

## Abstract

### Mapping STI Disparities: Exploring Spatial Patterns of Sexually Transmitted Infections in Mississippi Counties

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**Background:** Understanding the distribution of sexually transmitted infections (STIs) within Mississippi is of great importance due to the state's unique socio-economic and demographic characteristics. Mississippi consistently faces challenges in healthcare access and health disparities, particularly in rural and underserved communities. By exploring the spatial pattern of STI prevalence at the county level, this project sheds light on critical disparities within the state. This knowledge is helpful in guiding targeted public health interventions aimed at reducing STI rates and improving healthcare equity for all Mississippians.

**Methods:** An ecological study was conducted, using publicly available datasets from the Centers for Disease Control and Prevention (CDC), Social Explorer, and County Health Rankings, to analyze the spatial distribution of sexually transmitted infections (STIs) across Mississippi counties from 2019 to 2022, alongside associated risk factors. R software and ArcGIS Story Map were utilized to conduct the analyses.

**Results:** The study showed varying spatial distribution of high STI prevalence, notably shifting from western counties towards eastern border counties during the study period. Notably, the spatial pattern of STIs in 2022 mirrored that of drug overdose deaths, with counties in the Delta region and areas such as Harrison, Monroe, Lee, and DeSoto exhibiting elevated rates. Furthermore, disadvantaged counties exhibited a clustering of lower coverage of primary care providers and higher poverty rates, exacerbating health disparities.

**Conclusion:** This study highlights the importance of targeted interventions to address the changing landscape of STI prevalence in Mississippi. Region-specific strategies are recommended to mitigate disparities and enhance access to STI prevention and treatment services. By using spatial analysis techniques, public health efforts can be improved to effectively combat STIs and promote health equity across the state.