The Geography of HIV in Harris County, Texas, 1999-2003
Introduction

• This paper attempts to examine the geography of HIV in Harris County zip codes and the factors associated with areas of high prevalence. Examining zip codes where individuals have a greater risk of contracting HIV will provide information for the necessary programs needed to lessen the risk of HIV/AIDS within the zip-code areas.

• With a total of 70,127 cases, Texas is ranked as the state with the forth highest numbers of HIV/AIDS in the U.S.

• Within the state of Texas, Harris County reports the largest number of HIV/AIDS cases; it is ranked 8th nationally in the number of total reported AIDS cases; an estimated 1 in 90 Houstonians is living with HIV/AIDS
Variables Explaining Geographic Distribution of HIV

POVERTY:
• Poor people are more likely to contract HIV because of what they have to do to find income or work.
• High Risk Transactional Sex
• Cannot negotiate condom use
• Poor nutrition and poor health, more vulnerable to HIV infection
• Less access to health care services.
• Lack of access to education, mass media and other sources of information
Variables Explaining Geographic Distribution of HIV

EDUCATION

- Educated women are more likely to prevent HIV infection
- Education makes men more receptive to prevention
- Increased ability to think critically and analyze situations before acting irrationally. Gives status and confidence needed to act.
- Provide larger life skills to make informed choices
- Helps develop both economic and personal independence
Introduction: Variables Explaining Geographic Distribution of HIV

RACE/ETHNICITY

- African Americans only account for 12% of the adults in the United States but account for 46.1% of the total number of people living with HIV in the United States.
- Reasons that African Americans might be at the greatest risk
  - Poverty
  - Lack of Health Access
  - Sexual Behavior
  - Stigma/Racism
  - Drug use
Hypotheses

• Hypothesis 1
  Poverty will have a direct relationship with the zip-code HIV prevalence rates. Zip codes with a higher percentage of households that make under the poverty line will have higher HIV prevalence.

• Hypothesis 2
  Education will also have a direct relationship with the zip-code HIV prevalence rate. Zip codes with a higher percentage of people who are over 25 years old and have an education of eighth grade or less will have the highest HIV prevalence rates.

• Hypothesis 3
  Race/Ethnicity will be a risk marker of HIV. Zip codes with a higher percentage of African Americans will have higher HIV rates. In contrast, neighborhoods with a high percentage of Whites will have a lower HIV prevalence rates.
Results: HIV & Poverty

- Data confirms hypothesis. A Spearman rho correlation coefficient was calculated for the relationship between HIV prevalence and the percentage of people who have a household income under the poverty line. A strong positive correlation was found ($\rho (132) = .696, p < .001$), indicating a significant relationship between the two variables. As the number of households that make an income under the poverty line increases, the neighborhood’s HIV prevalence rate increases correspondingly.
Results: HIV & Poverty

HIV Prevalence Rate for All Races in Harris County, 1999-2003

Percentage of People Living in Harris County who Have a Household Income Under the Poverty Line, 2000
Results: HIV & Education

- Data also confirms this hypothesis. A Spearman rho correlation coefficient was calculated for the relationship between HIV prevalence and the percentage of people above the age of 25 with an education level less than eighth grade. A strong positive correlation was found (rho (132) = .469, p < .001), indicating a significant relationship between the two variables. As the number of people above 25 with an education level of eighth grade or less increases, the HIV rate increases.
Results: HIV & Education
Results: HIV & %White

- Hypothesis was confirmed from data. A Spearman $\rho$ correlation coefficient was calculated for the relationship between HIV prevalence and the percentage of Whites in Harris County. A strong negative correlation was found ($\rho(132) = -0.653$, $p < 0.001$), indicating a significant relationship between the two variables. As the percentage of Whites increase, the HIV prevalence rate decreases.
Results: HIV & %Whites

HIV Prevalence Rate for All Races in Harris County, 1999-2003

Percentage of Whites Living in Harris County, 2000
Results: HIV & %Black

- Hypothesis was confirmed from the data. A Spearman \( \rho \) correlation coefficient was calculated for the relationship between HIV prevalence and the percentage of African Americans in Harris County. A strong positive correlation was found (\( \rho (132) = .570, p < .001 \)), indications a significant relationship between the two variables. As the percentage of African Americans increases, HIV prevalence increases.
Results: HIV & %Blacks

HIV Prevalence Rate for All Races in Harris County, 1999-2003

Percentage of African Americans Living in Harris County, 2000
Results: HIV & %Hispanics

• A Spearman $rho$ correlation coefficient was calculated for the relationship between HIV prevalence and the percentage of Hispanics. A moderately strong positive correlation was found ($rho (132) = .294, p = <.001$), indicating a significant relationship between the two variables. As the percentage of Hispanics increase, the HIV prevalence rate increase.
Results: HIV & %Hispanics

HIV Prevalence Rate for All Races in Harris County, 1999-2003

Percentage of Hispanics Living in Harris County, 2000
Conclusion

• HIV confirms to have strong relationships to education, poverty, and race/ethnicity. Some recommendations that can be made are:
  • Local awareness in central Harris County -free and open to public -reduce stigma
  • Future Research and Limitations