

More than two million patients with heart disease report use of marijuana

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Even as more states begin to legalize marijuana for medicinal and recreational use and more marijuana products become available for consumption, marijuana's cardiovascular effects are not well understood. In a review article published in the *Journal of the American College of Cardiology*, a team led by investigators at Brigham and Women's

Hospital reveals that more than 2 million adults with cardiovascular disease report that they have used or are currently using marijuana. Observational studies have linked marijuana use to a range of cardiovascular risks, including stroke, arrhythmia and diseases that make it hard for the heart muscle to pump properly. The investigators encourage physicians to ask their patients about marijuana use, which can interfere with other medications that a cardiology patient might be prescribed.

"This was eye-opening for us," said corresponding author Muthiah Vaduganathan, MD, MPH, a cardiologist at the Brigham. "We're experiencing an epidemiological shift. More patients are curbing their cigarette smoking, and we're seeing big improvements in cardiovascular health for those who quit. In contrast, we're seeing an accelerating use of marijuana and now, for the first time, marijuana users are exceeding cigarette smokers in the U.S. We now need to turn our attention and public health resources toward understanding the safety profile of its use."

Marijuana is classified as a schedule I drug by the U.S. Drug Enforcement Agency, meaning that its use in research is highly restricted and researchers must navigate approvals through local, state and federally agencies. This means that even as individual states legalize its use, randomized, clinical trials to understand its health effects are not feasible, given the number of restrictions in place. However, researchers can use real-world data to study its effects, for instance, by comparing before-and-after statistics on health in states where marijuana has been legalized for [recreational use](#), medical use or both. As [marijuana use](#) increases in the US, large epidemiologic studies may clarify the relationship between marijuana and cardiovascular risk.

Vaduganathan, along with Ersilia M. DeFilippis, MD, a former internal medicine resident at the Brigham who is now a cardiology fellow at

Columbia University Irving Medical Center, conducted a query of data from the National Health and Nutrition Examination Survey (NHANES) to estimate marijuana use among U.S. patients with cardiovascular disease. They estimated that 2 million (2.3 percent) of the 89.6 million adults who reported marijuana use had cardiovascular disease.

"Marijuana use, both recreational and medical, is increasing nationally yet many of its [cardiovascular effects](#) remain poorly understood," said lead author DeFilippis. "In our NHANES query, we estimated that 2 million adults with marijuana use had cardiovascular disease in 2015-2016. Since that time, additional states have passed legislature related to marijuana so its use may have increased even further. Notably, many of our cardiology patients are on medications that can interact with marijuana in unpredictable ways depending on the formulation. This highlights that we need more data so that we can better counsel providers as well as patients."

DeFilippis and Vaduganathan collaborated with colleagues in cardiology and pharmacology to better understand the implications of increased marijuana use. In their review paper, the authors outline the ways that the components and compounds in marijuana may affect the heart and other tissue at a molecular level and the drug interactions that marijuana can have with drugs that are commonly given to cardiology patients. They also describe [observational studies](#) that suggest a connection between marijuana and heart conditions, including:

- Smoking-related cardiotoxicity: Many of the same cardiotoxic chemicals found in cigarettes are also found in marijuana smoke.
- Coronary artery disease: Cannabis inhalation can increase heart rate and blood pressure and may be a trigger of a heart attack.
- Arrhythmias: Marijuana use has been associated with abnormal heart rhythms, including atrial fibrillation.
- Cerebrovascular disease: Surveys have found that marijuana

smokers were three times more likely to experience a cerebrovascular event, such as a stroke. Among 334 patients younger than 45 who had experienced a stroke, 17 percent were cannabis users.

The authors urge clinicians to ask their patients about marijuana use and, if the patient is currently using marijuana, to consult with a pharmacist about prescriptions. Cardiovascular specialists should also have open discussions with patients, acknowledging the limited scientific data but potential cardiovascular hazards of marijuana use, the authors write.

"In the clinic, patients often ask us about the safety of marijuana use and we're pressed to offer the best scientific evidence," said Vaduganathan. "Our current approach is that patients who are at high risk of cardiovascular events should be counseled to avoid or at least minimize [marijuana](#) use, and that rigorous scientific research should be conducted to further inform recommendations for patient care."

More information: DeFilippis, EM et al. "Marijuana Use in Patients with Cardiovascular Disease" *Journal of the American College of Cardiology* [DOI: 10.1016/j.jacc.2019.11.025](https://doi.org/10.1016/j.jacc.2019.11.025)

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