

Impact of Social Vulnerability on Hypertension-Related Outcomes among Medicare Beneficiaries in Kansas: A Three-Year Retrospective Analysis

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Introduction. Hypertension is a major contributor to morbidity and mortality among older adults. The Social Vulnerability Index (SVI), reflecting socioeconomic disparities, may influence hypertension-related outcomes. This study examined the association between county-level SVI and hypertension-related hospitalizations and mortality among older adults in Kansas.

Methods. We retrospectively analyzed CDC data from 2019-2021 on beneficiaries aged 65+. County-level SVI, age-adjusted hypertension-related hospitalization, and mortality rates were obtained directly from the CDC. Hospitalizations (principal diagnosis on admission) and deaths (any mention among 20 listed causes) were identified using ICD-10 codes I10–I15. Pearson correlation assessed associations between SVI and outcomes by county, SVI quartiles, sex, and race/ethnicity.

Results. The mean hospitalization rate was 8.49 (7.68-9.32) per 1,000 beneficiaries, rising from 7.12 (SVI Q1) to 10.75 (SVI Q4). Mean mortality was 862.69 (799.52-925.86) per 100,000 beneficiaries, increasing from 842.75 (SVI Q1) to 992.00 (SVI Q4). Hospitalization rates were highest among Black residents (20.50-25.44/1,000) and men (9.39-12.76/1,000). Seward County had the highest SVI; Jefferson County had the lowest. SVI showed a moderate correlation with hospitalization rates ($r = 0.319$, $p = 0.0009$); a 0.1 increase in SVI was linked to 0.461 additional hospitalizations per 1,000 beneficiaries. Mortality correlation was weaker and nonsignificant ($r = 0.118$, $p = 0.232$). Socioeconomic status ($r = 0.34$, $p < 0.001$) and housing/transportation ($r = 0.29$, $p = 0.0027$) were significantly associated with hospitalization rates.

Conclusions. Higher social vulnerability is associated with increased hypertension-related hospitalizations. Public health efforts should prioritize high-SVI counties to reduce disparities.