

# Identifying Socio-Demographic and Behavioral Predictors of Prolonged Hospital Stay in an Urban Hospital in Northwest Indiana

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**Background:** Hospital length of stay (LOS) is a crucial metric that impacts patient outcomes, healthcare resource utilization, and financial burden. In 2019 the CDC reported the average LOS in community hospitals was 5.4 days. Prolonged LOS is associated with an increased risk of hospital-acquired infections, decreased hospital bed availability limiting patient access to care, and cognitive impairment, particularly among the elderly. This indicates the importance of addressing LOS as a healthcare priority. This study examined the relationship between LOS and social determinants of health (SDOH), patient demographics, health behaviors, and health outcomes as part of a long-term Community Based Participatory Research partnership between IUSM-NW and St. Mary Medical Center (SMMC).

**Methods:** This retrospective study analyzed EPIC™-generated data for adult inpatient visits at an urban hospital in Northwest Indiana from January 2021 to March 2023. Data analysis was performed using SPSS 28.0, consisting of descriptive statistics, bivariate analysis (One-way ANOVA, Independent T-tests, Kruskal Wallis H;  $p < 0.05$ ), and Simple Linear Regression. This study was granted an exemption by the Indiana University Human Research Protection Program (IRB #14040).

**Results:** The sample comprised of 10,916 predominantly white (77.7%) patients with a median age of 65 (IQR=22) and a median LOS of 4 days (IQR= 5). Bivariate analysis revealed LOS was significantly associated with age ( $p < 0.001$ ), race ( $p < 0.033$ ), sex ( $p < 0.012$ ), insurance type ( $p < 0.001$ ), physical inactivity ( $p < 0.001$ ), and smoking tobacco ( $p < 0.001$ ). After controlling for all factors in the multivariate analysis, age ( $p < 0.020$ ), physical inactivity ( $p < 0.013$ ), and insurance type ( $p < 0.013$ ) retained their significance.

**Conclusions:** These findings highlight the significance of demographic, behavioral, and social factors in relation to hospital LOS. Understanding these factors holds immense potential to guide the development of targeted interventions and healthcare strategies to optimize patient care and reduce LOS.