

Risk-takers predisposed to smoking and e-cigarette use, new study suggests

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Research by the University of Bristol has found that the association between smoking and e-cigarette use could be explained by a broader genetic susceptibility to risk-taking.

The findings imply that the genetic influences associated with people

taking up [smoking](#) also influence people being [e-cigarette](#) users; these were also found to be associated with risk-taking behaviors more generally, such as externalising disorders in childhood.

Previously, e-cigarette-use has been linked to an increased risk of smoking. However, if individuals are genetically more likely to both smoke and use e-cigarettes, policies which aim to prevent e-cigarette use by removing them from the market may actually encourage smoking where only cigarettes are available.

Dr. Jasmine Khouja, lecturer at Bristol's School of Psychological Science and a member of the University's Tobacco and Alcohol Research Group, is lead author of the study which has been published in the health journal *PLOS Medicine*.

She said: "There is concern that young people who are non-smokers might be more likely to become a cigarette smoker if they have access to e-cigarettes. This is known as the 'gateway hypothesis.'"

"However, studies that have previously looked at the gateway hypothesis, have not taken into account potential genetic influences on both e-cigarette use and cigarette use. This study explored the genetic influences on smoking and using e-cigarettes. It found that [genetic predisposition](#) for impulsivity and risk-taking makes some individuals more likely to use both.

"These findings suggest that e-cigarette use and smoking may share a common genetic basis, which could reflect a broader predisposition to taking risks. Our findings could have important implications for policy going forward."

Previous research had already established that some individuals are more likely to smoke due to genetic influences, but little is currently known

about the genetic influences on e-cigarette use.

Given that many [e-cigarette users](#) have smoked before, it is likely that there may be an overlap between genetic influences on smoking and e-cigarette use. People who are genetically predisposed to smoking are more likely to smoke and therefore more likely to use e-cigarettes to quit smoking.

However, an overlap in genetic predisposition to smoke and use e-cigarettes may also explain why people who use e-cigarettes but have not smoked before are more likely to go on to start smoking later—the behaviors share common genetic influences. The study cannot rule out a gateway effect entirely but suggests that at least part of the link observed between smoking and using e-cigarettes in [young people](#) is due to a common genetic predisposition.

Researchers now aim to replicate this study with a cohort of adolescents for whom e-cigarettes and cigarettes have been available throughout their adolescence. This is to further explore the relationship between genetic influences and e-cigarette use among individuals who have never smoked before.

Dr. Khouja added: "This will allow us to better understand the nature of the association. If the link is still observed among people who have never smoked, this would indicate that the association is not simply due to smoking causing e-cigarette use and indicates that the two behaviors share a genetic basis."

More information: Jasmine N. Khouja et al. Association of genetic liability to smoking initiation with e-cigarette use in young adults: A cohort study, *PLOS Medicine* (2021). [DOI: 10.1371/journal.pmed.1003555](https://doi.org/10.1371/journal.pmed.1003555)

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