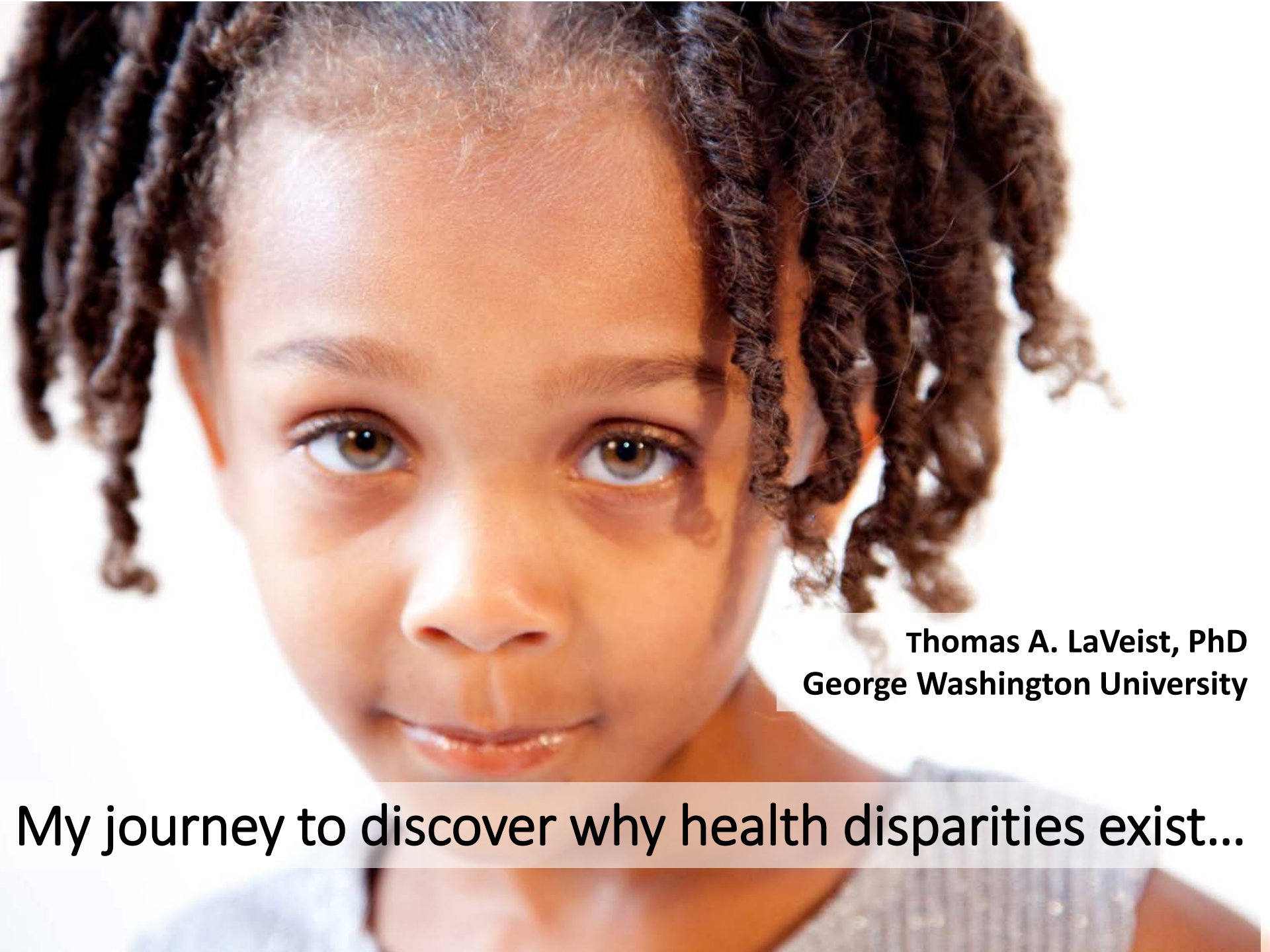




Thomas A. LaVeist, PhD
George Washington University

My journey to discover why health disparities exist...

Imagine

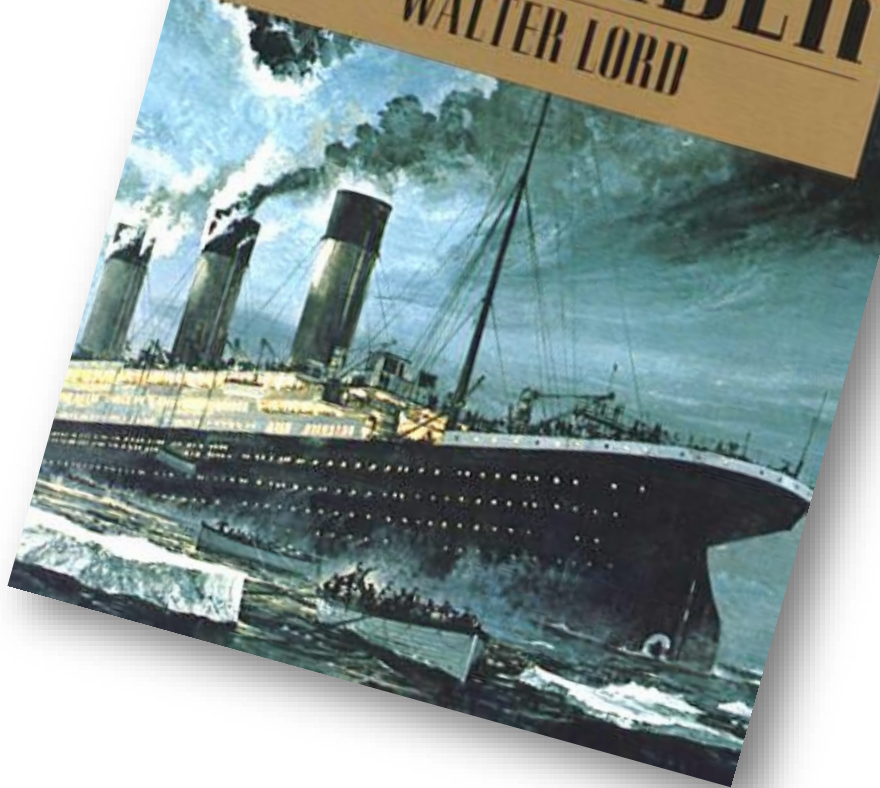
BANTAM BOOKS

THE SINKING OF THE *TITANIC*—THE TRUE
MINUTE-BY-MINUTE STORY

"ONE OF THE MOST
EXCITING BOOKS OF THIS OR ANY YEAR."
—*THE NEW YORK TIMES*

A NIGHT TO REMEMBER

WALTER LORD



Survival status of female passengers of the Titanic by class of ticket

	Died	Lived	Total	% Died	% Lived
1 st class	4	139	143	2.8%	97.2%
2 nd class	15	78	93	16.1%	83.9%
3 rd class	81	98	179	45.3%	54.7%
Total	100	318	415	24.1%	76.6%
Source: Walter Lord (1955) "A Night to Remember" New York: Bantom Books, page 105					

Who survived the Titanic?

- The Titanic's life boats could accommodate 53% of those onboard
- 2nd class females 5 times more likely to die
- 3rd class 16 times more likely to die

US Airways Hudson River landing January 15, 2009



coach class

first class

Why?

Popular Explanations for Race Disparities

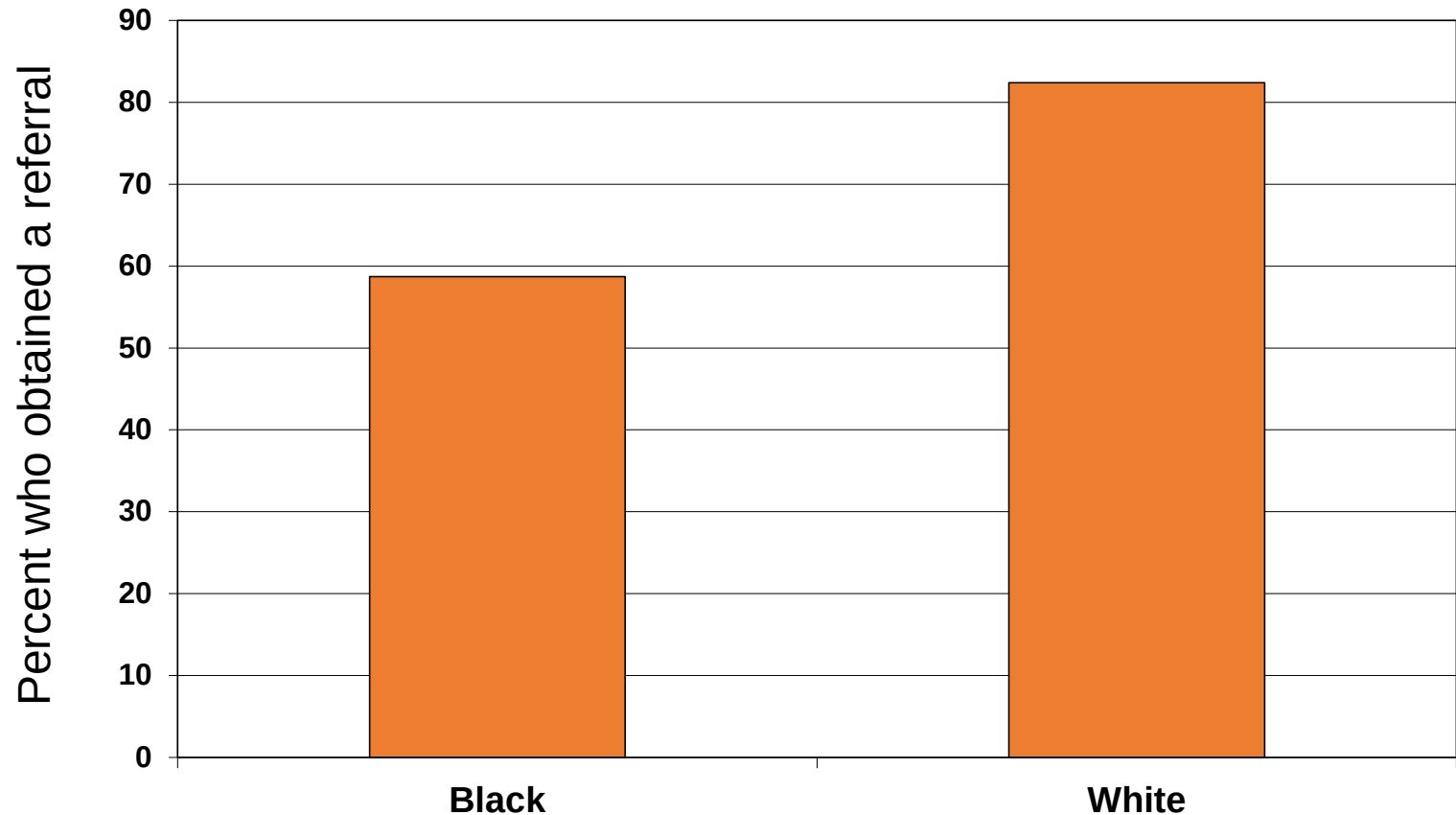
- Equal access to healthcare will solve the health disparities problem
- Disparities are caused by biological or genetic differences between groups
- Race disparities are caused by race differences in SES or poverty

Equal Access to Care



Healthcare Disparity

Studies of patients who were appropriate candidates for **coronary angiography** have found race differences in obtaining a referral for this diagnostic procedure.

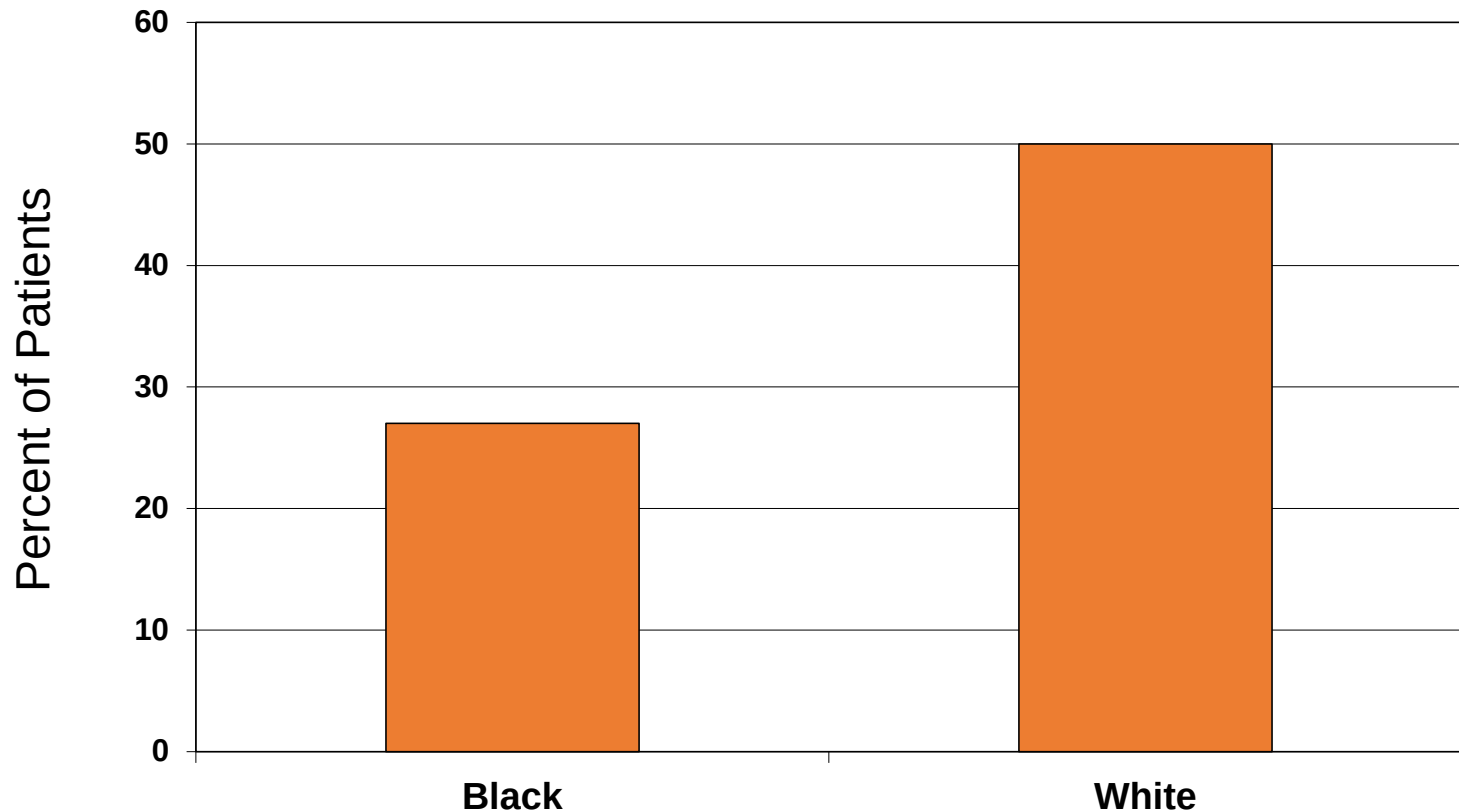


Source: LaVeist TA, Arthur M, Morgan A, Rubinstein M, Kinder J, Kinney LM, Plantholt S. The cardiac access longitudinal study. A study of access to invasive cardiology among African American and white patients. J Am Coll Cardiol. 2003 Apr 2;41(7):1159-66.



Healthcare Disparity

A race disparity in **coronary revascularization** was found among patients in the **Veteran Affairs** health system, where there are no race differences in ability to pay and providers are paid a salary.

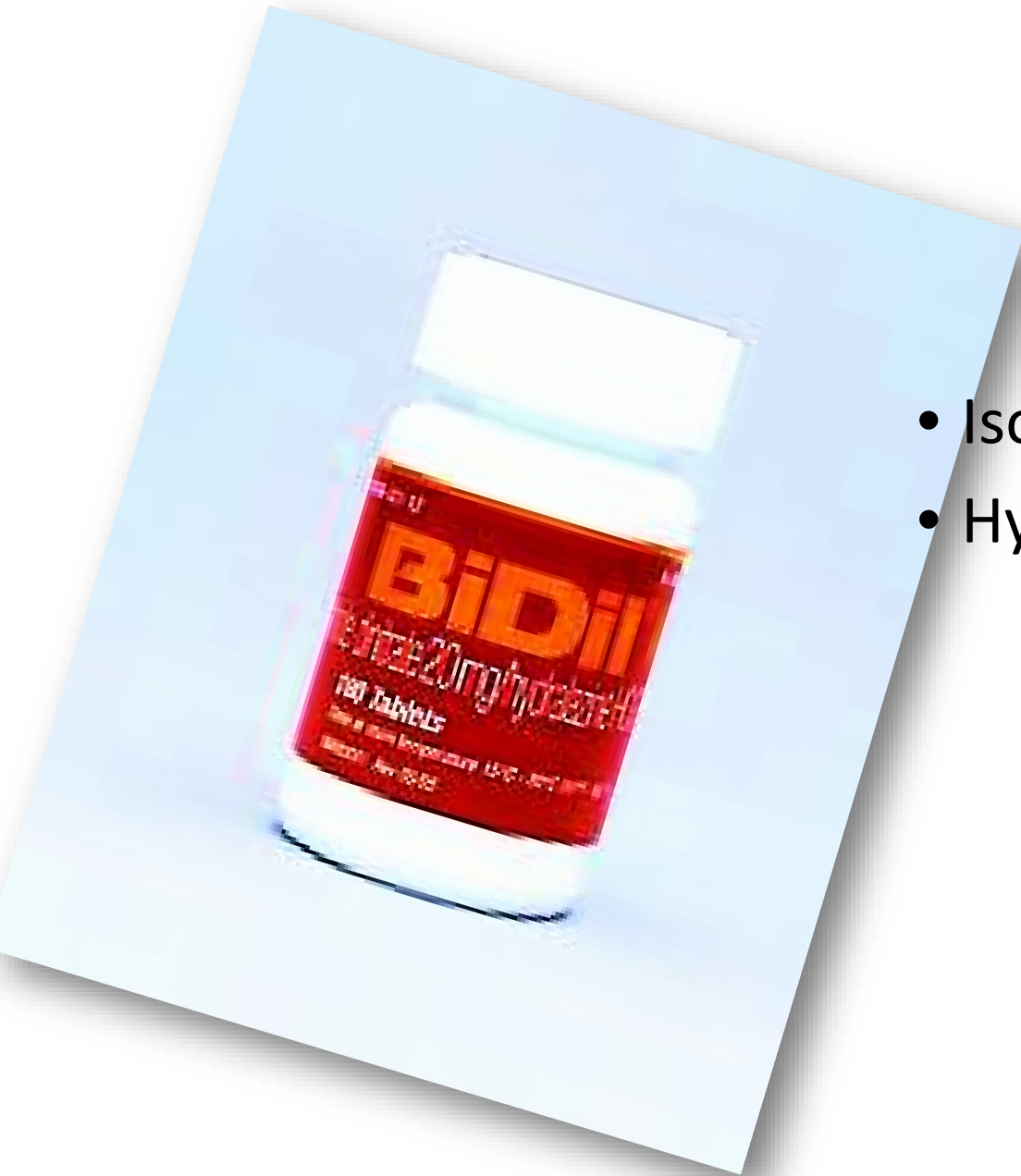


Source: Ibrahim SA, Whittle J, Bean-Mayberry B, Kelley ME, Good C, Conigliaro J. Racial/ethnic variations in physician recommendations for cardiac revascularization. Am J Public Health. 2003 Oct;93(10):1689-93.

BAD GENES



“I’d Like to Go Straight But I’ve Got Crooked Genes.”



- Isosorbide Dinitrate
- Hydralazin Hcl

Vijay Singh

Vijay Singh

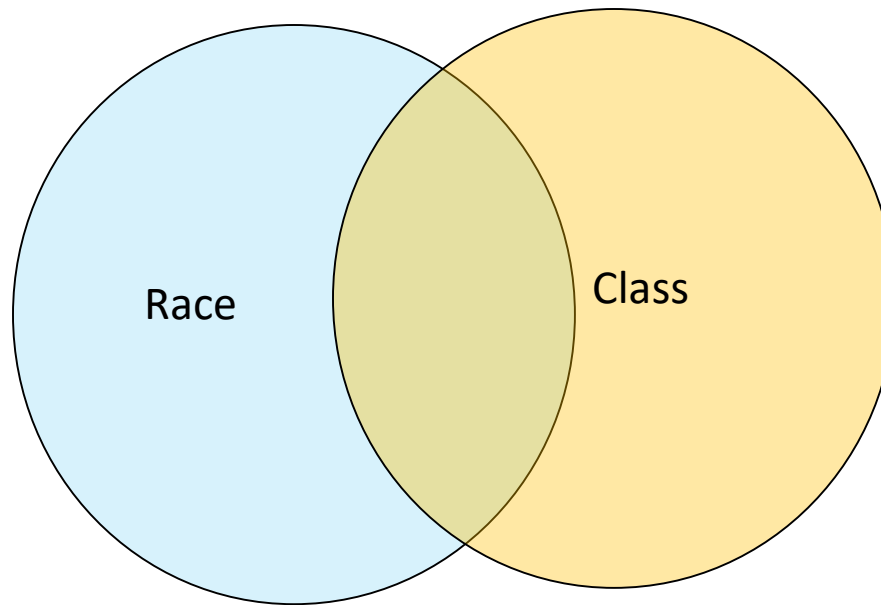
Colin Powell
Barak Obama

Tiger Woods

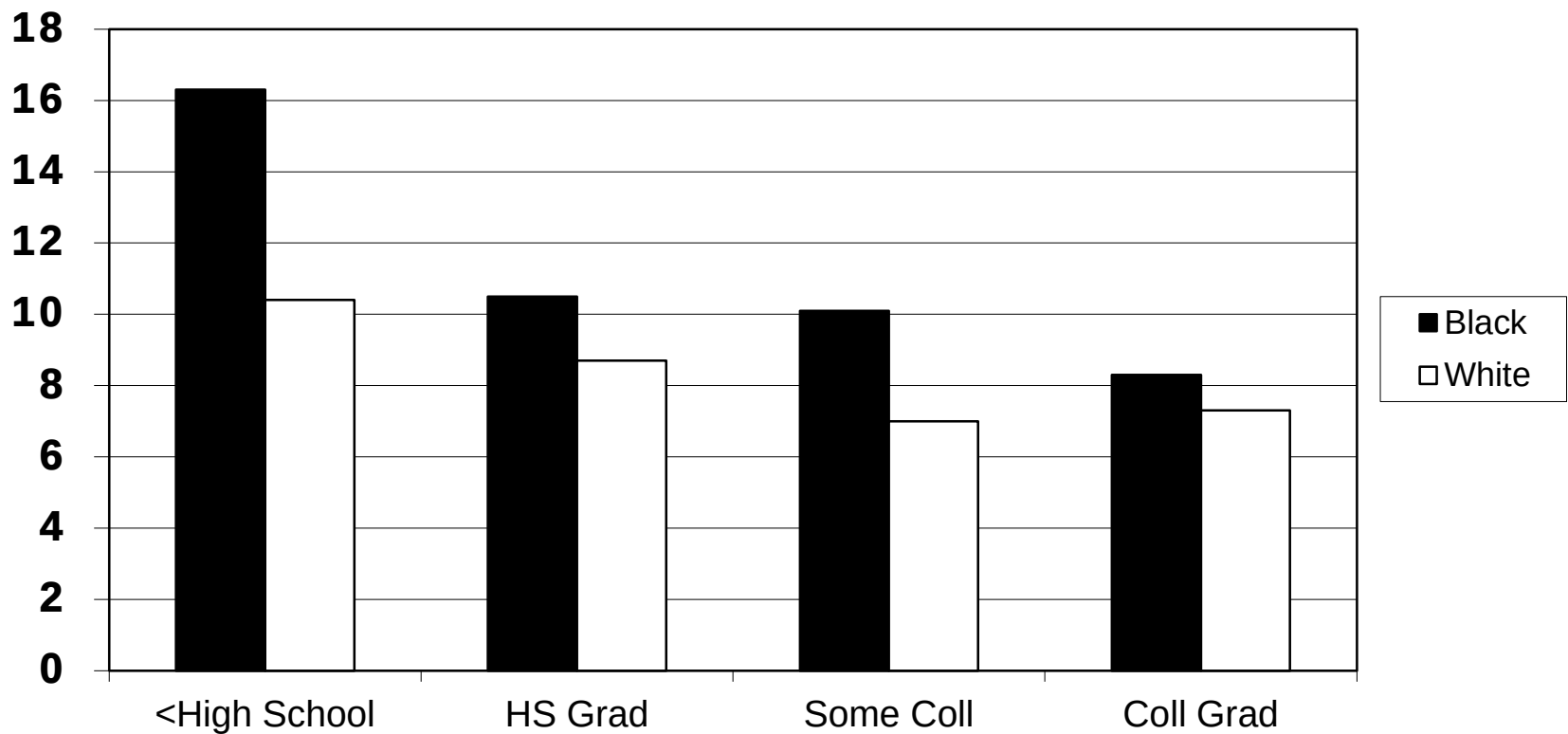


GW

It's really income and not
race/ethnicity

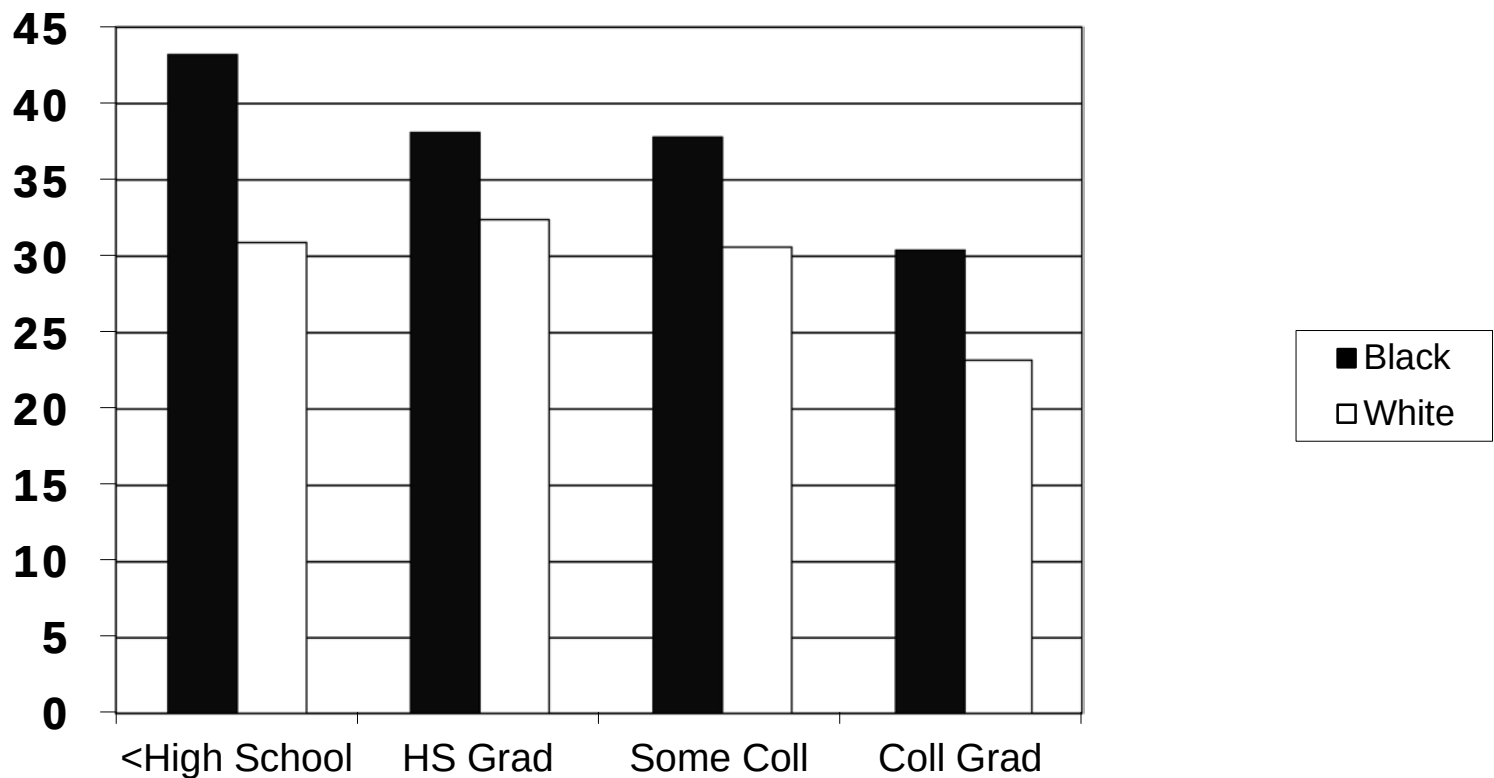


Education and Disparities in Diabetes, Age-Adjusted



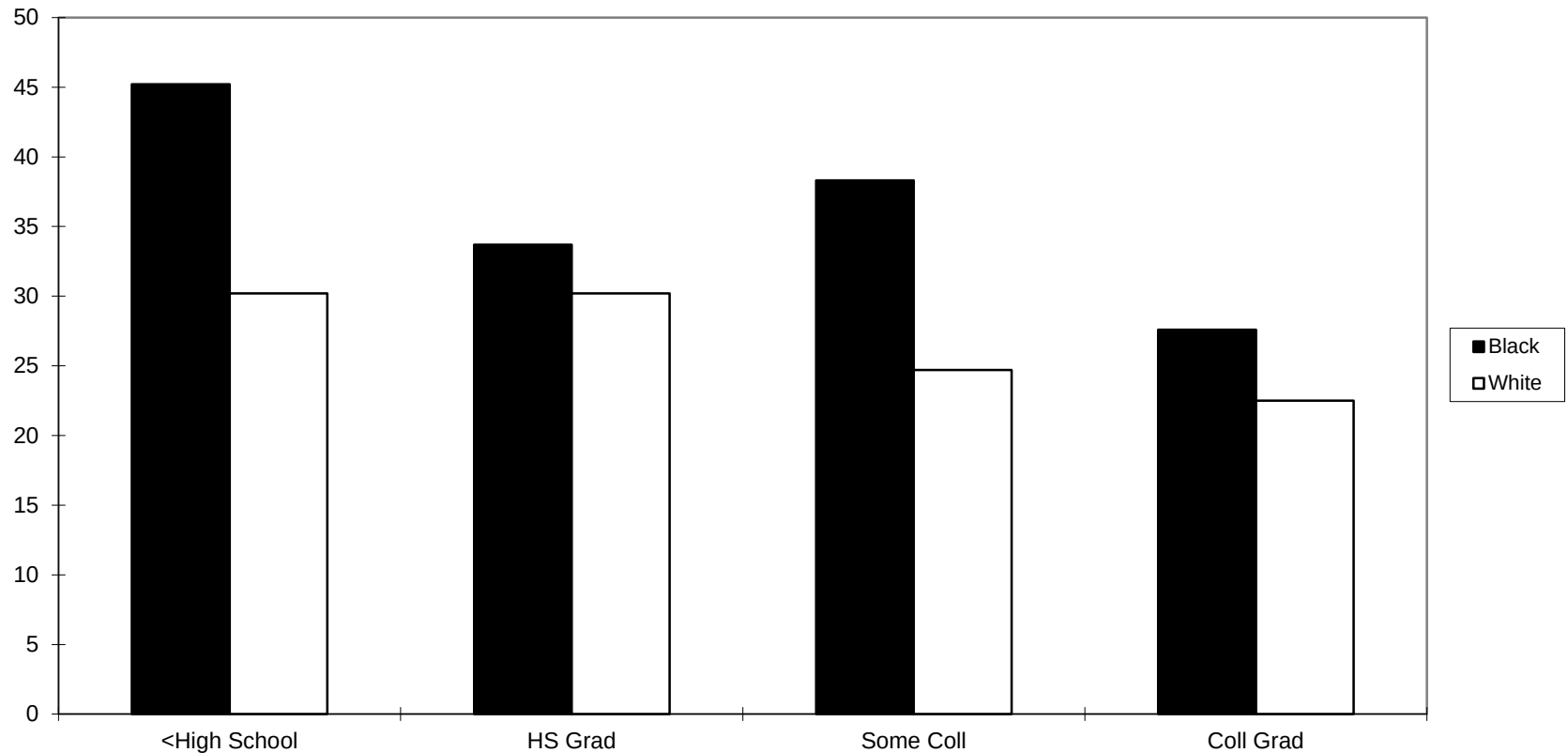
Source: Original analysis of 2013 National Health Interview Survey

Education and Disparities in Obesity, Age-Adjusted



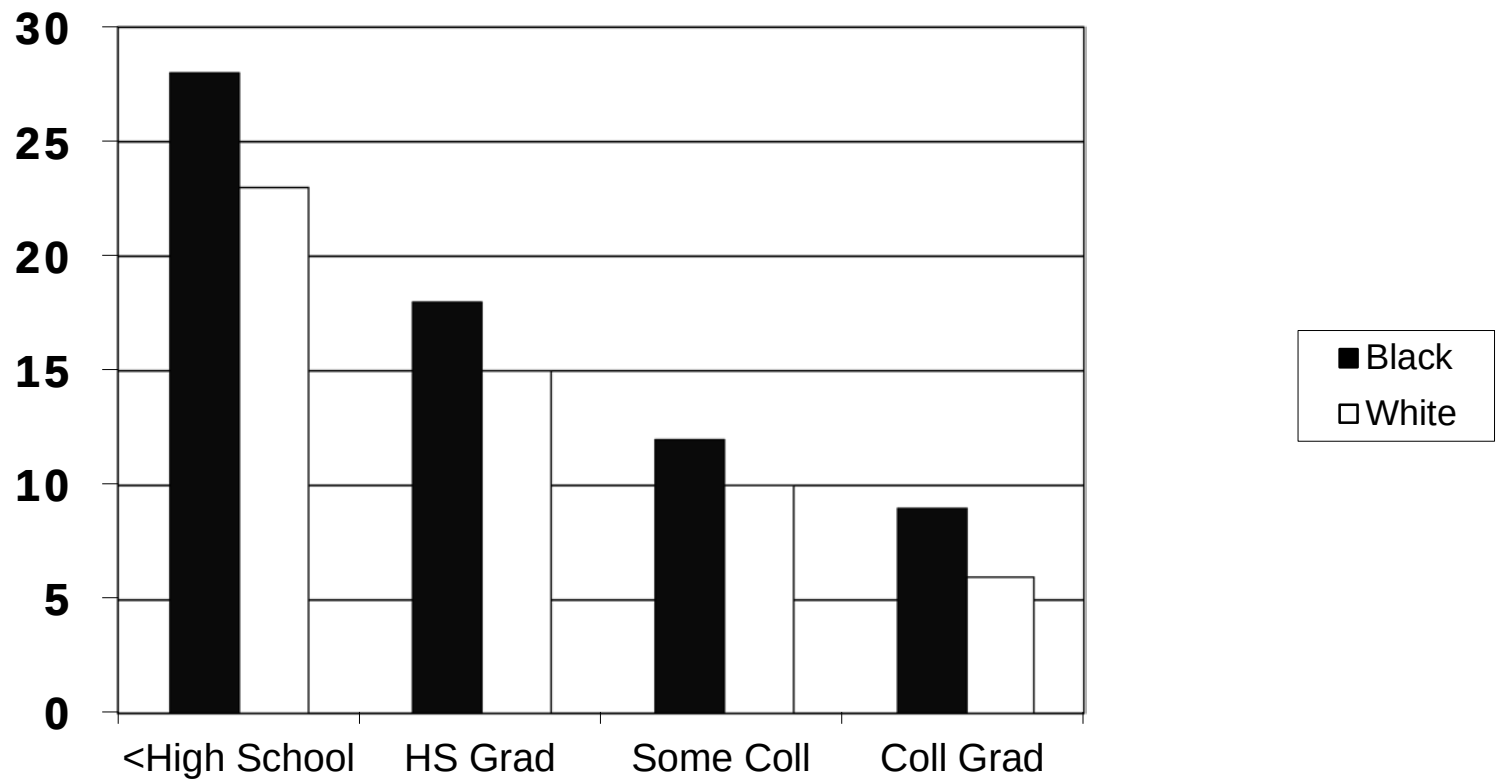
Source: Original analysis of 2013 National Health Interview Survey

Education and Disparities in Hypertension, Age-Adjusted



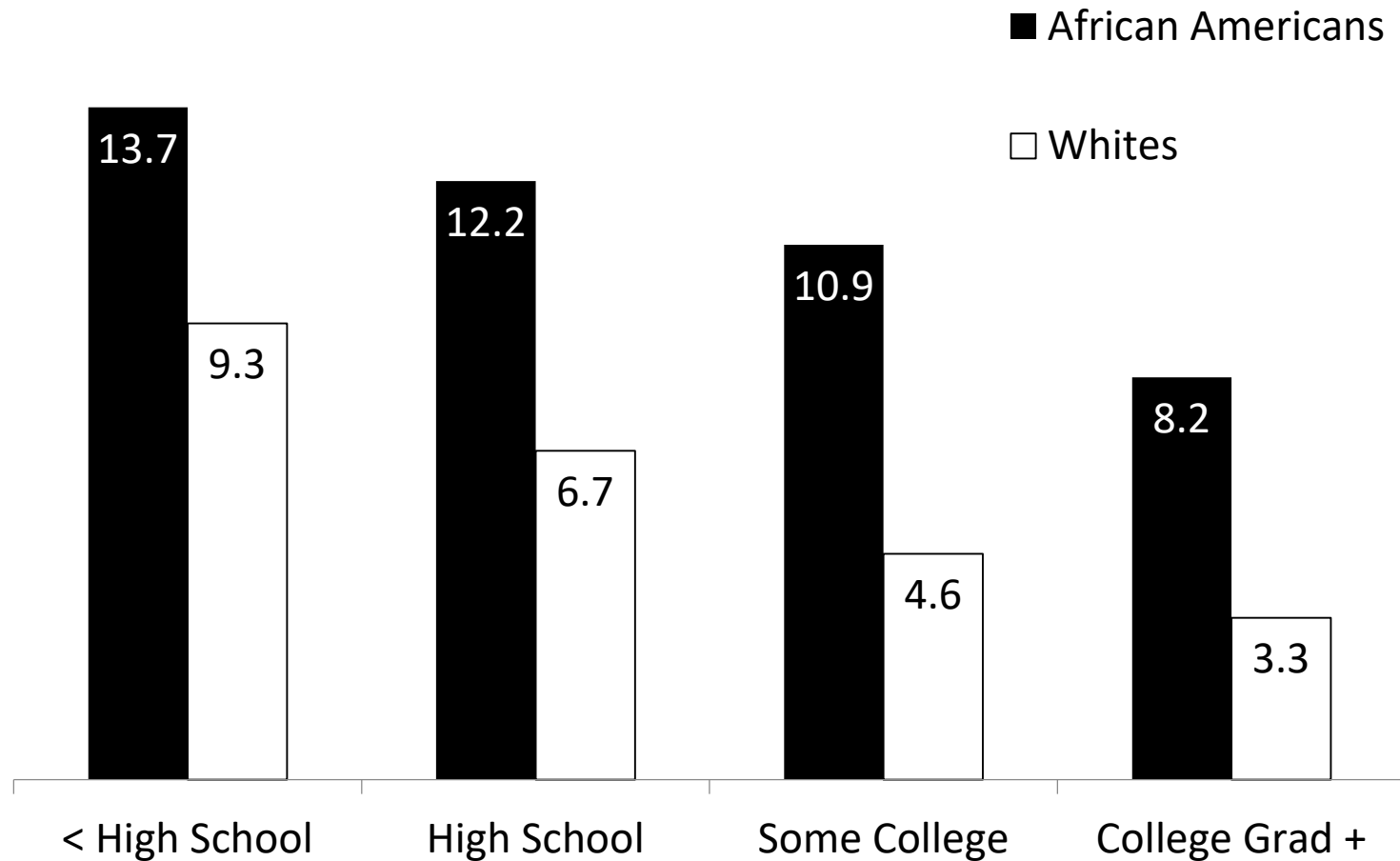
Source: Original analysis of 2013 National Health Interview Survey

Education and Disparities in Self Reported “Fair” or “Poor” Health, Age-Adjusted

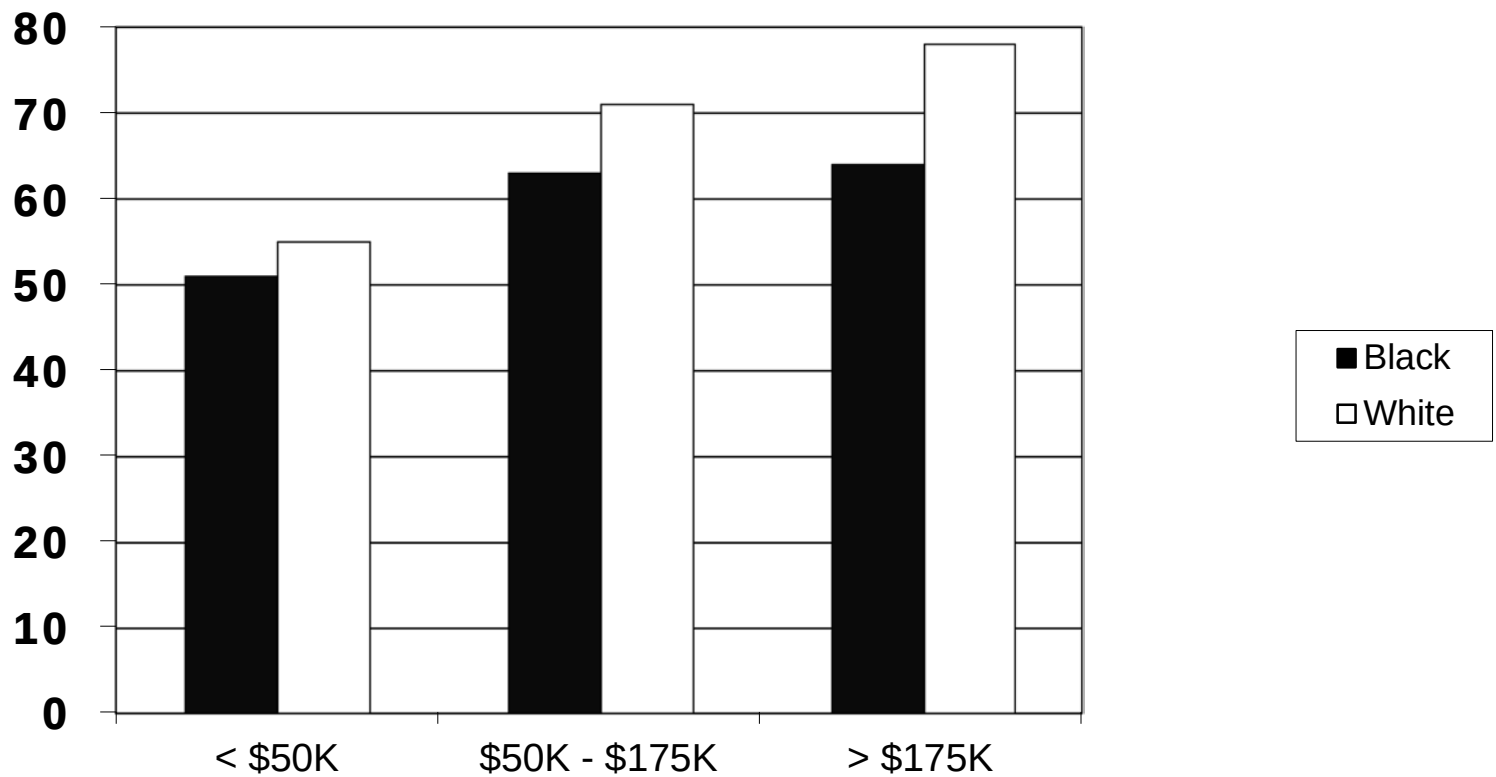


Source: Original analysis of 2013 National Health Interview Survey

Infant mortality rates by Mother's education, 2015

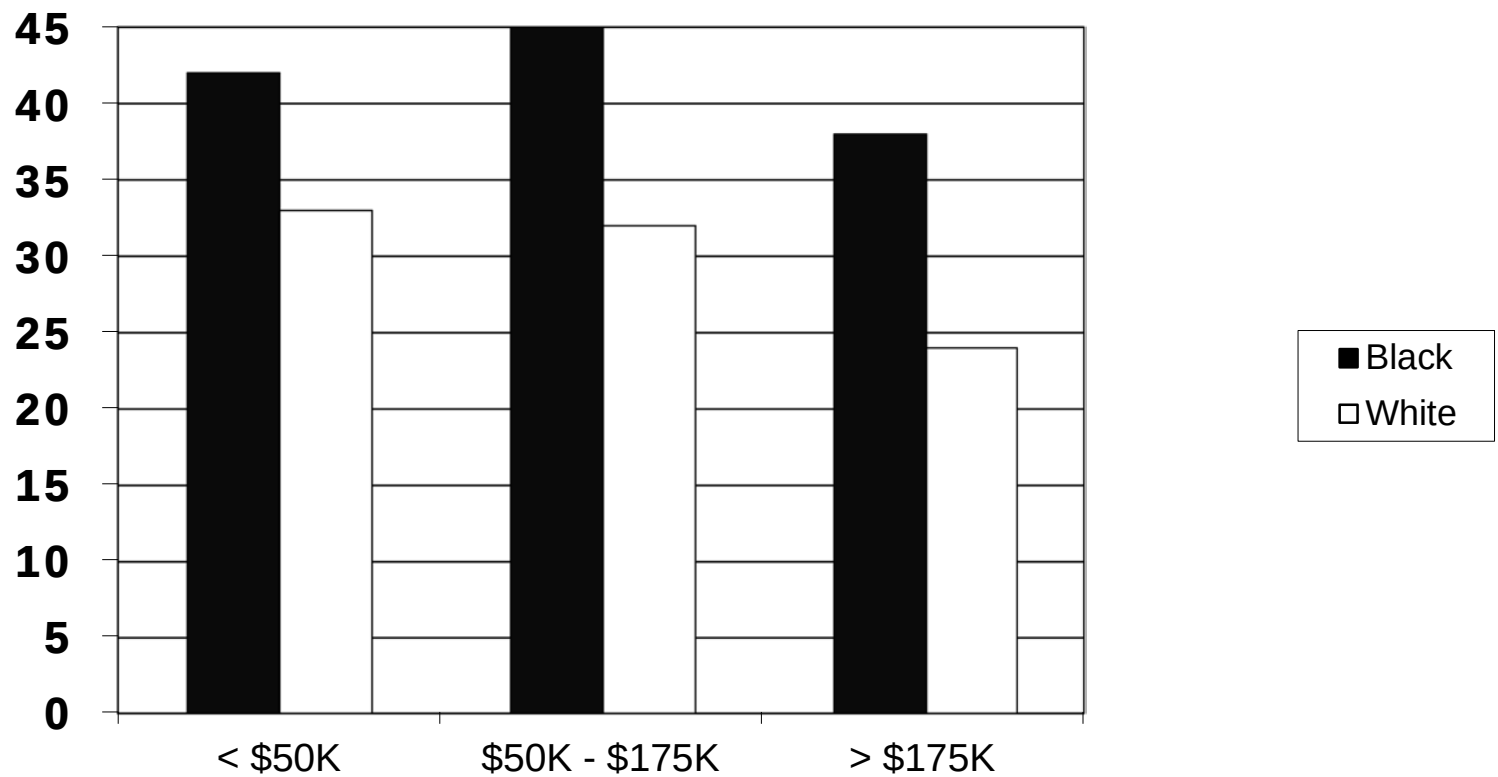


Income and Self-rating of health: “Very Good” or “Excellent” Health



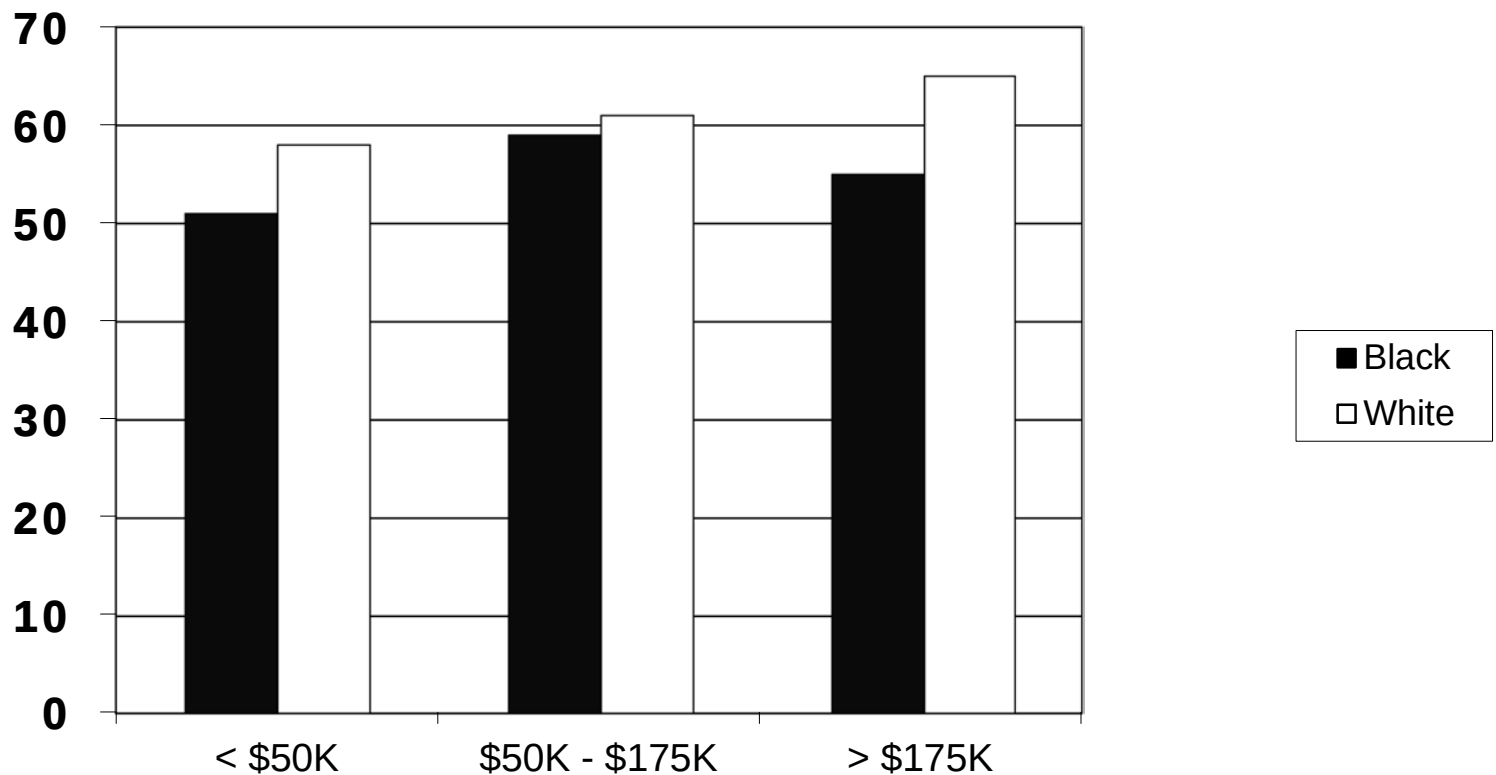
Source: Original analysis of Medical Expenditure Panel Survey

Income and Obesity



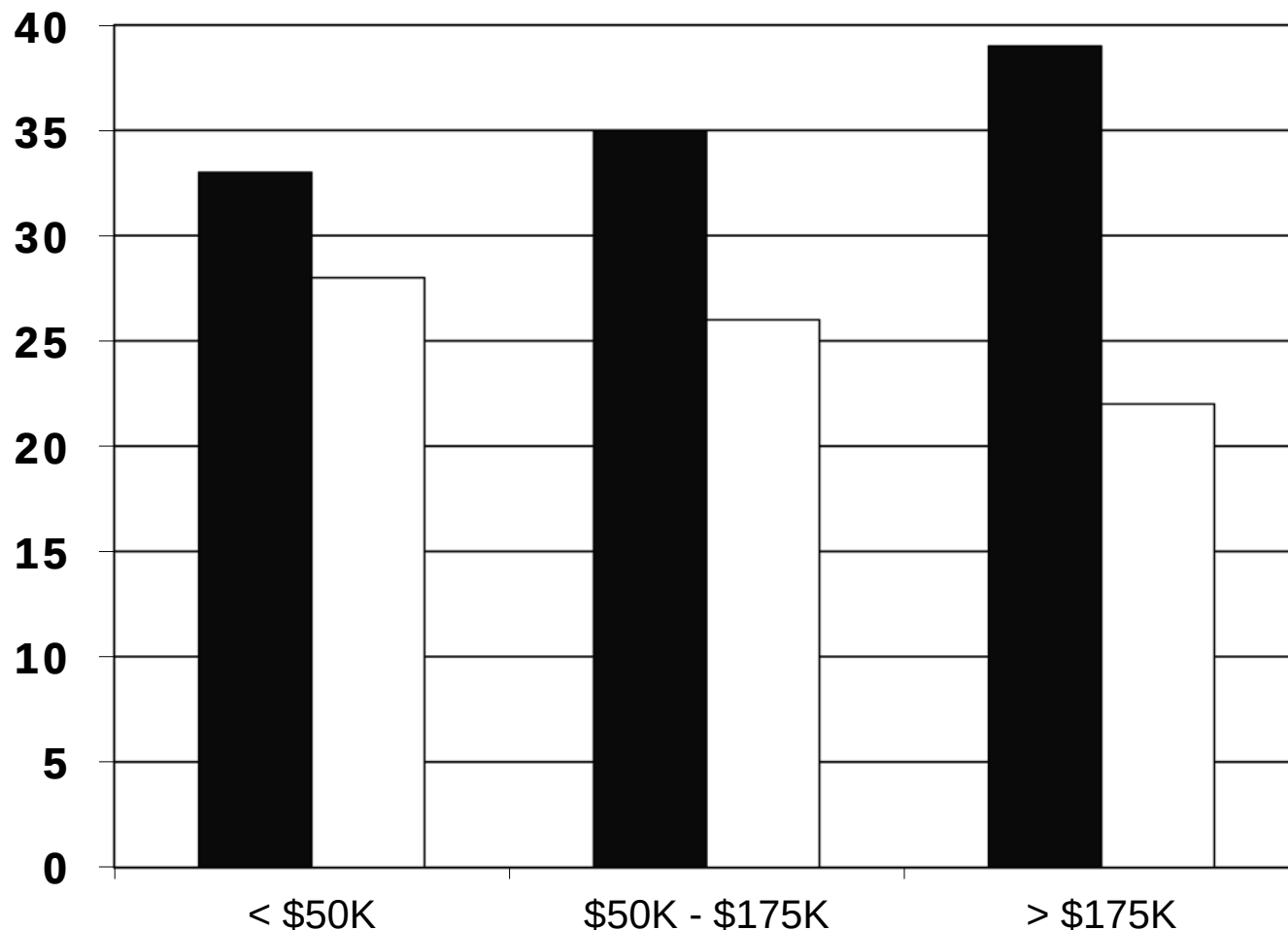
Source: Original analysis of Medical Expenditure Panel Survey

Income and Exercise: 30 minutes three times per week



Source: Original analysis of Medical Expenditure Panel Survey

Income and Hypertension Diagnosis



Source: Original analysis of Medical Expenditure Panel Survey

A brief Message to Researchers

Example

- National Health Interview Survey (NHIS),
n=93,386
- N=33,148 adults age 40+ with complete
data on income, race and ADL
- African Americans, n=4473 (12%)
- Income, <\$20K=6813; \$20K-\$75K=19,504;
>\$75K=6831
- At least 1 ADL = 1043 (2.8%)

ADL regressed on race

	Odds Ratio	95% Confidence Interval
African American (Binary variable)	1.46	1.23 – 1.72

ADL regressed on Income

	Odds Ratio	95% Confidence Interval
\$20K - \$75K	.35	.31 - .39
>\$75K	.18	.15 - .23

ADL regressed on race

	Odds Ratio	95% Confidence Interval
African American (Binary variable)	1.18	.98 – 1.41
\$20K - \$75K	.32	.28 - .37
>\$75K	.15	.12 - .20

Cross tabulation of race and ADL within income groupings

	White	Black	Total	P-Value
<\$20K	6.1% e=304	7.6% e=97	6.4% e=401	.031
\$20K-\$75K	2.1% e=343	2.1% e=45	2.1% e=388	.50
>\$75	1.0% e=56	1.7% e=8	1.0% e=64	.10

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A Baltimore Area High School



A Baltimore Area High School



A Baltimore Area High School



A Baltimore Area High School



A Baltimore Area High School



A Baltimore Area High School



A Baltimore Area High School



“But I adjusted for SES...”



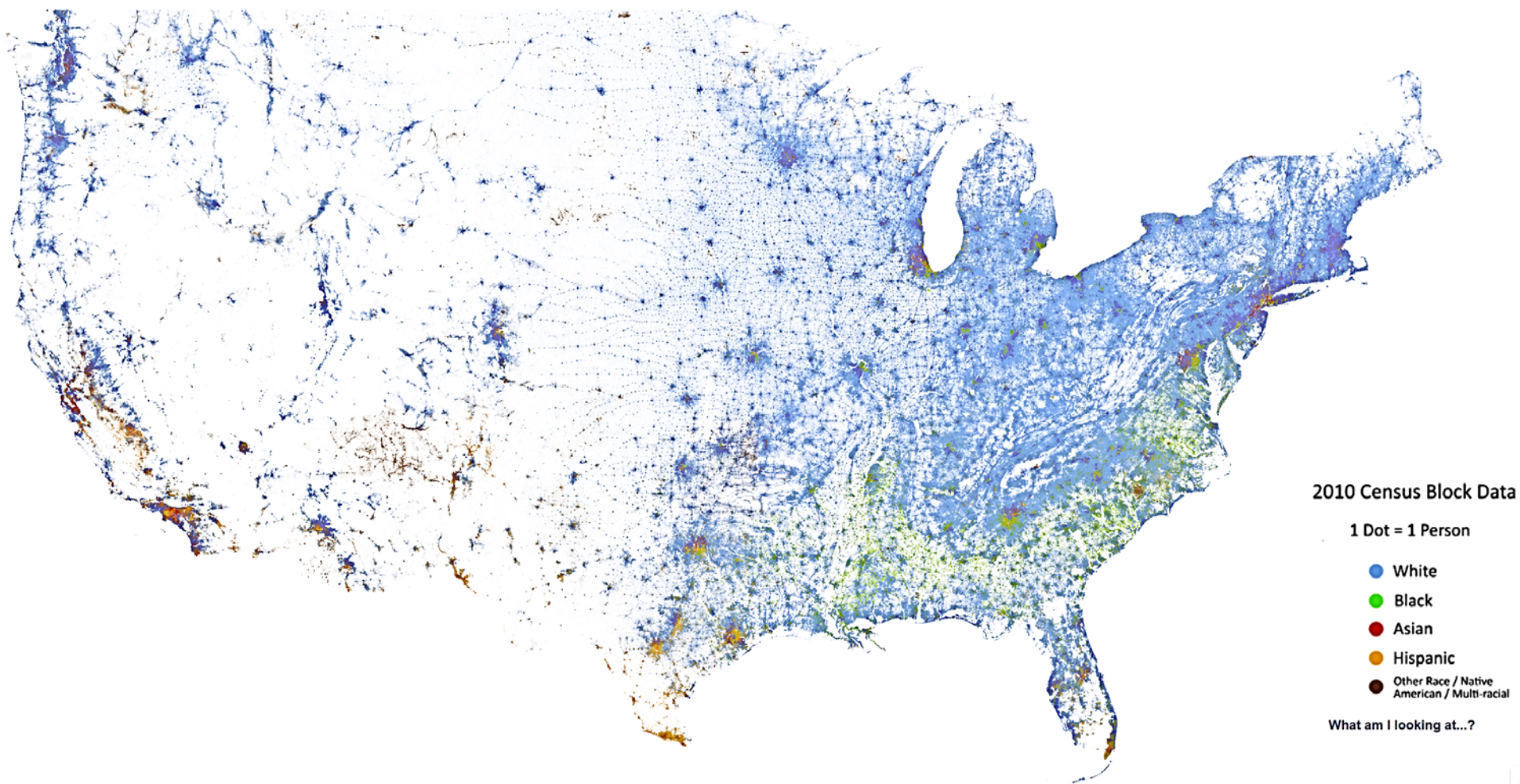
**If not genetics, healthcare or SES
then what is it?**

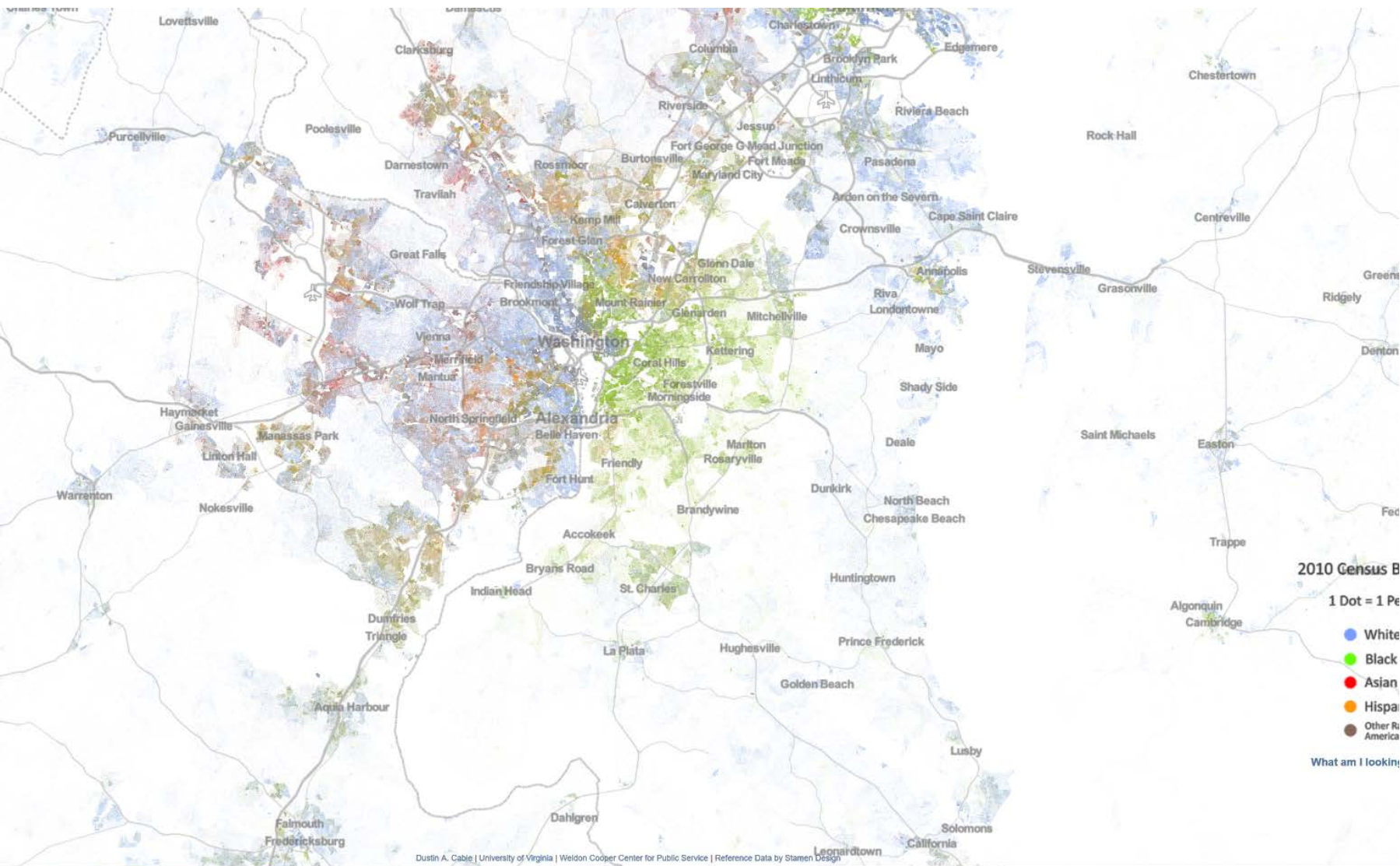
WHITE

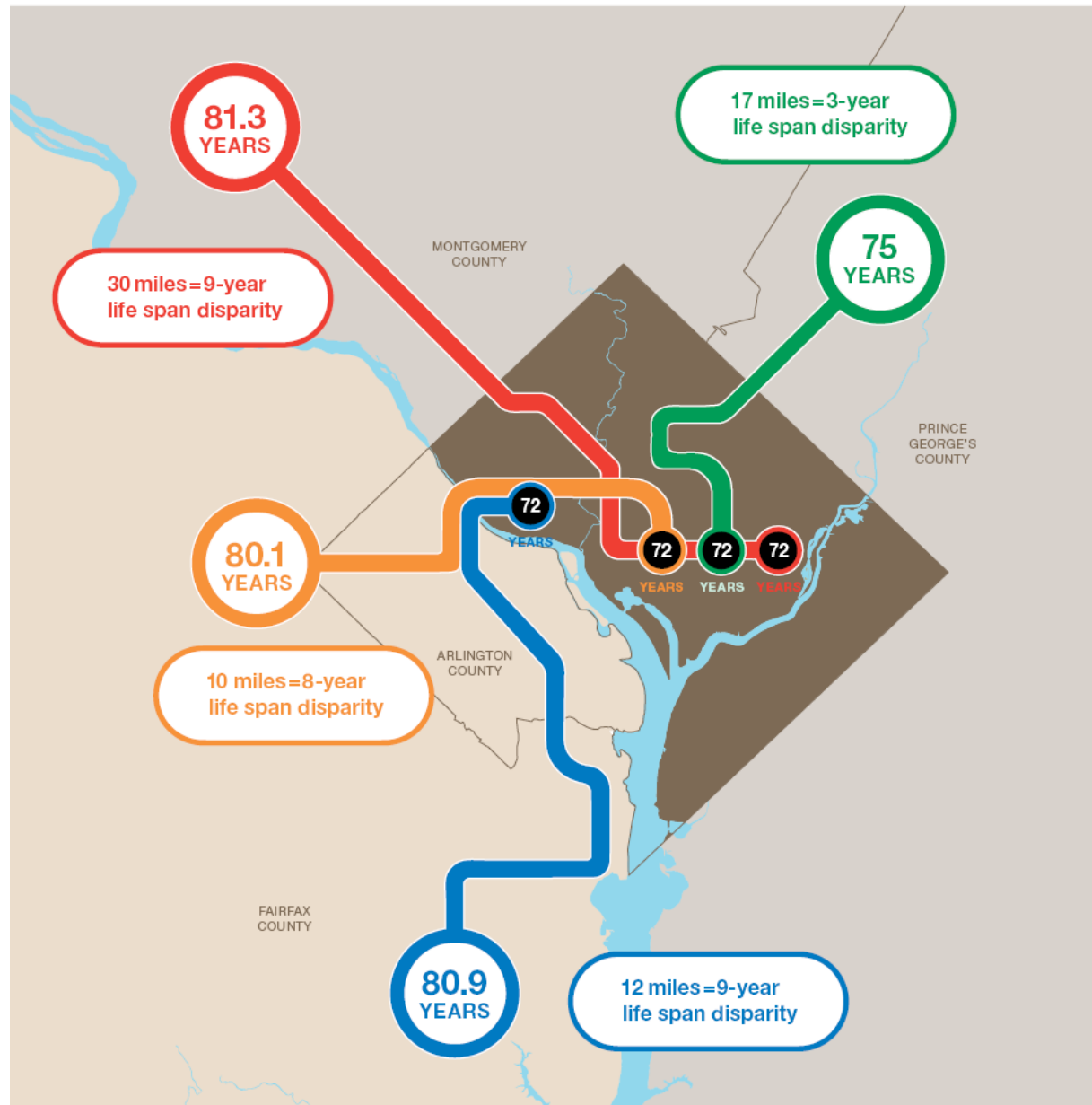


COLORED

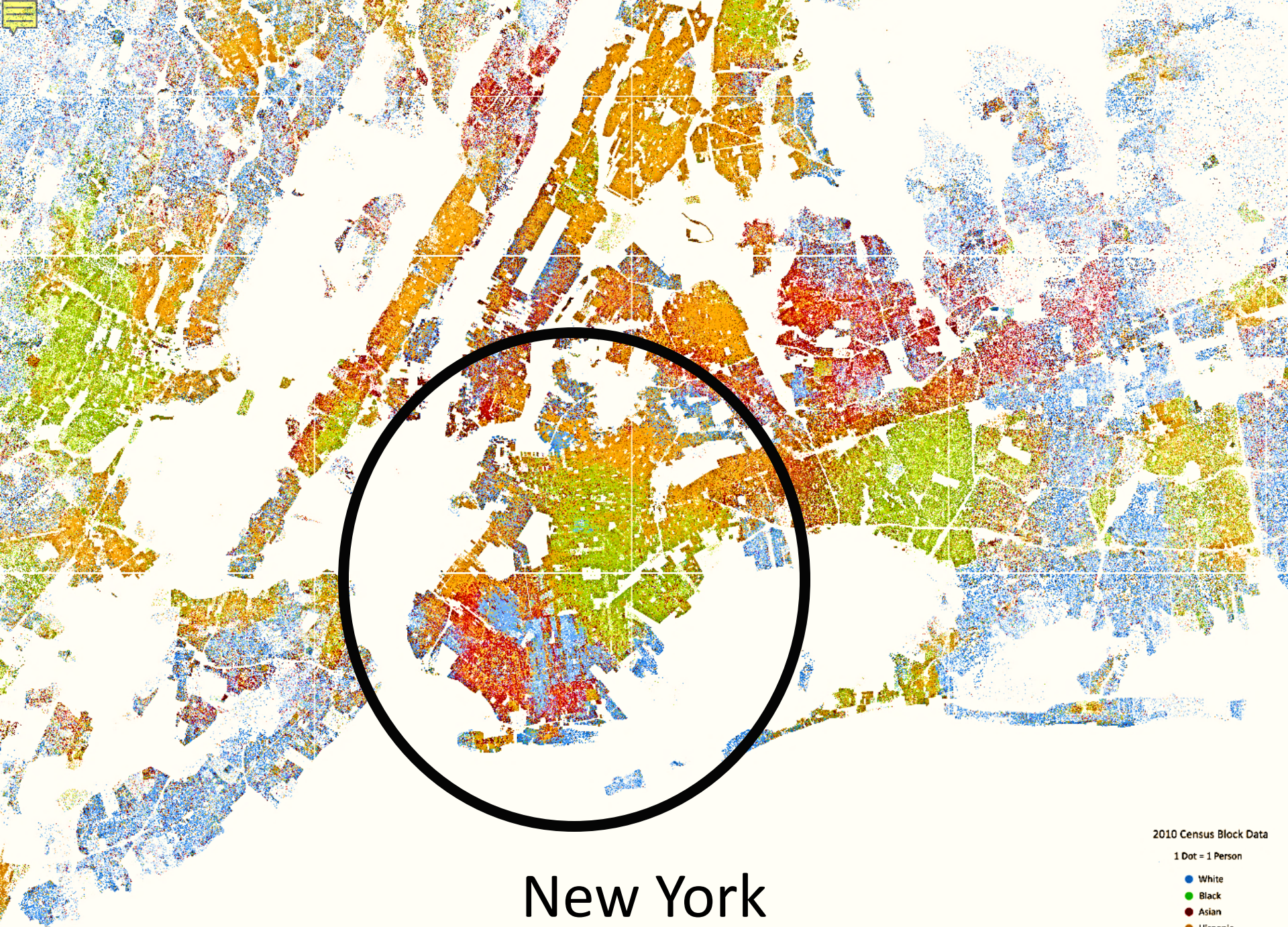








A Short Distance to Large Disparities in Health

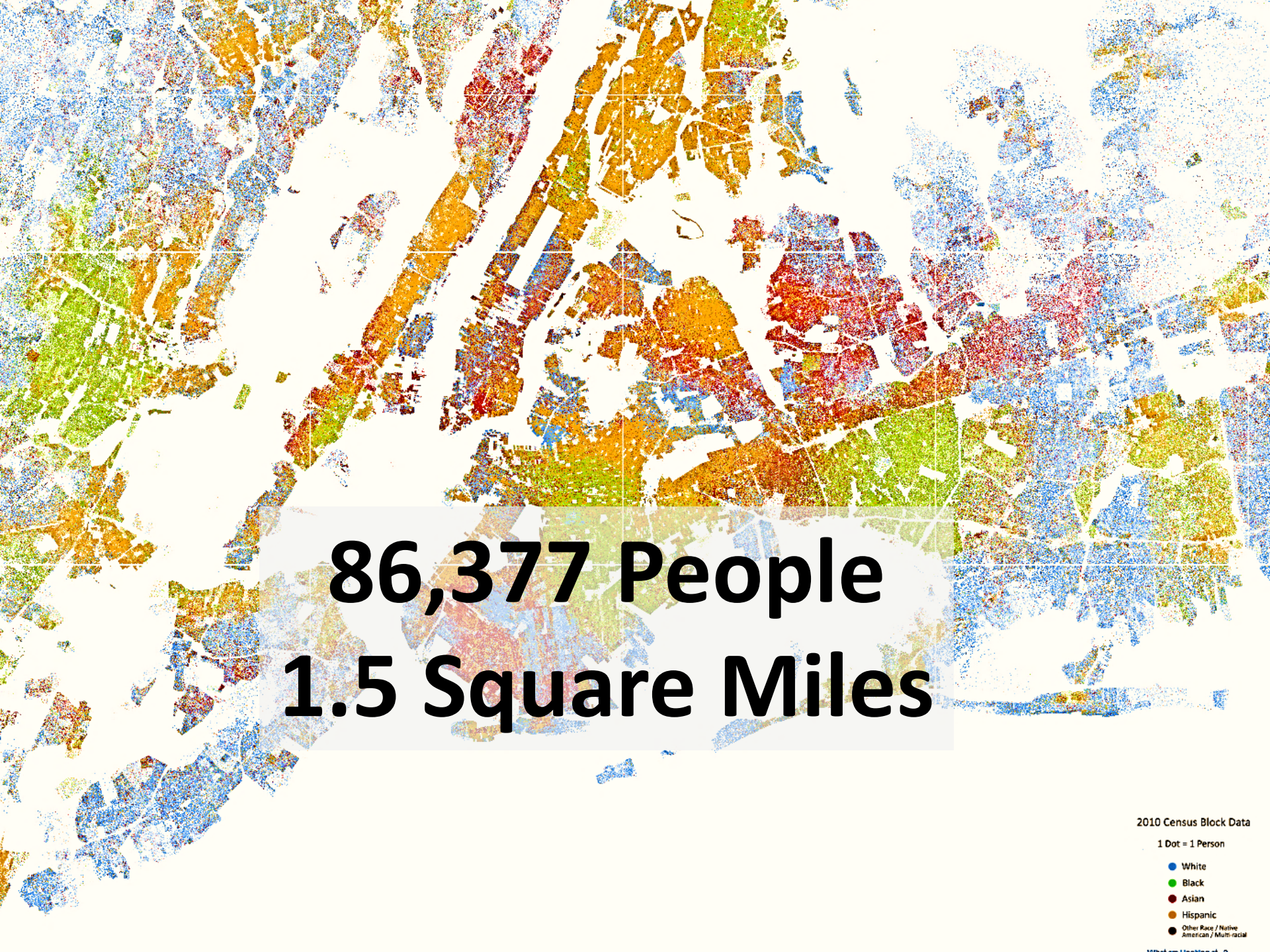


2010 Census Block Data

1 Dot = 1 Person

- White
- Black
- Asian
- Hispanic
- Other Race / Native American / Multi-racial

New York



86,377 People
1.5 Square Miles

2010 Census Block Data

1 Dot = 1 Person

- White
- Black
- Asian
- Hispanic
- Other Race / Native American / Multi-racial





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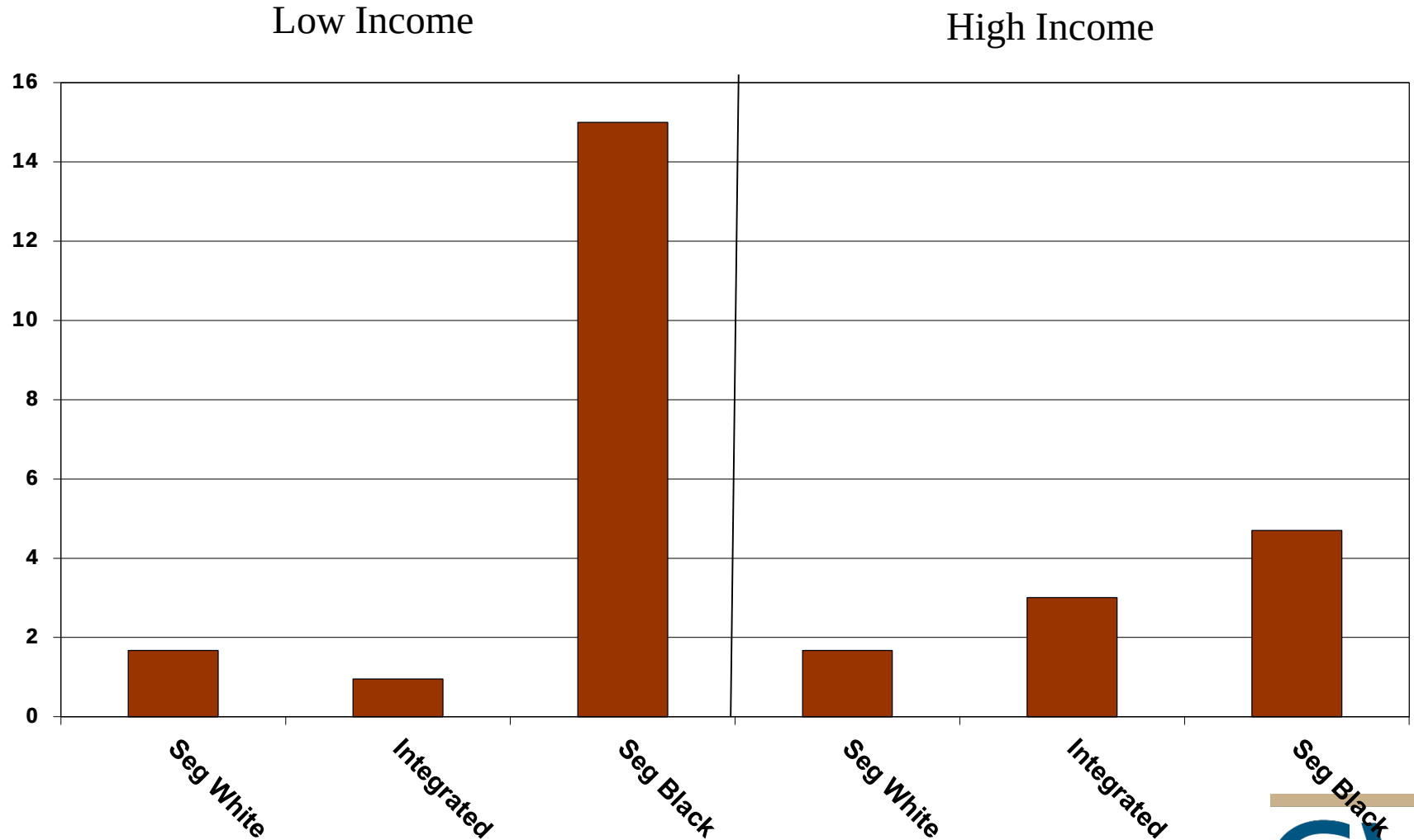








Per Capita Liquor Stores by Race and Income



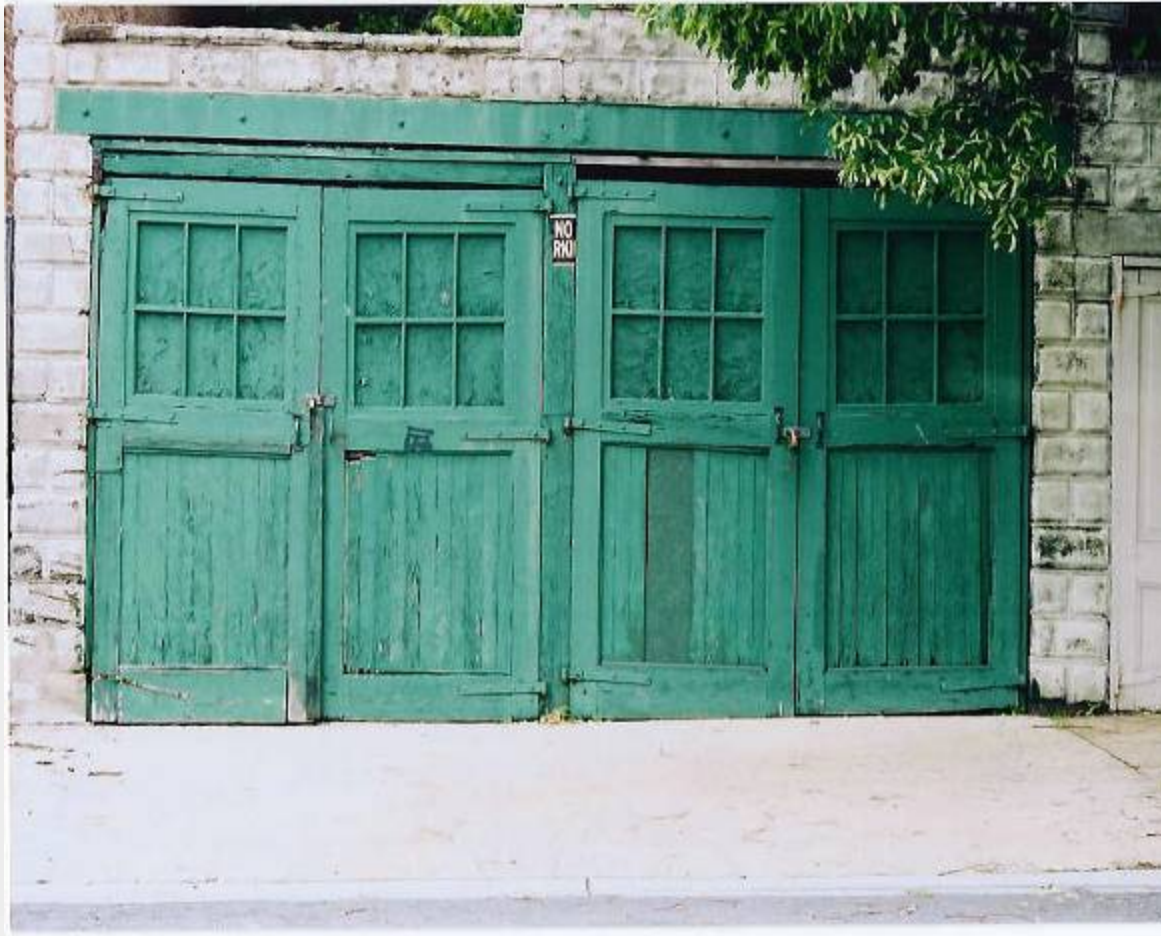




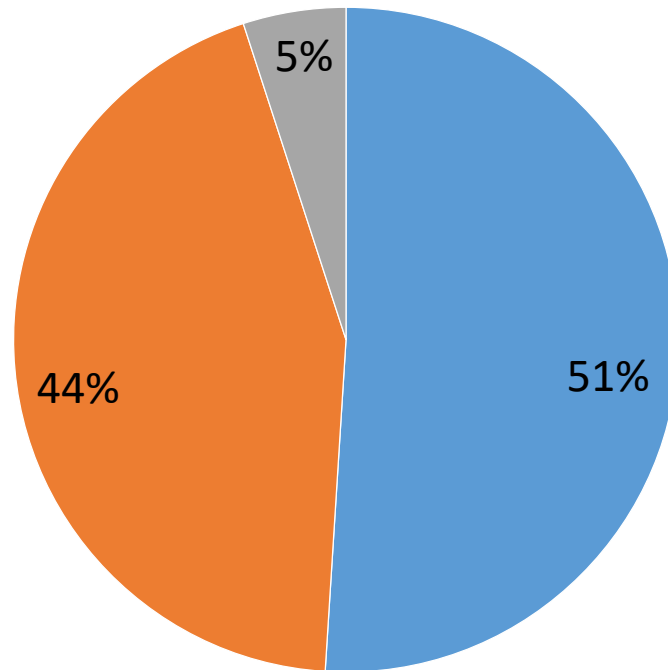
Exploring Health Disparities in Integrated Communities (EHDIC)

- Census tracts
 - 35% African Americans AND 35% white
 - b/w median income ratio 0.85-1.15
 - b/w percent high school grad 0.85-1.15

Profile of the Community

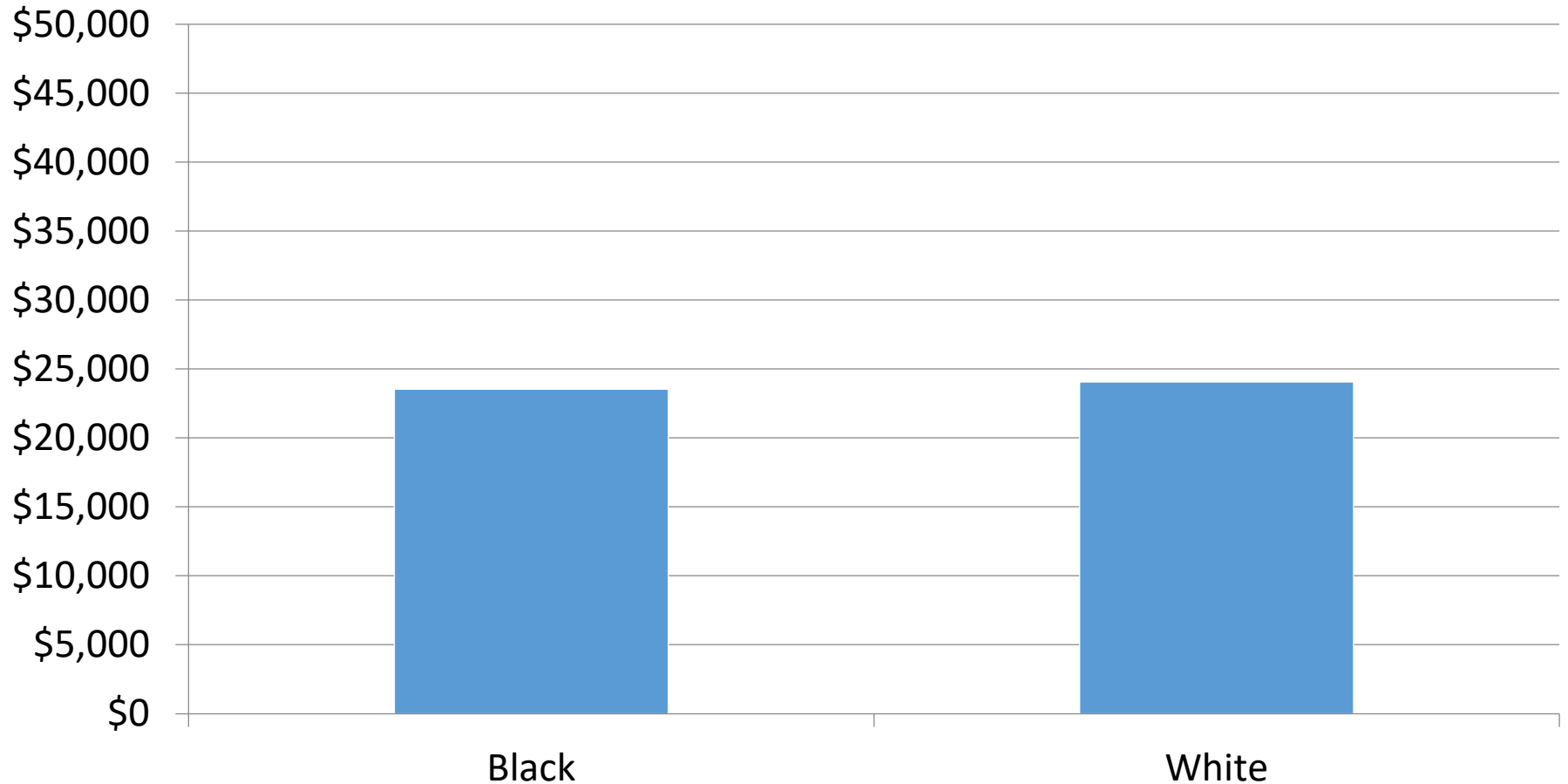


Racial Distribution



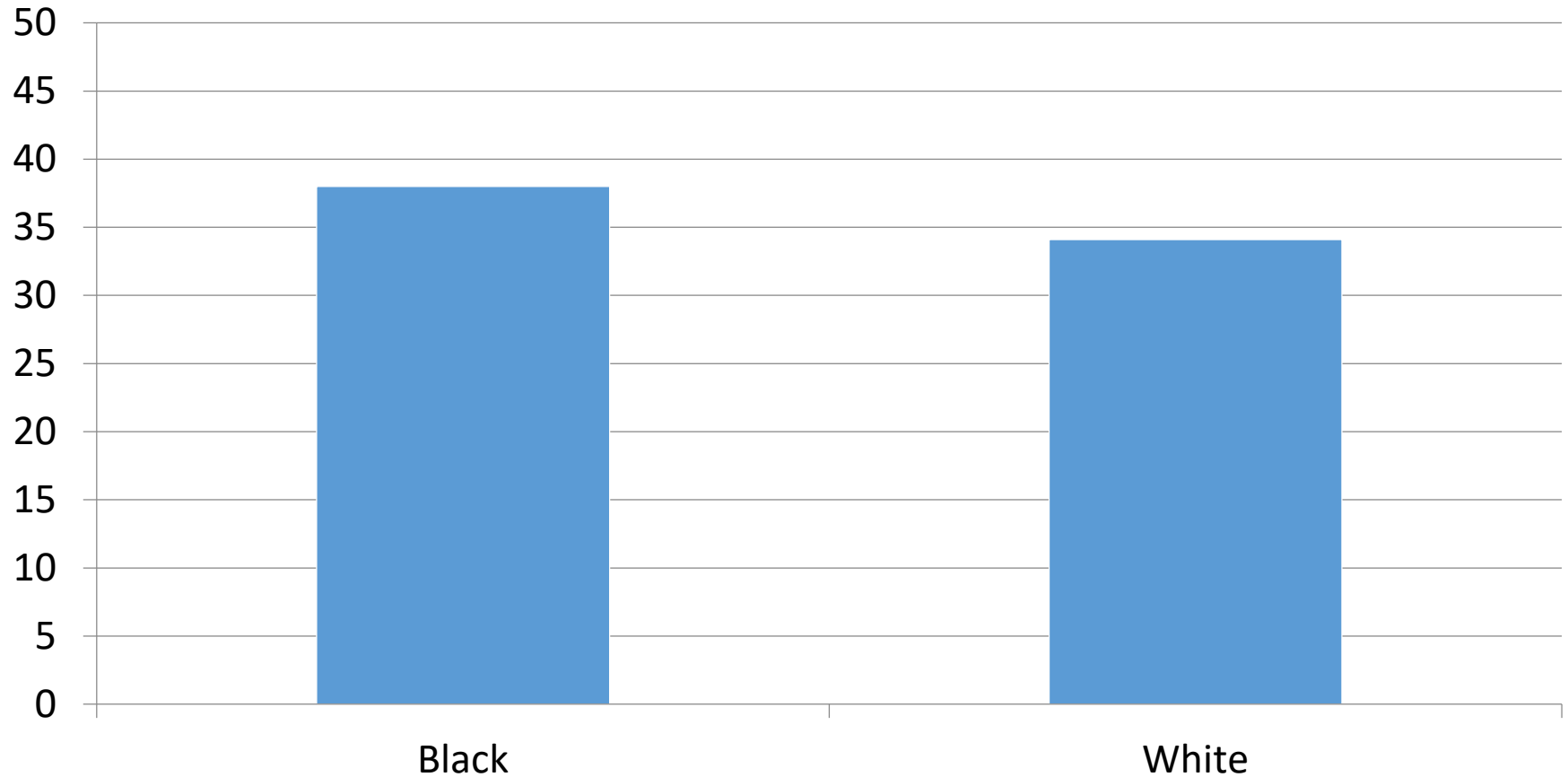
■ Black ■ White ■ Other

Median Income



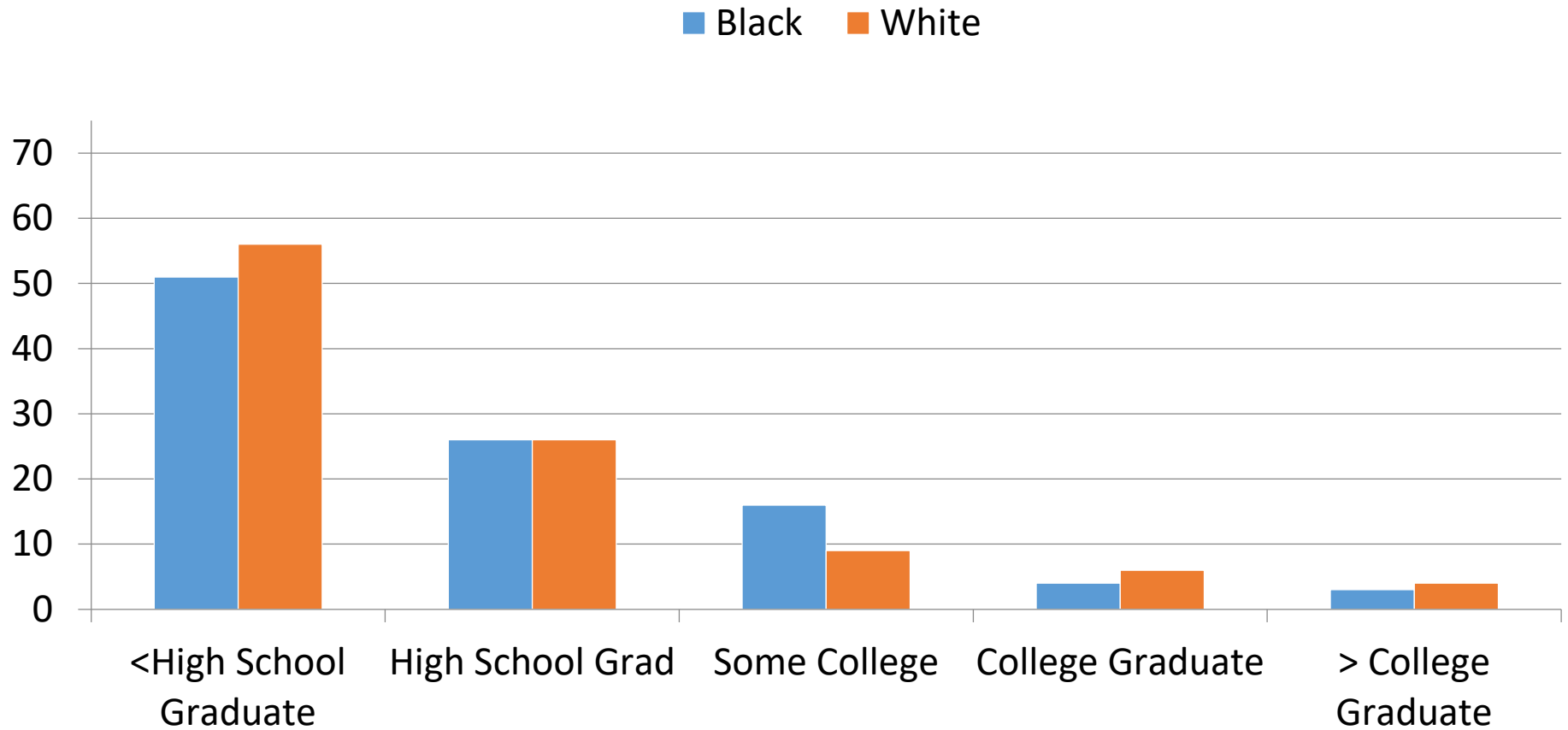
Source: US Censuses 2000

Percent Living Below Official Poverty Level



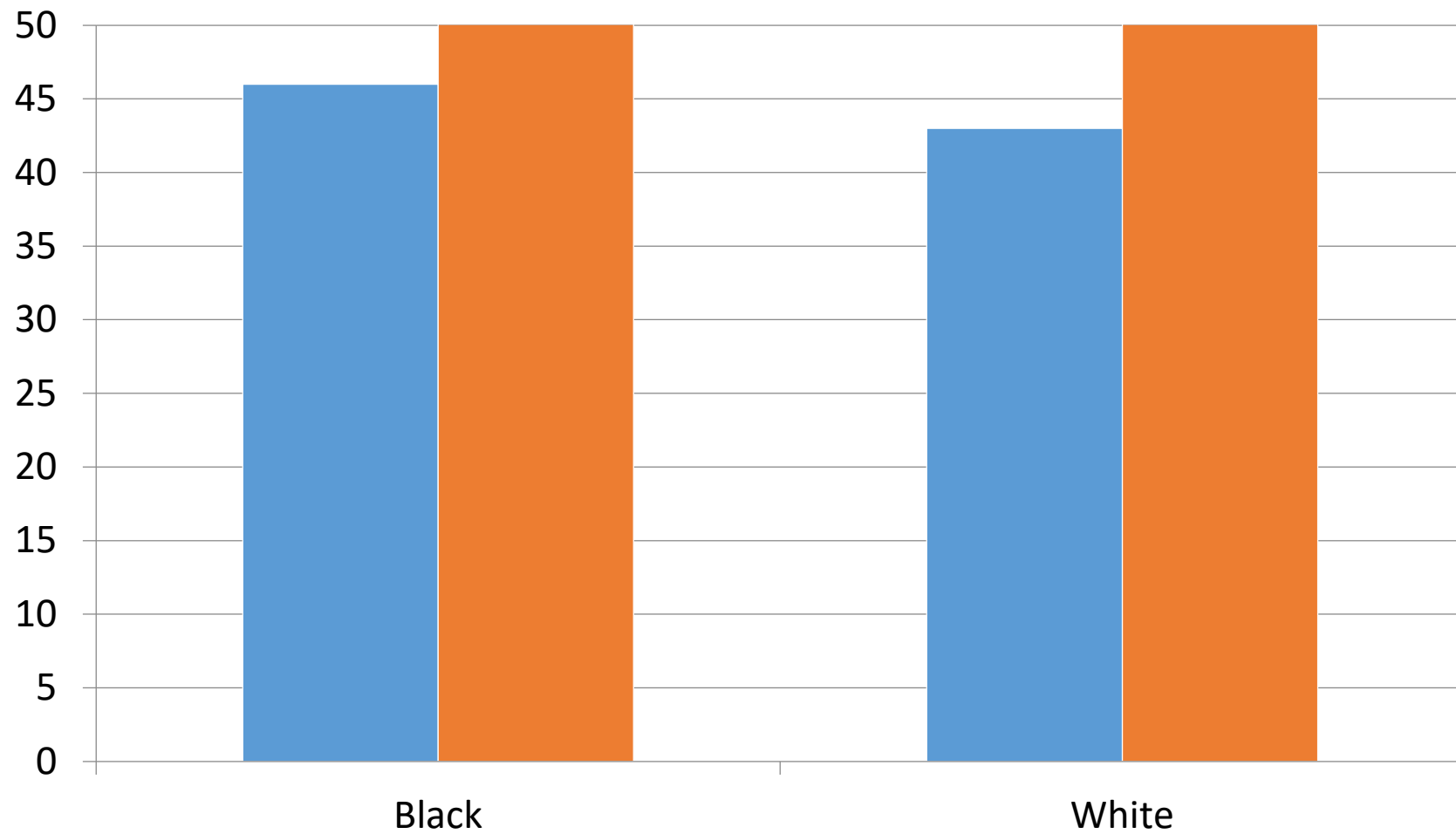
Source: US Censuses 2000

Educational Status



Source: US Censuses 2000

Sex



Source: US Censuses 2000

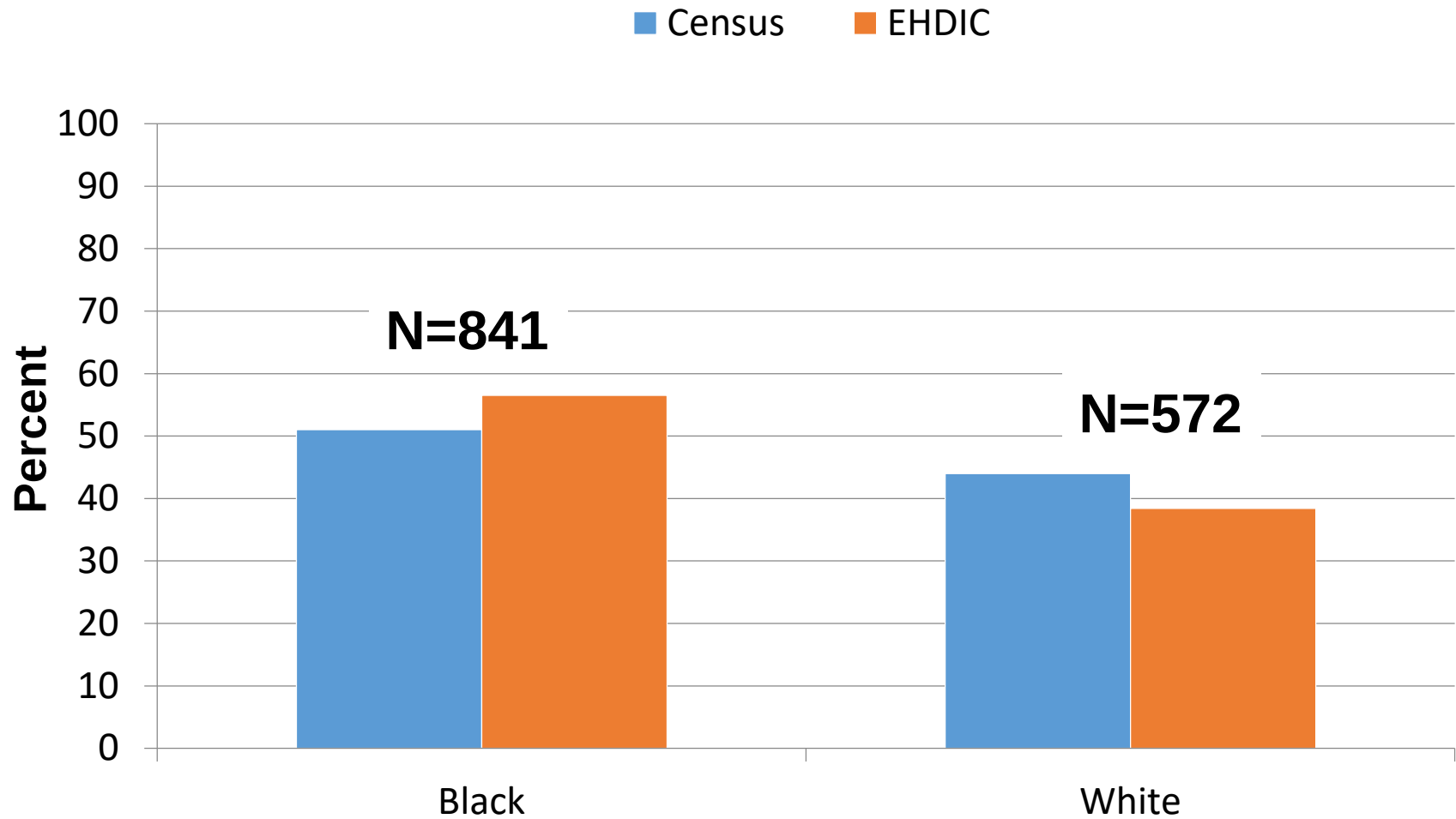
The Study

- Adult Residents of the 2 census tracts
- 40 Minute Interview
- Interviews In-person at home or at health fair
- 3 Blood pressure measurements
- Cuffs calibrated at Johns Hopkins Hospital
- 35 Interviewers
- Interviewer Incentives
- Respondent Incentives
- Interviewed N=1498 (42.14%)

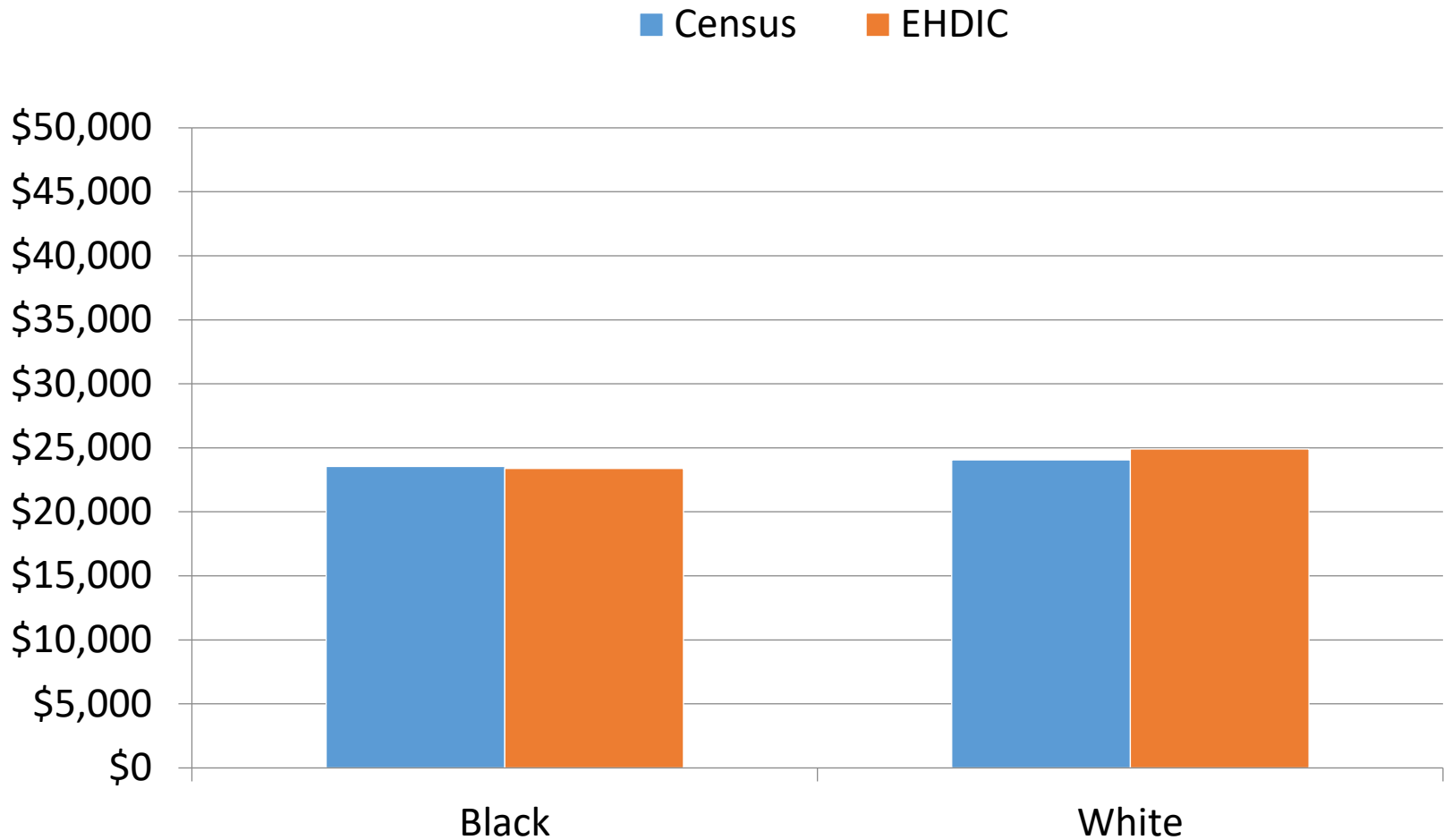
Representativeness of the Sample and Race Differences in the Sample



Racial Distribution of EHDIC Sample

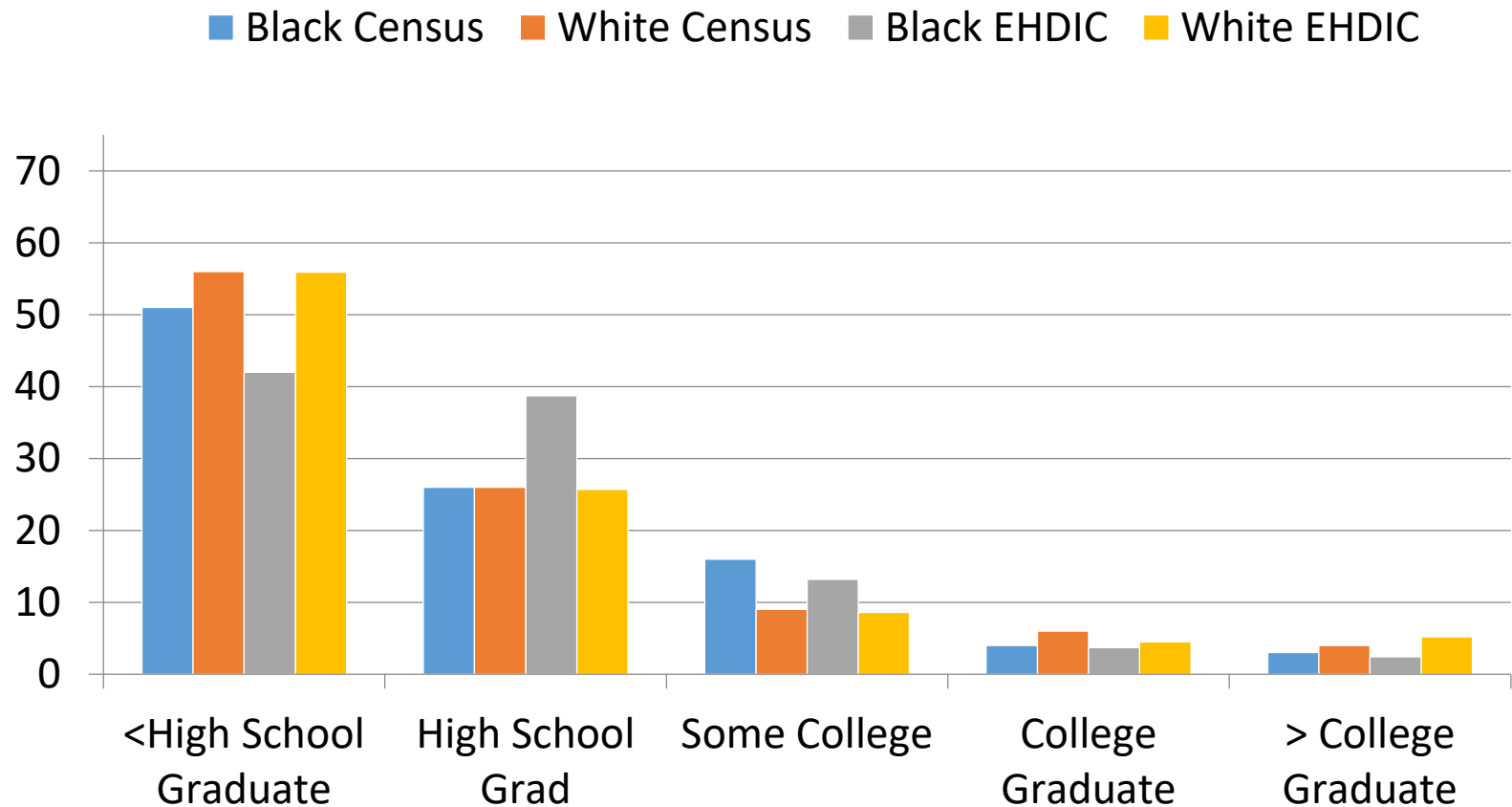


Median Income By Race



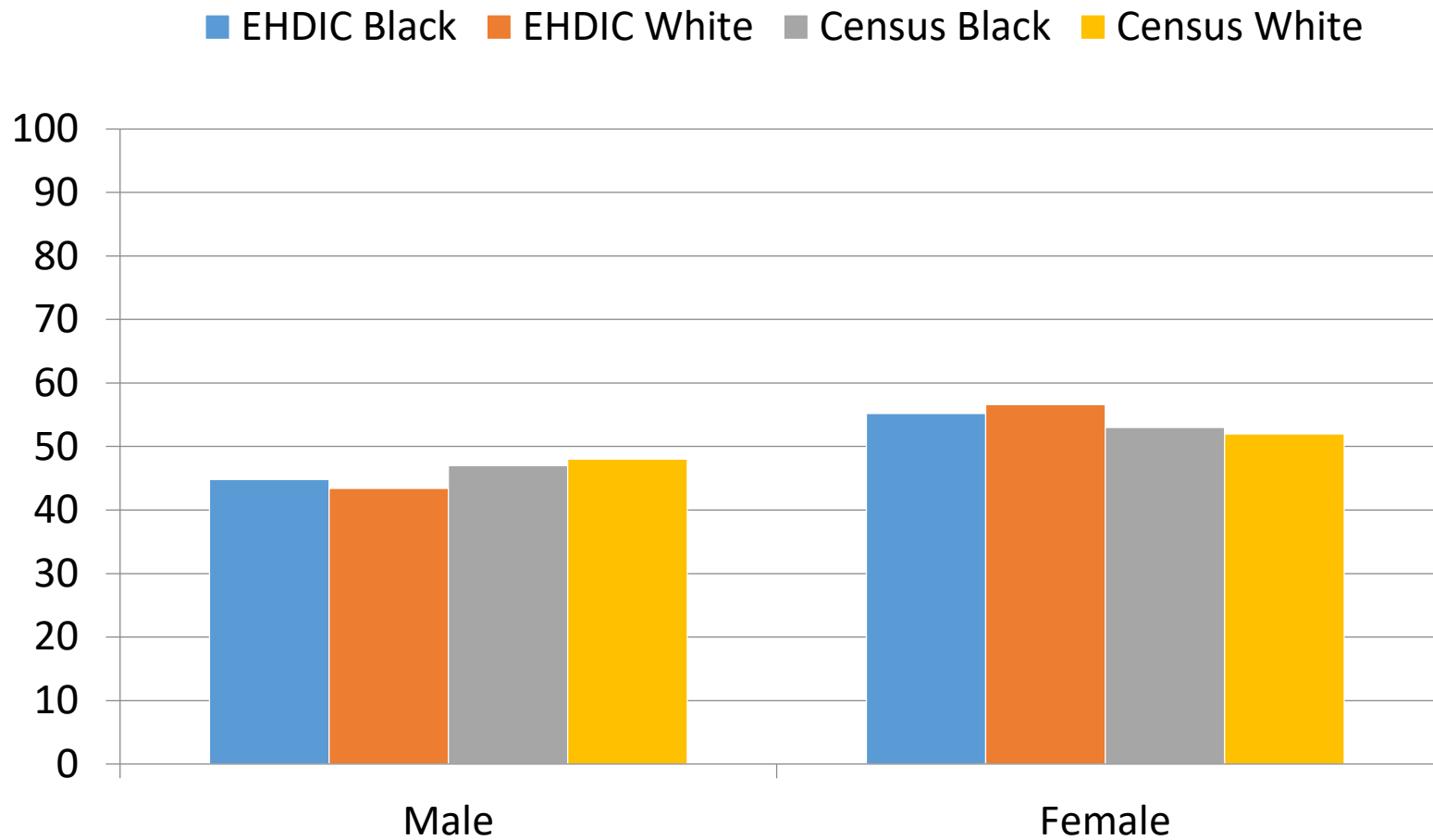
$T = -1.942$ $df=1284$ $95\%CI(-.464,.002)$

Educational Status by Race



$\chi^2 = 45.96$ $df=4$ $p<.0001$

Sex



$\chi^2 = .22$ df 1 $p = .312$

Odds Ratios and 95% Confidence Intervals for the Association between Race and Blood Pressure Status in the EDHIC Study

	NHANES 99-04	EHDIC	Percent difference
	O.R. (95% CI)	O.R. (95% CI)	
Model 1	2.25(1.95-2.59)	1.48 (1.16-1.89)	34
Model 2	2.07(1.79-2.40)	1.45 (1.12-1.88)	29
Model 3	2.08(1.80-2.42)	1.43 (1.11-1.85)	31
Model 4	2.01(1.63-2.48)	1.42 (1.09-1.86)	29

Odds Ratios and 95% Confidence Intervals for National Data vs. EHDIC

Condition	National Data (Segregated)	EHDIC (Integrated)
Diabetes ¹	1.61 (1.26-2.04)	1.07 (0.71-1.58)
Obesity ²	1.87 (1.48-2.36)	1.25 (0.90-1.75)
Hypertension ³	2.01 (1.63-2.48)	1.42 (1.09-1.86)
Use of Health Services ⁴	0.74 (0.51-1.07)	1.44 (1.00-1.87)

1 LaVeist, et al. (2009) Journal of General Internal Medicine

2 Bleich, et al. (2010) Journal of Epidemiology and Community Health

3 Thorpe, et al. (2008) Social Science and Medicine

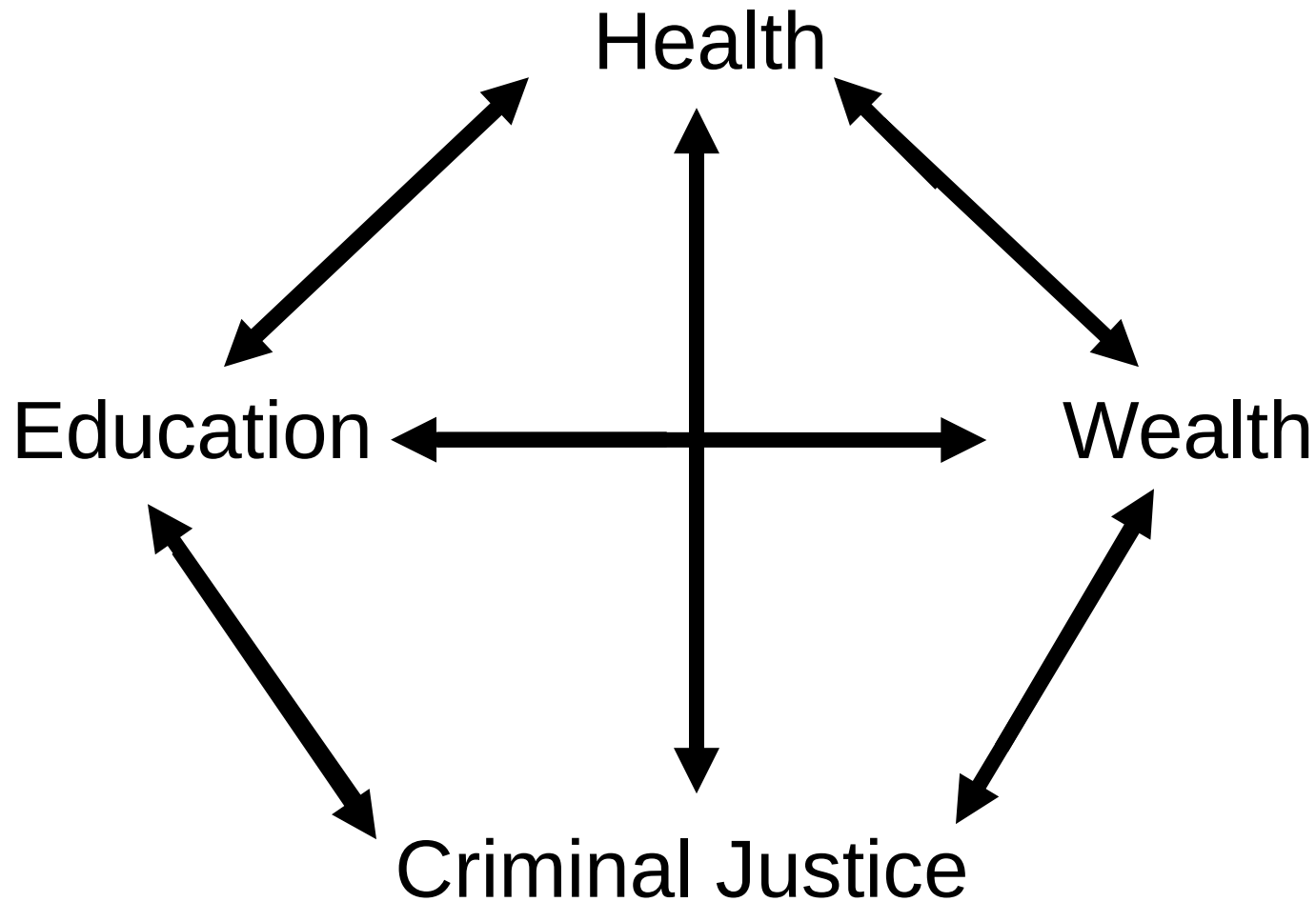
4 Gaskin, et al. (2009) Medical Care Research and Review



Health Disparities: National Studies vs. EHDIC

Condition	National Data (Segregated)	EHDIC (Integrated)
Diabetes	AA 61% greater	No race difference
Obesity	AA 87% greater	No race difference
Hypertension	AA 101% greater	AA 42% greater
Use of Health Services	No race difference	No race difference

The 4 Great Race Disparities



Imagine

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TomL@GWU.edu

@TLAVEIST