

County-level Social Vulnerability and Hypertension-related Hospitalizations in Medicare Beneficiaries in the Northeastern United States

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Background

Community-level social vulnerability (SV) is associated with physical illness and cardiovascular mortality. However, its association with hypertension-related hospitalizations in adults has not been studied.

Objective

To examine the association between SVI and hypertension-related hospitalizations in Medicare beneficiaries aged 65 years and older in the Northeast census region of the United States.

Methods

Study Design: Retrospective cross-sectional analysis using county-level data from the CDC.

Data source:

- 2018 county-level SVI data from CDC
- 2019-2022 hypertension hospitalization data for adults aged 65+ from the CDC's Interactive Atlas of Heart Disease and Stroke in the Northeastern United States.

Outcome Measures:

- Hospitalization rates (per 100,000 person-years) stratified by SVI quartiles, gender, and race/ethnicity.
- Rate differences calculated by subtracting Q1 from Q4.

Statistical analysis:

- Impact of SVI assessed by comparing hospitalization rates between SVI-Q4 and SVI-Q1 using nonoverlapping confidence intervals (CIs).
- Linear regression used to examine the relationship between SVI and HTN-related hospitalization rates.

Results

- Between 2019 and 2021, the overall HTN-related hospitalization rate was 14.9 per 100,000, with rates ranging from 13.4 in Q1 to 19.7 in Q4.
- A weak but direct relationship was found between SVI and hypertension hospitalizations ($R^2 = 0.36$), with each 0.1 unit increase in SVI linked to a 0.74 increase in hospitalizations.

Figure 1. Relationship between SVI Quartiles and Hypertension-Related Hospitalization per 100,000

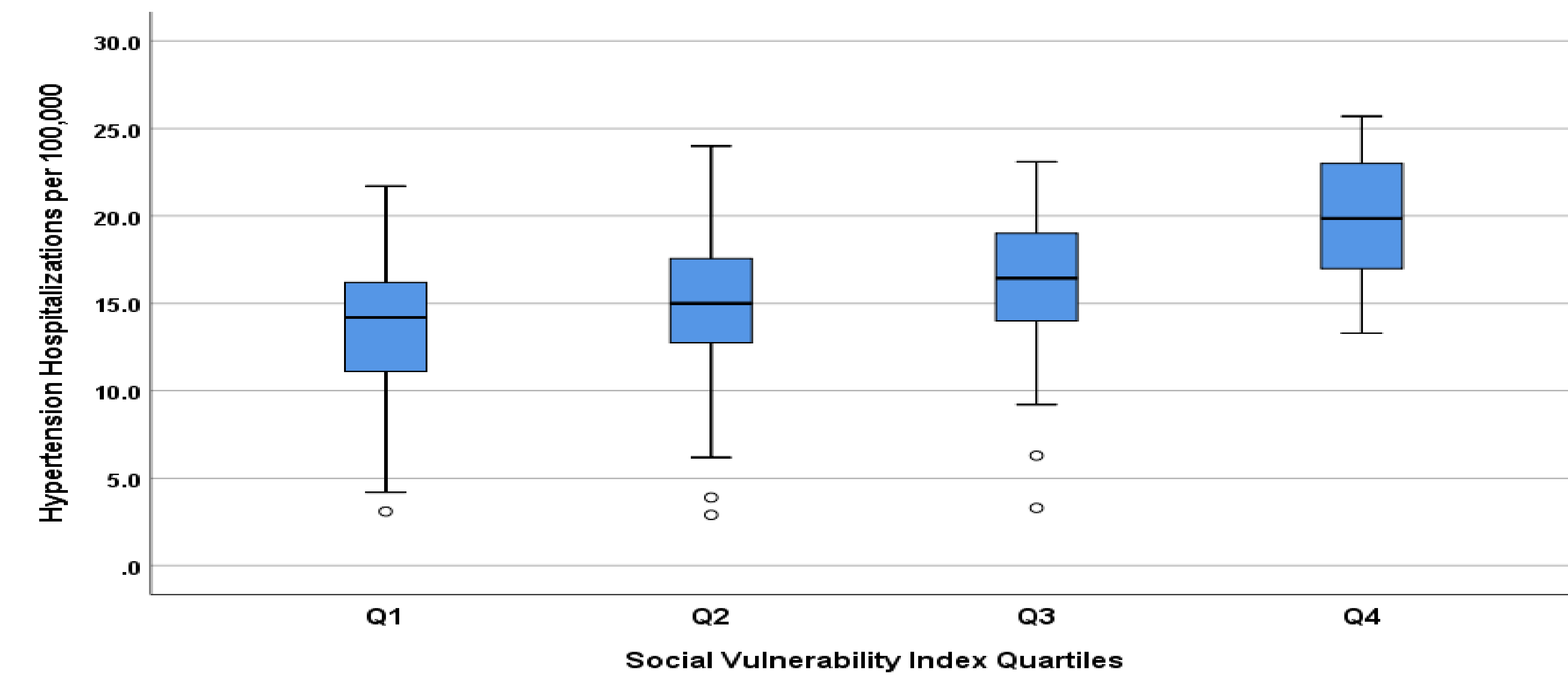


Figure 2

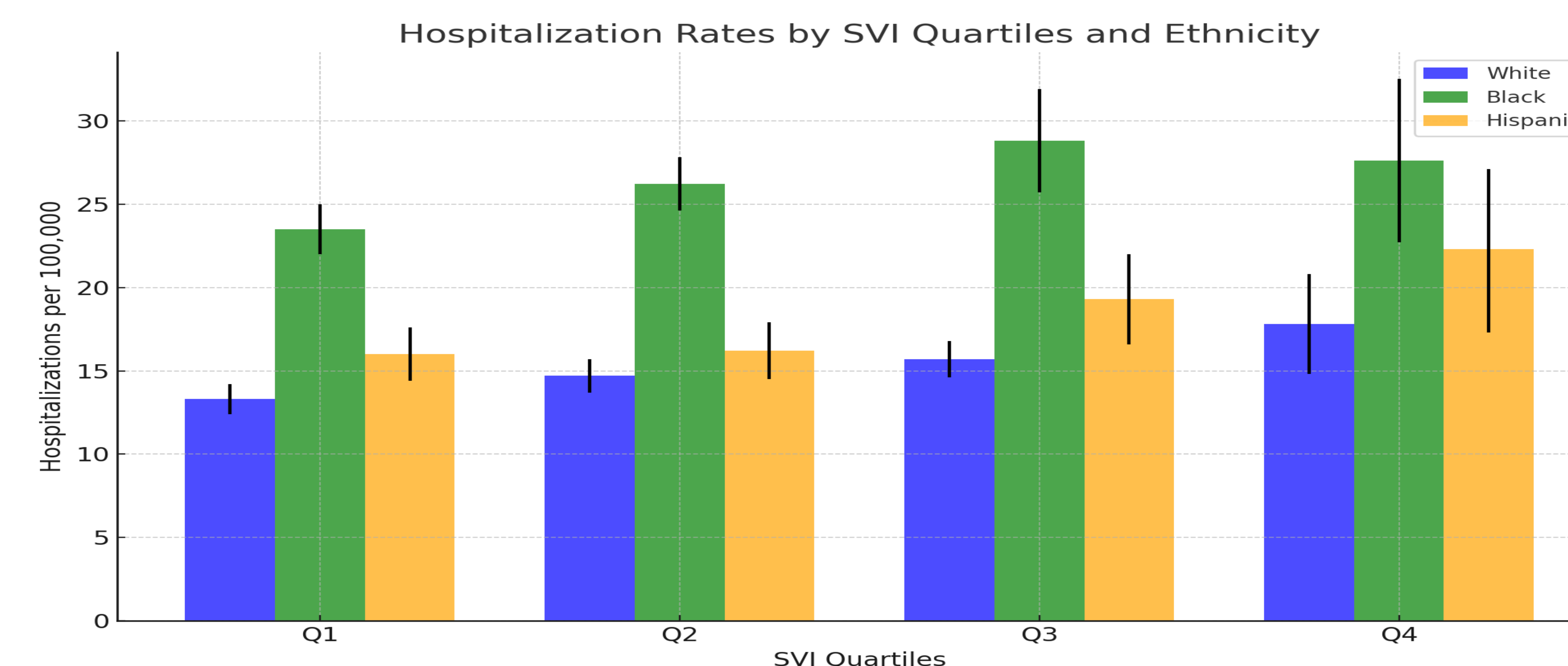


Figure 3

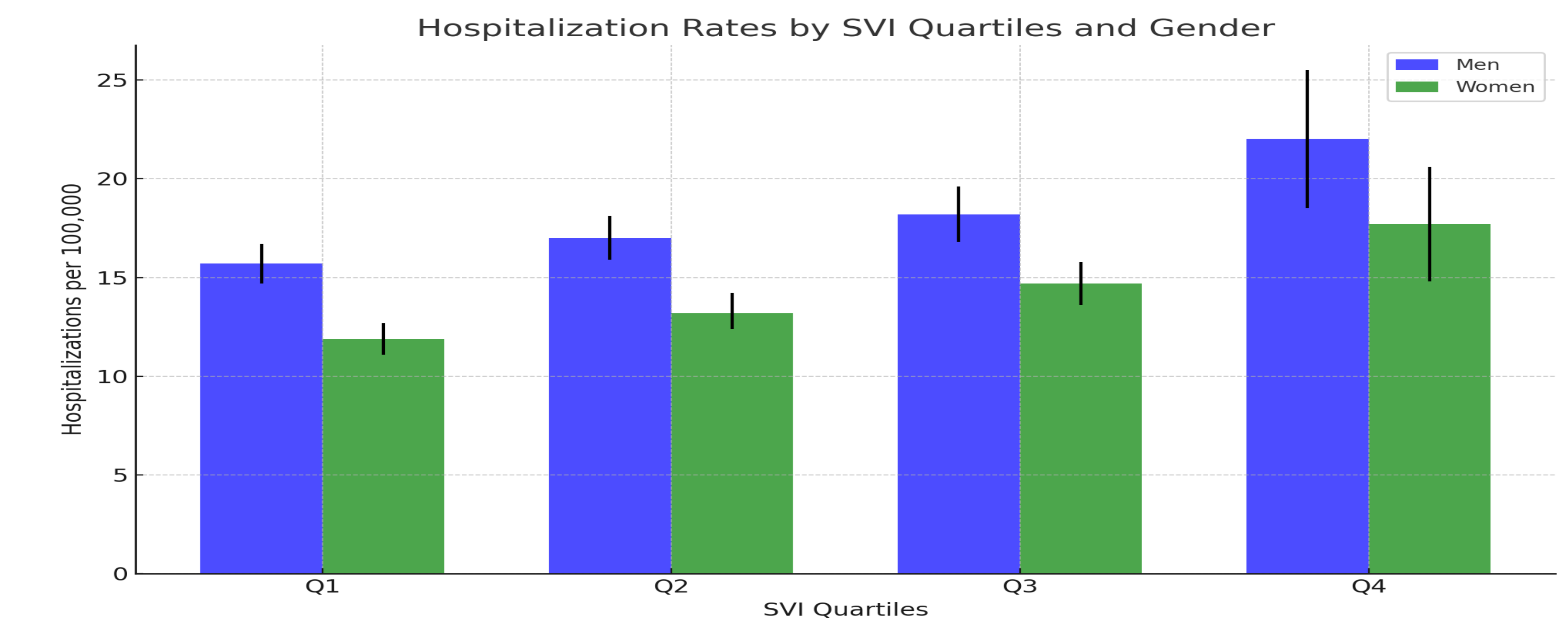
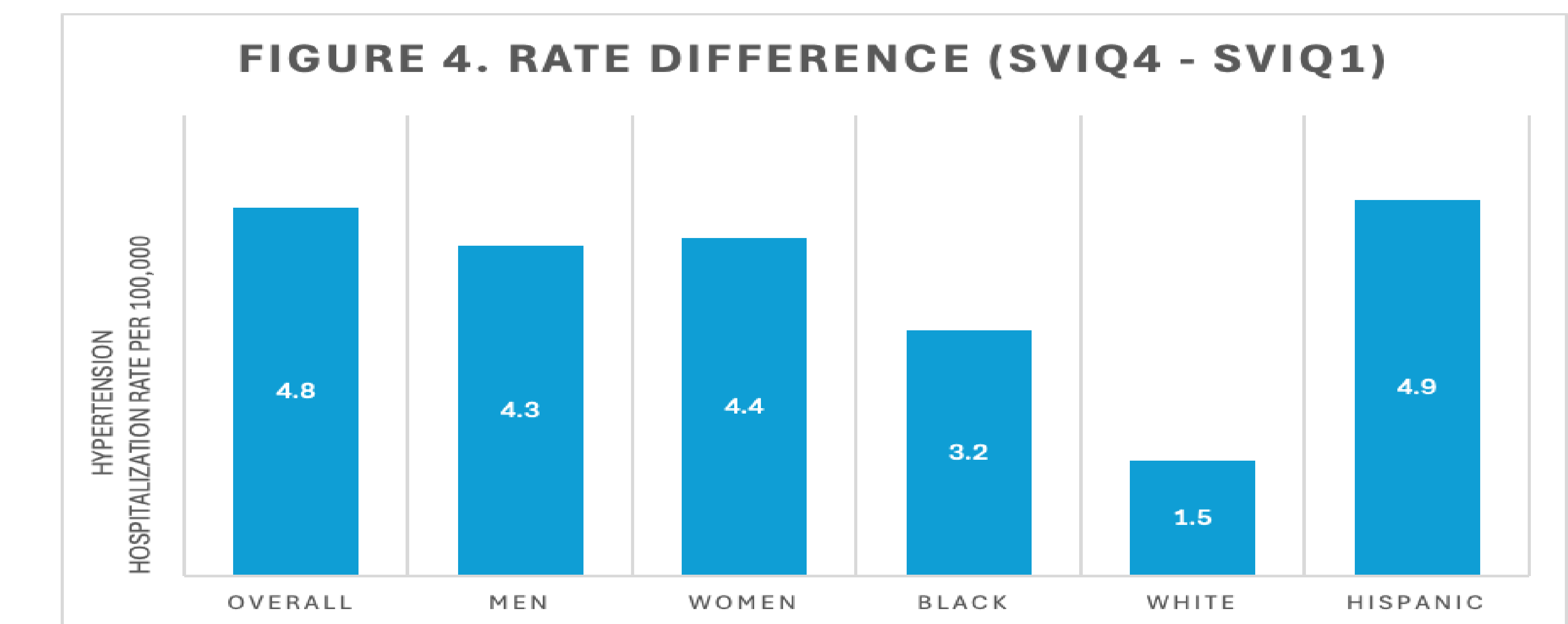


Figure 4



Conclusion

- Higher social vulnerability is associated with increased hypertension-related hospitalizations among Medicare beneficiaries in the Northeastern United States.
- Study suggests that local factors influence hypertension-related hospitalization rates, and disparities in resource allocation may exist.
- Study can inform local policy decisions that are essential for reducing the burden of hypertension and improving cardiovascular outcomes.