

Neurovascular Conditions and Associated Socio-Demographic and Behavioral Factors in an Urban Hospital in Northwest Indiana

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Background: Brain health equity remains an underexplored research area despite high prevalence of neurovascular conditions and related health impacts. This study examined the associations between socio-demographic, behavioral factors, and hospital admissions for neurovascular-related morbidity in an urban underserved community. It is part of a multi-phased Community-Based Participatory Research (CBPR) partnership between Indiana University School of Medicine-Northwest and St. Mary Medical Center (SMMC) to examine the prevalence, distribution, and relationships between social determinants of health (SDOH), demographics, health behaviors, and health outcomes in Northwest Indiana.

Methods: This retrospective study analyzed a limited dataset generated by SMMC from EPIC™ with SDOH, demographic, behavioral and health outcomes data for adult inpatient visits from January 2021 to March 2023. Neurovascular admission was determined by ICD-10 Codes I67-69. Data analysis was conducted in SPSS 29.0 using descriptive statistics (i.e., frequencies and central tendency), bivariate analysis (Chi-square; $p < 0.05$), and multivariate analysis (binary logistic regression; $p < 0.05$). This study received exemption from Indiana University Human Research Protection Program (IRB #14040).

Results: There were 1,489 participants included in this study. The majority were white (77.7%), older adults (67 ± 21.5) and publicly insured (77.8%). The bivariate analysis demonstrated significant relationships between admission for neurovascular conditions and age group ($p < 0.001$), veteran status ($p < 0.001$), insurance type ($p < 0.037$), and physical activity ($p < 0.001$). After adjusting for these factors in multivariate analysis, age group ($p < 0.003$) and physical inactivity ($p < 0.008$) were significantly associated with admission for neurovascular conditions.

Conclusion: Understanding how SDOH and behavioral factors influence neurovascular admissions and inequities in urban settings will enhance collaborative efforts to develop, implement, and evaluate evidence-based interventions. The subsequent CBPR phases will utilize these findings to explore how socioeconomic status affects these patients' ability to seek emergent and/or surgical care. This will enable implementation of strategies that better account for SDOH in patient care.