

Exploring the Influence of Social Determinants on Postoperative Coronary Artery Bypass Graft (CABG) Complications in Northwest Indiana

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Introduction: Coronary artery bypass grafting (CABG) comprises 70% of all cardiac surgeries in the United States, with approximately 400,000 surgeries performed per year at a cost of \$16 billion annually. According to the American Heart Association, women (2.3% versus men 1.6%), and patients identifying as black (2.8% versus white 1.6%) have higher rates of CABG-related mortality. This study examined demographic, clinical, behavioral, and social determinants of post-CABG complications.

Methods: This retrospective cross-sectional study analyzed inpatient admissions in patients with a CABG history at three urban hospitals in Northwest Indiana between January 2021 - March 2025. CABG history and complications were identified using ICD-10. SDOH data were generated in EPIC using the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences (PRAPARE). Data analysis consisted of bivariate (Chi-square) and multivariate (Binary Logistic Regression) analyses in SPSS 31.0. The study was exempted by Indiana University Human Research Protection Program (IRB#14040).

Results: The sample included 10,941 patients. Bivariate analysis revealed statistically significant ($p < 0.05$) associations between CABG complications and ethnicity, race, veteran status, BMI, Emergency Department (ED) Disposition, 30-day readmissions, and readmissions. Multivariate analysis revealed significantly increased odds of CABG complications among patients identifying as Asian ($p = 0.019$; OR=3.127), underweight ($p = 0.029$; OR=1.919), and veterans ($p = 0.006$; OR=1.399) and decreasing odds with each year increase in age ($p = 0.001$; OR=0.985).

Conclusion: Incorporating social determinants of health into CABG risk stratification and management can enhance patient outcomes and quality of life. To optimize CABG outcomes, future research should focus on identifying context-specific determinants and translating findings into evidence-based hospital initiatives guiding the development of programs to meet patients' needs and promote long-term health improvements.