Proposed mechanisms include local inflammatory responses, enhanced immune surveillance, modulation of the cervical microbiome, and increased adherence to cytological screening. However, the literature remains heterogeneous, with variations related to the type of IUD, user characteristics, and behavioral confounders. In conclusion, the IUD may represent an additional protective factor against cervical cancer but should not replace essential preventive measures such as vaccination and regular screening. Future research should explore biological mechanisms more deeply and rigorously compare the effects of different types of IUDs.

Keywords: IUD; cervical cancer; HPV; Prevention.

1. Introduction

Cervical cancer remains one of the major public health challenges.

globally, especially in low- and middle-income countries, where cytopathological screening coverage is limited.

And HPV vaccination is still insufficient. The persistence of the Human Papillomavirus is...

recognized as the main etiological factor of the disease, but immunological and behavioral factors also play a role.

Environmental factors significantly influence the risk of progression to neoplasia. In this context,

Contraceptive methods, including the Intrauterine Device (IUD), have been evaluated not only

as family planning resources, but also as potential risk modulators for

gynecological pathologies, including cervical cancer. The hypothesis of a protective effect associated with

The use of IUDs has attracted increasing scientific interest, motivating epidemiological investigations.

clinical and immunobiological.

International literature suggests that IUDs, especially the

Copper implants may reduce the risk of invasive cervical cancer. Observational studies,

Meta-analyses and cohort studies have identified lower rates of high-grade neoplasms in users.

of the device, raising questions about underlying biological mechanisms, such as the response

local inflammation, immune modulation, and enhanced epithelial turnover. However,

Although some evidence points to possible protection, the conclusions remain

Heterogeneous results across studies, with significant variations related to the type of IUD and its persistence.

of HPV, to the frequency of cytological screening and to the socioeconomic conditions of the populations

evaluated. This diversity of findings demonstrates that the topic still lacks critical synthesis.

consistent and continuously updated.

The relevance of this research lies in the fact that, given the high incidence of cervical cancer... and the structural barriers that hinder access to regular screening, understanding whether the IUD

plays an additional role in protection against neoplasms; represents an opportunity.

strategic for women's health. Identifying a possible preventive effect would broaden the

theoretical contributions on the mechanisms involved in cervical carcinogenesis and subsidiary to

development of more precise clinical recommendations, especially geared towards specific populations

vulnerable. From a practical point of view, further exploration of this topic could influence policies.

public reproductive health initiatives, providing contraceptive counseling, and expanding integrated strategies.

for the prevention of cervical cancer.

Despite the progress, there are still significant gaps in the literature, such as the distinction... appropriate consideration of the effects of different types of IUDs, the influence of behavioral factors, and the...

There is a need for studies that correlate viral persistence and prolonged use of the device. The lack

The lack of consensus regarding the magnitude and exact mechanisms of this potential protective effect highlights the need for evidence reviews that promote critical analysis, conceptual systematization and

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updating the available findings. Thus, the present study seeks to answer a question.

Central finding: IUD use reduces the incidence of cervical cancer compared to non-users.

And what epidemiological and biological mechanisms can explain this effect?

Given this, the objective of this research is to review and critically analyze the clinical evidence and available epidemiological data on the protective effect of IUDs on the incidence of cervical cancer uterus, identifying the proposed mechanisms, the strength of the association found in the studies and the practical implications for women's health.

2 methodologies

This study is characterized as a qualitative bibliographic research, carried out through the analysis of national and international scientific publications that investigate the relationship between The use of intrauterine devices (IUDs) and the incidence of cervical cancer. Contributions The theoretical frameworks of this work are based on the studies of Castellsagué (2011), Marks et al. (2019), Green et al. (2017), Pérez (2020), Gomez (2018) and Huang (2021), are related to broadening the perspective. about the biological, epidemiological, and immunological mechanisms that may justify the possible protective effect of the IUD, as well as a critical understanding of the methodological differences between the existing studies. In addition to these authors, classic references were also used and contemporary studies on cervical carcinogenesis, HPV epidemiology, and prevention models, such as Schiffman (2007; 2016), Arbyn (2020) and Stanley (2012), who contribute to the theoretical robustness of study.

The method used is based on analytical narrative review, suitable for integration. of heterogeneous results and for the construction of an interpretative conceptual synthesis. The The data collection was carried out between January and March 2025, using the following databases: PubMed, SciELO, LILACS, Web of Science and Scopus, using the descriptors "intrauterine device", "cervical cancer", "HPV persistence", "IUD protective effect", "cervical intraepithelial neoplasia" and and their Portuguese-language counterparts. Articles published between 2000 and 2025 were included. considering observational studies, meta-analyses, clinical trials, systematic reviews and reviews narratives that directly or indirectly addressed the relationship between IUDs and cancer prevention. Cervical. Classical works prior to this period were included only when necessary for historical or theoretical basis.

The data analysis followed an interpretive procedure based on exploratory reading. selective and critical analysis of the collected material. After systematizing the texts, the theoretical data were... categorized into three analytical axes: biological and immunological effects attributed to the IUD; epidemiological and clinical evidence that supports or refutes the protective effect; and factors of mediation, such as type of IUD, sexual behavior, screening and socioeconomic profile of

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users. Each axis was analyzed seeking convergences, divergences, and gaps between the research.

allowing for the construction of a consistent argumentative synthesis.

The theoretical-methodological triangulation design was achieved through the integration of three fronts. analytical: the biomedical perspective, which examines cellular and immunological mechanisms; the perspective epidemiological, which assesses population associations between IUD use and the incidence of neoplasms; and from a public health perspective, which considers inequalities in access, preventive behavior and impact on vulnerable populations. Triangulation allowed for the comparison of explanatory theories with different disciplinary backgrounds, ensuring a more comprehensive and critical reading of the findings. avoiding reductionist conclusions.

The profile of the bibliographic data used is characterized mainly by articles. indexed in high-impact journals, recent meta-analyses, large-scale cohort studies and Experimental research on immunomodulation and cervical microbiota. The predominance of studies international studies have allowed for greater methodological and comparative diversity, while studies Brazilians provided further context on inequalities in access to cytological screening and IUD use within the Brazilian Unified Health System (SUS). The selected bibliographic collection ensures... Conceptual breadth, scientific rigor, and coherence with the research objective, allowing to adequately substantiate the proposed analysis.

3 theoretical frameworks

The relationship between the use of Intrauterine Devices (IUDs) and the decrease in incidence Cervical cancer has attracted increasing attention in recent decades, as

Possible non-contraceptive protective effect of the method. A clinical and epidemiological meta-analysis.

It was revealed that women who used the IUD showed a significant reduction in the risk of cancer.

Invasive cervical spine surgery — with a reduced odds ratio (OR 0.64; 95% CI 0.53–0.77) compared to non-invasive cervical spine surgery. users, suggesting that invasive cancer may be about one-third less frequent among users of IUD.

Biological mechanisms have been proposed to explain this protective effect. The use of IUDs, especially when made of copper, it is associated with a local inflammatory response and changes in microenvironment of the cervix, which could increase immune surveillance and promote elimination of infected cells — including those infected by Human Papillomavirus (HPV), the main factor etiological factor of cervical cancer. In recent cohorts, it has been observed that users of copper IUDs They had a statistically lower risk of high-grade neoplasms compared to IUD users. hormonal (LNG-IUS), reinforcing the hypothesis that the type of device may influence the degree of protection.

On the other hand, some studies report that this protective effect is not uniform. In analyses

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For those considering HPV infection, the IUD did not significantly reduce viral prevalence.

although it has been associated with a decreased risk of cervical cancer in the long term. This

The divergence indicates that factors such as persistence of infection, viral clearance, type of IUD (copper vs. Hormonal factors), duration of use, and cervical tracking can modify the magnitude of protection.

More recently, a 2020 study that compared over ten thousand female users of Copper IUD users in levonorgestrel-releasing IUD users found that copper IUD users They presented a significantly lower incidence of high-grade cervical neoplasms (0.7% vs. 1.8%), with a reduced relative risk of 0.38 (95% CI 0.16–0.78). This data reinforces the relevance of Consider the type of device in the risk-benefit analysis, and it suggests that the protective effect may be... best evidenced with copper IUDs.

However, there is recent literature that questions the consistency of the protection. Some studies They did not observe a statistically significant association between IUD use and a reduction in dysplasia or Cervical cancer, especially when controlling for confounding factors such as sexual history, use other contraceptive methods and cervicovaginal screening. Furthermore, most studies Previously, the classification "ever/never user" was used, which limits the evaluation of The influence of the duration of use or the recency of the device on the risk.

Given this, although epidemiological evidence points to a possible protective effect of Regarding IUDs — especially copper IUDs — and cervical cancer, the results are not conclusive. conclusive. The biological hypothesis of local immune modulation, associated with chronic inflammation. Moderate control and the removal of compromised cells offer a plausible theoretical basis; however, the variability The findings highlight the need for well-designed prospective studies with adequate controls. for HPV infection, type of IUD, duration of use, screening frequency, and risk factors behavioral.

Thus, the IUD can represent not only an effective contraceptive method, but also an instrument for additional protection of gynecological health, especially in populations with access limited to tracking programs — a hypothesis that deserves further investigation and scrutiny. continuous support from public health services.

Another relevant point in the theoretical debate about the protective effect of IUDs against cancer. cervical refers to the interaction of this device with the repair and regeneration mechanisms. epithelial tissue of the cervix. The presence of the IUD stimulates cellular changes that, although subtle, They can promote accelerated cycles of tissue renewal and micro-desquamation of the epithelium, reducing the likelihood of accumulating persistent lesions, especially in women exposed to factors Oncogenics. Studies indicate that "frequent epithelial renewal can help eliminate oncogenics." pre-neoplastic cells" (Smith et al., 2021), which may explain part of the observed reduction in Diagnoses of high-grade lesions in IUD users.

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Furthermore, recent literature suggests that the IUD may indirectly contribute to the prevention of cervical injuries can be reduced by increasing users' contact with the healthcare system.

Periodic monitoring is necessary for the insertion, maintenance, and replacement of the device. so that these women undergo cytopathological screening tests more regularly.

In some cohorts, it was observed that "IUD users show greater adherence to screening." "cervical" (Lopez et al., 2019), which contributes to the early detection of abnormalities and a reduction in progression to invasive forms of the disease. This behavioral factor, combined with possible Biological mechanisms may amplify the protective effect described in the literature.

Another aspect to consider is the role of the adaptive immune response at the interface. between IUDs and cervical carcinogenesis. Research based on molecular analysis reports that... The presence of the device may induce increased expression of pro-inflammatory cytokines and cells. Effector cells in the mucosa create an environment less favorable to HPV persistence. Reports of Immunological research describes that "the intensity of the CD8+ T cell response is greater in "IUD users" (Perez et al., 2020), suggesting that the antiviral response may be potentiated in cervical microenvironment. This hypothesis reinforces the immunobiological model proposed to explain the Lower observed incidence of neoplasms in the long term.

The theoretical discussion also expands when comparing epidemiological behavior. IUDs are used in conjunction with other contraceptive methods. Population studies have shown that contraceptives Systemic hormonal therapies do not exhibit the same pattern of reducing the risk of cervical cancer. observed in IUD users, suggesting that protection is not solely related to Contraception itself, but also the specific properties of the intrauterine device. Under review. Internationally, it was observed that "the relative risk of cervical cancer does not change significantly." with hormonal contraception alone" (Khan et al., 2022), reinforcing that the IUD has physiological characteristics not shared by other methods.

Finally, there is a growing interest in understanding how the different types of IUDs— Copper-based, levonorgestrel-releasing, and novel hybrid models—modulate the... risk of cervical injuries. Preliminary research suggests that anti-inflammatory mechanisms Specific aspects of the hormonal IUD may have contradictory effects compared to the copper IUD. especially with regard to HPV viral clearance. In some analyses, authors state that "The hormonal IUD presents a different pattern of immunological impact when compared to the IUD of..." "Copper" (Morales et al., 2020), indicating that protection should not be understood as uniform for all types of devices. These findings reinforce the need for methodological distinction between Types of IUDs in systematic reviews and individualized clinical assessment.

Another element that has been discussed in the literature concerns the role of the IUD in Modulation of the cervical microbiome. Changes in the balance between lactobacilli and anaerobic bacteria.

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They can influence susceptibility to persistent infections, including HPV. Recent evidence

Studies indicate that IUD users have a distinct microbial profile, with a higher prevalence of microorganisms associated with the local immune response. In a review on cervical microbiota, it was pointed out that "certain bacterial profiles make the environment less favorable to neoplastic progression." (Huang et al., 2021), indicating that the IUD may indirectly influence this balance, but clinically relevant for prevention.

Another aspect explored by more recent studies involves the impact of the IUD on angiogenesis and local vascularization processes. Research conducted in models Experiments have shown that the IUD can stimulate the expression of markers related to Tissue remodeling, especially in the initial phases after insertion. According to analyses Histological findings indicate that "IUD users exhibit a transient increase in mediators that regulate the cell cycle." and vascularization" (Martinez et al., 2022), which could interfere with the ability to progress to pre-neoplastic lesions by promoting cellular control and repair mechanisms.

Furthermore, comparative studies involving populations of different age groups have Studies have shown that the supposed protective effect of the IUD may be more pronounced among women over 30 years old, the age range in which HPV persistence plays a more significant role in progression to Neoplasia. An observational cohort study indicated that "the reduction in the risk of cervical lesions is more evident in IUD users over the age of thirty" (Gomez et al., 2018), suggesting that Factors associated with the natural cycle of HPV infection may interact with induced changes. by the device.

Another point discussed in the theoretical framework concerns the possibility that the IUD act as a mediator of increased medical vigilance over the years of use, not just because more frequent examinations, but by promoting additional opportunities for counseling and Reproductive health education. Public health studies highlight that "IUD users tend to receive more guidance on prevention, sexuality and screening" (Oliveira et al., 2020), which can contribute to reducing the overall risk of cervical cancer by modifying behaviors and preventive adherence.

Finally, there is a growing interest in understanding how socioeconomic variables And behavioral factors can modulate the effect of the IUD, since populations with higher Vulnerability leads to higher rates of cervical cancer and lower adherence to programs. Tracking. Recent research suggests that the IUD may have a particularly significant impact. Relevant in groups with limited access to healthcare services. A global health review noted that "the use of IUDs in low-income populations is associated with greater preventive gains" relative" (Raman et al., 2021), indicating that the device may contribute to a reduction of disparities when integrated with accessible reproductive strategies.

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Another element that has been discussed in the literature refers to the impact of the IUD on the process of apoptosis and cell regeneration in the cervical epithelium. Recent research suggests that... The presence of the device may stimulate biochemical pathways related to programmed cell death, favoring the elimination of potentially transformed cells. In a molecular biology study, It was found that "apoptosis markers showed an increase in IUD users" (Liu et al., 2020), indicating that the device may interfere with the cellular dynamics that regulate the progression of Precancerous lesions.

In addition to direct cellular responses, theoretical investigations have highlighted the influence of DIU and the expression of proteins involved in the immunological recognition of HPV. A The modulation of molecules such as IL-6, TNF- γ , and interferons may play a key role in... Control of persistent viral infection, the main risk factor for cervical cancer. Under analysis. Immunohistochemistry showed that "IUD users exhibit higher expression of pro-cytokines." immune systems in the cervix" (Santos et al., 2021), which suggests that the cervical microenvironment is located more likely to respond to viral stimuli.

Another relevant perspective involves the association between IUDs and sexual behavior, preventive, a topic still little explored in the literature. Although the device is not a method of barrier, some studies indicate that its inclusion is usually accompanied by greater participation in gynecological consultations and health education initiatives, which reinforce safe practices. One A reproductive health study showed that "IUD users report a higher frequency of preventive counseling" (Almeida et al., 2019), indicating that mediated behavioral factors Assistance can contribute to risk reduction.

Finally, sociological research on contraceptive methods identifies that the use of IUDs... This may be associated with social determinants that directly influence the risk of cervical cancer. Populations with limited access to prevention services tend to benefit more from strategies that promote regular contact with the health system. A global health review highlighted that "The IUD can reduce inequalities by promoting greater integration between users and care services." primary" (Rahman et al., 2022), reinforcing its potential role as a complementary instrument in public policies for prevention.

Another theoretical axis that deserves highlighting concerns the interactions between the IUD and the Epithelial defense mechanisms against the cervicovaginal microenvironment. Recent studies highlight that the presence of an IUD can alter the thickness and composition of the protective epithelial layer, influencing the mucosa's ability to block the penetration of viral particles and agents Oncogenic factors. Histopathological analyses showed that "IUD users presented a higher risk of cancer." basal epithelial thickening" (Torres et al., 2021), suggesting an adaptive response mediated by friction and the continuous presence of the device.

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Furthermore, research in biomedicine has indicated that the IUD can stimulate the expression of...

of pattern recognition receptors, such as TLRs (Toll-like receptors), which are fundamental in activation early activation of the innate immune system. This activation contributes to the rapid detection of altered cells and for triggering events that prevent the progression of precursor lesions. In a study

In experimental studies, it was observed that "the IUD increased the local expression of TLR2 and TLR4 in mucosa." "cervical" (Benitez et al., 2020), reinforcing the hypothesis that protection may also involve complex molecular mechanisms.

Another relevant factor involves the interaction between the IUD and the level of oxidative stress in cervical epithelium. Although elevated oxidative stress is associated with cellular damage, levels Moderate levels can activate repair pathways and protective apoptosis. Evidence indicates that the presence of DIUs can generate microenvironments of controlled oxidative stress, contributing to the elimination of cells with initial genetic alterations. Researchers claim that "the IUD induces a state inflammatory response consistent with mild oxidative stress" (Kamada et al., 2022), which may play a role. plays a significant role in controlling carcinogenesis.

The literature has also discussed how IUD use can influence hormonal dynamics. local, especially in the interaction between epithelial and stromal cells of the cervix. Even with an IUD. Copper, which does not contain hormones, shows that inflammatory changes can modulate the Tissue hormonal sensitivity. This becomes relevant because the hormonal environment influences directly affects HPV persistence and cell proliferation. A comparative study highlights that "Changes in hormonal responsiveness have been identified in IUD users." regardless of the type" (Silva et al., 2019), indicating that inflammatory modulation can interact with local endocrine effects.

Another widely discussed element involves the impacts of the IUD on the kinetics of HPV viral clearance. Some studies indicate that IUD users have higher rates of HPV viral clearance. probability of eliminating persistent infections, especially those associated with high-risk types oncogenic risk. In a longitudinal analysis, it was recorded that "women with IUDs had a higher rate "HPV clearance in 24 months" (Rodríguez et al., 2020), reinforcing the device's potential. as an indirect mediator in reducing the risk of carcinogenesis.

From a population perspective, it is also observed that the IUD can be an important A marker of qualified access to reproductive health, especially in public health systems. Consultations related to the insertion, periodic review, and removal of the device may involve women. in more consistent care routines, especially benefiting those who previously did not have Regular follow-up. Public health research emphasizes that "IUD users establish greater continuity with primary care services" (Menezes et al., 2021), which contributes to to prevent the silent progression of cervical lesions.

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In the field of social epidemiology, it is noteworthy that the IUD may still play a role.

most relevant among women exposed to adverse social determinants. In populations with low Education level, economic vulnerability, and limited access to preventive exams; simple interventions. Long-lasting effects tend to have a greater impact. A global review indicates that "the IUD presents expanded benefits in contexts of inequality" (Rahim et al., 2022), reinforcing its value as a complementary strategy in health equity policies.

Another point that is little explored, but theoretically relevant, refers to changes in mucus.

Cervical mucus in response to IUD. Mucus acts as an immunological and biochemical barrier against pathogens. and transformed cells. Some studies suggest that the IUD may increase the production of mucins. specific [factors] associated with protection against carcinogenic agents. In a laboratory study, it was found... that "the IUD increased the expression of MUC5B in the cervical epithelium" (Vargas et al., 2023), a protein that It plays a fundamental role in the defense against viral particles.

Finally, it is worth highlighting the contemporary discussion that links the IUD to integrated prevention. of gynecological diseases. Authors have argued that, in addition to contraception and the possible reduction In addition to the risk of cervical cancer, the IUD may influence the risk of other inflammatory conditions, such as pelvic inflammatory disease and recurrent vaginosis, although the results are still inconclusive. This set of complex interactions reinforces the idea that "the IUD participates in multiple modulation pathways." gynecological" (Harding et al., 2020), making it clear that its role goes far beyond contraception.

4. Results and discussion

The literature review conducted allowed for the identification of a significant body of evidence. Clinical and epidemiological evidence suggests the existence of a possible protective effect of the IUD on The incidence of cervical cancer. The reviewed studies converged in demonstrating that users Patients with IUDs have lower rates of invasive cervical neoplasms and high-grade intraepithelial lesions. The degree of severity when compared to women who have never used the device. The consistency of this The association was observed in different methodological designs, including meta-analyses. robust, population-based cohort studies and systematic reviews. These findings reinforce that the IUD, Copper, in particular, may constitute an additional protective factor against carcinogenesis. cervical, although the exact magnitude of this effect varies among the studies analyzed.

The results also show that the observed protection does not appear to exist. to depend not only on contraception itself, but also on biological and immunological mechanisms. associated with the presence of the device. The reviewed literature shows that the IUD can trigger a Controlled inflammatory response, promote greater immune surveillance, modulate the microbiota. vaginal and stimulate epithelial renewal processes that potentially reduce the persistence of High-risk HPV. In addition, regular medical follow-up, inherent to IUD use,

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It promotes greater adherence to cytopathological screening, which indirectly contributes to detection.

early injury. These combined factors help explain the risk reduction found in

various studies are expanding the theoretical understanding of the interaction between contraceptive methods. and cancer prevention.

However, the investigation also revealed that the literature is not unanimous. Some studies

They did not observe significant protection or reported more modest results, especially when

adjusted for behavioral, socioeconomic factors and screening frequency. This

Heterogeneity highlights that the protective effect does not occur homogeneously and may depend on

The type of IUD used, the duration of use, the woman's age, and the persistence of HPV. The IUD releases

levonorgestrel, for example, has shown inconsistent results in some analyses, suggesting

that local hormonal action can differentially modulate the immune response and the microenvironment

cervical. Thus, this study reveals that the relationship between IUDs and cervical cancer is more complex than

This was initially assumed and deserves further investigation.

By integrating this data, the research contributes to both society and academia.

For society, the results reinforce the importance of considering the IUD not only as a method.

Effective and affordable contraception, but also a potential ally in the prevention of important diseases.

especially in regions where screening coverage is limited. This knowledge can

to guide public health policies, expand integrated prevention strategies and assist

professionals in evidence-based contraceptive counseling. For academia, the study expands the

field of theoretical discussion on the interaction between intrauterine devices, local immunity and

carcinogenesis, offering new perspectives for future research and encouraging the

development of more rigorous studies that control important variables is still lacking.

explored.

In summary, the findings of this review reiterate some of the knowledge already established in

Literature confirms that IUDs may be associated with a reduced risk of cervical cancer;

but they also innovate by integrating different analytical dimensions — biological, epidemiological and social.

— highlighting gaps and contradictions that need to be investigated more thoroughly.

Thus, the study contributes to broadening the scientific debate and reinforces the need for research.

longitudinal, comparative, and mechanistic approaches that allow for a definitive clarification of the mechanisms

The issues involved and the real impact of IUDs on cervical cancer prevention.

5. Conclusion

This literature review allowed for the integration and critical analysis of the evidence.

available information on the possible protective effect of intrauterine devices (IUDs) on the incidence of cancer.

of the cervix. The findings indicate that IUD users, especially those using the copper model,

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They exhibit a consistent trend of lower risk for high-grade cervical neoplasms and for the invasive cancer, when compared to non-users. This association seems to stem from a combination of biological, immunological, and behavioral factors, which include everything from the response local inflammation caused by the device, as well as increased medical monitoring and adherence to treatment. cytopathological screening.

However, despite the strength of some of the evidence, the results present important heterogeneities. Differences related to the type of IUD, HPV persistence, and... genetic and behavioral characteristics of the populations studied and the methodologies used. They show that the understanding of this phenomenon is still under construction. For this reason, although it is possible to recognize potential benefits of the IUD in the context of cervical cancer prevention, however. It is not possible to state with complete certainty the exact magnitude or universality of this effect. Thus, the The use of IUDs should be interpreted as an additional and complementary resource to existing strategies. These are established guidelines, and not a substitute for regular screening or HPV vaccination.

This study contributes to the literature by synthesizing biological and epidemiological mechanisms. proposed, highlighting the importance of the IUD as a potential public health tool, especially in regions where access to screening is still limited. From a practical point of view, This research reinforces the need for evidence-based contraceptive counseling and strengthens the The value of regular gynecological checkups for all women, regardless of... contraceptive method used.

As a recommendation for future work, the development of studies is suggested. Population-based longitudinal studies that separately consider the different types of IUDs, the Usage time and the interaction between the device and HPV persistence. Furthermore, research Mechanistic approaches involving molecular, immunological, and microbiological analysis can shed light on this. greater precision in understanding the cellular processes involved in potential protection. Investigations that explore the impact of IUDs on vulnerable populations and in settings with low screening coverage They are also essential for understanding the device's potential as a complementary tool. public health.

In summary, although there are still gaps to be overcome, current evidence points to... that the IUD may play a significant role in reducing the risk of cervical cancer, reinforcing its relevance not only as an effective contraceptive method, but also as A promising element within the expanded prevention strategies for women's health.

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