

Effect of Neighborhood Factors on Prevalence of Sexually Transmitted Infections (STIs) in Jackson, MS

Shirley Deng, Advisor: Dr. Jennifer Rose, QAC Summer Apprenticeship, McNair Fellows Program Summer 2013



INTRODUCTION

- When discussing health outcomes, poverty is a risk factor for the spread of infectious diseases for reasons such as a deprivation of food and shelter, lack of access to health care and other essential services, and the inability of a unstable community to properly socialize youth. This results in engagement in risky behaviors , such as having multiple sexual partners and substance abuse, that are associated with propagation of sexually transmitted infections (STIs) [1]. Research has shown that residential segregation by race can concentrate poverty and other negative influences associated with the segregated group. Where poverty is high, so are rates of STIs [2].
- This establishes that there health disparities in disease epidemics are not solely the result of individual risk behavior but are outcomes of functioning systems [3].

STUDY AIMS

- To examine what demographic and behavioral factors at the level of the individual are associated with prevalence of STIs as a health outcome.
- Analyze how certain neighborhood measures of poverty and diversity interact with individual level characteristics to explain STI outcomes.

METHODS

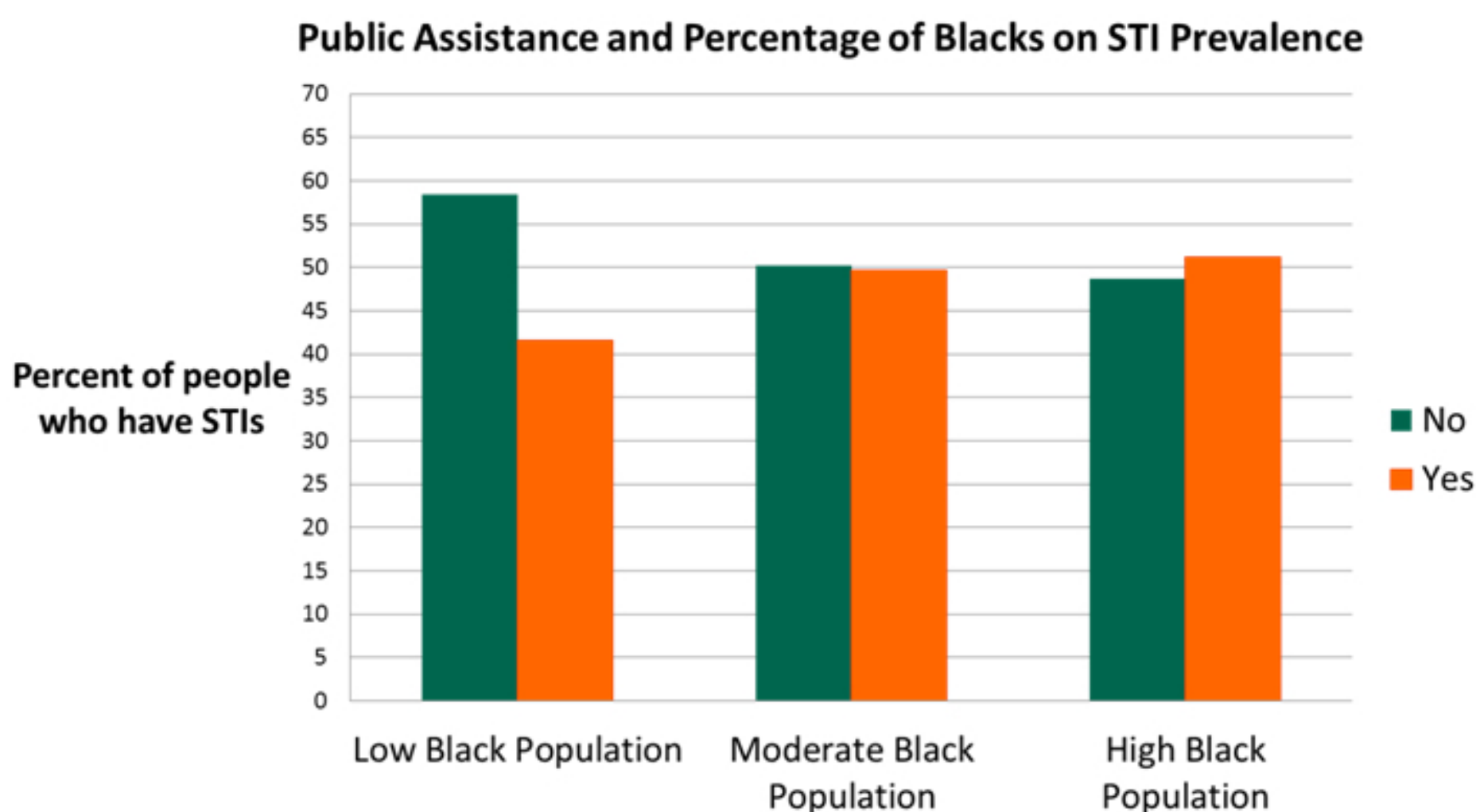
Sample & Measures

- Sample was taken from a dataset collected by Miriam Hospital in Jackson, MS. Participants were divided into neighborhoods based on their reported residential zip code and merged with neighborhood demographics data collected from City surveillance data for zip codes in Jackson, MS.
- 1542 individuals (95% African American; 62.4% female, 37.6% male) involved in the survey met the age eligibility requirement (18+) and were present for an STI/HIV screening at a publically funded STI clinic between Jan and June of 2011.
- Response variable: *STI status* was coded dichotomously as ever having any STIs (gonorrhea, chlamydia, trichomonas, herpes, syphilis, NGU, MPC, or PID) in one’s lifetime.
- Predictor Variables: *Number of lifetime partners* was categorized into 4 levels (1, 2-5, 6-10, 11+);
- Incarceration status* was coded as a binary variable (yes/no).
- Length of time lived in current place of residence* was a measured as dichotomous (<1 year, 1 year or 1+).

- Public assistance status* was coded as a binary variable of ever having received public assistance. (yes/no)
- Engagement in sexually risky behaviors* was a summed variable of whether one had ever had sex with: men who had sex with other men, an IV drug user, AND/OR someone with HIV; *exchange of sex* for money, drugs, gifts, favors, etc.
- Neighborhood Variables: Neighborhood was defined by reported residential *zip code*; predictor variables were looked at across 33 zip codes;
- Percentage of black population* was coded as a 3 level categorical variable : low, moderate, high (<35%, 35%-70%, 70%+); *percent below the poverty level* was kept as a continuous variable in the analysis.

RESULTS

- 58% of the population had ever had STIs in their lifetime; 41% of people have had more than 10 lifetime partners; 40% receive public assistance; 21% have a history of incarceration.
- 43% is the average percentage of Blacks in each neighborhood
- X² tests show higher STI rates in poor populations as neighborhoods get less diverse or have a higher percentage of Blacks (Graph 1).



Graph 1. Relationship between Public assistance status and STD prevalence across Levels of Black population.

- Logistic regression results showed no significant relationships between level of education, engagement in specific sexual risky behaviors, incarceration status and STI prevalence.
- Multilevel structural modeling showed that individuals within neighborhoods were no more correlated than individuals between neighborhoods (variability estimate: 8.14e-07) and across different levels of black population (2.37e-10).
- Logistic regressions showed no significant interactions between level of black population and all other factors nor between population below the poverty line and all other factors.

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	Behavioral	Demographic	Neighborhood
INDIVIDUAL	O.R (S.E)	O.R (S.E)	O.R (S.E)
Past Year Concurrency	1.495 (.139)**	1.218 (.197)	
Exchange of sex for Favors, gifts, etc	2.839 (.331)**	2.603 (.957)**	
Engagement in Sexual Risky Behavior	1.013 (.092)	1.006 (.022)	
Number of Lifetime Partners		1.592 (.465)***	
Incarceration Status		.886 (.182)	
Public Assistance Status		2.788 (.150)***	
Length of Time in Current Home		1.762 (.149)***	
NEIGHBORHOOD			
Level of Black Population			.908 (.161)
Percent Below the Poverty Line			1.011 (.012)
Zip Code			1.001 (.002)
p < .001*** p<.01** p<.05*			

Table 1 above: Logistic regression results for 4 models: behavioral, demographic, neighborhood, and interactions

DISCUSSION

- Most predictors of STI prevalence occurred at the level of the individual, as consistent with literature examining sexual concurrency and engaging sexual risky behaviors.
- While previous studies have demonstrated the impact of social and environmental factors on health outcomes, this study looked specifically at STI prevalence as an outcome. People who stayed in their place of residence a year or long were more likely to get STIs. Less turnover within a neighborhood could be an indicator of higher social stability, which has been shown to be correlated with lower STI rates [4].
- LIMITATIONS** Observations with no zip codes and no additional neighborhood data were systematically removed in order to keep the descriptive and analysis based on the actual sample; however this meant only 63% of total observations surveyed was analyzed, and only 33 out of 105 zip codes was included. This renders results less representative of Jackson, MS.
- Future studies should divide neighborhoods by geographical proximity, providing a more accurate clustering of individual characteristics and neighborhood level social determinants as a means to predict STI outcomes.

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