

## Black patients from segregated neighborhoods less likely to receive lung cancer surgery

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Black residents of highly segregated neighborhoods were less likely to receive surgery for early-stage non-small cell lung cancer (NSCLC) than their peers in less-segregated neighborhoods, according to a study published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research.

"It has been established that black patients have higher cancer mortality rates and are less likely to receive appropriate treatment than whites," said the study's lead author, Asal Mohamadi Johnson, PhD, MPH, an assistant professor of integrative health science at Stetson University in DeLand, Florida. "Instead of solely looking at health disparities between white and black patients, our study focused on differences in survival among black patients resulting from different levels of neighborhood segregation."

Johnson's study focused on NSCLC, the most common type of [lung cancer](#). If caught at an early stage, the disease can sometimes be cured by surgical resection. Previous research has documented disparities in the rate of receipt of NSCLC surgery and in survival.

"At least half of patients diagnosed at early stages who undergo surgical treatment survive more than five years, whereas, without surgery, most will die within a year," Johnson said.

For this study, Johnson and colleagues conducted a retrospective cohort study of patients diagnosed with NSCLC between January 2000 and December 2009, using data from the Georgia Comprehensive Cancer Registry. Researchers measured the degree of segregation of the patients' neighborhoods by isolation index, which measures the probability of living in proximity to individuals from the same racial or ethnic group. They used economic deprivation as a second variable, and because segregation and economic deprivation are often linked; researchers created a third variable combining the two. The researchers also considered educational attainment.

For black patients, the level of segregation of their neighborhoods was the strongest predictor of whether they would receive the surgery. The study showed that compared with patients living in the least-segregated areas, the patients in the most-segregated areas were 65 percent less likely to receive the surgery. The patients in the second most-segregated areas were 63 percent less likely to receive the surgery.

For [white patients](#), educational levels in the neighborhood played the largest role in determining their chances of receiving the surgery. The white patients who lived in areas with the lowest levels of education were 48 percent less likely to receive the surgery compared with those living in areas with the most highly educated population. Segregation had no significant effect.

Black patients also had lower five-year survival compared with white patients. However, after controlling for receipt of surgery, the survival disparity between black and white patients disappeared, suggesting this disparity may be largely explained by differences in receipt of surgery. Black patients living in the neighborhoods with the highest levels of segregation and [economic deprivation](#) were 31 percent more likely to die than [black patients](#) living in the least segregated and economically deprived areas.

Johnson explained that segregation creates a cycle of economic impoverishment and widens health disparities by constraining access to education, employment opportunities, and medical services. She advocated urban planning and public policy efforts to encourage a shift to more racially and economically mixed neighborhoods.

"Health disparities are a result of a combination of social, cultural, behavioral, and political factors. Any genuine commitment to address them successfully should include experts on economic development and urban planning, as well as policymakers and the medical community," she said. "Most importantly, the residents of these communities must be involved and a part of the process."

Johnson said a limitation of the study is that researchers did not have data on individual socioeconomic status, comorbidity, and specific causes of death. Also, she said, segregation can be measured in numerous ways, and alternate measures may have resulted in different results.

**More information:** A. M. Johnson et al. The Effects of Residential Segregation and Neighborhood Characteristics on Surgery and Survival in Patients with Early-Stage Non-Small Cell Lung Cancer, *Cancer Epidemiology Biomarkers & Prevention* (2016). [DOI: 10.1158/1055-9965.EPI-15-1126](https://doi.org/10.1158/1055-9965.EPI-15-1126)

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