



Importance of a Balanced Public Health Approach When Assessing Recent Patterns in the Prevalence of Adult e-Cigarette Use in the US

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The prevalence of e-cigarette use among US adults steadily increased between the early 2010s and 2018,¹ a pattern partially associated with its appealing flavors, accessibility and ease of use, potential to assist with tobacco cessation, and lack of policy restrictions on product marketing and sales at the local and national levels during this period. Boakye and colleagues² estimated the national prevalence of current (past 30 days) and daily e-cigarette use among US adults in 2017, 2018, and 2020 using data from the Behavioral Risk Factor Surveillance System, providing data that revealed potential changes in the patterns of adult e-cigarette use after 2018. Their findings suggest that the prevalence of current e-cigarette use among adults increased between 2017 (4.4%) and 2018 (5.5%) and slightly decreased in 2020 (5.1%). The decrease in 2020 was mainly associated with reduced use among those aged 18 to 20 years (from 18.9% to 15.6%). In contrast, the authors found that daily e-cigarette use increased consistently across the 3 years (1.5% in 2017, 2.1% in 2018, and 2.3% in 2020), with the most significant increase observed among young adults aged 21 to 24 years (2.6% in 2017, 4.4% in 2018, and 6.6% in 2020). In addition, the prevalence of current e-cigarette use significantly increased among those who never smoked combustible cigarettes, remained unchanged among current combustible cigarette smokers, and decreased among combustible cigarette smokers who attempted to quit in the past year.

To decipher the epidemiological patterns underlying these recent changes in the prevalence of adult e-cigarette use, a balanced public health approach is needed.³ On the one hand, e-cigarettes may promote the initiation of tobacco products among tobacco-naïve young people (including youths and young adults), harming individual health by fostering nicotine addiction, respiratory disease, and long-term tobacco-using behavior.⁴ On the other hand, using e-cigarettes may be substantially less hazardous than smoking combustible tobacco cigarettes, and e-cigarettes have great potential to assist in tobacco smoking cessation,⁴ thereby benefiting public health by reducing the harm associated with cigarette smoking. As a consequence, there is a need to balance valid concerns about the risks of e-cigarette use among young people who are new to tobacco products with the potential benefits of facilitating cessation of combustible cigarette smoking among adults.

Boakye et al² observed a slight decrease in e-cigarette use between 2018 and 2020 but a substantial reduction among young adults aged 18 to 20 years, a priority group for tobacco control. This discrepancy may be associated with the Tobacco 21 Act⁵ that restricted the sale of tobacco and nicotine delivery products, including e-cigarettes, to this age group nationwide starting in January 2020. Other potential explanations for the disproportional reduction among this younger age group may be the national restrictions on flavored cartridge-based e-cigarettes (excluding menthol and other types of e-cigarette products) implemented in February 2020, a policy that may have considerably reduced the appeal of e-cigarettes among young people. In addition, the COVID-19 pandemic-related lockdowns and social distancing requirements implemented in 2020 may have limited this group's opportunities to use e-cigarettes in social or group settings.

Less encouraging for public health communities is the observed finding that daily e-cigarette use among adults in general increased by 50% between 2017 and 2020, reaching as high as 44% among current users in 2020. Perhaps most concerning, daily e-cigarette use increased more than 2-fold among those aged 21 to 24 years whose brain development may still be greatly susceptible to the harms of nicotine addiction.⁴ As Boakye et al² suggested, daily e-cigarette use may be reflective

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of problematic use patterns dictated by nicotine addiction; daily use may also lead to a more harmful form of smoking, such as combustible tobacco cigarette smoking, as well as the development of long-term tobacco use behavior. However, the study from Boakye et al² would have been strengthened by including a breakdown of daily e-cigarette use patterns by cigarette smoking status and past-year quit attempts among combustible cigarette smokers. Evidence has revealed that daily e-cigarette use among adult combustible cigarette smokers may be increasingly associated with smoking cessation and/or abstinence compared with nondaily e-cigarette use.^{6,7} It may be encouraging to public health communities if daily e-cigarette use among adults were mostly occurring among those who also smoke combustible cigarettes and/or smokers who are interested in quitting. However, before drawing this conclusion, we should account for combustible cigarette and e-cigarette dual use patterns to gain further insights on whether smokers' daily use of e-cigarettes is associated with reductions in combustible cigarette smoking frequency and/or increases in quitting behavior rather than prolonged or escalated dual use behavior.

Boakye et al² also reported that current e-cigarette use increased among those who never smoked combustible cigarettes, remained unchanged among those who currently smoked combustible cigarettes, and decreased among combustible cigarette smokers who attempted to quit in the past year. These results may signal that over the past 5 years, e-cigarette products have become less appealing to combustible cigarette smokers interested in quitting but more appealing to individuals who have never smoked. This discouraging pattern may be explained by several factors. First, local and national policies intended to reduce the use of e-cigarettes (commonly referred to as vaping) among youths may simultaneously reduce adult smokers' interest in and use of e-cigarettes when attempting to quit. Second, the media may have altered smokers' understanding of vaping⁸ because of the substantially higher volume of media coverage of vaping risks for youths compared with the potential benefits of vaping for adult combustible cigarette smokers. Third, public health groups and health care professionals may also have emphasized the risks of vaping for youths over the potential benefits of e-cigarette use for those attempting to quit smoking.

If this pattern continues, the potential for the net public health benefit of e-cigarette use to exceed its harm may be limited, thereby forfeiting valuable opportunities to reduce the harms associated with combustible cigarette smoking by switching to e-cigarette products. Several policy advances and strategies may be helpful to reverse this pattern. The recent authorization of e-cigarette products by the US Food and Drug Administration through its Premarket Tobacco Product Application pathway may help to establish public trust in authorized e-cigarette products. In addition, the Food and Drug Administration is likely to authorize certain e-cigarettes as modified-risk tobacco products, which may help encourage smokers to completely switch from smoking combustible cigarettes to using e-cigarettes. To boost combustible cigarette smokers' acceptance and confidence in using e-cigarettes for smoking cessation, public health education and mass media communication strategies may need to focus on evidence-based results pertaining to the reduced harm associated with switching to e-cigarettes.

It is important to place the pattern of adult e-cigarette use prevalence into the context of the public health benefits and harms associated with e-cigarette use. The substantial reduction in the prevalence of current e-cigarette use among young adults (aged 18 to 20 years) reported by Boakye and colleagues² is encouraging. What may be worrisome, however, is the increase in daily e-cigarette use among the overall adult population (especially those aged 21-24 years) as well as the unchanging and decreasing prevalence of e-cigarette use among current combustible cigarette smokers and smokers who attempted to quit, respectively. Studies that examine the potential impact of policies and interventions for e-cigarette use patterns may consider further evaluation of the specific consequences of e-cigarette use among the target populations by their demographic (including age) and tobacco-using backgrounds (including smoking and quitting combustible tobacco products) to further inform strategies that maximize public health benefits and minimize harm from using e-cigarettes.

ARTICLE INFORMATION

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