

No health benefits among adults who used both e-cigarettes and traditional cigarettes

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People who use both traditional (combustible) cigarettes and e-cigarettes do not reduce their risk of cardiovascular disease compared to people who exclusively use traditional cigarettes, according to new research

published today in the American Heart Association's flagship, peer-reviewed journal *Circulation*.

Traditional cigarette smoking is well-established as contributing to a broad range of serious health conditions. Nearly 1 in 5 deaths in the U.S. each year are attributed to cigarette smoking and [secondhand smoke exposure](#), according to the American Heart Association's Heart Disease and Stroke Statistic—2022 [Update](#). E-cigarettes, which contain many toxic chemicals, are becoming increasingly popular as another way for people to consume nicotine.

"The fact that dual use—using both traditional, combustible cigarettes and e-cigarettes—had similar [cardiovascular disease](#) risk to smoking cigarettes only is an important finding as many Americans are taking up e-cigarettes in an attempt to reduce smoking for what they perceive is a lower risk," said Andrew C. Stokes, Ph.D., corresponding and senior author of the study, and an assistant professor in the department of global health at Boston University School of Public Health. "It is common for people to try to switch from [traditional cigarettes](#) to e-cigarettes and get caught in limbo using both products."

To examine the relationship among cardiovascular disease, e-cigarette use and the dual use of traditional cigarettes and e-cigarettes, researchers reviewed data from the Population Assessment of Tobacco and Health (PATH) Study, a nationally representative study with five annual waves of self-reported information on health and nicotine product use collected from 2013 to 2019. After adjustments for age, sex and race/ethnicity, the study focused on more than 24,000 adults, of whom 50% were age 35 or younger, and 51% were women.

Participants were classified as smokers if they smoked more than 100 combustible cigarettes in their lifetime and reported current cigarette smoking during any round of the data collection period. E-cigarette users

were identified by participants' self-reporting of any e-cigarette use during any round of the data collection. Group classifications were 1) no current e-cigarette use or traditional cigarette smoking (14,832 people; this group could include former smokers or former [e-cigarette users](#)); 2) exclusive e-cigarette use (822 people); 3) traditional cigarette use only (6,515 people); or 4) dual use of both traditional cigarettes and e-cigarettes (1,858 people).

The analysis defined a cardiovascular disease event as any self-reported diagnosis of [heart](#) attack or bypass surgery, [heart failure](#), other heart conditions or stroke in the previous 12 months. The researchers also assessed for a separate outcome of only self-reported heart attack, heart failure or stroke. The review found more than 1,480 cases of any cardiovascular disease and more than 500 cases of heart attack, heart failure or stroke.

Analysis of all study participants found:

- Compared to people who only smoked traditional cigarettes, the people who smoked traditional cigarettes and also used e-cigarettes had no significant differences in risk for any cardiovascular disease nor for risk for heart attack, heart failure or stroke.
- People who only used e-cigarettes and people who used both traditional cigarettes and e-cigarettes were younger than people who used neither product: 62% of people who only used e-cigarettes and 54% of dual users were younger than age 35, compared to 51% of participants classified as non-users who did not smoke traditional cigarettes or use e-cigarettes.

Researchers noted that, compared to exclusive traditional cigarette smoking, exclusive e-cigarette use was associated with 30%-40% lower self-reported cardiovascular disease events, although the association was

only significant for any cardiovascular outcome, which includes conditions such as congenital heart disease or myocarditis (41 events reported by e-cigarette users vs. 569 reported by cigarette smokers), not specifically for heart attack, heart failure or stroke (15 events reported by e-cigarette users vs. 242 reported by cigarette smokers). Given the low numbers of the self-reported outcomes reported by e-cigarette users, the researchers concluded more data are needed in this area.

"While the PATH study is providing essential longitudinal data on the use of traditional and e-cigarettes, as well as on outcomes such as cardiovascular events, the data are self-reported, the study duration is short and the event rate is still low—especially in [younger people](#). Since e-cigarette use is still relatively new, there is not yet a strong body of long-term evidence to determine the eventual risk of using these products over time, so we look forward to more data from this and other ongoing studies. It's important to remember that even with traditional cigarettes, decades of use and surveillance were needed to provide the strength of evidence we now have confirming the highly significant harm of combustible cigarettes," said Rose Marie Robertson, M.D., FAHA, deputy chief science and medical officer of the American Heart Association and co-director of the Association's National Institutes of Health/Food and Drug Administration-funded Tobacco Center of Regulatory Science, which supported the study. "People should know that e-cigarettes contain addictive nicotine and toxic chemicals that may have adverse effects on their cardiovascular system and their overall health."

Among several limitations of the study, an important one the researchers noted was the small number of individuals and cardiovascular events in the exclusive e-cigarette use group. While only 15 people who exclusively used e-cigarettes reported a diagnosis of a heart attack, heart failure or stroke, the number of individuals and events was too low to draw definitive conclusions about the effects of exclusive e-cigarette use

in the study's sample.

"Many smokers who attempt to use [e-cigarettes](#) for traditional cigarette smoking cessation actually continue using both products, becoming dual users, where we saw no reduction in cardiovascular risk," Stokes said.

"We are concerned that any recommendation of [e-cigarette use](#) for smoking cessation may lead to increased dual use, as well as [e-cigarette](#) initiation among young adults and those who have never smoked cigarettes."

"E-[cigarettes](#) are not approved by the U.S. Food and Drug Administration (FDA) for smoking cessation. We urge anyone who smokes and is interested in quitting to speak with their doctors and health care team about other effective smoking cessation options approved by the FDA," Robertson said.

More information: *Circulation* (2022). [DOI: 10.1161/CIRCULATIONAHA.121.057369](#)

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