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INVITED EDITORIAL

The danger of puff bars in adolescents

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Puff bars, one of the electronic cigarette (e-cigarette) devices, are disposable products designed to be thrown away when empty. It is a product that generally resembles cigarettes in appearance but has different designs today (similar to USB drives), can be nicotine/non-nicotine, and gives cigarette-like pleasure during use. Unlike cigarettes, they do not contain tobacco.[1,2]

Disposable e-cigarettes, known as puff bars, are use-and-dispose products. The first thing to know when these devices are purchased is that they should be thrown away when the liquid in them has been used up. However, given the economic conditions, among young people it is not very economical to throw away the puff bar when the liquid is gone. Naturally, the majority of those who buy these devices use them by refilling them. When the prices of puff bars are compared to cigarette prices, these disposable e-cigarettes, which are quite practical, also remain cheap.[3,4]

Among the most important reasons why puff bars, one of the new generation e-cigarettes, have become widespread worldwide are that they are presented as less harmful than cigarettes, that they have the effect of reducing cigarette use and addiction, that they make it easier to breathe, that they reduce the desire to smoke, and that e-cigarettes are more economical than regular cigarettes.[5] The most important point about e-cigarettes is the information that e-cigarettes are harmless/cause less harm than cigarettes, contain fewer chemicals than cigarettes, and help to quit smoking. With this marketing strategy, e-cigarettes have become widespread. This information arouses curiosity in cigarette users, especially young users. It is clearly seen that the claims of the manufacturers are not true. E-cigarette smoke has been shown to contain carcinogens such as nitrosamines, volatile substances such as diethylene glycol and cetaldehyde, some metals such as mercury, tobacco-specific compounds (such as anabasine and myosmine) that may be harmful to humans. Institutions such as the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) in the United States of America (USA) report that they do not consider e-cigarette use as a replacement therapy for nicotine and that they do not find this way of use "safe". Due to the lack of scientific data on the subject, these authorities ask manufacturers to refrain from making claims about the products' ability to treat smoking addiction in particular.[4,6]

Nicotine in e-cigarettes is an addictive substance that can adversely affect brain development of adolescents and young adults. E-cigarettes have been associated with an increased risk of cardiovascular and pulmonary diseases. In addition, unwanted injuries may occur as a result of the battery of the e-cigarette catching fire or exploding.[3-6] A 17-year-old boy presented to the emergency department with pain and swelling in his jaw 2 hours after an e-cigarette exploded during use. He had extensive lacerations in his mouth, multiple disrupted lower incisors, and bony incongruity of his left mandible.[7] In short, nicotine puff bars can be highly addictive and sometimes cause anxiety, concentration problems,

and headaches after quitting. Again, the WHO stated that e-cigarette-related emergency room visits increased in August 2019 and reached a peak in September 2019. The cases were examined by the CDC and information was provided under the title "E-Cigarette or Vaping Use-associated Lung Injury (EVALI) Epidemic". The current situation has been linked to vitamin-E acetate and tetrahydrocannabinol (THC) in the liquid part of the e-cigarette. Although the possible cause of the disease was initially unknown and puzzled doctors, the temporal relationship between e-cigarette use and the clinical presentation of the disease has been demonstrated.[6] In EVALI, patients often experience shortness of breath, chest pain, cough, hemoptysis, nausea, vomiting, abdominal pain, fever, malaise, tachycardia, tachypnea, and hypoxia at the time of initial presentation. In the diagnosis of the disease, a detailed anamnesis should be taken and e-cigarette use in the last 90 days should be questioned in addition to the symptoms. Symptoms such as chest pain, shortness of breath, cough, and tachycardia after e-cigarette use are important for the diagnosis of EVALI.[7,8]

It is reported that e-cigarette manufacturers target children through social media and influencers with at least 16,000 flavors, and some of these products use cartoon characters and have stylish designs that appeal to the younger generation. Due to the fruit and chocolate flavors it contains, e-cigarette use becomes even more attractive, especially among young smokers, as opposed to quitting. It even creates nicotine addiction in young people who have never smoked before. The reason why WHO does not accept e-cigarettes as safe is that they are a new product and studies on their safety are limited or even non-existent.[6]

There is an alarming increase in e-cigarette use among children and young people, with rates exceeding adult use in many countries. In the USA in 2023, approximately 1 in 22 middle school students (4.6%) and 1 in 10 high school students (10.0%) reported using e-cigarettes in the past 30 days, 7.7% (2.13 million) of students currently use e-cigarettes, 10% (1.56 million) of high school students, and more than 1 in 4 (25.2%) of current adolescent e-cigarette users consume an e-cigarette product every day. Some 4.6% (550,000) of secondary school students currently use flavored e-cigarettes, constituting 9 out of ~10 current users. [4] Fruit flavors are the most popular among adolescents, with more than 50% (57.9%) of e-cigarette users using flavors with "ice" or "icy" in the name. E-cigarette use among Irish youth has increased from 23% in 2015 to 37% in 2019.[9] Although there is no population-based prevalence study showing the extent of e-cigarette use among adolescents in Turkey, it is thought that the prevalence of e-cigarette use is gradually increasing.[10] The global increase in e-cigarette use among adolescents is an alarming trend that requires urgent attention. World Health Organization and studies underline that since puff bars are relatively new products, data on their short-term effects is limited and there is insufficient data on their long-term effects.[6]

When the legal status of e-cigarettes in the world is analyzed; 88 countries do not have a minimum age limit for the purchase of e-cigarettes and 74 countries do not have any regulations on these harmful products.[6] E-cigarettes entered the Turkish market in 2007-2008 and were widely offered to the public both through the media and marketing methods. With the initiative of the Ministry of Health, a decision was taken in 2008 that the sale of e-cigarettes would not be allowed. In a Presidential Decree issued in 2020, e-cigarettes and devices, spare parts, and solutions used in their consumption were included in the scope of the import ban. In the Circular of the Ministry of Trade issued based on this decision, an entry permit was defined as "limited to cartridges or solutions not exceeding 30 ml and up to 10 disposable e-cigarettes" on passengers arriving from abroad. Although the sale of e-cigarettes is prohibited in our country, it is seen that they are being sold on Google search engine.[10] In April 2024, the Ministry of Interior reported that there were complaints about sales promotion of disposable e-cigarettes (puff bars), and a letter was sent to the General Command of Gendarmerie, the General Directorate of Security, the Coast Guard Command, and 81 Provincial Governorships regarding the efforts to prevent this. Although the sale of e-cigarettes is banned in Turkey, the sale and use of e-cigarettes is legally permitted in some European countries and some states of the USA. In 2021, a study investigating the e-cigarette-related regulations of 123 countries found that 68 countries have regulations on the production, liquid content, distribution, sale, use, taxation, health warning labels, and child safety standards of e-cigarettes, while the remaining 55 countries do not have any legal regulations. The UK has announced a ban on the sale of e-cigarettes, while Australia, France, Germany, and New Zealand

have announced similar plans. So far, New Zealand is the only country that has implemented it. In Australia, e-cigarettes can only be purchased with a prescription.[6,11]

World Health Organization Director for Health Promotion Dr. Ruediger Krech announced this situation as the necessity of taking an urgent action plan. Dr. Krech states that there has been an alarming increase in the use of e-cigarettes among children and young people, with rates exceeding adult use in many countries, and that we need to protect young people from deadly second-hand smoke and toxic e-cigarette emissions, as well as from advertisements promoting these products, "whether sitting in class, playing outside or waiting at the school bus stop."[6]

It is very important for parents to understand what a puff bar is and to be aware of the product before they start discussing it with their children. Because there are many different types of puff bars, it is important to know what each product looks like, where it can be purchased, and the jargon used by children. It is important to know these words in order to understand the child better when talking to him/her and to make the child feel that you understand him/her. The most important concern about puff bars is their inconspicuous nature. Apart from the fact that puff bars are small, they are disposable and can also resemble USB drives. Typically disposable e-cigarettes have a label identifying the brand and flavor. They are offered as a flavored, economical, and harmless alternative for those who want to quit smoking. Unfortunately, since they are odorless, they are easily consumed in schools, cafes, airplane restrooms, etc. On the other hand, because they are flavored, parents do not notice it. In addition, while smokers are seen as "keko" (unsophisticated) by students, those who use this "toy" think that they are cool etc.[4,6,11]

In conclusion, puff bars, a new product from e-cigarette devices, are a dangerous trend for adolescents. These products are attractive for children and adolescents because they are cheaply marketed, brightly colored, fruit flavored and easily accessible. The use of these products, which contain harmful chemicals, is increasing rapidly due to the inadequacy of legal regulations and practices. The use of puff bars in adolescents may lead to EVALI and other respiratory system disorders. Cognitive dysfunction and nicotine addiction may also develop. Therefore, parents and professionals working with adolescents should be aware of the puff bar and the dangers it poses. Future studies should be conducted to prevent the promotion of e-cigarette and disposable products and to increase adolescents' awareness of the dangers.

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