

Study finds sharp rise in vapers using high-strength nicotine in England

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The proportion of vapers using high-strength nicotine has increased sharply in England since 2021, when disposable e-cigarettes first became popular, according to a new study by UCL researchers.

The study, [published](#) in the journal *Addiction* found that a third of vapers (32.5%) used high-[strength](#) nicotine in January 2024 compared to just 3.8% on average between July 2016 and June 2021.

The biggest increases were among 18- to 24-year-old vapers (from 3.9% to 53.1%) and vapers who mainly used disposables (2.6% to 49.0%), but large rises were also seen in older age groups and among current smokers and recent ex-smokers.

Despite the increase, the researchers cautioned against taxing vaping products according to nicotine strength, with higher strength attracting higher duty rates, as currently proposed by the UK Government, arguing that it could undermine smokers' attempts to quit.

Lead author Dr. Sarah Jackson, of the UCL Institute of Epidemiology & Health Care, said, "Our study shows a sharp increase in the use of high-strength nicotine e-liquids in England since 2021.

"Nicotine may be addictive but it is not what causes the great majority of harms from smoking. For smokers trying to quit, vaping with higher-strength nicotine is likely to be more effective, as it satisfies cravings more quickly and provides better relief from withdrawal symptoms.

"Taxing higher-strength nicotine products at higher rates will make the most effective way to quit less affordable, which may drive vapers towards lower-strength e-liquids and potentially undermine smoking cessation attempts. Of smokers who had quit within the last year and were vaping, we found that around 40% reported using those products which would attract the highest proposed tax rate."

Senior author Dr. Sharon Cox, of the UCL Institute of Epidemiology & Health Care, said, "Taxing products according to nicotine strength may also result in people using a lower, cheaper strength and vaping more, as

a person with nicotine dependence will alter their behavior to get the required nicotine dose in their system. It therefore may increase the amount of liquid used and vapers' exposure to potential toxicants."

The UK Government announced in this year's spring Budget that it would introduce a new Vaping Products Duty from October 2026. A consultation document later proposed that higher levels of duty would be applied to higher-strength nicotine e-liquids.

Deborah Arnott, CEO of Action on Smoking and Health (ASH) and a co-author of the study, said, "Curbing underage vaping can best be achieved by making all vapes less appealing and increasing the price at point of sale, whatever their nicotine content.

"Those are the policies which will be most effective in stopping children from starting to vape in the first place. However, if we are to also ensure that vapes remain an effective quitting tool for adults, smokers should not be discouraged from using higher nicotine content vapes, which are likely to be more effective quitting aids."

For the new study, researchers looked at survey responses from 7,314 adult vapers in England between 2016 and 2024 to see how use of different nicotine strengths had changed in that period. To assess more current use of nicotine strengths between 2022 and 2024, the researchers also looked at [survey data](#) from Wales and Scotland.

The data was from the Smoking Toolkit Study, an ongoing survey which interviews a different representative sample of 2,450 adults in Great Britain each month.

The team classified e-liquids containing 20 mg/ml of nicotine or more (2%) as high strength, with 20 mg/ml being the legal limit in the UK. The UK Government has proposed setting three categories of tax on e-

liquid, with the lowest applied to nicotine-free liquid, and the highest to e-liquid containing 11 mg/ml or more of nicotine.

The researchers found that vapers using disposable e-cigarettes tended to use higher-strength nicotine. Though the UK Government has proposed banning disposables, the researchers said this was not likely to affect nicotine strength usage. This is because manufacturers have already introduced re-usable models very similar in price and design to their disposables, with similar nicotine strength.

The study also found an increase in the proportion of vapers using disposables and pod devices who did not know how strong their nicotine-containing e-liquid was. The researchers said better labeling was needed to ensure [nicotine](#) strength was clear to consumers.

More information: Sarah E. Jackson et al, Nicotine strength of e-liquids used by adult vapers in Great Britain: A population survey 2016 to 2024, *Addiction* (2024). [DOI: 10.1111/add.16576](https://doi.org/10.1111/add.16576)

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