

**Title:** Mapping Heart Disease Risk Factors: Spatial Analysis of Mississippi Counties

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**Abstract**

**Background:** Mississippi faces a public health challenge with high death rates from heart disease, causing around more than 8,000 deaths each year, placing the state among the nation's highest. Factors like smoking, obesity, and lack of exercise worsen this issue. Understanding the spatial distribution of the risk factors is crucial for effective intervention. Therefore, this study explores the spatial distribution of heart disease deaths across Mississippi counties and associated risk factors.

**Methods:** An ecological study was conducted utilizing publicly available county-level data on health indicators, sociodemographic characteristics, and access to healthcare. R software and ArcGIS Story Map were employed for analysis and visualization.

**Results:** Analysis revealed clustering of risk factors such as smoking, obesity, and physical inactivity, high cholesterol, and high blood pressure in rural counties, notably in the Mississippi Delta, Noxubee, Kemper, and Jasper counties and some other and southwest counties. Additionally, disparities in healthcare access were evident, including shortages of primary care providers, access to blood pressure medication and limited insurance coverage in these counties.

**Conclusion:** The findings highlight the urgent need for targeted interventions to address health inequities and reduce the burden of heart disease risk factors in Mississippi's underserved communities. Strategic efforts focusing on improving access to healthcare services and addressing modifiable risk factors are essential for promoting cardiovascular health and well-being statewide.