

Smoking in adults ages 60 and older linked to worse scores on cognitive tests

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The more people smoke, the worse they perform on cognitive tests, regardless of other health conditions known to affect cognition, according to preliminary research among adults aged 60 and older presented at the American Stroke Association's International Stroke

Conference 2022.

While smoking, [high blood pressure](#) and Type 2 diabetes are all known to adversely impact [brain health](#), a new study examined detailed national data of adults aged 60 and older to evaluate whether smoking in combination with other [medical conditions](#), such as high [blood](#) pressure and Type 2 diabetes, had an amplified impact on cognitive abilities.

"A person who smokes cigarettes regularly yet is otherwise healthy, without Type 2 diabetes or high blood pressure, is still at risk for poor brain health," said Neal S. Parikh, M.D., M.S., senior author of the study and an assistant professor of neurology and neuroscience in the clinical and translational neuroscience unit at the Feil Family Brain and Mind Research Institute and the department of neurology at Weill Cornell Medicine in New York City.

For this study, data collected by the U.S. National Health and Nutrition Examination Survey (NHANES), a large, ongoing national health database managed by the U.S. Centers for Disease Control and Prevention (CDC) since the early 1960s, was reviewed. NHANES is a collection of surveys compiling interviews and physical examinations to assess the health and nutritional status of a representative sample of U.S. adults and children each year.

The researchers examined health data for 3,244 participants (average age of 69 years; 54% women; 78% white; 8% non-Hispanic Black adults; 8% Hispanic adults) collected between 2011 and 2014. High blood pressure was present in 77% of the participants (determined from medication use, self-reported hypertension or elevated blood pressure readings). Type 2 diabetes was present among 24% of the participants (determined from self-reported information, medication use or levels of hemoglobin A1c—a [blood test](#) that reflects average blood sugar levels during the previous 3 months). Current smoking status was self-reported by 23% of

participants, and importantly, an objective measure of exposure to [cigarette smoke](#) was determined by a biomarker called cotinine in the blood tests. Cotinine is a byproduct of nicotine that remains in the blood much longer than nicotine.

Each participant took four tests often used to measure cognitive function. The tests reflect multiple aspects of cognition, such as word recall, fluency, processing speed, attention and working memory.

The analysis found:

- Higher cotinine levels were associated with significantly worse scores on the Digit Symbol Substitution Test (DSST), a test that reflects multiple aspects of cognition, such as processing speed, attention and working memory.
- High cotinine levels were not associated with significant differences in scores on tests that measured memory or language fluency.
- The association between higher cotinine levels and lower scores on the DSST was comparable among people with high blood pressure or Type 2 diabetes.

"We were surprised to find that smoking does not act synergistically with high blood pressure or Type 2 diabetes to impact cognitive performance. To us, these results suggest that smoking has a strong enough influence on brain health independent of other [health conditions](#). This means that smoking is bad for brain health even in people who don't have other health conditions typically linked with poor brain health," Parikh said.

Researchers note their findings may encourage health professionals to more strongly encourage their patients to stop smoking, regardless of age. "Our findings also raise a pressing question for future research: If people with mild cognitive impairment stop smoking, is the progression

of cognitive dysfunction halted?" Parikh said.

The study is limited by using data collected from people living in the community, so the results may not be generalizable to people living in other settings, such as nursing homes or assisted-living, or long-term care facilities.

"Because this study is cross-sectional, it can't establish a cause-and-effect relationship between cigarette smoking and cognitive decline. However, it does add to the body of evidence that smoking can significantly increase the risk of cardiovascular disease including declining brain health," 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 Tobacco Center of Regulatory Science. "It supports the American Heart Association's position that smoking is a serious health hazard, that effective multi-episode counseling and medical therapies for smoking cessation should be available to all, and that stopping [smoking](#) should be an urgent priority for smokers of all ages. It's never too late to quit."

Provided by American Heart Association

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