Relationship between residential segregation and health literacy among a multiethnic health center patient population

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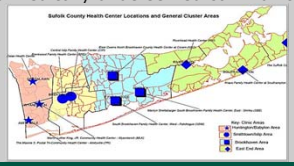
Introduction

- Segregation is related to poor health outcomes, infections diseases, exposure to toxins, and mortality.
- This study examines the association between racial composition of five physical environments throughout the life course and adequate health literacy.

Population

- Suffolk County has a population of about 1.5 million residents
- Regardless of income, Blacks and Hispanics tend to live in segregated communities.[6]
- The Suffolk County Department of Health Services (SCDHS) is a safety net provider with a network of 8 family health centers in minority and medically underserved communities.



Methods

- Patients in the waiting rooms of SCDHS family health centers were approached by trained data collectors
- Inclusion criteria were that patients be at least 18 years old and speak either English or Spanish.
- **Racial composition measure:** Self-reports of perceived racial composition of five environments (*junior high, high school, neighborhood growing up, current neighborhood, and current place of worship*) were assessed using a five part item.
- For each environment, respondents indicated the approximate racial composition from among 13 response options based on four racial and ethnic groups.
- We created indicators (i.e., mostly White) of racial composition in each of the environments.
- **Health literacy measure**: Health literacy was assessed using the Newest Vital Sign (NVS).[8]
- Bivariate associations between dichotomous indicators for "mostly White" responses of racial composition in each environment were assessed with an indicator for adequate health literacy (NVS score ≥ 4) using 2 x 2 tables and chi-squared test.

Analysis/Results

- Analysis is limited to respondents (n=836) that self-identified as Non-Hispanic White, Non-Hispanic Black, or Hispanic.
- Overall approximately 36% had adequate health literacy according to the NVS.
- 63% Non-Hispanic Whites had adequate health literacy as compared with Non-Hispanic Blacks (29%) and Hispanics (20%), (p < 0.0001).

Table 1: Frequency for Race/Ethnicity & adequate health literacy

Race/Ethnicity	Frequency (n, %)	Adequate literacy (n, %)
Non-Hispanic White	248 (29.7)	156 (62.9)
Non-Hispanic Black	278 (33.3)	81 (29.1)
Hispanic	310 (37.1)	61 (19.7)
Total	836	298 (35.7)

- In the overall sample, there were significant associations between racial composition and health literacy in all five environments
- For Non-Hispanic Whites, respondents attending a mostly white Junior high school, mostly white high school, currently living in a mostly white neighborhood, were more likely to have adequate health literacy
- For Non-Whites, a higher percentage of respondents who reported attending a mostly white Junior high school, mostly white high school, growing up in a mostly white neighborhood, or currently living in a mostly white neighborhood, had adequate health literacy.

Table 2: Bivariate associations between mostly white environment and adequate health literacy

Environment	Adequate literacy (n, %) For reported mostly white (Yes/No)			
Overall Sample (n=836)	yes	no	χ^2_{df1}	p
Junior High School	143 (59.8)	155 (26.0)	85.35	<0.0001
High School	137 (60.1)	161 (26.5)	81.64	<0.0001
Neighborhood Growing Up	150 (57.7)	148 (25.7)	79.96	<0.0001
Current Neighborhood	135 (54.7)	163 (27.7)	55.23	<0.0001
Place of Worship	92 (52.0)	205 (31.3)	26.10	<0.0001
Non-Hispanic Whites(n=248)	yes	no	χ^2_{df1}	p
Junior High School	97 (70.8)	59 (53.2)	8.19	0.0042
High School	94 (74.0)	62 (51.2)	13.77	0.0002
Neighborhood Growing Up	117 (66.5)	39 (54.2)	3.32	0.0685
Current Neighborhood	96 (70.1)	60 (54.1)	6.74	0.0094
Place of Worship	79 (69.3)	77 (57.9)	3.43	0.0640
Non-Whites (n=588)	yes	no	χ^2_{df1}	p
Junior High School	46 (45.1)	96 (19.8)	29.56	<0.0001
High School	43 (42.6)	99 (20.3)	22.60	<0.0001
Neighborhood Growing Up	33 (39.3)	109 (21.6)	12.26	0.0005
Current Neighborhood	39 (35.5)	103 (21.6)	9.44	0.0021
Place of Worship	13 (20.6)	128 (24.5)	0.45	0.5006

Table 3: Logistic regression model predicting adequate literacy*

	OR†	95% CI†	p-value
Hispanic	0.352	0.221, 0.562	<0.0001
Black	0.340	0.223, 0.518	<0.0001
Junior High School –Mostly White	1.815	1.243, 2.650	0.0020
Current Neighborhood - Mostly White	1.739	1.196, 2.529	0.0038
Born in USA	3.236	2.103, 4.981	<0.0001
HS Education+	3.357	1.907, 5.911	<0.0001
Age	0.983	0.971, 0.996	0.0112

** Model chi-square 149.85, with df7, P < 0.0001 † OR: Odds Ratio CI: Confident Intervals*

- Logistic regression analysis was conducted to examine significant predictors of adequate literacy
- Racial composition of Junior High school and current neighborhood environments were significant predicators for adequate health literacy after controlling for ethnicity, race, country of birth, education, and age.
- Respondents attending a mostly white junior high school were **1.8** times more likely to have adequate health literacy.
- Participants that reported currently living in a mostly white neighborhood were **1.7** times more likely to have adequate health literacy.

Discussion

- Prior and current segregation experiences may influence how individuals comprehend and use health information
- These findings suggest that future health promotion efforts, and targeted interventions may be used as a strategy to improve health literacy in segregated communities
- Additional work is needed to understand the impact of the social environment on health literacy

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