



The risks of using electronic cigarettes among young people

Los riesgos de consumir cigarrillos electrónicos entre los jóvenes

Os riscos do uso do cigarro eletrônico entre os jovens

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Abstract

Initially conceived as a substitute for the traditional cigarette, with the aim of reducing the risks and damages caused by smoking, electronic cigarettes were introduced in society as a proposal of relevance for health and society in general. However, they began to be consumed by smokers along with traditional cigarettes and, even more seriously, began to represent a gateway to smoking for young people seduced by its modernity and particularities. Thus, despite representing a decline in smoking in some cases, electronic cigarettes have their effectiveness questioned, in addition to the risk of leading to traditional smoking and not having safety parameters attested. The study addresses this issue of the efficacy and safety of electronic cigarettes, especially among adolescents and young adults, through a qualitative and descriptive literature review.

Descriptors: E-cigar; Smoking; Addiction.

How to cite this article:

Barradas ASM, Soares TO, Marinho AB, Santos RGS, Silva LIA. The risks of using electronic cigarettes among young people. Glob Clin Res. 2021;1(1):e8.

Chief Editor: Caroliny dos Santos Guimarães da Fonseca
Executive Editor: Kátia dos Santos Armada de Oliveira

Submission: 01-20-2021

Approval: 03-10-2021



Resumén

Concebido inicialmente como un sustituto del cigarrillo tradicional, con el objetivo de reducir los riesgos y daños que ocasiona el tabaquismo, los cigarrillos electrónicos se introdujeron en la sociedad como una propuesta de relevancia para la salud y la sociedad en general. Sin embargo, comenzaron a ser consumidos por los fumadores junto con los cigarrillos tradicionales y, más grave aún, comenzaron a representar una puerta de entrada al tabaquismo para los jóvenes seducidos por su modernidad y particularidades. Así, a pesar de representar una disminución del tabaquismo en algunos casos, los cigarrillos electrónicos tienen cuestionada su efectividad, además del riesgo de llevar al tabaquismo tradicional y no tener atestiguado parámetros de seguridad. El estudio aborda este tema de la eficacia y seguridad de los cigarrillos electrónicos, especialmente entre adolescentes y adultos jóvenes, a través de una revisión bibliográfica cualitativa y descriptiva.

Descriptorios: Cigarro Electronico; Fumar; Adiccion.

Resumo

Inicialmente idealizado como substituto do cigarro tradicional, com o intuito de reduzir os riscos e danos provocados pelo tabagismo, os cigarros eletrônicos foram introduzidos na sociedade como uma proposta de relevância para a saúde e para a sociedade em geral. No entanto, passaram a ser consumidos por fumantes junto com os cigarros tradicionais e, de forma ainda mais grave, passaram a representar uma porta de entrada para o tabagismo para jovens seduzidos por sua modernidade e particularidades. Dessa forma, apesar de representar a queda do tabagismo em alguns casos, os cigarros eletrônicos têm sua eficácia questionada, além do risco de levar ao fumo tradicional e não terem parâmetros de segurança atestados. O estudo aborda essa problemática da eficácia e segurança dos cigarros eletrônicos, especialmente junto a adolescentes e jovens adultos, por meio de uma revisão bibliográfica qualitativa e descritiva.

Descritores: Cigarro Eletrônico; Tabagismo; Vício.

Introduction

The following work has as a line of research the Health and Society, aiming to mention the impact on the health of the individual and the population. Its predominant area is Nursing Education. With the theme: The risks of using electronic cigarettes among young people. The object of study is the identification of the main effects and risks faced by young users of electronic cigarettes.

Motivated by the invasion of electronic cigarettes in the trade and the discussion on how to deal with smoking and its risks, especially among younger people.

The great advance of technology in the last ten years, the power of supply and demand for products that visually seduce and offer comfort in relation to low costs, the cigarette industry, as well as other legal drugs in our country, has been constantly growing to meet the needs of all existing and emerging subgroups. The electronic cigarette (EC), vaping, e-cig, or electronic smoking device (DEF), as it is also called, is one among many technological artifacts that are easily accessible and acquired through the Internet¹.

Inserted in the market, at first as a therapeutic option to combat the use of conventional cigarettes based on tobacco, nicotine and other substances, devices with attractive designs and the use of tasty essences, which give off aromatized smoke, do not cause bad breath or spread Ashes, seek to attract, above all, young people, encouraging in many cases the duality in the consumption of conventional and electronic cigarettes.

Unlike the paper version, which burns by

combustion, the model works on a vaporization basis. The device contains a liquid that, when heated, generates the vapor inhaled and exhaled by the user. According to manufacturers, this would be the reason that makes electronics less harmful than traditional ones. But there is controversy, and the medical community is concerned about the popularization of this new way of smoking.

Several studies provide evidence on the use of EC by young people and that they are at risk of becoming consumers of tobacco products, with their reduced risk perception, and becoming dependent on nicotine. For these reasons, associated with the risks of electronic cigarettes that, in addition to nicotine, which causes dependence and is not free from cardiovascular diseases, contains numerous toxic chemical components and offers an amount of inhaled particles that far exceeds the limit recommendations for environmental exposure to materials particulates, leading international respiratory medical societies to recommend that DEF be regulated as a tobacco product and prohibited for sale to persons under 18 years of age.

In the US, which has more than 9 million users of electronic smoking devices (DEFs), a mysterious respiratory syndrome has killed 12 users in just under a month. In the same period, 805 cases were registered in 46 of the 50 US states. More than half of patients are under 25 years of age and three-quarters are men. They usually arrive at the hospital with chest pain, difficulty breathing and high fever.

The US government's Centers for Disease Control and Prevention (CDC) admits that it does not know what's



behind these products, and recommends that people avoid them, at least in principle. In Brazil, the National Health Surveillance Agency (Anvisa) asks hospitals to notify suspected cases of problems related to FEDs. Unlike nations that restrict products, the United Kingdom is among those that consider damages to be less than benefits in the face of statistics, which primarily supports the arguments in defense of product marketing as a strategy to reduce the damage caused by consumption of traditional cigarettes. According to a 2014 survey, for every million smokers who replace common models with electronics, more than 6,000 lives would be saved per year.

In Brazil, after detecting the great harm caused using conventional cigarettes from 1950 onwards, the last decades have reinforced reduction policies, impacting the health of Brazilians. The implementation of strategies such as the prohibition of advertising, warnings on cigarette packs, expansion of information about the harmful effects of their consumption, the prohibition of smoking indoors, the increase in the price of products, contributed to a significant reduction in the prevalence of smokers in about 34.8% in the population over 18 years old in 1989 to 10.1% in 2018².

Therefore, this study seeks to answer the following question: What effective risks affect young people when using electronic devices for smoking?

The general objective of the research is to identify the main risks faced by young users of electronic cigarettes. Among the specific objectives are to point out the main substances included in electronic cigarettes and their effects and to identify the main respiratory emergencies recorded from the use of electronic cigarettes.

The justification for this work lies in the great increase in cases of respiratory emergencies due to the use of new electronic smoking devices. Through nursing education, updated information about its risks will be traced, addressing studies in the area.

It is expected that this study contributes socially with information that raise awareness about the use of EC, deepening the knowledge of the main risks and their interventions for students and professionals. The contribution is also intended for future research in the health area and may be useful to nursing professionals who seek references to work in sharing information for patients, students, and the general population.

Methodology

The study will point out the damage to the health of EC users over the years, applying the qualitative and descriptive methodology to the integrative literature review, with the purpose of achieving the proposed objectives.

The integrative review proposes to broadly analyze the literature included in the selected texts from the filtering process to generate a basis for a discussion of the results obtained, promoting a deep elucidation about the theme or thematic cut, from the clear exposition and objective of the substrate of the results in view of the objectives outlined for the study³.

The research method with a descriptive character, which describes the reality by identifying the characteristics

of young users, their changes or their regularity. Thus, containing purposes of studying cases and diagnosing.

In this domain, it is intended, through the qualitative nature, to gather information about young EC dependents, so that they can investigate in a deep and holistic way, through data. In this way, it will enable the understanding so that the nurse can guide and act in care, thus taking the appropriate measures.

The choice for the qualitative approach is justified by the research's orientation, not by the prevalence, statistics or numerical aspect of the results. These quantitative measures serve the work only for illustrative purposes, contributing to the understanding of the context in which the theme is inserted and contributing to the demonstration of the theme's relevance. However, what predominates as an object, the interest of the study, are the whys, the paths that lead to that result and give it forms, causes, consequences, conditions. These elements are satellites to the results that make up the focus of the qualitative approach, seeking to understand what promotes and constitutes a certain reality³.

In this research, a table was built containing the following items: year, title, and authors, for a better analysis of the selected publications. This framework is called, within the university methodology, the analysis matrix. For data collection, a search was performed in the VHL using the descriptors "electronic cigarette", "electronic cigarette risks" and "young electronic cigarette", having found 328 articles, initially. The method of article selection was that of Albrecht and Ohira⁴, following the orientation of the content database aimed at solving problems, considering the problem indicated in the introduction of this study, which guides the research and its development. The first filter applied was that of languages, having excluded articles in other languages, leaving 174 articles. Then, articles published in Portugal were excluded, as the aim was to direct the cut to the Brazilian reality, leaving 56 articles. The third filter was the year of publication, excluding all publications prior to 2010, leaving 28 articles. The fourth filter applied was the verification of availability of the full text of the article, with 11 articles whose access was restricted within the repositories and platforms in which they were inserted, having been eliminated, leaving 17 articles available in full for access. Faced with the filter of adequacy of reading the abstract to the objectives selected for the study, 3 articles that did not meet the proposed demands were eliminated, leaving 14 articles. The last filter used was the correspondence of the content of the article, in its entirety, with the study problem listed in the introduction, with 4 more articles having been eliminated, reaching the final 10 articles.

Data analysis is based on the method of Paulino and Singer⁵, seeking to integrate the theoretical propositions, concordant and contrasting, within a line of reasoning built in the narrative of the work. In this way, bringing different opinions enhances the proposed debate, allowing the reader a greater variety of interpretations and readings about the theme.



Results and Discussion

Figure 1. Analysis matrix. Rio de Janeiro, RJ, Brazil, 2020

YEAR	TITLE	AUTHORS	OBJECTIVES
2019	O médico, o fumante doente e o desafio dos cigarros eletrônicos	BOLÉO-TOMÉ, Pedro	Raise the known risks and still under study on the use of e-cigarettes.
2019	A proibição dos cigarros eletrônicos no Brasil: sucesso ou fracasso?	SILVA, André Luiz Oliveira da; MOREIRA, Josino Costa	Analyze the effectiveness and consequences of the ban on electronic cigarettes in Brazil.
2018	Cigarro eletrônico: repaginação e renovação da indústria do tabagismo	SANTOS, Ubiratan Paula	Relate smoking habits to e-cigarette users and potential harm.
2018	Conhecimento e uso do cigarro eletrônico entre estudantes da Universidade Federal de Mato Grosso	OLIVEIRA, Wemerson José Corrêa de	Analyze the knowledge and previous use of electronic cigarettes by university students and the characteristics related to this knowledge and use.
2018	Bradycardia sintomática causada por intoxicação por nicotina	PAIK, Jin Hui	Relate the experience of nicotine intoxication to the risk involved in electronic cigarettes.
2018	O uso do cigarro eletrônico por adolescentes e jovens adultos como indutor ao tabagismo	PIRAS, Stefania Schimaneski	Assess the effective risk of the use of electronic cigarettes by young people leading to smoking.
2017	Conhecimento e uso de cigarros eletrônicos e percepção de risco no Brasil	CAVALCANTE, Tânia Maria	Analyze the behavior of Brazilian smokers in relation to electronic cigarettes.
2016	Cigarros eletrônicos: o que sabemos?	Instituto Nacional do Câncer	Gather information about electronic cigarettes, their effects and risks.
2014	Cigarro eletrônico: o novo cigarro do século 21?	KNORST, Marli Maria	Analyze the risks involved in using electronic cigarettes.
2010	Tabagismo na adolescência: por que os jovens ainda fumam?	ARAÚJO, Alberto José	Analyze the behavior of young people who are addicted to smoking.

After selecting the material as described in the methodology, the final articles were divided into categories corresponding to the units of analysis, as shown below.

Psychological and Behavioral Dependence

Although it does not have the same components that lead to physical dependence in electronic cigarettes, the elements of habit remain, which can lead to psychological and behavioral dependence. The act of smoking is as related to the addiction as its substances, considering that the addiction is not only organic, but also affective, social and psychic^{1,6,7}.

It is also defended that many people start to have contact with smoking through electronic cigarettes, which is more present among adolescents and young adults, who are seduced by the smoking habit and by the modernity of devices, and end up being led to smoking traditional^{1,8-10}.

This is one of the reasons that lead to the understanding that the prohibition of electronic cigarettes until proof of safety parameters is a correct measure by some countries, as they can be a gateway to smoking¹¹.

In the category, there are articles that analyze the prevalence of first contact, awareness, and knowledge about electronic cigarettes among university students, among which there is the greatest increase in consumption of this type of device¹⁰. Although this number of users is still not representative enough to be considered alarming, the constant growth rate among university students demands attention.

Among the university students surveyed in the study⁷, 9.3% reported having tried the electronic cigarette, and 4.6% reported having used it recently, which points to a formation of culture, the consolidation of a habit that, if uncontrolled, can lead to a picture that characterizes a public health problem.

Since from adolescence to 30 years, it is considered that individuals are more inclined to experimentation in general, this age group is more likely to try electronic cigarettes, which is even more accentuated if the device becomes a fad, since the appeal of identification and belonging speaks louder to individuals of the same age group⁸.

Risks involved and effectiveness analysis

The lack of inspection and regularization results in high variability in relation to the quality of the devices, the quantity of substances and the other constituents of the cartridge among the countless brands. Thus, the constitution of the product for the consumer is not clear. EC may contain variable nicotine content, resulting in adverse effects.

The levels of nicotine found in electronic cigarettes are sufficient to represent risks and damage to health, both in contact with the skin and through inhalation of steam, especially in more vulnerable groups, such as the elderly, children, pregnant women, and people with heart and respiratory diseases^{12,13}.

It is worth emphasizing that the levels of health risk and intoxication caused by electronic cigarettes do not yet



have safety parameters, which still leads to the prohibition of the devices in Brazil and control and prohibition in several other countries. It is still not possible to talk about nicotine levels in occasional or constant consumption that are effectively safe².

Europe is still torn between the benefits expected and, to some extent, achieved, and the risks that are not yet proven. In this way, Portugal, for example, takes risks in the face of doubt instead of opting to wait for electronic cigarette safety guarantees¹¹. Thus, it is seen that many countries are reluctant to ban the product as there is still insufficient evidence that the damage and risks presented have a direct causal link with the consumption of the product or exposure to it. However, countries that opt for the ban reverse the burden of proof in favor of the safety of their people, stating that it is not necessary to prove the risks, but to prove the safety of the product so that it can be released¹.

In addition to lacking proof of safety indices, there is also no evidence about the effectiveness of electronic cigarettes, which makes its recognition as an alternative to smoking even less inviting and legitimate. It is necessary that the electronic cigarette proves effective in combating smoking, with studies that point to a satisfactory causal link between the drop in the consumption of traditional cigarettes and the use of electronic cigarettes, and that it proves to be safe, scientifically proving that the means of releasing nicotine by the device does not harm your health, neither by contact nor by inhalation⁶.

The safety in handling the product by users also needs to be reviewed and more rigorous in its analysis, since there is direct contact with the liquid containing nicotine and other substances, and there are no studies that prove the safety of this contact of the hands with a substance with high potential for intoxication such as liquid nicotine and other additives¹³.

Conclusion

Smoking is such a serious problem that several alternatives and solutions have been developed in recent decades to make smokers around the world quit their addiction.

Among these alternatives, the electronic cigarette was created and adopted in several countries, generating, in fact, smoking cessation by a significant number of people. However, some countries still do not consider the habit to be safe, as some points can lead to more risks and threats than benefits.

One of the issues is associated with psychological and behavioral dependence, which continues with the use of electronic cigarettes, since the habit remains, only replacing the traditional cigarette with an electronic device.

The other issue is related to the health risks still present in electronic cigarettes, in contact with the liquid with the skin and eyes and with the vapor produced, it being understood that there are no levels of frequent or occasional contact with nicotine that can be considered of absolute security.

A final analysis is aimed especially at young people, as many become familiar with cigarettes through electronic devices and acquire the habit of using it, which later has great chances of leading to traditional smoking. Thus, the electronic cigarette, instead of moving away from the traditional cigarette, would serve as a gateway for it.

For all these issues, it is understood that the adoption of electronic cigarettes is not safe or effective, thus supporting Brazil's position in the prohibition of these devices.

The present study was successful in meeting the outlined objectives, general and specific, and satisfactorily answered the question that appeared as an introduction problem, about the risks present in electronic cigarettes for young people.

Although it was feasible within its objective, the work was restricted in relation to the sources, since there was little success in finding academic production relevant to the thematic cut of the work, its objectives, and that it was inserted within the cut-off period for the selection of articles, with a publication date between 2010 and 2020. Thus, it is understood that the contribution of the work also meets an existing gap in the health area in relation to the topic, mainly associating it with the role of nurses.

It is important to understand that nurses have a crucial role in the care and dissemination of assertive and quality information to people, and especially to young people, about the risks involved in the use of electronic cigarettes, both directly in relation to contact with substances constant in it, and indirectly, in the fact that, for many people, especially young people, the electronic cigarette leads to the traditional cigarette and the addiction to smoking.

It is suggested that other options that represent safe and effective alternatives to combat smoking be explored in future work.

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