Largest US study of e-cigarettes shows their value as smoking cessation aid

August 18 2023, by Leslie Cantu

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E-cigarettes do have value as a smoking cessation aid, according to a new study just released by a team of MUSC Hollings Cancer Center researchers.

Whether e-cigarettes should be considered for smoking cessation is a hotly debated topic, and different countries have taken different approaches. E-cigarettes contain harmful chemicals, which has led many public health advocates to shun them. But they are less harmful than traditional cigarettes, which can cause a dozen types of cancer as well as heart disease, stroke, diabetes and chronic obstructive pulmonary disease . That's prompted others to say that e-cigarettes should be considered as a step-down method for adults who smoke and haven't been able to quit using FDA-approved aids, like nicotine replacement gum, lozenges or patches.

This new study, the largest trial of e-cigarettes in the U.S., showed that e-cigarette usage nudged people toward quitting smoking—even people who had entered the trial saying they had no intention of quitting. The results were published in *eClinicalMedicine* this month.

"This is not a panacea for smoking cessation," cautioned Matthew Carpenter, Ph.D., first author on the paper and co-leader of the Cancer Control Research Program at Hollings.

Nonetheless, he was surprised to find that all of the hypotheses tested in the study were confirmed.

"It's rarely the case that you're proven correct for almost everything that you predicted," he said. "Here, it was one effect after another: No matter how we looked at it, those who got the e-cigarette product demonstrated greater abstinence and reduced harm as compared to those who didn't get it."

Carpenter and his colleagues, including Hollings members Tracy Smith, Ph.D., Jennifer Dahne, Ph.D., Michael Cummings, Ph.D., and Graham Warren, M.D., Ph.D., designed the study in a naturalistic way to mimic real-world conditions as much as possible—also a first for e-cigarette

studies.

Previous studies that have shown a smoking cessation benefit of e-cigarettes have been very structured, Carpenter said, in that they recruited people who wanted to stop smoking and gave them very detailed instructions about how to use the e-cigarettes.

"Some people have said, "That's fine, but the results of those studies don't apply to the real world because the real world isn't as structured,'" he explained. "So what we did was take a hands-off approach—we called it a naturalistic approach."

"First off, we took smokers who did and did not want to quit. So right off the bat, not everybody wanted to quit. Secondly, we gave them very little instruction on how to use it," he continued.

Instead, people were given e-cigarettes and told they could use them or not, as much or as little as they wanted. A control group didn't receive anything.

The study showed that people in the e-cigarette group were more likely to report complete abstinence from combustible cigarettes. They were also more likely to report that they'd reduced the number of cigarettes per day that they smoked and their number of "quit attempts." Quit attempts are an important metric because people usually need multiple tries before they can successfully stop smoking.

The study included people from 11 cities across the U.S. and spanned four years. At the beginning, Carpenter intended to collect biochemical samples from participants in the Charleston area to verify their self-reports of smoking behavior. However, COVID interrupted that plan and made in-person sample collection impossible.

Although that was a disappointing aspect of the study, replying on participants' self-reports of their smoking behavior is still considered highly reliable, he said.

The study will be another data point for the public health community and policymakers in deciding how to handle e-cigarettes. "No one wants e-cigarettes in the hands of kids, and we should do all we can to stop that. But we shouldn't do so by denying this option for adult smokers who can't otherwise quit," Carpenter said. He noted that other countries have taken a much more liberal approach to e-cigarette use than the U.S.

For example, in April the U.K. announced a "Swap to Stop" program that will distribute vaping starter kits to 1 million people who smoke.

In the U.S., e-cigarettes are not approved as smoking cessation aids. But Carpenter and Smith plan to conduct a study that will test e-cigarettes as a smoking cessation aid for adult smokers who've already tried two different FDA-approved methods.

More information: Matthew J. Carpenter et al, Effect of unguided e-cigarette provision on uptake, use, and smoking cessation among adults who smoke in the USA: a naturalistic, randomised, controlled clinical trial, *eClinicalMedicine* (2023). DOI: 10.1016/j.eclinm.2023.102142

Provided by Medical University of South Carolina