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## Adolescents and Vaping: The Essentials

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### To the Editor:

The hazards linked with traditional cigarette use have been recognized for decades and impact not only smokers, but also those in their vicinity. Smoking is currently one of the foremost preventable causes of global disease, disability, and premature mortality [1].

The emergence of electronic cigarettes (e-cigarettes) has ignited a contentious debate within the scientific realm, leading us to question whether this represents a genuinely healthier alternative or merely a novel trend replacing conventional smoking used by marketing companies. The term vape refers to the electronic format of the product, which enables the inhalation of aerosol particles. These particles are produced by thermal degradation of substances stored in a tank, with or without nicotine, which are blended with propylene glycol, glycerin, flavorings, aromas, and other chemical compounds to yield vapor instead of conventional cigarette smoke [2].

In Spain, Royal Decree 47/2024 has been ratified, amending Royal Decree 579/2017, to incorporate European Directive 2014/40/EU into Spanish legislation. The decree also reviews labeling requisites, aligning them with those applying to conventional tobacco. This directive governs various aspects of e-cigarettes, including the prohibition of flavors among its ingredients and of any other technique that modifies the smell and/or taste of tobacco products. The directive emerged subsequent to a 10% upsurge in the sales volume of heated tobacco products in at least 5 EU member states and to the finding that retail sales of nonconventional cigarettes exceeded 2.5% of the global sales of tobacco products in the European Union [3].

According to the XIV Survey on Drug Use in Secondary Education in Spain (ESTUDES 2021), tobacco (30.7%) and cannabis (22.2%) were the most prevalent drugs among students aged 14-18, followed by alcohol [4]. The ESTUDES 2021 survey also revealed the following

- Students perceived greater risks associated with conventional tobacco use than with other devices. In addition, 44.3% of students used e-cigarettes, doubling the figure reported in 2016.
- Thirty percent of parents permitted teenagers to use e-cigarettes. Most preferred those without nicotine (60.7%), while 14.9% opted for nicotine-containing products and the remainder used vape cartridges of both types.
- Notably, 77% of conventional tobacco smokers also vaped, and 87.8% of daily tobacco smokers used electronic smoking devices.
- It was noteworthy that 95.5% of adolescent electronic device users acknowledged the ease in obtaining vapes and other electronic smoking devices. This is a significantly high proportion.
- When juxtaposed with figures on cannabis use, these statistics revealed analogous consumption patterns. Specifically, 78.7% of students who reported cannabis consumption admitted previous use of e-cigarettes, indicating a diminished perceived risk when using electronic devices for nicotine and cannabis consumption [4].

In a separate survey among young people aged 16 to 21, the Spanish Association Against Cancer (AECC) showed that the main reasons for vaping were as follows: it was a trend among actors, influencers, and streamers (57.1%); it did not leave unpleasant odors (53.1%); it was perceived as easier to quit (51.4%); and it was considered a good experience to share with friends (37.6%). These motivations highlighted the normalization of new consumption modalities among adolescents through social media influence, associating them with positive aspects rather than acknowledging their adverse health effects [5].

Moreover, 91.3% of the youths surveyed had been exposed to electronic smoke in the previous 30 days, and 97.5% of adolescents reported being regular users of digital platforms, indicating a significant level of influence that underlies distorted perceptions regarding these devices. The results of the AECC survey also indicated that 44.8% of respondents believed smoking assisted them in coping with challenging psychological situations, while 44.1% perceived it enhanced their allure and facilitated social interactions [5].

Scientific evidence demonstrates that e-cigarettes are neither safe nor harmless. Besides nicotine, they contain compounds that induce damage and inflammation, even in individuals exposed to vapor passively. Many teenagers are unaware or misunderstand that these devices also dispense addictive substances. Regardless of nicotine content, they perpetuate smoking behavior, and this has been related to a higher risk of addictions later in life, as well as more frequent depression, anxiety, and hyperactivity [2].

Current evidence leads to the following conclusions regarding e-cigarette use [6-9]:

- They are not innocuous products. Cases of electronic cigarette-associated lung injury have been reported. This can manifest as severe lung injury and prove fatal, even after brief vaping periods, especially with tetrahydrocannabinol-containing products.
- Tolerance for their use persists even in environments where conventional cigarette use is socially discouraged.
- E-cigarettes can serve as a gateway to nicotine and other drug use, potentially promoting dual consumption, thereby amplifying the public health hazard.
- Flavorings influence consumption. Mint possesses anesthetic qualities, making it more appealing to teenagers who start smoking. Sweet and fruity flavors also attract young people, unlike unsweetened tobacco flavor, which is less desirable.
- Nitrosamines, ie, products derived from nicotine degradation, can induce DNA mutations and may inhibit restorative capacity. The long-term safety of inhaling these substances, actively or passively, remains unknown to date. However, substances such as acetaldehyde, formaldehyde, acrolein, carbonyls, and benzene are human carcinogens.
- In addition to local irritant effects, short-term increases in airway resistance and impedance are observed in respiratory function tests taken by patients with no current or obvious obstruction.

It is imperative to educate adolescents and their families about the risks of vaping and to promote tobacco- and vaping-free environments. Regulatory and educational policies are vital in addressing this issue and safeguarding youth health. Authorities must establish effective restrictions to curb minors' access to these products and support measures to discourage online sales while enforcing age restrictions. Advertising targeting children and adolescents should be curtailed, with emphasis on known health risks and the absence of solid safety evidence [10].

Despite the significant concerns and risks associated with vaping described above, some health care professionals still

maintain the potential utility of e-cigarettes, arguing that they might help some adolescents during the process of quitting traditional cigarettes. However, this discussion should take into account the specific challenges and considerations relevant to this age group, and it is essential not to forget the concerns and risks associated with their use. Similarly, we should reflect deeply on the complex issues surrounding vaping. Therefore, it is crucial to provide evidence-based information and tools to effectively confront this emerging public health hazard.

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### Conflicts of Interest

The authors declare that they have no conflicts of interest.

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