Demographic, Social, and Behavioral Predictors of Readmission for Neurodegenerative Diseases in Northwest Indiana

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Background: Neurodegenerative diseases, such as Alzheimer's and Parkinson's disease, pose significant challenges given their progressive nature and multifaceted care needs. This research examined the intricate interplay between social determinants of health (SDOH) and hospital readmissions among individuals with neurodegenerative diseases. It is part of a Participatory Research partnership between Indiana University School of Medicine-Northwest and an urban health system in Northwest Indiana (NWI).

Methods: This retrospective study analyzed a dataset generated from routine SDOH screenings and referrals in Epic using the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE) for inpatient admissions from 3 NWI urban hospitals between January 2021 to April 2024. Data analysis was conducted in SPSS 29.0 with descriptive statistics, bivariate analysis (Chi-square), and multivariate analysis (binary logistic regression). This study received exemption from Indiana University Human Research Protection Program (IRB #14040).

Results: The sample consisted of 1,338 patients admitted for neurodegenerative diseases. Patients were predominantly White (68.9%), older adults (73 ± 14), and publicly insured (91.5%). The bivariate analysis found that readmission was significantly associated with age ($p<0.001$), insurance type ($p=0.003$), hospital ($p<0.001$), physical activity level (0.034), and length of stay ($p<0.001$). The multivariate analysis found higher odds of hospital readmission among patients with public insurance (OR=76.1%; $p=0.028$), prolonged hospital stay (OR=8.5%; $p<0.001$), and admission at a small hospital in a medically underserved area (OR=69.6%; $p<0.001$).

Conclusion: Understanding the impact of SDOH on hospital readmissions is crucial for developing targeted interventions to improve outcomes and reduce healthcare costs. These factors can profoundly influence disease management, adherence to treatment plans, and overall health outcomes. Findings from this research underscore the critical need for integrated approaches addressing SDOH as part of comprehensive disease management strategies. By addressing these SDOH, healthcare systems can potentially reduce readmissions, enhance quality of life, and promote health equity.