

Study shows alarming rise of electronic vaping use in US adolescents

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Electronic vapor products (EVPs), also known as e-cigarettes or vaping devices, have an allure because of their marketed image as a safer alternative to traditional cigarette smoking and for their variety of

appealing flavors.

Yet, they contain many substances beyond nicotine, including [propylene glycol](#), glycerin, flavorings and potentially harmful chemicals such as formaldehyde and metals, which could pose significant health risks such as respiratory disease, cardiovascular disease and cancer. Vaping also is strongly linked with a serious medical condition that damages the lungs due to the vitamin E acetate, an additive used in tetrahydrocannabinol-containing e-cigarettes.

In 2022, 6% of adults in the U.S. reported current vaping device use. Widespread use by adults has raised concerns about EVP use among adolescents.

Researchers from Florida Atlantic University's Schmidt College of Medicine explored temporal trends in EVP use from the Youth Risk Behavior Survey for ninth through 12th grades among 57,006 subjects from 2015 (earliest available data) to 2021 (most recently available data) from the U.S. Centers for Disease Control and Prevention.

Results of the study, published online ahead of print in [Ochsner Journal](#), show alarming statistically significant and clinically important increases of the daily use of EVPs in U.S. adolescents.

Daily use of EVPs increased from 2% in 2015 to 7.2% in 2019, greater than three-and-one-half times increase. Although the percentage decreased to 5% in 2021, it was still more than a two-and-one-half increase since 2015. The researchers speculate that the effects of COVID-19, which included lockdowns and remote schooling, may have contributed to the decrease in 2021 but cautioned that further research is warranted.

Findings also show that in 2015, the percentage of EVP use was

significantly higher in boys (2.8%) than girls (1.1%). By 2021, the percentage of EVP use was higher in girls (5.6%) than boys (4.5%), a one-and-one-quarter increase.

In addition, the percentage of EVP use in 2021 was higher in whites (6.5%) than Blacks (3.1%), Asians (1.2%), and Hispanic/Latinos (3.4%) compared to 2015. However, white and Black adolescents had the highest increases of about threefold between 2015 and 2021. In all four survey years, daily EVP use was highest in grade 12 where most students are ages 17 to 18.

"EVP use increases risks of nicotine addiction, drug-seeking behavior, [mood disorders](#) and long-term risks of avoidable premature morbidities and mortality," said Charles H. Hennekens, M.D., Dr.PH, first author, first Sir Richard Doll Professor of Medicine and senior academic advisor, FAU Schmidt College of Medicine.

"In addition, compared to nonusers, adolescents and [young adults](#) who use EVPs are more likely to switch to cigarette smoking, which, despite remarkable declines in the U.S., remains the leading avoidable cause of premature death in the U.S. and worldwide."

The researchers also raise concerns about risks of short- as well as long-term use of EVPs.

"Almost 100% of e-cigarettes sold in the U.S. contain nicotine, and the use of these products by adolescents may lead to future abuse of and addiction to additional substances," said Panagiota "Yiota" Kitsantas, Ph.D., senior author and professor and chair of the Department of Population Health and Social Medicine, FAU Schmidt College of Medicine.

"EVP use is not a safer alternative to smoking but may have contributed

to the decline in regular tobacco product use. EVP use also raises concerns about new health risks, including nicotine addiction."

While data indicate a substantial decline in traditional cigarette smoking among U.S. adolescents, the introduction of EVP use and their alarming increases have presented new challenges. The researchers believe that the data create clinical and public health challenges.

"These alarming trends in the use of EVPs suggest the need for targeted interventions such as mass media campaigns and peer interventions to combat the influences of social norms that promote the adoption of risky health behaviors during adolescence," said Hennekens. "Clinical interventions could include routine screening for vaping and nicotine dependence during adolescent health assessments as well as counseling and tailored cessation programs."

Study co-authors are Adedamola Adele, Department of Biomedical Science; Maria C. Mejia, M.D., professor of population health and social medicine; and Robert S. Levine, M.D., affiliate professor of family medicine, all within the Schmidt College of Medicine.

More information: Electronic Vapor Products: Alarming Trends in United States Adolescents, *Ochsner Journal* (2024). DOI: [10.31486/toj.24.0004](https://doi.org/10.31486/toj.24.0004), [www.ochsnerjournal.org/content ... 24/05/07/toj.24.0004](http://www.ochsnerjournal.org/content/24/05/07/toj.24.0004)

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