Are strokes a social justice issue? A new study suggests they could be

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A new study authored by three Northern Arizona University (NAU) researchers found that people with lower socioeconomic status and people from ethnic minority populations have a greater likelihood of severe stroke than white Americans or those of a higher socioeconomic status (SES). But it's not just that—those groups also are more likely to

have a more severe stroke incident at the time they are admitted to the hospital.

What this all adds up to is non-white and lower-income Americans are more likely to have worse health outcomes after a stroke, including long-term disability and a shorter life expectancy, than their white or higher-income counterparts.

The study, "Association of Medicare-Medicaid Dual Eligibility and Race and Ethnicity with Ischemic Stroke Severity," was published in the *Journal of the American Medical Association*. Pamela Bosch, an associate professor in the Department of Physical Therapy and Athletic Training, was the first author on the study, and Indrakshi Roy, biostatistician with the Center for Health Equity Research, and Amit Kumar, assistant professor in the Department of Physical Therapy and Athletic Training, were co-authors of the article.

"Quantifying the association between being a racial or ethnic minority and stroke severity or being of low SES and stroke severity is important information for restructuring preventive care and for adequately supporting and reimbursing hospitals that disproportionately care for people of racial/ethnic minority status and the poor," Bosch said. "As a result of this work, we expect to improve preventive care and early hospital admission and post-acute rehabilitation care after stroke to minimize the long-term disability."

The team conducted a retrospective, cross-sectional study using Medicare claims data for patients who were admitted to acute care hospitals with ischemic stroke between Oct. 1, 2016, and Dec. 31, 2017. Patients were identified as low socioeconomic status if they were enrolled in both Medicare and Medicaid. Racial and ethnic minorities were those who identified as Black, Hispanic or other. They measured stroke severity using the National Institutes of Health Stroke Scale score

included in Medicare claims data. The research team recently showed that Medicare claim-based NIH stroke severity scale is significantly associated with 30-day mortality in patients with ischemic stroke and significantly improves the predictive property relative to other well-accepted risk prediction methods.

Based on a sample size of 45,459 adults aged 66 and older, they found that compared with white patients, Black patients had 1.21 times the odds of severe stroke and Hispanic patients had 1.54 times the odds of severe stroke. Patients who were dually enrolled in Medicare and Medicaid (a proxy for low SES), regardless of race/ethnicity were all more likely to have a severe stroke in comparison to white patients who were enrolled in Medicare alone.

These findings have far-reaching implications, including for health care policymakers and health care providers. Risk modeling must account for race and ethnicity and socioeconomic status to ensure that the hospitals that treat patients are not disincentivized to do so. Making practitioners aware of these disparate results can contribute to better preventative care for those at greater risk of stroke and timely acute care and comprehensive post-acute rehabilitation for patients who experience a stroke. It can also inform policymakers in the federal government; the current policies for the Centers for Medicare and Medicaid Services (CMS) don't have recommendations for choosing high-value post-acute rehabilitation care.

"As a result, Medicare unfairly penalizes hospitals treating the sickest and poorest patients, as well as minority patients," Kumar said. "These findings suggest that CMS should account for patient socioeconomic, race and disease severity factors when comparing patient outcomes and quality reporting across hospitals."

Other authors who contributed significantly to this research are Amol

Karmarkar, professor at Virginia Commonwealth University; Robert Burke, assistant professor at the Perelman School of Medicine, University of Pennsylvania; and Corey Fehnel, assistant professor of neurology at Harvard Medical School.

The authors said this is an important piece of the puzzle, but it's certainly not the last; the next step is to investigate the differences in stroke care by severity along with race and dual enrollment in Medicare and Medicaid. Knowing whether minorities and dual-eligible patients who have experienced a severe stroke are being treated in stroke-certified hospitals will help create better stroke treatment plans. Understanding the perspective of administrators, health care providers, patients and caregivers also is a critical question to ask.

More information: Pamela R. Bosch et al, Association of Medicare-Medicaid Dual Eligibility and Race and Ethnicity With Ischemic Stroke Severity, *JAMA Network Open* (2022). DOI: 10.1001/jamanetworkopen.2022.4596

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