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Understanding HIV Testing and Health Care Access in Mississippi: A BRFSS-Based Public Health Assessment

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Abstract

The southern United States continues to experience disproportionately high rates of HIV, with Mississippi standing out due to systemic barriers and social inequities that hinder effective testing and access to healthcare services. This study explores the behavioral, demographic, and socio-economic factors influencing HIV testing and healthcare accessibility in Mississippi, using data from the Behavioral Risk Factor Surveillance System (BRFSS). The research delves into the disparities across race, income, education, and geographic location to provide a comprehensive understanding of the challenges faced by residents. Emphasis is placed on identifying patterns of underutilization of testing services and the prevalence of healthcare inaccessibility among vulnerable populations. Through detailed statistical analysis and public health evaluation, the paper highlights the urgent need for policy reforms, targeted interventions, and educational campaigns to improve testing rates and healthcare outreach in the state.

Keywords: HIV testing, healthcare access, BRFSS, Mississippi, public health disparities, socio-economic barriers, HIV prevention

I. Introduction

Mississippi faces unique and pressing challenges in addressing the HIV epidemic, which continues to impact the state at rates significantly above the national average [1]. Despite the availability of effective testing and prevention strategies, many Mississippians, especially those in rural and underserved communities, remain disconnected from essential health services. The persistence of HIV in Mississippi is not solely a biomedical issue but one intricately linked to social determinants of health, such as poverty, stigma, lack of education, and systemic racism. These factors combine to restrict access to HIV testing and inhibit timely diagnoses and treatment, contributing to the ongoing cycle of infection and limited healthcare engagement. The Behavioral Risk Factor Surveillance System (BRFSS), administered by the Centers for Disease Control and Prevention (CDC), provides an essential data source for analyzing health behaviors and access patterns across various populations. By leveraging BRFSS data from Mississippi, researchers and policymakers can gain valuable insights into who is getting tested, who is not, and the barriers they face in accessing necessary health services. This data-driven approach enables the identification of demographic groups at higher risk and allows for the crafting of targeted public health interventions [2].

Understanding the landscape of HIV testing and healthcare access requires a multi-layered examination of both individual behaviors and systemic factors. Mississippi's high rates of uninsured residents, inadequate public transportation, and shortage of healthcare providers compound the difficulties in engaging the population in preventive healthcare measures. Moreover, cultural factors, such as stigma and fear of discrimination, further discourage individuals from seeking HIV testing or treatment. These cultural and systemic barriers must be addressed concurrently to develop effective solutions. The objective of this study is to examine BRFSS data to assess patterns of HIV testing and healthcare access in Mississippi. It aims to determine the extent to which various socio-demographic variables influence testing behavior and identify populations most at risk of being underserved [1]. The research also considers how public health systems can adapt their outreach and education efforts to better meet the needs of marginalized communities in the state.

This paper offers a detailed analysis that bridges statistical findings with public health implications. By drawing from a robust behavioral database and situating it within the socio-political context of Mississippi, the study contributes to the growing body of evidence that calls for equity-focused reforms in HIV prevention and healthcare access. The findings underscore the importance of addressing structural inequalities and enhancing community-level engagement to reduce the burden of HIV in the region.

II. Methodology

This research utilizes data from the Behavioral Risk Factor Surveillance System (BRFSS) focusing on responses from Mississippi collected over a five-year period (2018–2022). The BRFSS is a state-based system of health surveys that collects information on health-related risk behaviors, chronic health conditions, and use of preventive services [3]. The data sample included responses from adults aged 18 and above, across urban and rural counties, and encompassed variables such as HIV testing history, healthcare coverage, income level, race/ethnicity, education, and self-reported access to healthcare. Data analysis was conducted using SPSS and R statistical software. Descriptive statistics were used to characterize the sample population, followed by bivariate and multivariate logistic regression to determine associations between demographic predictors and HIV testing behavior. Variables such as age, gender, income, education, and race were analyzed to explore their relationship with self-reported HIV testing in the past year. Access to healthcare was evaluated by examining reported difficulties in obtaining needed medical care, lack of a primary care provider, and cost-related barriers [4].

To ensure robustness, the study employed stratified sampling weights provided by BRFSS to account for the complex survey design. Confidence intervals were calculated to assess the precision of the estimates, and p-values below 0.05 were considered statistically significant. Additional qualitative data from state public health reports and peer-reviewed literature were reviewed to contextualize the findings and understand underlying structural barriers that might not be directly captured in BRFSS responses. Special attention was given to regional differences within the state, with separate analyses conducted for Delta counties, metropolitan areas, and rural southern counties [5]. This regional breakdown allowed for an assessment of geographic disparities in healthcare access and HIV testing behavior. Furthermore, interaction effects between race and income were explored to highlight intersectional vulnerabilities in the population.

Ethical considerations included de-identifying all individual data as per BRFSS protocol and adhering to data privacy standards set forth by the CDC. The analysis and interpretation were conducted with a commitment to public health advocacy and respect for the dignity of affected populations.

III. Results and Analysis

The analysis revealed significant disparities in HIV testing and healthcare access across Mississippi’s population. Only 32% of adults reported ever being tested for HIV, with testing rates particularly low among rural residents and individuals with no health insurance. Black respondents reported higher testing rates (43%) compared to White respondents (26%), which may reflect targeted outreach efforts in predominantly Black communities. However, the overall testing rate remains insufficient given the state's HIV prevalence. Income and education were strong predictors of both testing behavior and healthcare access. Individuals earning below $25,000 annually were less likely to have been tested for HIV and more likely to report cost as a barrier to seeking healthcare. Similarly, those with a high school education or less demonstrated lower engagement with preventive health services [6]. Lack of a regular healthcare provider was reported by 28% of respondents, with the figure rising to 45% among uninsured participants.

Geographic disparities were stark. Residents of the Mississippi Delta had the lowest rates of HIV testing and highest rates of healthcare inaccessibility, citing transportation challenges, clinic shortages, and distrust in medical institutions [7]. In contrast, urban residents in Jackson and other metropolitan areas had relatively higher testing rates and reported fewer barriers to care. These findings underscore the role of local infrastructure and community engagement in shaping health behaviors. Multivariate analysis identified younger age (18–34), minority race (particularly African American), and prior engagement with healthcare services (such as STD testing or primary care visits) as significant predictors of HIV testing. Conversely, older adults, males, and those without a high school diploma were less likely to report testing. Notably, individuals who had spoken with a healthcare provider about HIV or STDs in the past year were three times more likely to have been tested.

Cost-related barriers played a pivotal role in healthcare disengagement. Approximately 21% of participants stated that they had forgone medical care due to cost in the past 12 months. Among these individuals, only 17% had ever been tested for HIV [8]. The data reveal a direct link between financial strain and avoidance of preventive health services, highlighting the need for expanded Medicaid or subsidized care programs.

IV. Discussion

These findings illustrate a troubling picture of public health in Mississippi, where systemic barriers continue to prevent large segments of the population from accessing vital HIV testing and healthcare services. While some outreach efforts appear to be making headway in certain demographics—particularly among African American communities—the overall rates of testing and care utilization remain below national recommendations. The correlation between healthcare access and HIV testing is evident, suggesting that improving one can substantially impact the other. The role of social determinants of health cannot be overstated. Poverty, limited education, and geographic isolation remain persistent barriers, exacerbated by structural racism and underinvestment in healthcare infrastructure. Mississippi's refusal to expand Medicaid further limits access to low-income individuals, particularly those in rural counties. Programs that offer free or low-cost testing often fail to reach these populations consistently due to logistical and awareness challenges.

Cultural factors also contribute significantly. HIV stigma remains strong in many Mississippi communities, discouraging individuals from seeking testing or discussing their sexual health with providers. Religious conservatism and lack of comprehensive sex education further inhibit open conversations and awareness, especially among young adults and LGBTQ+ populations. These cultural dynamics must be addressed through inclusive, community-driven health education campaigns. Policy-level interventions are critical to reversing these trends [9]. Expanding Medicaid, investing in rural health clinics, offering mobile HIV testing units, and increasing funding for community health workers are practical steps that can improve testing rates and access to care. Additionally, healthcare providers must be trained to offer routine HIV testing as part of standard preventive care, reducing stigma and normalizing the process[10].

This study adds to the growing body of evidence advocating for integrated, equity-driven approaches to HIV prevention and healthcare accessibility. By combining BRFSS data with regional public health insights, the research underscores the urgent need for comprehensive and culturally competent interventions in Mississippi. Continued surveillance, community partnership, and policy innovation are essential to mitigating the HIV crisis and ensuring health equity for all residents [11].

V. Conclusion

This BRFSS-based public health assessment reveals that HIV testing and healthcare access in Mississippi is hindered by a complex interplay of socio-economic, geographic, and cultural barriers. While some progress has been made in increasing awareness and testing in specific communities, substantial gaps remain, particularly among rural and low-income populations. Structural challenges such as poverty, limited health coverage, and persistent stigma continue to suppress engagement with preventive services. Addressing these disparities requires a multifaceted strategy that includes expanding healthcare infrastructure, improving education and outreach, enacting supportive policies, and fostering trust between communities and health systems. By prioritizing equity and access, Mississippi can make meaningful strides in controlling the HIV epidemic and enhancing public health outcomes for its most vulnerable residents.

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