

Repercussions, risks, and prevention strategies regarding electronic cigarette use among adolescents: an integrative review

Repercussões, riscos e estratégias de prevenção do uso de cigarros eletrônicos entre adolescentes: revisão integrativa
Repercusiones, riesgos y estrategias de prevención del uso de cigarrillos electrónicos entre adolescentes: una revisión integradora

Paula Andréa Rebouças Leite¹ , Mardênia Gomes Vasconcelos Pitombeira¹ , Ana Paula Barros Pires¹ , Paula Sarreira de Oliveira² , Filipe Mourão Eleutério³ , Sâmia Assunção de Oliveira¹ ,
Sibele Cândido da Cunha³ 

Corresponding author:

Paula Andréa Rebouças Leite

E-mail:

paulaandrealeite@gmail.com

¹Universidade Estadual do Ceará. Fortaleza, Ceará, Brasil

²Egas Moniz School of Health & Science. Almada, Setúbal, Portugal.

³Universidade Federal do Ceará. Fortaleza, Ceará, Brasil.

Abstract

Objective: To analyze scientific evidence regarding the repercussions, risks, and prevention strategies associated with electronic cigarette use among adolescents. **Method:** This is an integrative literature review conducted in January 2025. Data sources included the Virtual Health Library (VHL) databases—specifically MEDLINE, PubMed, Web of Science, Scopus, LILACS, and SciELO. Studies published between 2015 and 2025, in Portuguese, English, and Spanish, that were available in full and covered the topic were included. **Results:** Ten articles were selected, revealing that the misconception of harmlessness, combined with the appeal of flavors and targeted marketing, contributes to increased consumption among adolescents and young adults. Effective measures for addressing electronic cigarette use were identified, such as educational campaigns, strict regulations, school-based awareness initiatives, and control over social media content that promotes the consumption of these products. **Conclusion:** Scientific evidence demonstrates that electronic cigarettes pose a serious threat to adolescent health, requiring coordinated responses to protect them from this emerging threat.

Descriptors:

Electronic Nicotine Delivery Systems. Adolescent. Smoking Prevention.



How to cite this article:

Leite PAR, Pitombeira MGV, Pires APB, Oliveira PS, Eleutério FM, Oliveira SA, Cunha SC. Repercussions, risks, and prevention strategies regarding electronic cigarette use among adolescents: an integrative review. Rev. enferm. UFPI. 2026 [Cited: ano mês abreviado dia];15:e7347. DOI: 10.26694/reufpi.v15i1.7347

Whats is already known on this?

There is a misconception that electronic cigarettes are safer than traditional cigarettes; however, studies show that they pose health risks to adolescents.

What this study adds?

Adolescents show higher rates of electronic cigarette use, which leads to the development of respiratory, cardiovascular, gastrointestinal, immunological, neurocognitive, psychological, and mental health problems.

Resumo

Objetivo: Analisar as evidências científicas sobre as repercussões, os riscos e as estratégias de prevenção relacionadas ao uso de cigarros eletrônicos entre adolescentes. **Método:** Trata-se de uma revisão

integrativa da literatura, conduzida em janeiro de 2025. Utilizaram-se como fontes as bases de dados e as plataformas de busca e recuperação de literatura científica disponíveis na Biblioteca Virtual em Saúde (BVS), incluindo *Medical Literature Analysis and Retrieval System Online* (MEDLINE), *U.S. National Library of Medicine* (PubMed), *Web of Science*, Scopus, Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILACS) e *Scientific Electronic Library Online* (SciELO). Incluíram-se estudos publicados entre 2015 e 2025, nos idiomas português, inglês e espanhol, disponíveis na íntegra e que abordassem o tema. **Resultados:** Dez artigos foram selecionados e permitiram identificar que a percepção equivocada de inocuidade, somada à atratividade de sabores e ao *marketing* direcionado, contribui para o aumento do consumo entre adolescentes e jovens adultos. Identificaram-se medidas eficazes a serem implementadas na discussão do uso de cigarros eletrônicos, como campanhas educativas, regulamentações rigorosas, ações de conscientização nas escolas e controle do conteúdo nas redes sociais que dão visibilidade ao consumo desses produtos. **Conclusão:** As evidências científicas demonstram que o uso de cigarros eletrônicos representa uma séria ameaça à saúde dos adolescentes, exigindo respostas coordenadas para protegê-los dessa ameaça emergente.

Descritores:

Sistemas Eletrônicos de Liberação de Nicotina. Adolescente. Prevenção do Hábito de Fumar.

Resumen

Objetivo: Analizar la evidencia científica sobre las repercusiones, riesgos y estrategias de prevención relacionadas con el uso de cigarrillos electrónicos entre adolescentes. **Método:** Se trata de una revisión bibliográfica integradora, realizada en enero de 2025. Las bases de datos utilizadas fueron de la Biblioteca Virtual en Salud (BVS), en los repositorios: Medical Literature Analysis and Retrieval System Online (MEDLINE), National Library of Medicine (PubMed), Web of Science, Scopus, Latin American and Caribbean Literature in Health Sciences (LILACS) y Scientific Electronic Library Online (SCIELO). Se incluyeron estudios publicados entre 2015 y 2025, en portugués, inglés y español, disponibles en texto completo y que abordaran el tema.

Resultados: Se seleccionaron diez artículos, y fue posible identificar que la percepción errónea de seguridad, combinada con el atractivo de los sabores y el marketing dirigido, contribuye al aumento del consumo entre adolescentes y adultos jóvenes. El estudio identificó medidas efectivas para abordar el uso de cigarrillos electrónicos, como campañas educativas, regulaciones estrictas, acciones de sensibilización en las escuelas y control del contenido en redes sociales que promueve el consumo de estos productos. **Conclusión:** La evidencia científica demuestra que los cigarrillos electrónicos representan una grave amenaza para la salud de los adolescentes y requieren respuestas coordinadas para protegerlos de esta amenaza emergente.

Descriptores:

Sistemas Electrónicos de Administración de Nicotina. Adolescentes. Prevención del Tabaquismo.

INTRODUCTION

The growing use of electronic cigarettes (e-cigarettes) among adolescents has become a global public health challenge. Initially proposed as an option for traditional smoking cessation – based on the

belief that they are less harmful to health—these devices have gained popularity due to attractive marketing, a wide variety of flavors, and the misconception that they are harmless.⁽¹⁾

Electronic nicotine delivery systems, popularly known as e-cigarettes or vapes, operate by vaporizing a liquid composed of nicotine, flavorings, and solvents such as propylene glycol and vegetable glycerin.⁽²⁾ Despite their initial aim of reducing the harm associated with conventional tobacco, research indicates that these devices can cause lung injuries, cardiovascular diseases, and addiction, particularly among adolescents and young adults.⁽³⁾

Since 2009, the National Health Surveillance Agency (ANVISA) has prohibited the sale, importation, and advertising of any electronic smoking devices—known as electronic cigarettes—within the country. In 2024, ANVISA reaffirmed the ban on e-cigarettes due to the lack of robust scientific evidence proving their safety and efficacy as a smoking cessation method.^(4,5) Nevertheless, access to these devices remains easy via the internet, fueling increased use among adolescents, who are often drawn to their technological appeal and the variety of available flavors.^(1,6)

The consequences of using these devices extend beyond physical impacts. Studies show that e-cigarettes can also serve as a gateway to conventional tobacco use, driven by the addiction caused by the nicotine present in the vaporized liquids.^(7,2) Furthermore, research indicates that e-cigarettes are not risk-free; they can cause significant damage to the pulmonary, cardiovascular, and other bodily systems, and are also associated with an increased risk of cancer compared to the non-smoking population. Emerging conditions such as EVALI (E-cigarette or Vaping Use-Associated Lung Injury) can be cited, highlighting the potential for significant damage to the respiratory and cardiovascular systems.^(1,6)

Evidence indicates that adolescents are the demographic with the highest uptake of these devices, primarily due to the lack of oversight regarding their use.⁽³⁾ Given this association, prevention strategies targeting adolescents are already being implemented. Key initiatives include educational campaigns highlighting the risks of nicotine dependence, the implementation of strict public policies to restrict the sale of these devices, and the strengthening of school-based health and well-being awareness programs.^(8,2) Furthermore, promoting tobacco-free environments and monitoring digital spaces—particularly social media—are identified as effective measures to limit adolescent exposure to content that glamorizes the use of these devices.^(8,3,6) When integrated, these approaches have the potential to significantly reduce the prevalence of e-cigarette use, thereby contributing to the protection of public health.

However, although studies have described various consequences of e-cigarette use, the evidence remains scattered across the literature, covering diverse outcomes that are often assessed in isolation. This heterogeneity hinders a comprehensive understanding of the primary health risks for adolescents and limits the use of such evidence to inform clinical practice, educational initiatives, and public policy formulation.

In this context, it is important to synthesize the available scientific knowledge regarding the consequences and risks associated with e-cigarette use during adolescence, thereby providing an integrated view of the existing evidence. The findings of this review are expected to assist health professionals, educators, and policymakers in developing strategies for prevention, health promotion, and addressing the use of these devices among adolescents.

Thus, this study aims to analyze the scientific evidence regarding the health repercussions and risks of electronic cigarette use among adolescents.

METHODS

This study employed an integrative review as its research method, an approach recognized for its ability to integrate scientific evidence into clinical practice. This method allows for the gathering and synthesis of results from studies on a specific topic, fostering a deeper understanding and identifying gaps in the literature; the study design followed the six fundamental stages outlined by Mendes *et al.*⁽⁹⁾

The guiding question was formulated objectively to direct the study. This stage was crucial for guiding the search for relevant evidence and ensuring the applicability of the results. The Population, Interest, and Context (PICO)⁽¹⁰⁾ strategy was used to construct the research question, comprising: population (P) – adolescents; interest (I) – electronic cigarette risks and prevention strategies; and context (Co) – adolescent health. The defined question was: What scientific evidence exists regarding the health risks of electronic cigarette use for adolescents and prevention strategies? Subsequently, the Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) encompassing the study's objectives were consulted.

Searches of scientifically relevant databases were conducted to ensure the quality of the selected studies. A survey of scientific articles was carried out in January 2025 via the Virtual Health Library (VHL), providing access to the following repositories: Medical Literature Analysis and Retrieval System Online (MEDLINE), National Library of Medicine (PubMed), Web of Science, Scopus, Latin American and Caribbean Health Sciences Literature (LILACS), and Scientific Electronic Library Online (SciELO). The search strategy was constructed using the Boolean operators "AND" and "OR" combined with the following Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH): "adolescent"; "adolescents"; "youth"; "young people"; "electronic cigarette"; "vaping"; "human health risk"; "risk"; "pneumopathies"; "lung disease"; "prevention of smoking". The combinations are described below (Box 1):

Box 1. Search strategies employed in the databases. Fortaleza, Ceará, Brazil, 2025.

Database	Search strategy
Web of Science	(Adolescent OR adolescents) AND ("Electronic Nicotine Delivery Systems" OR vaping) AND ("Health risk" OR risk OR "lung diseases" OR "pulmonary disease") AND "smoking prevention"
MEDLINE	Adolescent AND "Electronic Nicotine Delivery Systems" OR vaping AND "Health risk" OR risk OR "lung diseases" OR "pulmonary disease" AND "smoking prevention"
Scopus	(Adolescent OR adolescents) AND ("Electronic Nicotine Delivery Systems" OR vaping) AND ("Health risk" OR risk OR "lung diseases" OR "pulmonary disease") AND "smoking prevention"
SciELO	Adolescent AND "Electronic Nicotine Delivery Systems" OR vaping AND "Health risk" OR risk OR "lung diseases" OR "pulmonary disease" AND "smoking prevention"
LILACS	(Adolescentes OR adolescente OR jovem OR jovens) AND ("cigarro eletrônico" OR vaping) AND ("risco à saúde humana" OR risco OR pneumopatias OR "doença pulmonar") AND ("prevenção do hábito de fumar")

Legend: MEDLINE – Medical Literature Analysis and Retrieval System Online; LILACS – Latin American and Caribbean Health Sciences Literature; SciELO – Scientific Electronic Library Online.

Source: Authors.

As this was an integrative literature review, the sources consisted of publications on the specific topic, and the sample comprised electronic documents meeting the following inclusion criteria: articles published between 2015 and 2025, available online in the selected bibliographic databases, published in Portuguese, English, or Spanish, accessible in full text, and directly addressing the topic. Studies that did not meet the objectives or guiding question, those with unavailable abstracts, and duplicates (retained only once) were excluded.

During the data organization and categorization phase, the data were arranged into two tables. The first contained the following information regarding the studied articles: author, year, objective, and title. The second presented the results, outlining repercussions, health risks for adolescents, and prevention strategies related to adolescent development. This process was carried out systematically using a standardized form, thereby ensuring consistency and comparability among the included studies.⁽¹¹⁾

The collected information was analyzed against existing literature, identifying convergences, divergences, and knowledge gaps. This analysis contributed to an in-depth understanding of the topic and the formulation of new research perspectives.

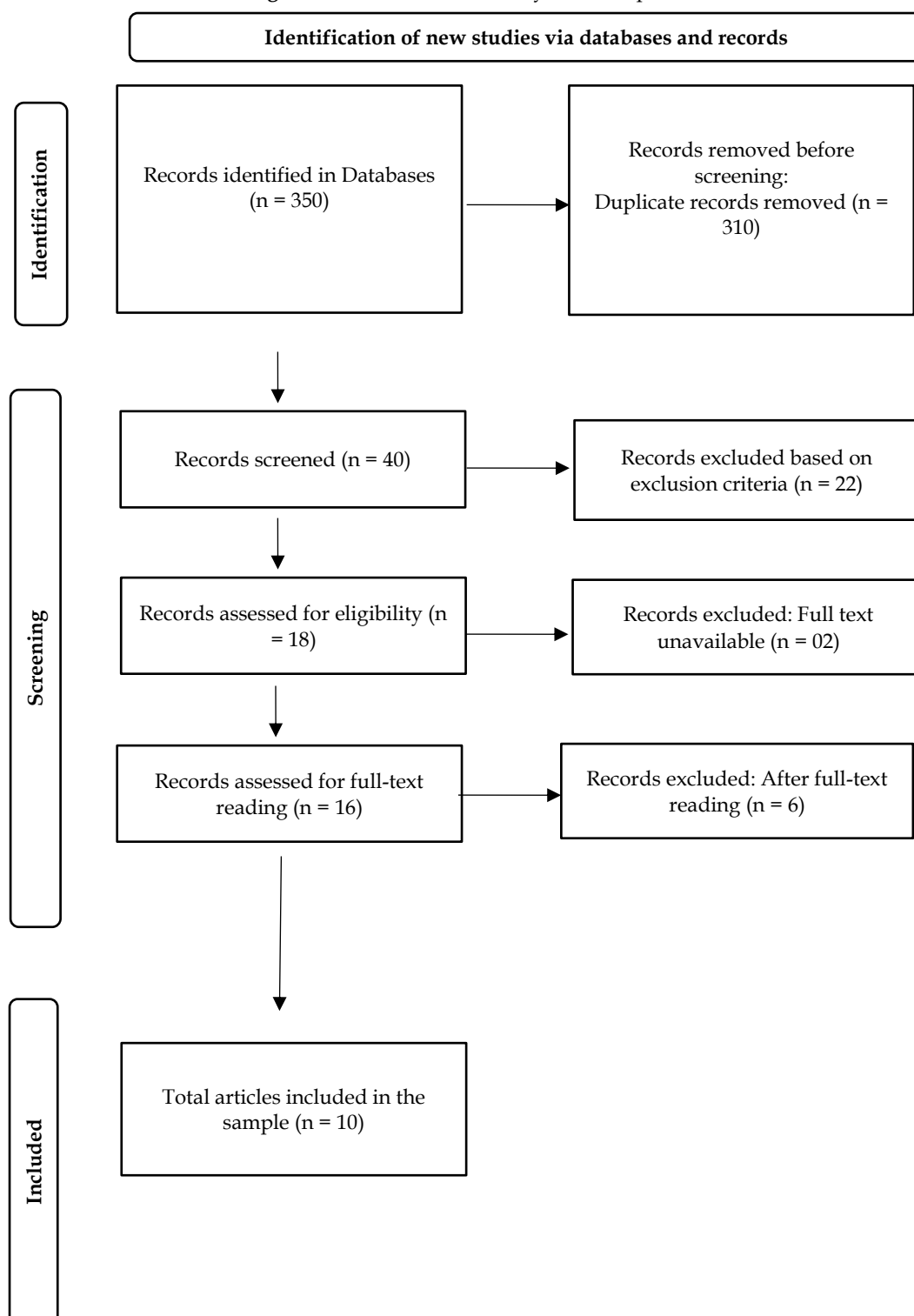
The findings were organized clearly and objectively, highlighting key evidence, implications for practice, and recommendations for future research. Finally, the review results were presented in a structured manner, emphasizing the study's contributions regarding the effects and risks associated with electronic cigarette use among adolescents and prevention strategies.

RESULTS

Following the initial publication search, 350 articles were identified; after applying filters, 310 were excluded due to duplication and another 24 met the exclusion criteria. Subsequently, 16 studies were selected for full-text review; after reading them, 10 articles were chosen for final analysis and the

development of the review, as they aligned with the research objective. The complete article selection process is illustrated in Figure 1.

Figure 1. Flowchart of the study selection process. Fortaleza, CE, Brazil, 2025.



Source: Prepared by the authors.

To synthesize the studies comprising the research "corpus"—that is, the material selected for discussion to present findings from the specific scientific literature on the subject—a table was created containing the following information: author, year of publication, article title, and objective (Box 2).

Box 2. Characterization of the selected studies. Fortaleza, CE, Brazil, 2025.

Year	Author	Method	Objective
2022	Aguilar <i>et al.</i> ⁽⁸⁾	Qualitative, descriptive study (integrative review). Sources: Scientific Electronic Library Online (SciELO) and PubMed (MEDLINE). Period: 2018 to 2022.	To evaluate the complications and health risks associated with the use of electronic cigarettes.
2022	Cabral <i>et al.</i> ⁽³⁾	Qualitative research based on a literature review. Sources: CAPES Journal Portal, SciELO, Google Scholar, and PubMed/NCBI. Period: 2017–2021.	Carry out a survey on the health damages caused by the use of e-cigarette with the goals of clarifying these pathological mechanisms and spreading this information.
2023	Caldas <i>et al.</i> ⁽²⁾	Integrative review of the literature. Source: Virtual Health Library (VHL) Period: 2017 to 2022.	To analyze a compilation of scientific articles that cover topics about electronic nicotine delivery systems.
2022	Carrijo <i>et al.</i> ⁽¹²⁾	Literature review. Sources: PubMed and Scielo. Period: 2014 to 2022.	To promote a systematic survey about the diseases associated with the use of e-cigarettes, explain the physiological mechanisms involved, and also inform and discuss the biopsychosocial impacts on the health of Brazilian youth involved in e-cigarette use.
2021	Da Silva <i>et al.</i> ⁽⁷⁾	Qualitative and descriptive methodology with an integrative literature review. Source: Virtual Health Library (VHL) Period: 2010 to 2019.	To identify the main risks faced by young e-cigarette users. Point out the main substances found in e-cigarettes and their effects, and identify the main respiratory emergencies reported from e-cigarette use.
2024	Ferreira <i>et al.</i> ⁽¹³⁾	Literature review. Sources: Virtual Health Library (VHL) and Google Scholar. Period: 2021 to 2023	To identify the impacts of e-cigarettes on adolescents and adults.
2023	Gomes <i>et al.</i> ⁽¹⁴⁾	A qualitative-type methodology with a descriptive approach was carried out through a literature review. Sources: Scientific Electronic Library Online (SciELO), Virtual Health Library (VHL), Latin American and Caribbean Literature in Health Sciences (LILACS), and PubMed. Period: 2019 to 2023	To check the possible link between young people's use of e-cigarettes and the development of cardiorespiratory complications.
2022	Oliveira <i>et al.</i> ⁽⁶⁾	Exploratory integrative literature review. Sources: Virtual Health Library (VHL), Google Scholar, National Library of Medicine (PubMed), and EbscoHost. Period: 2017 to 2021	Carry out a literature review aimed at identifying its possible adverse effects on the cardiovascular system of young people.
2024	Pio <i>et al.</i> ⁽¹⁵⁾	Bibliographic and qualitative study. Systematic method of integrative literature review. Source: CAPES Journals Portal, Latin American and Caribbean Literature in Health Sciences (LILACS), Spanish Health Sciences Bibliographic Index (IBECS), Scientific Electronic Library Online (SciELO), and National Bibliography in Health Sciences Argentina (BINACIS). Period: 2004 to 2024	To investigate the impacts of using e-cigarettes among adolescents, in an effort to understand the health harms involved, as well as the risk and protective factors.

2024	Rotta <i>et al.</i> (16)	Descriptive qualitative approach. Integrative Review. Source: PubMed, Scientific Electronic Library Online (SciELO), and Latin American and Caribbean Literature in Health Sciences (LILACS) through the Virtual Health Library (VHL). Period: 2018 to 2023	To clarify the effects that using e-cigarettes can have on users' health.
------	-----------------------------	---	---

Source: Prepared by the authors..

Below are the repercussions, risks, and preventive actions regarding the use of the electronic cigarette (Box 3).

Box 3. Characterization of the selected studies. Fortaleza, CE, Brazil, 2025.

Article	Repercussions and Risks	Preventive Action
Aguiar <i>et al.</i> ⁽⁸⁾	Changes in the respiratory system, increased levels of systolic and diastolic blood pressure, higher heart rate, and greater plasma expression of the enzyme myeloperoxidase. Increase in inflammatory biomarkers and worsening cardiovascular risk. Appearance of lung lesions with potentially serious severity, which are linked to the use of electronic cigarettes.	Strengthening health education actions mainly aimed at young people; raising awareness about the risks of electronic cigarettes, fighting the perception that it's a safe product; the need for new scientific studies to support public policies; maintaining and strengthening regulatory measures on electronic smoking devices.
Cabral <i>et al.</i> ⁽³⁾	The literature points out that using e-cigarettes can lead to lung damage, cause injuries to the oral mucosa, as well as bring significant changes to the gut flora, and even cause addiction.	Spreading information about the pathological mechanisms and damage caused by e-cigarettes; Expanding health education for the population, especially young people; Emphasizing the importance of ANVISA's ban on the sale of these devices as a measure to protect public health.
Caldas <i>et al.</i> ⁽²⁾	Symptoms of nicotine dependence, characterized by anxiety, cravings, irritability, and frequent need to use it. Changes in the immune system, increased risk of human infections, inflammatory processes, and autoimmune diseases. Acute lung injury associated with e-cigarette use (EVALI), especially linked to products containing tetrahydrocannabinol (THC), as well as opportunistic infections by microorganisms like <i>Mycobacterium avium</i> , <i>Mycobacterium xenopi</i> , and <i>Pneumocystis jirovecii</i> , particularly in immunocompromised individuals. Besides physical harm, it has been noted that the wide availability and social acceptance of these devices encourage their use and increase adolescents' exposure to vaping-related risks.	Importance of characterizing usage and associated factors (curiosity, dependence, and trendiness) to propose specific prevention strategies.
Carrijo <i>et al.</i> ⁽¹²⁾	The literature links the use of electronic devices to quit smoking with the increasing discovery of severe disease diagnoses in the lungs and other organs and systems of the human body.	The need to inform young people about the biopsychosocial impacts; The importance of raising awareness about the risks associated with using e-cigarettes.
Da Silva <i>et al.</i> ⁽⁷⁾	Besides lacking proof of safety levels, there's also no evidence about the effectiveness of e-cigarettes, which makes recognizing them as an alternative to smoking even less appealing and legitimate.	Need for educational actions aimed at young people; spreading the fact that there's no evidence on the safety and effectiveness of e-cigarettes; strengthening measures to prevent smoking among adolescents.
Ferreira <i>et al.</i> ⁽¹³⁾	Health issues from continuous use are related to the respiratory system, which shows an urgent need to come up with and implement strategies to fight smoking.	Preparation and implementation of strategies to fight smoking; Creation of preventive actions mainly aimed at adolescents and young adults; Strengthening health promotion policies.

Gomes <i>et al.</i> (14)	Increased heart rate and blood pressure, mainly due to nicotine's effect on the sympathetic nervous system. In addition, exposure to the chemical components in aerosols promotes oxidative stress, endothelial dysfunction, and inflammatory processes, all of which contribute to a higher risk of cardiovascular diseases. Irritation of the airways, coughing, shortness of breath, bronchospasm, and reduced lung function.	To strengthen research on e-cigarettes, expand public awareness campaigns, and improve regulatory measures aimed at controlling these devices. Adopting integrated strategies is key to fighting the challenges posed by the growing use of e-cigarettes and minimizing their impacts on public health.
Oliveira <i>et al.</i> (6)	Studies show the growing number of teenagers who use e-cigarettes, increasing the risk of nicotine addiction and the onset of cardiovascular diseases.	Expanding scientific research on the effects of long-term exposure to these devices, aiming to clarify their long-term health impacts and support health promotion actions and evidence-based public policy making.
Pio <i>et al.</i> (15)	The findings point to health problems related to the use of e-cigarettes among teenagers, including changes in the cardiorespiratory and gastrointestinal systems, as well as psychological and psychiatric disorders.	Strengthening educational actions; Family involvement; School engagement; Development of public policies aimed at preventing use among adolescents.
Rotta <i>et al.</i> (16)	Despite the perception that e-cigarettes are less toxic than regular cigarettes, scientific literature shows significant systemic changes, mainly in the cardiorespiratory system, along with immune, cancer-related, and hemodynamic implications.	Need to expand health education; Spreading the risks of e-cigarettes; Strengthening public policies and scientific research to support preventive actions.

Source: Prepared by the authors.

DISCUSSION

The review of studies highlighted various aspects related to the effects and risks of e-cigarette use among adolescents and young adults. Initially, it was observed that the popularization of these devices is closely linked to attractive marketing strategies, the misconception that they are harmless, the variety of flavors, and the devices' high-tech appearance.⁽²⁾ Furthermore, many adolescents believe that e-cigarettes are less harmful than conventional cigarettes, even though scientific evidence indicates otherwise.⁽¹²⁾

The impacts on physical and mental health have been extensively documented. Notably, studies have highlighted that e-cigarettes can cause significant damage to the respiratory system, including serious conditions such as EVALI (E-cigarette or Vaping Use-Associated Lung Injury), which became widespread in the United States in 2020.^(8,12) These devices also release vapors containing heavy metals and carcinogenic compounds—such as formaldehyde and acetaldehyde—that increase the risk of cardiovascular and respiratory diseases.^(14,6) Additionally, neurocognitive impacts, such as difficulty concentrating, anxiety, and depression, have been identified in young frequent users.⁽¹⁵⁾

Regarding the effects of e-cigarettes use on the pulmonary system, a study by Rotta *et al.* (16) demonstrated that the use of these devices is associated with respiratory symptoms—such as wheezing—common to various respiratory disorders, including Chronic Obstructive Pulmonary Disease (COPD) and asthma. The study further showed that exposure to e-cigarettes vapor is correlated with the triggering of an inflammatory cascade in lung cells, fostering the onset of significant respiratory infections (such as pneumonia and bronchitis) and the exacerbation of asthma cases.

Another concerning factor is the dependence associated with e-cigarettes use, caused primarily by the nicotine present in the vaporized liquids. This dependence is exacerbated by the devices' aesthetic appeal, ease of access, and the social influence of peers and family members.^(7,13) Many adolescents, drawn by the mistaken belief that e-cigarettes are a less harmful alternative, end up becoming regular users of both electronic devices and conventional cigarettes, thereby compounding health risks.^(3,16)

Furthermore, routine e-cigarette use among adolescents fosters the smoking habit, suggesting that the potential for addiction is not merely chemical but also emotional, social, and psychological. The risk of developing behavioral and psychological dependence within this demographic is significant, highlighting the importance of this issue and underscoring the need for a deeper discussion on the subject.^(7,6)

Pio *et al.* (16) suggest in their study that there are several risk factors associated with e-cigarette use, such as accessibility, low perception of risk, parental use of these devices, and a lack of educational

initiatives on the subject in schools. The authors also highlight factors linked to higher e-cigarette consumption among adolescents – such as female gender, age, having friends or partners who smoke, and the concurrent use of conventional cigarettes and other psychoactive substances.

Although e-cigarettes are frequently promoted as less harmful alternatives, studies show that these devices cause various health harms to users. ^(6,14) Despite the ban on their sale in the country, their popularity continues to grow, driven by the informal market and the ease of online purchasing. ⁽¹⁶⁾

Given this issue and based on the literature, it is evident that knowledge regarding the harmful effects of e-cigarettes acts as a protective factor against their use. It is crucial to implement effective strategies capable of disseminating accurate information among the adolescent population, thereby influencing the behaviors of these individuals and their communities to achieve social benefits and bring about behavioral change. ^(13,16)

In light of this scenario, prevention strategies are essential to mitigate e-cigarette use among adolescents. Measures such as educational campaigns, training for health professionals to facilitate the identification of and engagement with adolescent users, stricter regulations, and school-based awareness programs have proven effective. Implementing public policies that limit young people's exposure to content promoting e-cigarette use—especially on social media—is crucial to curbing this emerging epidemic. ^(2,16)

Thus, it is essential to establish clear, systematic communication among families, schools, and health services using accessible language. This fosters a safe environment for adolescents, encouraging the development of critical thinking and a sense of responsibility toward themselves and others, thereby helping to reduce early initiation and overall e-cigarette use among adolescents.

Expanding research on this topic is vital to inform the creation of robust public policies that protect adolescents from risks and increasing exposure to illicit substances, while also strengthening the regulation and monitoring of the marketing and consumption of these products, particularly on digital platforms. Only through collaborative action involving governments, educational institutions, families, and civil society can we face the challenges posed by e-cigarette use and ensure the health and well-being of adolescents.

In short, the rising use of e-cigarettes among adolescents is a concerning issue requiring a concerted effort from various sectors of society—including schools, families, healthcare professionals, and policymakers—to develop strategies for preventing and protecting this demographic from using these devices.

The study's limitations stem from the inclusion of research published only in specific languages, which may have restricted the scope of evidence regarding e-cigarette use among adolescents and its impact on mental health. Nevertheless, the findings contribute to an understanding of the phenomenon and highlight gaps that can inform future research.

This study contributes by sharing evidence-based information with adolescents regarding the effects and risks associated with e-cigarette use, as well as prevention strategies, thereby fostering the development of informed, critical opinions. By providing guidance to these young people, the study seeks to encourage the adoption of healthy behaviors and prevent the initiation of e-cigarette use, reinforcing its role as a strategy for health promotion and the protection of this population's mental health.

CONCLUSION

An analysis of the repercussions and risks associated with electronic cigarette use among adolescents has revealed a concerning picture, particularly given that this demographic is known to be especially susceptible to external influences. The appeal stemming from a wide variety of flavors, high-tech designs, and targeted marketing contributes to the growing popularity of these devices. Lung injuries, cardiovascular damage, neurocognitive impacts, and nicotine dependence are just a few of the consequences associated with their use in this age group.

It is crucial to highlight the role of nurses and multidisciplinary teams in preventing e-cigarettes use among adolescents. Implementing educational interventions in health facilities, schools, and other community settings frequented by young people is essential; these initiatives provide an opportunity to discuss the physical and mental health risks posed by these devices.

Consequently, it is recommended to invest in integrated prevention and control strategies, such as educational campaigns, stricter regulations, and public policies aimed at limiting the marketing and appeal

of these devices. Promoting tobacco-free school environments and raising awareness about the dangers of e-cigarettes use are also vital stages toward protecting future generations.

CONTRIBUTIONS

Study conception or design: Leite PAR. Data collection: Leite PAR, Pires APB, Oliveira PS, Eleutério FM, Oliveira AS, Cunha SC. Data analysis and interpretation: Leite PAR. Drafting the article or critical review: Leite PAR, Pires APB, Oliveira PS, Eleutério FM, Oliveira AS, Cunha SC. Final approval of the version to be published: Leite PAR, Pires APB, Oliveira PS, Eleutério FM, Oliveira AS, Cunha SC, Vasconcelos MG.

REFERENCES

1. Sabino MRB, et al. Os impactos do uso do cigarro eletrônico e seus riscos ao sistema pulmonar. *Rev Eletr Acervo Saúde*. [Internet]. 2023;23(7):e13281. Available from: <https://acervomais.com.br/index.php/saude/article/view/13281>. Acesso em: 20 jan. 2025.
2. Caldas MBM, Silva ACR, Machado PRF. The use of electronic cigarette on young adults: curiosity, dependency or fad? *Res Soc Dev*. [Internet]. 2023;12(9):e13912943305. Available from: <https://rsdjournal.org/index.php/rsd/article/view/43305>. Acesso em: 20 jan. 2025.
3. Cabral CAO, Silva SBL, Marques AFCV, Alves Lúcio MOL, Costa FPE, Souto VMG. Os impactos negativos do uso do cigarro eletrônico na saúde. *Divers J*. [Internet]. 2022;7(1):277-89. Available from: https://www.diversitasjournal.com.br/diversitas_journal/article/view/2015. Acesso em: 20 jan. 2025.
4. Agência Nacional de Vigilância Sanitária (BR). Resolução da Diretoria Colegiada – RDC nº 46, de 28 de agosto de 2009. Proíbe a comercialização, a importação e a propaganda de quaisquer dispositivos eletrônicos para fumar, conhecidos como cigarro eletrônico. *Diário Oficial da União*. [Internet]. 2009 ago 28. Available from: https://antigo.anvisa.gov.br/documents/10181/2718376/RDC_46_2009_COMP.pdf. Acesso em: 20 jan. 2025.
5. Agência Nacional de Vigilância Sanitária (BR). Resolução da Diretoria Colegiada – RDC nº 855, de 23 de abril de 2024. Proíbe a fabricação, a importação, a comercialização, a distribuição, o armazenamento, o transporte e a propaganda de dispositivos eletrônicos para fumar (DEF). *Diário Oficial da União*. [Internet]. 2024 abr 24. Available from: <https://www.in.gov.br/en/web/dou/-/resolucao-da-diretoria-colegiada-rdc-n-855-de-23-de-abril-de-2024-555721206>. Acesso em: 20 jan. 2025.
6. Oliveira VH, Nascimento Júnior VP, Araújo BC. The use of electronic cigarettes by young people and adverse effects on the cardiovascular system. *Res Soc Dev*. [Internet]. 2022;11(4):e56811427886. Available from: <https://rsdjournal.org/index.php/rsd/article/view/27886>. Acesso em: 20 jan. 2025.
7. Barradas ASM, Soares TO, Marinho AB, Santos RGS, Silva IA. Os riscos do uso do cigarro eletrônico entre os jovens. *Glob Clin Res J*. [Internet]. 2021;1(1):e8. Available from: <https://www.globalclinicalresearchj.com/index.php/globclinres/article/view/15>. Acesso em: 20 jan. 2025.
8. Aguiar GS, Silva HL, Gomes ES, Sousa HAR. Uso de cigarro eletrônico: efeitos e riscos – revisão integrativa de literatura. *Revista Científica Multidisciplinar Núcleo do Conhecimento*. [Internet]. 2022;4:22-35. Available from: <https://www.nucleodoconhecimento.com.br/saude/cigarro-eletronico>. Acesso em: 20 jan. 2025.
9. Mendes KDS, Silveira RCCP, Galvão CM. Uso de gerenciador de referências bibliográficas na seleção dos estudos primários em revisão integrativa. *Texto Contexto Enferm*. [Internet]. 2019;28:e20170204. Available from: <https://www.scielo.br/j/tce/a/8FjP4kFDmgQG6L8Mx2tLy6w>. Acesso em: 20 jan. 2025.
10. Araújo, WCO. Recuperação da informação em saúde: construção, modelos e estratégias. *Convergências em Ciência da Informação*. 2020;3(2):100-134.

11. Ursi ES. Prevenção de lesões de pele no perioperatório: revisão integrativa da literatura [dissertação]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2005.
12. Carrijo VS, Nishiyama AY, Barbosa GP, Souza D. O uso de cigarro eletrônico e os impactos na saúde do jovem brasileiro. In: VI Colóquio Estadual de Pesquisa Multidisciplinar; 2022. Available from: <https://publicacoesunifimes.edu.br/index.php/coloquio/article/view/1640/1384>. Acesso em: 20 jan. 2025.
13. Ferreira MPA, Lessa GPSS, Gomes JM, Gonçalves GJS, Canuto RTA, Costa MV. Impactos do cigarro eletrônico em adolescentes e adultos entre os anos de 2021 e 2023. *Braz J Health Rev.* [Internet]. 2024;7(3):1-18. Available from: <https://www.brazilianjournals.com/index.php/BJHR/article/view/87654>. Acesso em: 25 jan. 2025.
14. Gomes JMI, Oliveira JOD, Oliveira Júnior FCO, Valério EA, Sobreira PTM, Silva WA. Implicações do uso do cigarro eletrônico e os riscos cardiorrespiratórios entre os jovens: revisão integrativa de literatura. *Rev Interdiscip Saúde.* [Internet]. 2023;10(único):694-703. Available from: https://www.interdisciplinaremsaude.com.br/Volume_31/Trabalho_53_2023.pdf. Acesso em: 26 jan. 2025.
15. Pio JLOP, Sousa MNA, Egypto IAS. Uso de cigarro eletrônico entre adolescentes: enfoque sobre os danos, riscos e fatores protetivos. *Rev Bras Educ Saúde.* [Internet]. 2024;14(3):453-60. Available from: <https://www.gvaa.com.br/revista/index.php/REBES/article/view/10626>. Acesso em: 26 jan. 2025.
16. Rotta AES, Nascimento RH, Dal Prá P. Os efeitos do uso do cigarro eletrônico na saúde dos usuários: uma revisão integrativa. *Res Soc Dev.* [Internet]. 2024;13(3):e9913345359. doi: <https://doi.org/10.33448/rsd-v13i3.45359>

Conflicts of interest: No
Submission: 2025/13/10
Revised: 2026/15/06
Accepted: 2026/06/08
Publication: 2026/26/09

Editor in Chief or Scientific: José Wicto Pereira Borges
Associate Editor: Ana Paula Cardoso Costa

Authors retain copyright and grant the Revista de Enfermagem da UFPI the right of first publication, with the work simultaneously licensed under the Creative Commons Attribution BY 4.0 License, which allows sharing the work with acknowledgment of authorship and initial publication in this journal.