

Impact of Social Determinants of Health on Stroke Severity in Northwest Indiana

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Introduction:

Stroke significantly contributes to mortality and disability in the United States, yet geographical disparities exist across regions like Northwest Indiana, where stroke incidences and mortality rates are 2-4 times higher than the national average. Social and demographic determinants of health are known factors of stroke risk and outcomes. This study aims to investigate the associations between specific determinants and stroke severity of Stroke Center patients from Lake County, Indiana.

Methodology:

Data elements were extracted from patients hospitalized at Community Hospital, St. Mary's Medical Center, and St. Catherine Hospital under Powers Health between January 2022 and May 2024. Data was recorded with the AHA's GWTG Stroke Case Record Form. Our retrospective study conducted bivariate analysis, using R, on predictor variables of age, sex, race, Hispanic ethnicity, ZIP code, payment sources, and mode of arrival to the ordinal scores of the modified Rankin Scale (mRS) and the National Institutes of Health Stroke Scale (NIHSS).

Results:

Analysis of 1563 patients, excluding non-residents and transfer patients, revealed notable variations in social and demographic characteristics. Patients from certain urban ZIP codes with comparatively lower median household incomes and secondary education attainment had higher, more severe, mean NIHSS and discharge mRS scores ($p < 0.05$). When age-adjusted, Black patients had a 2.5 point higher mean initial and 1.9 point higher mean discharge NIHSS score than White patients ($p < 0.001$, $p < 0.01$). Patients with higher mean scores across all measures were those associated with using Medicare versus private insurance ($p < 0.0001$) and those arriving to the hospital via EMS versus private transport ($p < 0.01$).

Conclusions:

This research addresses the significance of surveying region-specific social determinants of health for its insight into clinical stroke care and future preventative and quality improvement initiatives. Implementation of interventions and policies can mitigate disparities and impact overall stroke management and prevention strategies.