



Social Determinant of Health and Healthcare Utilization in Hypertension with Coronary Artery Disease, Angina Pectoris, and Heart Attack

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BACKGROUND

- One in four adults in the US are estimated to have hypertension, costing the US health system up to \$198 billion (about \$610 per person) per year.
- While many studies confirmed the association between progressive manifestation of coronary artery disease in hypertensive patients, no study has been done to investigate the prevalence of social determinants of health (SDOH) in hypertensive patients with different coronary artery disease manifestations.

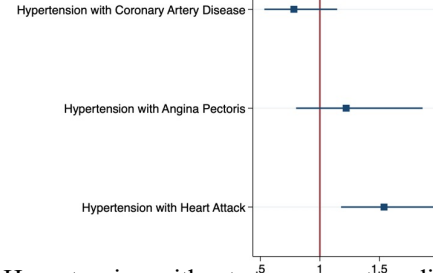
OBJECTIVES

We aim to inform healthcare providers on the prevalence of SDOH variables in hypertensive patients with different coronary artery disease manifestations and its effect on healthcare utilization.

METHODS

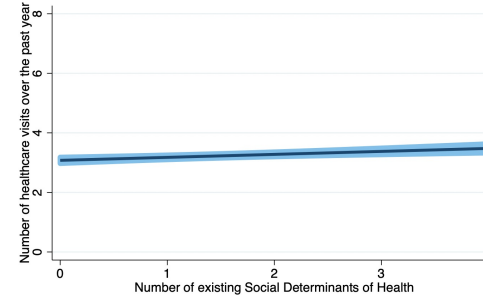
- We analyzed the data of patients diagnosed with CHF from the National Health and Nutrition Examination Survey (NHANES) 2017–2020.
- We included participants with hypertension (HTN) and paired with existing coronary artery disease manifestations: HTN-0 for no manifestation, HTN-CAD for coronary artery disease, HTN-AP for angina pectoris, and HTN-HA for heart attack.
- Five domains of SDOH were identified: low education (LE), low income, (LI), no health insurance (NI), food insecurity (FI), and no/limited employment (NE).
- Healthcare utilization is defined as the number a participant completed healthcare visits over the past year.
- We performed descriptive analyses, examined the prevalence of each SDOH, and analyzed SDOH effect on healthcare utilization.

Graph 1. Likelihood of progressive coronary artery disease manifestations (95% CI) to have more SDOH variables.

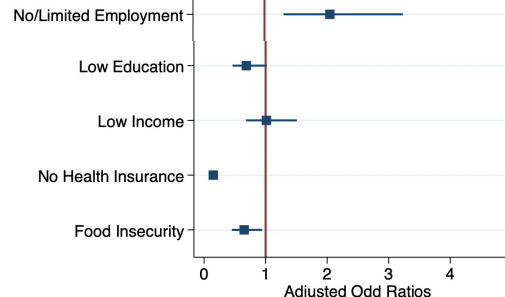


Comparison: Hypertension without coronary artery disease manifestation

Graph 2. Likelihood of increased healthcare utilization (95% CI) by number of existing SDOH variables.



Graph 3. Likelihood of different SDOH variables to have an increased healthcare utilization (95% CI), adjusted for different hypertension groups and coronary artery disease manifestation.



Comparison: Participants without any existing SDOH

RESULTS

- The prevalence of SDOH variables range from double to triple the prevalence of national average provided by the U.S. Census Bureau: LE (20.9% vs 9.4%), LI (27.6% vs 11.4%), FI (30.8% vs 10.5%), and NE (25.9% vs 8.1%).
- The prevalence of having no health insurance is similar to the national average (9.5% vs 8.6%).
- HTN-HA have more odds of having lower education (OR 1.42, 95% CI 1.07-1.89, $p < 0.016$), no health insurance (OR 2.13, 95% CI 1.23-3.71, $p < 0.01$), food insecurity (OR 1.56, 95% CI 1.23-2.05, $p < 0.01$), and no/limited employment (OR 1.76, 95% CI 1.36-2.29, $p < 0.01$) than HTN-0.
- Having more SDOH variables increases the odds of having progressive coronary artery disease manifestations ($p < 0.01$).
- HTN-HA participants are 1.5 times at odds to have more existing SDOH variables than HTN participants with no coronary artery disease manifestation (OR 1.54, 95% CI 1.18-2.01, $p < 0.002$) (Graph 1).
- Having more SDOH variables increases the odds of having more healthcare utilization ($p < 0.01$) (Graph 2).
- Adjusted for different hypertension groups and coronary artery disease manifestations, the odds of increased healthcare utilization doubles when participants have no/limited employment ($p < 0.01$) (Graph 3).

CONCLUSION

More SDOH variables is associated with more progressive coronary artery disease manifestations in hypertensive participants, and concurrently associated with more healthcare utilization—especially when participant has no/limited employment. Our findings support the importance of early identification of existing SDOH in hypertensive patients to prevent disease progression and increased healthcare utilization.