

Food Insecurity: An Upstream Social Determinant of 30-Day Congestive Heart Failure Readmissions

Alison Blodgett, Jonathan Guerrero, Baraka Muvuka
Indiana University School of Medicine - Northwest (IUSM-NW)

Background: Approximately 6.7 million Americans have congestive heart failure (CHF), costing the healthcare system over \$30 billion annually. Readmissions contribute significantly to these costs, as 20-25% of hospitalized CHF patients are readmitted within 30 days of discharge. The Hospital Readmissions Reduction Program monitors 30-day readmission rates and penalizes hospitals that do not meet targets. Previous research on factors impacting CHF readmissions has largely focused on downstream factors, such as clinical practices, patient health characteristics, income level, insurance type, etc., rather than upstream factors that can potentially inform high-impact interventions. This study explored downstream, midstream, and upstream factors—including demographics, social determinants of health (SDOH), and health behaviors—and their relationship with 30-day CHF readmissions in an urban healthcare system in Northwest Indiana. This was part of an academic-health system participatory research partnership.

Methods: This retrospective study analyzed a limited dataset from EPIC™ with SDOH, demographic, health behavior, and health outcomes of adult inpatients between January 2021 and April 2024. Data analysis consisted of descriptive, bivariate (Chi-Square; $p < 0.05$), and multivariate (Binary Logistic Regression; $p < 0.05$) analyses in SPSS 29.0. This study was exempted by the Indiana University Human Research Protection Program (IRB #14040).

Results: The sample consisted of 5,489 patients with CHF, predominantly White (63.8%), 65+ years old (76.2%), and publicly insured (91.8%). 30-day readmissions represented 22.4% of CHF admissions. The bivariate analysis revealed significant associations between 30-day CHF readmissions and ethnicity ($p = .003$), sex ($p = .046$), language ($p = .017$), hospital ($p = .009$), insurance type ($p = .003$), food insecurity ($p = .048$), and depression risk ($p = .003$). Food insecurity remained significantly associated with 30-day CHF readmission ($OR = 2.128$; $p = .033$) after adjusting for these factors in the multivariate analysis.

Conclusion: This study identified food insecurity as an upstream SDOH predicting 30-day CHF readmission. Future research should further explore other upstream factors contributing to 30-day CHF readmissions and evaluate evidence-based food insecurity interventions.