

# Cognitive decline incidence higher in Southern stroke belt

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New research shows that residents of the Stroke Belt—a southern portion of the U.S. with significantly elevated stroke mortality rate—also have a greater incidence of cognitive decline than other regions of the country. Researchers believe shared risk factors among members of this population are to blame. Results of this study, funded by the National Institute of Neurological Disorders and Stroke (NINDS), are published in *Annals of Neurology*, a journal of the American Neurological Association.

In 1965 the Stroke Belt first appeared in medical literature to describe the southeastern region of the U.S. where stroke mortality rates were 50% higher than the remaining U.S. regions. According to the Centers for Disease Control and Prevention (CDC) age-adjusted annual rates of stroke mortality among adults 35 and older in the eight Stroke Belt states (Alabama, Arkansas, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee) were on average, 125 per 100,000 individuals, compared to 96 per 100,000 Americans in the remaining 40 contiguous states and the District of Columbia (2000-2006).

The Reasons for Geographic and Racial Differences in Stroke (REGARDS) study, led by Principal Investigator George Howard, DrPH, recruited over 30,000 U.S. adults aged 45 or older from 2003 through 2007 and is following them for stroke and [cognitive decline](#). REGARDS participants included 56% from the Stroke Belt states and 44% from the remaining states in the continental U.S. including D.C. which researchers collectively termed "non-Belt" states. For their report

on cognitive decline, the investigators included 23,913 REGARDS participants, made up only of African Americans (38%) and European Americans (62%) who reported no history of stroke at baseline and had normal cognitive status at the first assessment.

"Our study is the first to document higher incidence of cognitive impairment in the Stroke Belt compared to remaining U.S. regions," said Virginia Wadley, Ph.D., Associate Professor of Medicine at the University of Alabama at Birmingham. Researchers assessed brain function using the Six-item Screener (SIS)—a test of global cognitive function that includes item recall and temporal orientation. SIS scores range from 0 to 6 with a score of 4 or less representing cognitive impairment.

Results indicate that 8.1% of participants showed cognitive impairment at their most recent assessment, over a mean of 4.1 years following the initial assessment. Stroke Belt residents had a greater likelihood of cognitive impairment than non-Belt residents (odds ratio=1.18); all demographic factors and time independently predicted impairment. Risk of cognitive impairment was 18% higher in residents of the [Stroke Belt](#) than in those living in non-Belt states after adjusting for the influences of age, sex, race, and education level.

The research team suggests that future studies should examine the impact of migration patterns, urban versus rural residence, socioeconomic factors, and educational quality on cognitive decline.

"Investigating regional patterns that contribute to modifiable risk factors affecting cognitive decline will allow for prevention and intervention efforts that are geographically concentrated," concluded Dr. Wadley.

"Information obtained from the REGARDS study can be used to develop services for older Americans at both local and national levels to improve outcomes for those most vulnerable to diminished cognitive function."

**More information:** "Incident Cognitive Impairment is Elevated in the Stroke Belt: the REGARDS study." Virginia G. Wadley, Frederick W. Unverzagt, Lisa C. McGuire, Claudia S. Moy, Rodney Go, Brett Kissela, Leslie A. McClure, Michael Crowe, Virginia J. Howard, George Howard. *Annals of Neurology*; Published Online: May 26, 2011 ([DOI:10.1002/ana.22432](https://doi.org/10.1002/ana.22432)).

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