

Methods: Mind the Gap Webinar Series

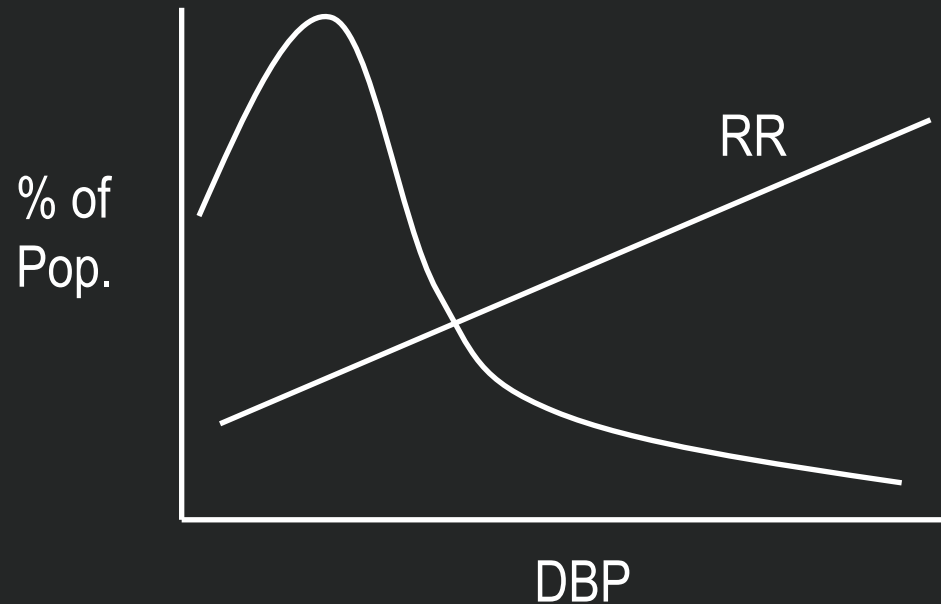
Racism and Other Macrosocial Determinants of Health: Moving from Explanation to Action



Presented by:

David Chae, Sc.D., M.A.
Tulane University

High-Risk versus Population Strategy: The Case of Coronary Heart Disease

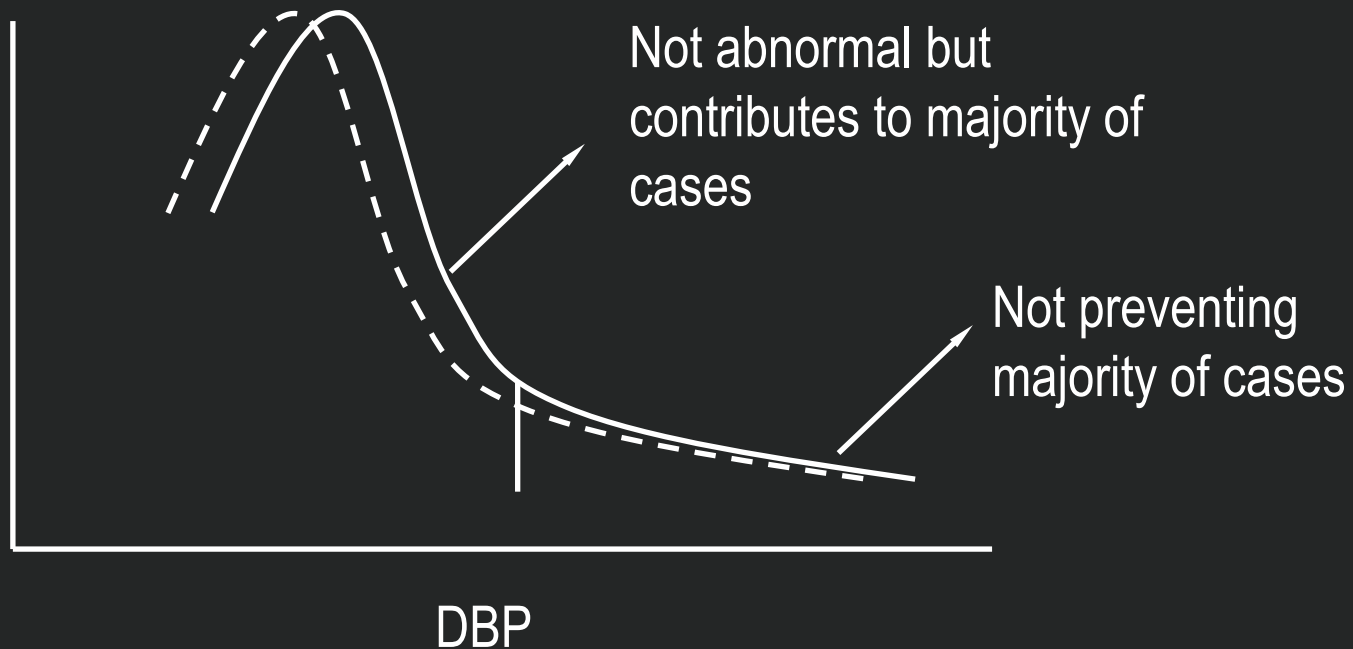


- Relative risk of stroke increases with higher levels of DBP.
- But number of people with high levels of DBP are small.
- And those who are “normal” are still at risk for stroke.

Prevention Paradox: A large number of people at small risk may give rise to more cases of disease than a small number at high risk. Targeting only individuals who may be in the “abnormal” range may be only targeting a small number (Geoffrey Rose).

Population Strategy

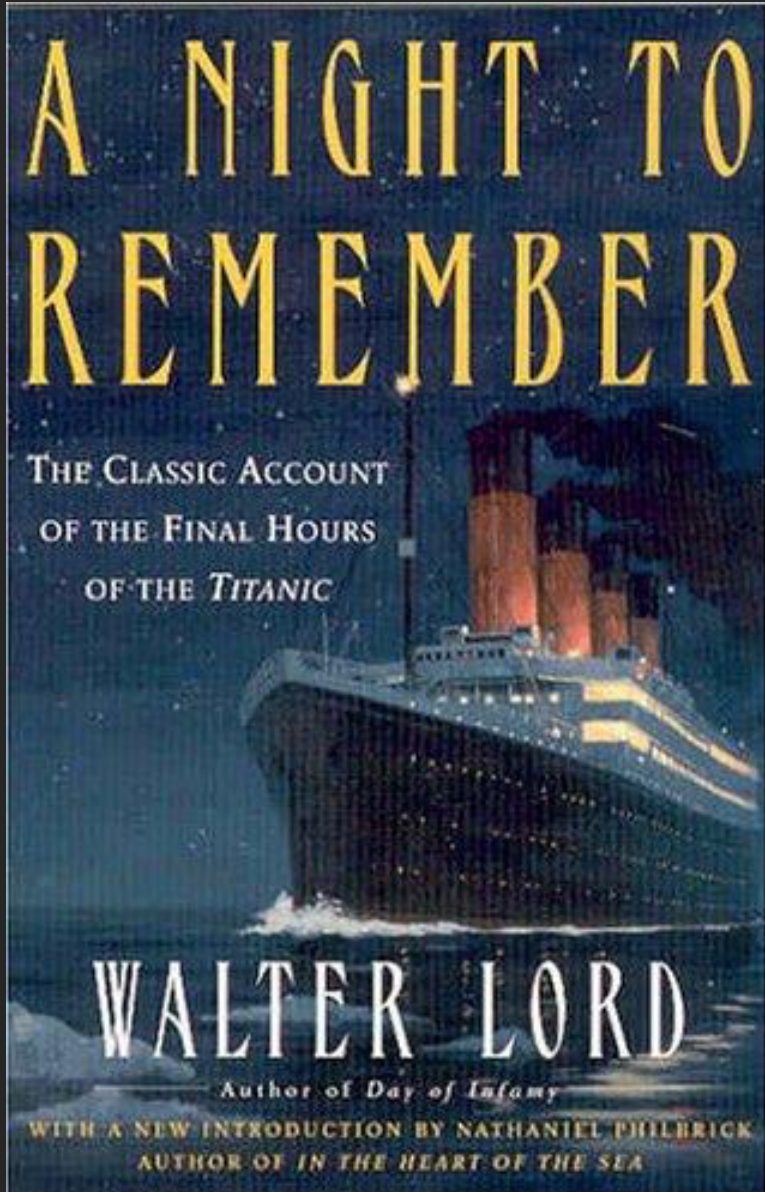
Targeting the ENTIRE population in order to shift the distribution. On a population scale, shifting the distribution even slightly can have dramatic benefits



Reduction in DBP by only 2 units will:

- Reduce the prevalence of hypertension by 17%
- Will reduce CHD risk by 6%

Causes of Death



**Passengers and Crew:
2,242**

Total Deaths: 1,514

Drowning

Hypothermia

Natural Causes

Injury

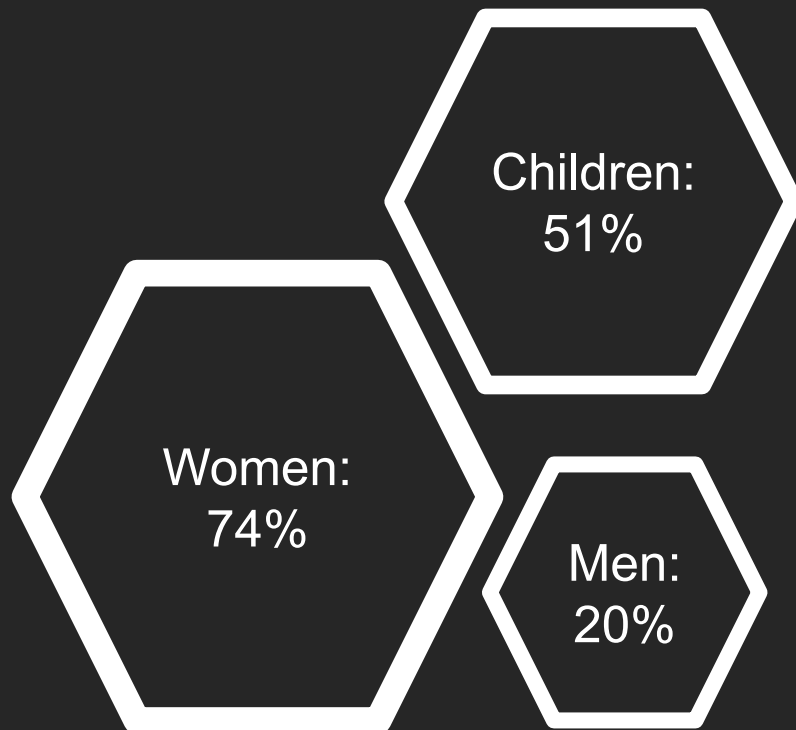
Crushing

Compression

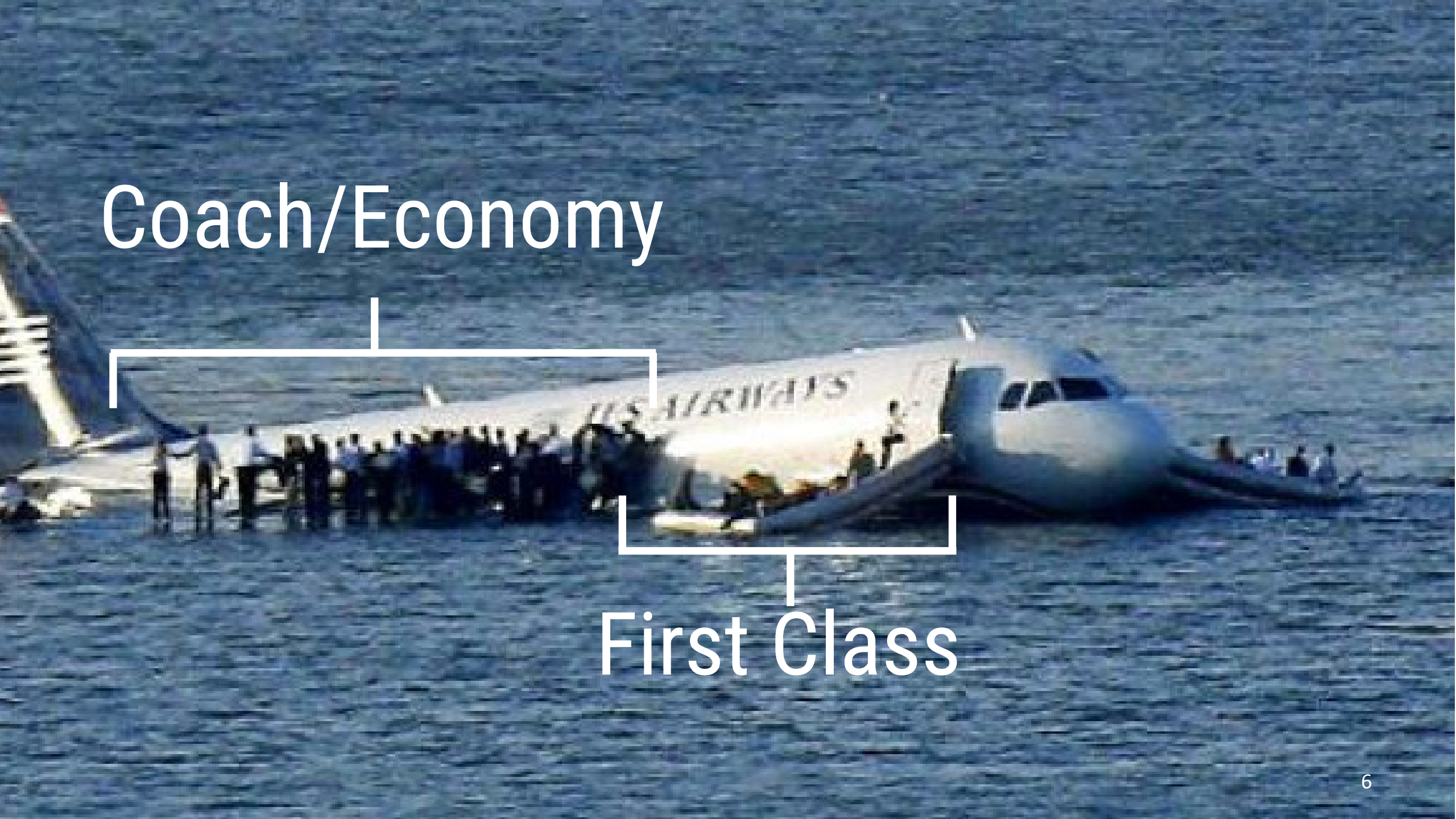
Suicide

Gunshot

Survival



Passenger Category	n	Expected % Saved	Actual % Saved	% Deviation
Children, First Class	6	51%	83%	62%
Women, First Class	144	74%	97%	31%
Men, First Class	175	20%	33%	63%
FIRST CLASS TOTAL	325	45%	62%	39%
Children, Second Class	24	51%	100%	95%
Women, Second Class	93	74%	86%	16%
Men, Second Class	168	20%	8%	-58%
SECOND CLASS TOTAL	285	40%	41%	3%
Children, Third Class	79	51%	34%	-33%
Women, Third Class	165	74%	46%	-38%
Men, Third Class	462	20%	16%	-19%
THIRD CLASS TOTAL	706	36%	25%	-30%

A photograph of a US Airways aircraft on the water, with white text and brackets indicating seating classes. The text "Coach/Economy" is at the top left, and "First Class" is at the bottom right. A white bracket connects the two, with a vertical line extending from the "Coach/Economy" text to the bracket and another vertical line extending from the "First Class" text to the bracket.

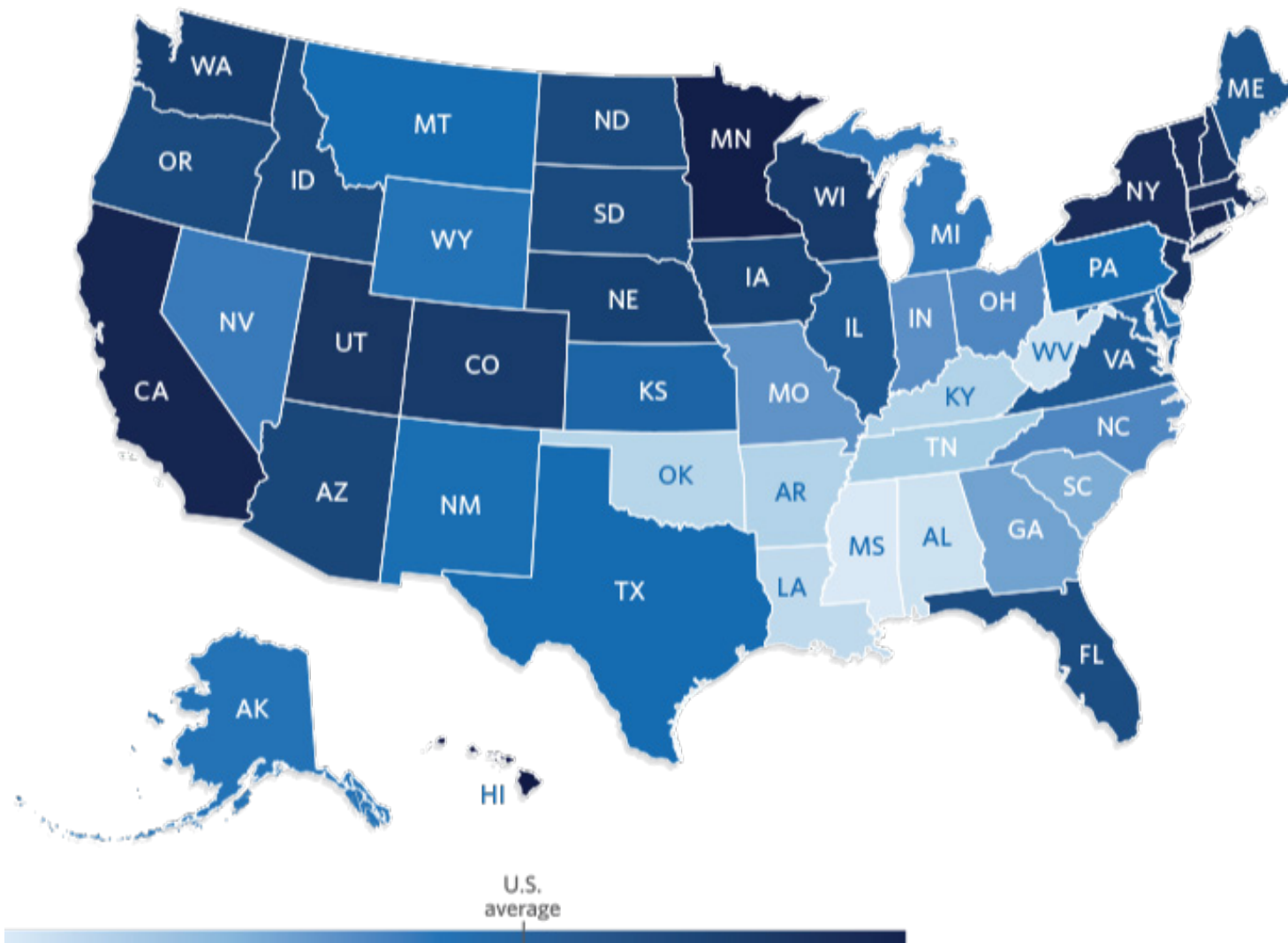
Coach/Economy

First Class

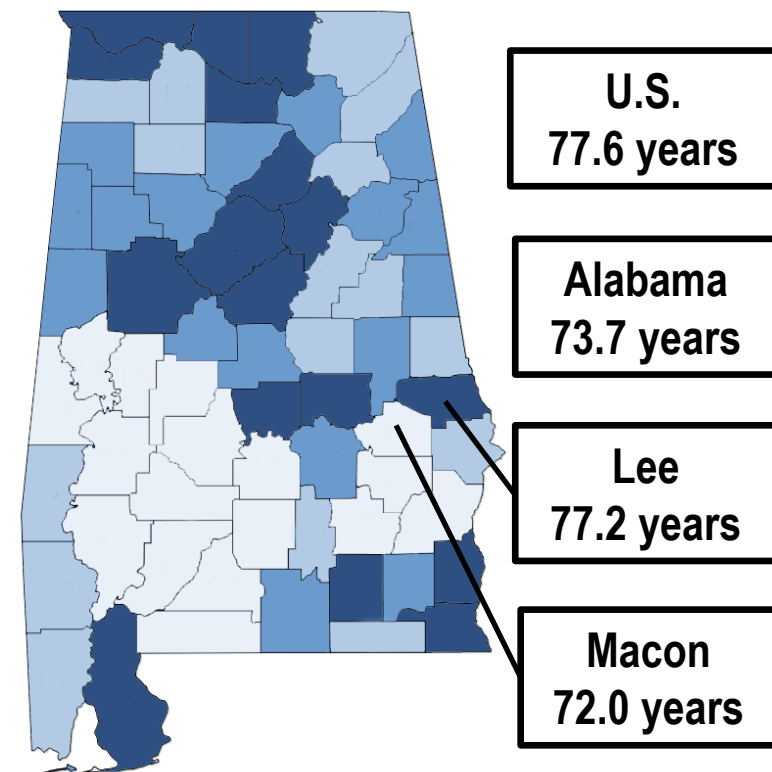
Medical statistics will be our standard of measurement: we will weigh life for life and see where the dead lie thicker, among the workers or among the privileged.

Rudolf Virchow, 1848

Cited by Paul Farmer in *Infections and Inequalities: The Modern Plagues*



Source: Third-party application.



Lee County:
Black: 22%
White: 71%

Macon County:
Black: 82%
White: 15%

Source: Third-party application.

LOCAL

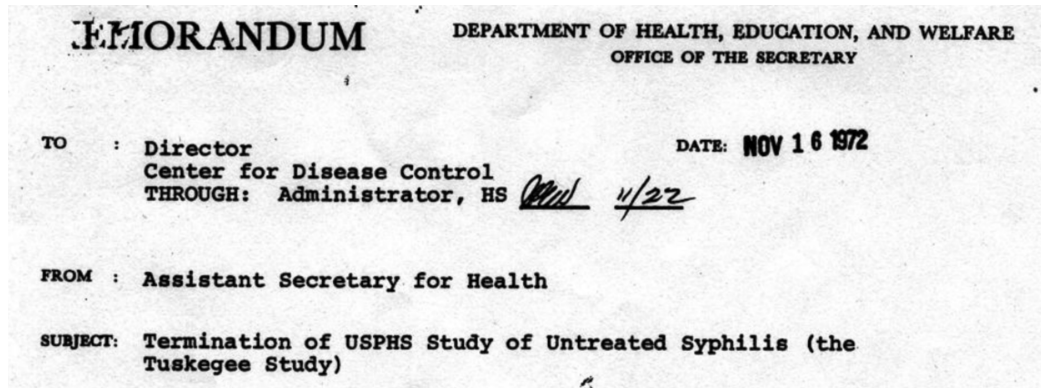
Health disparities persist in Tuskegee 50 years after end of unethical syphilis study



Hadley Hitson

Montgomery Advertiser

Published 9:01 p.m. CT Nov. 27, 2022



Chae, with Auburn University assistant professor and researcher Evelyn Hunter, conducted the Macon Lives Healthier Study to learn about residents' perspectives on the health issues facing their community.

The team sent recruitment letters to hundreds of randomly selected addresses in Macon County; they enrolled 205 people in the study. Of those, 164 were Black, and 31 were white, which is proportional to the racial makeup of Macon County, according to the 2020 U.S. Census.

Macon County's strengths are its people and 'rich history,' participants said

Chae said analysis of the study is ongoing, but one of his most important findings was the resiliency of Macon County residents and how invested they are in their communities.

Residents knew this about themselves. When asked about "the strengths of Macon County," many of the participants had similar answers, all tying back to community.

"The history that citizens learn from living in Macon County or being a part of it is one of the best parts of living in Tuskegee," one participant said.



Rosa Parks Plaza and Fred Gray Street in Tuskegee, Ala., on Friday October 2, 2020. Mickey Welsh / Advertiser

"We look out for each other. We help out our neighbors," another participant said. 9

Home » American Journal of Public Health (AJPH) » **October 2021**

Vulnerability and Resilience: Use and Misuse of These Terms in the Public Health Discourse

David H. ChaeScD, MA, **Shedra A. Snipes**PhD, **Kara W. Chung**MS, **Connor D. Martz**MS, and **Thomas A. LaVeist**PhD

[\[+\] Author affiliations, information, and correspondence details](#)

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First Page

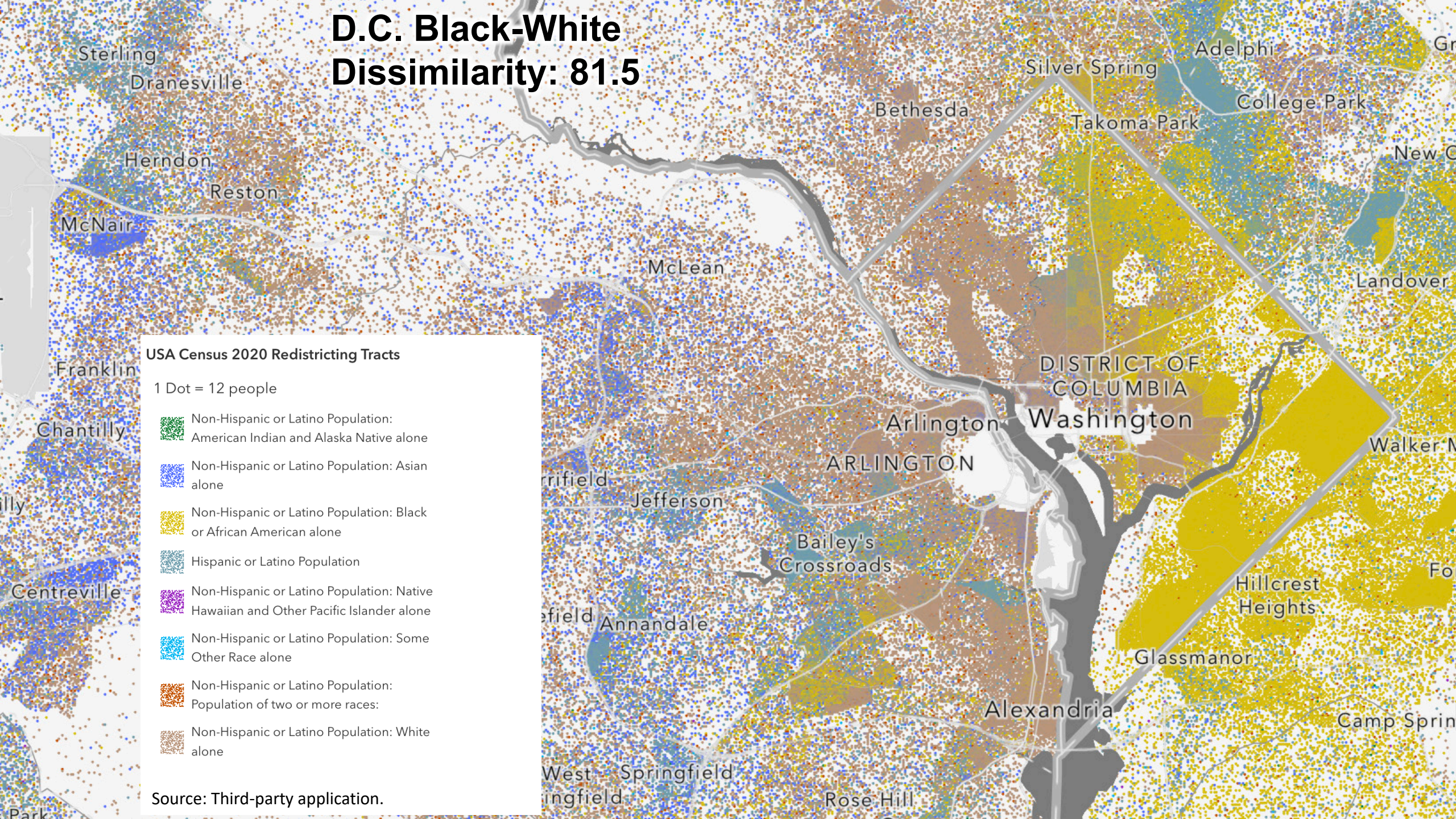
Full Text

References

PDF/EPUB

“Social science research is oftentimes problem-focused. The questions tend to start from the perspective of asking, ‘What’s wrong with Black people?’ We approach the issues from a very different perspective. Our question is, ‘Given the structural impediments that they face, why do Black people do so well?’” —*James S. Jackson (1944–2020)*¹

D.C. Black-White Dissimilarity: 81.5



Racial residential segregation and adverse birth outcomes: A systematic review and meta-analysis

Renee Mehra^{*}, Lisa M. Boyd, Jeannette R. Ickovics

Yale University, USA

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Low birth weight

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ABSTRACT

Rationale: Persistent racial disparities in adverse birth outcomes are not fully explained by individual-level risk factors. Racial residential segregation—degree to which two or more groups live apart from one another—may contribute to the etiology of these birth outcome disparities. Our aim was to assess associations between segregation and adverse birth outcomes by race. This review focused on formal measures of segregation, using Massey and Denton's framework (1998) that identifies five distinct operationalizations of segregation, in addition to proxy measures of segregation such as racial composition, in order to gain a deeper understanding of the operationalizations of segregation most salient for birth outcomes.

Method: Review and meta-analyses were conducted using PubMed, PsycINFO and Web of Science and included articles from inception through April 30, 2017.

Results: Forty-two articles examined associations between segregation and adverse birth outcomes among Black and White mothers separately. Meta-analyses showed that among Black mothers, exposure was associated with increased risk of preterm birth ($OR = 1.17$, 95% $CI = 1.10, 1.26$), and low birth weight ($OR = 1.13$, 95% $CI = 1.06, 1.21$), and Black racial composition was associated with increased risk of preterm birth ($OR = 1.20$, 95% $CI = 1.05, 1.37$), among those living in most- compared to least-segregated neighborhoods. Few studies were conducted among White mothers and only exposure was associated with increased risk of preterm birth and low birth weight. Qualitative analyses indicated that among Black mothers, exposure and hypersegregation were associated with multiple adverse birth outcomes; findings were mixed for evenness and clustering.

Conclusions and future directions: Associations between segregation and adverse birth outcomes differ by race. Methodological heterogeneity between studies may obscure true associations. Research can be advanced through use of multilevel frameworks and by examining mechanistic pathways between segregation and adverse birth outcomes. Elucidation of pathways may provide opportunities to intervene to reduce seemingly intractable racial disparities in adverse birth outcomes.

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Layer List

☒ Restricted by Petition



☒ Restricted by Deed



☒ Waterbodies (1999)

☒ Nonwhite Households: 1940

% Nonwhite Persons



80-100



60-80



40-60

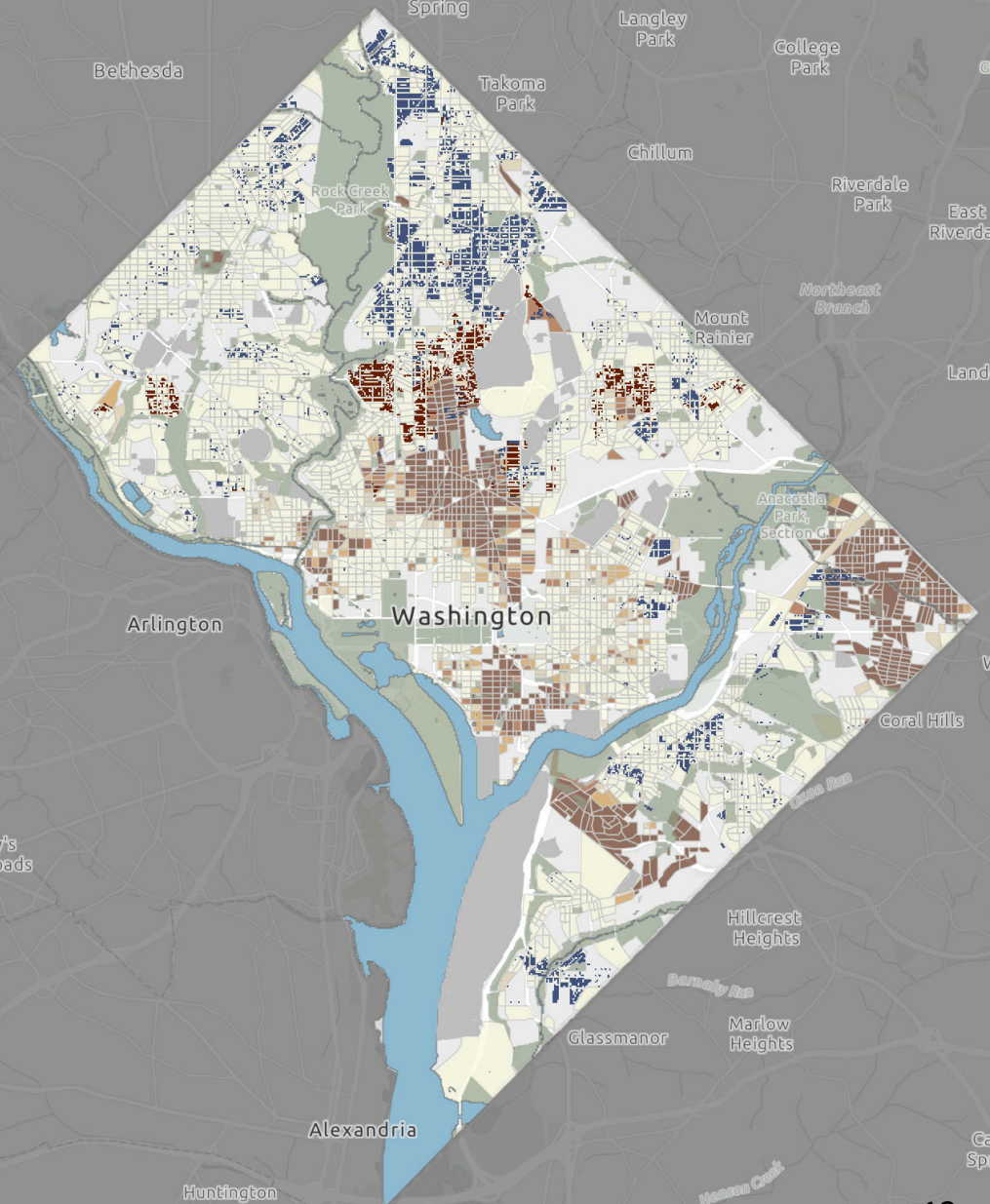


20-40



1-20

Source: <https://mappingsegregationdc.org/#maps>



Historical redlining and cardiovascular health: The Multi-Ethnic Study of Atherosclerosis

Mahasin S. Mujahid^{a,1} , Xing Gao^a, Loni P. Tabb^b, Colleen Morris^a, and Tené T. Lewis^c 

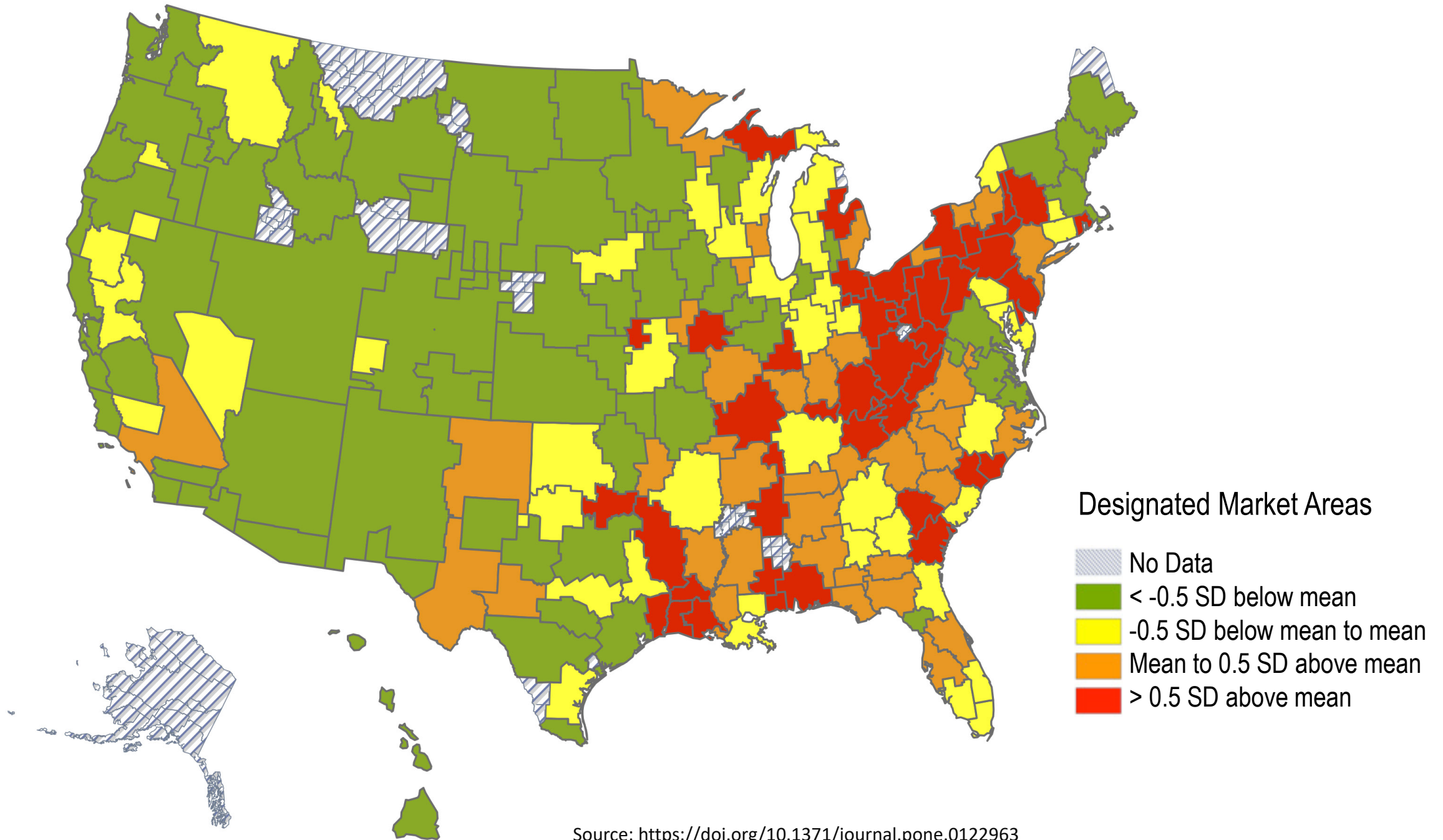
^aDivision of Epidemiology, School of Public Health, University of California, Berkeley, CA 94720; ^bDepartment of Epidemiology and Biostatistics, Dornsife School of Public Health, Drexel University, Philadelphia, PA 19104; and ^cDepartment of Epidemiology, Rollins School of Public Health, Emory University, Atlanta, GA 30322

Edited by Douglas S. Massey, Princeton University, Princeton, NJ, and approved September 30, 2021 (received for review June 16, 2021)

We investigated historical redlining, a government-sanctioned discriminatory policy, in relation to cardiovascular health (CVH) and whether associations were modified by present-day neighborhood physical and social environments. Data included 4,779 participants (mean age 62 y; SD = 10) from the baseline sample of the Multi-Ethnic Study of Atherosclerosis (MESA; 2000 to 2002). Ideal CVH was a summary measure of ideal levels of seven CVH risk factors based on established criteria (blood pressure, fasting glucose, cholesterol, body mass index, diet, physical activity, and smoking). We assigned MESA participants' neighborhoods to one of four grades (A: best, B: still desirable, C: declining, and D: hazardous) using the 1930s federal Home Owners' Loan Corporation (HOLC) maps, which guided decisions regarding mortgage financing. Two-level hierarchical linear and logistic models, with a random intercept to account for participants nested within neighborhoods (i.e., census tracts) were used to assess associations within racial/ethnic subgroups (non-Hispanic White, non-Hispanic Black, Hispanic, and

non-Hispanic Chinese). We found that Black adults who lived in historically redlined areas had a 0.82 (95% CI –1.54, –0.10) lower CVH score compared to those residing in grade A (best) neighborhoods, in a given neighborhood and adjusting for confounders. We also found that as the current neighborhood social environment improved the association between HOLC score and ideal CVH weakened ($P < 0.10$). There were no associations between HOLC grade and CVH measures or effect modification by current neighborhood conditions for any other racial/ethnic group. Results suggest that historical redlining has an enduring impact on cardiovascular risk among Black adults in the United States.

structural racism | redlining | neighborhood | cardiovascular health | MESA



Black mortality

Chae DH, et al. Association between an Internet-based measure of area racism and Black mortality.
PLOS ONE. 2015;10(4):e0122963.

	Model 1	Model 2	Model 3	Model 4
Area Racism	1.082***	1.076***	1.057***	1.036**
Urbanicity		1.000	1.002**	1.004***
% Black		1.006***	1.007***	1.006***
Education			1.003	1.001
Poverty			1.012***	1.010***
White Mortality				1.046***

Note: All models adjusted for age, sex, year of death, Census region.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Birth Outcomes

Chae DH, et al. Social Science and Medicine. 2017

	PR Preterm Birth	PR Low Birthweight
Model 1	1.09 (1.05, 1.13) ^{***}	1.09 (1.06, 1.12) ^{***}
Model 2	1.08 (1.04, 1.12) ^{***}	1.08 (1.04, 1.11) ^{***}
Model 3	1.05 (1.02, 1.09) ^{***}	1.05 (1.02, 1.07) ^{***}

Model 1: Adjusting for Maternal Age

Model 2: Model 1 + Region, Urbanicity, % Black

Model 3: Model 2 + Black Education, Black Poverty

* p < 0.05

** p < 0.01

*** p < 0.001

The idea of “race” and its persistence as a social category is only given meaning in a social order structured by forms of inequality—economic, political, and cultural—that are organized, to a significant degree, along racial lines.

- Michael Omi, *The Changing Meaning of Race*



racism
makes me sick

it damages my heart, blood
pressure and my unborn baby

- Discrimination faced by racial/ethnic minorities in the U.S. is pervasive in contemporary contexts.
 - Employment
 - Education
 - Housing
 - Criminal Justice System
 - Health Care
- Acute and chronic
- Domain-specific, everyday
- Overt as well as subtle

Indirect Effects

- Segregation
- Socioeconomic Position

Direct Effects

- Mental Health
- Health Behaviors
- Physical Outcomes

Positive

Brief increases in heart rate, mild elevations in stress hormone levels

Tolerable

Serious, temporary stress responses, buffered by supportive relationships

TOXIC

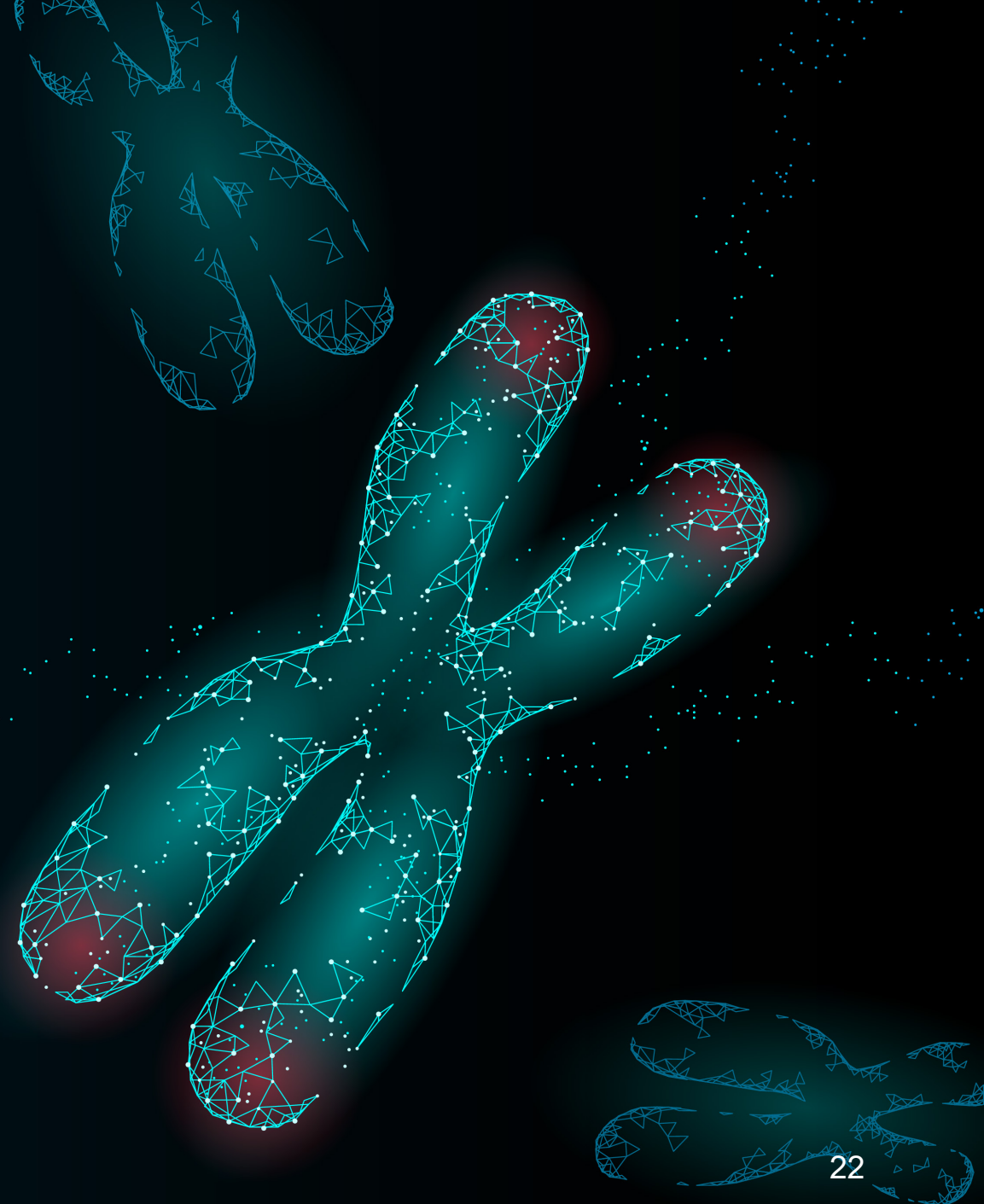
Prolonged activation of stress response systems, excessive, out of control





Telomeres

- Involved in DNA replication and the life of the cell.
- Associated with mortality and disease.
- Accelerated shortening due to oxidative stress and inflammation.



Discrimination, Racial Bias, and Telomere Length in African-American Men

David H. Chae, ScD, MA, Amani M. Nuru-Jeter, PhD, Nancy E. Adler, PhD, Gene H. Brody, PhD, Jue Lin, PhD, Elizabeth H. Blackburn, PhD, Elissa S. Epel, PhD

Background: Leukocyte telomere length (LTL) is an indicator of general systemic aging, with shorter LTL being associated with several chronic diseases of aging and earlier mortality. Identifying factors related to LTL among African Americans may yield insights into mechanisms underlying racial disparities in health.

Purpose: To test whether the combination of more frequent reports of racial discrimination and holding a greater implicit anti-black racial bias is associated with shorter LTL among African-American men.

Methods: Cross-sectional study of a community sample of 92 African-American men aged between 30 and 50 years. Participants were recruited from February to May 2010. Ordinary least squares regressions were used to examine LTL in kilobase pairs in relation to racial discrimination and implicit racial bias. Data analysis was completed in July 2013.

Results: After controlling for chronologic age and socioeconomic and health-related characteristics, the interaction between racial discrimination and implicit racial bias was significantly associated with LTL ($b=-0.10$, $SE=0.04$, $p=0.02$). Those demonstrating a stronger implicit anti-black bias and reporting higher levels of racial discrimination had the shortest LTL. Household income-to-poverty threshold ratio was also associated with LTL ($b=0.05$, $SE=0.02$, $p<0.01$).

Conclusions: Results suggest that multiple levels of racism, including interpersonal experiences of racial discrimination and the internalization of negative racial bias, operate jointly to accelerate biological aging among African-American men. Societal efforts to address racial discrimination in concert with efforts to promote positive in-group racial attitudes may protect against premature biological aging in this population.

(Am J Prev Med 2014;46(2):103–111) © 2014 American Journal of Preventive Medicine

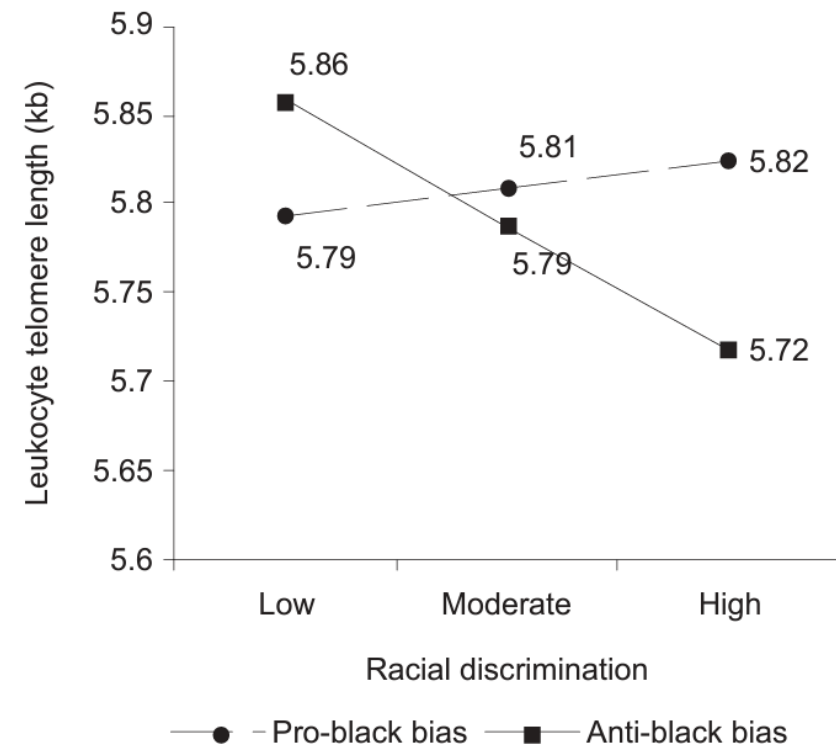
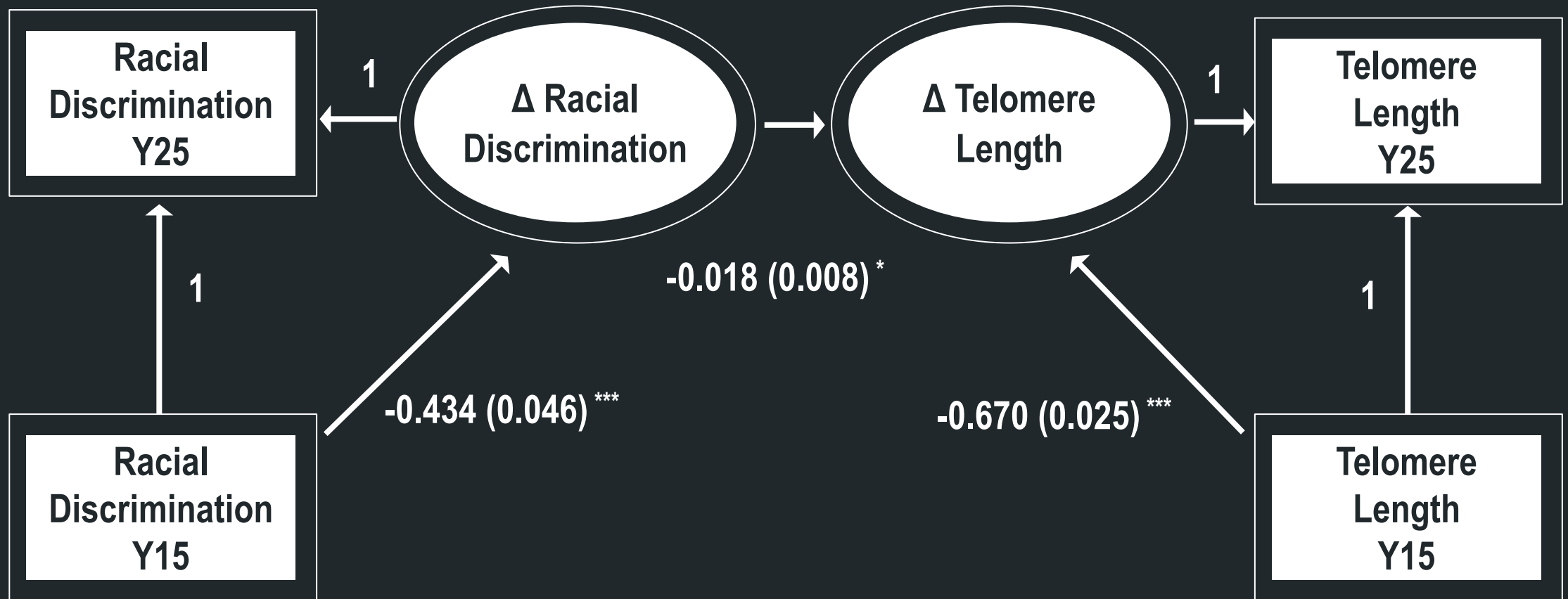
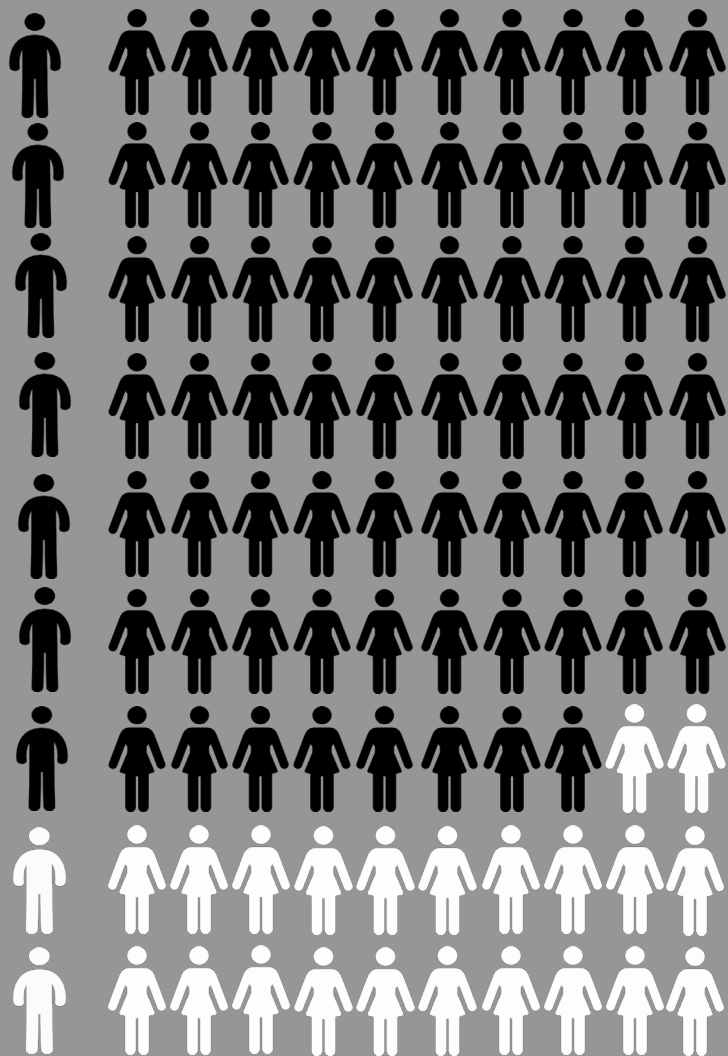


Figure 1. Predicted leukocyte telomere length by racial discrimination and implicit racial bias among African-American men

Racial Discrimination and 10-Year Change in Telomere Length

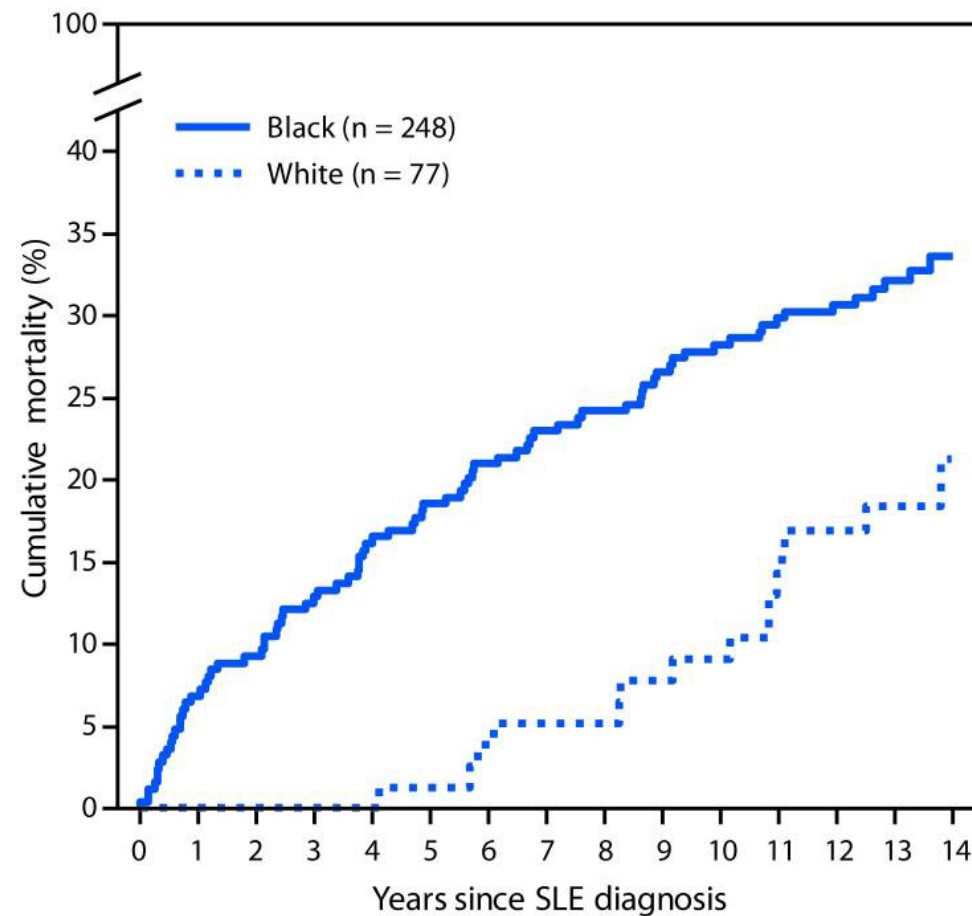


Est. US Prevalence: 322,000



Source: Third-party application.

Cumulative mortality of **incident** SLE cases diagnosed during 2002–2004 in the Georgia Lupus Registry



Source: Racial Disparities in Mortality Associated with Systemic Lupus Erythematosus — Fulton and DeKalb Counties, Georgia, 2002–2016.

**BLACK
WOMEN'S
EXPERIENCES
LIVING WITH
LUPUS
(BEWELL)
STUDY**



Racial discrimination, disease activity, and organ damage

Chae DH, et al. American Journal of Epidemiology. 2019

	Disease Activity b (95% CI)	Organ Damage b (95% CI)
Model 1	1.92 (1.18, 2.66)	0.08 (0.02, 0.14)
Model 2	2.20 (1.52, 2.89)	0.08 (0.02, 0.14)
Model 3	2.00 (1.32, 2.68)	0.08 (0.02, 0.13)

Model 1: Adjusting for age, years since diagnosis, relationship status

Model 2: Model 1 + Education, work status, insurance status, poverty ratio

Model 3: Model 2 + BMI, Exercise, smoking, medication use

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Medical Appointment Adherence

- 72.1% reported experiencing racial discrimination in medical settings once.
- 13.3% reported these experiences 2 or 3 times.
- 9.4% reported these experiences 4 or more times.
- Racial discrimination in medical settings was significantly associated with missed medical appointments (Odds Ratio: 1.33, 95% Confidence Interval: 1.03, 1.73).



- Vicarious Racism
- Anticipatory Racism Threat



Vicarious Racism Stress and Disease Activity: the Black Women's Experiences Living with Lupus (BeWELL) Study



Connor D. Martz¹  · Amani M. Allen² · Thomas E. Fuller-Rowell¹ · Erica C. Spears³ · S. Sam Lim^{4,5} · Cristina Drenkard^{4,5} · Kara Chung¹ · Evelyn A. Hunter⁶ · David H. Chae¹

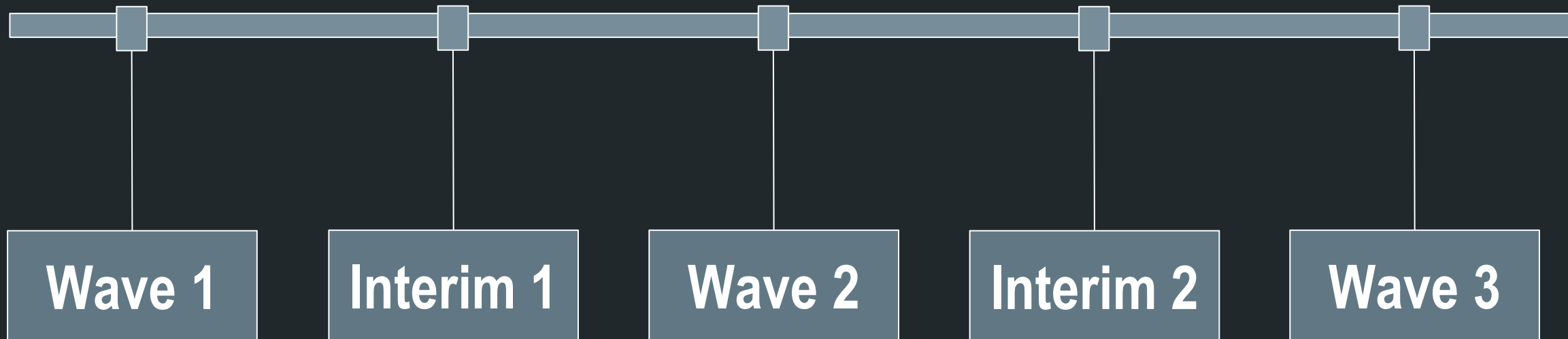
Received: 4 March 2019 / Revised: 30 May 2019 / Accepted: 4 June 2019 / Published online: 18 June 2019
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<https://doi.org/10.1007/s10865-021-00235-9>



Anticipatory racism stress, smoking and disease activity: the Black women's experiences living with lupus (BeWELL) study

Erica C. Spears¹  · Amani M. Allen² · Kara W. Chung³ · Connor D. Martz³ · Evelyn A. Hunter⁴ · Thomas E. Fuller-Rowell³ · S. Sam Lim^{5,6} · Christina Drenkard^{5,6} · David H. Chae⁷



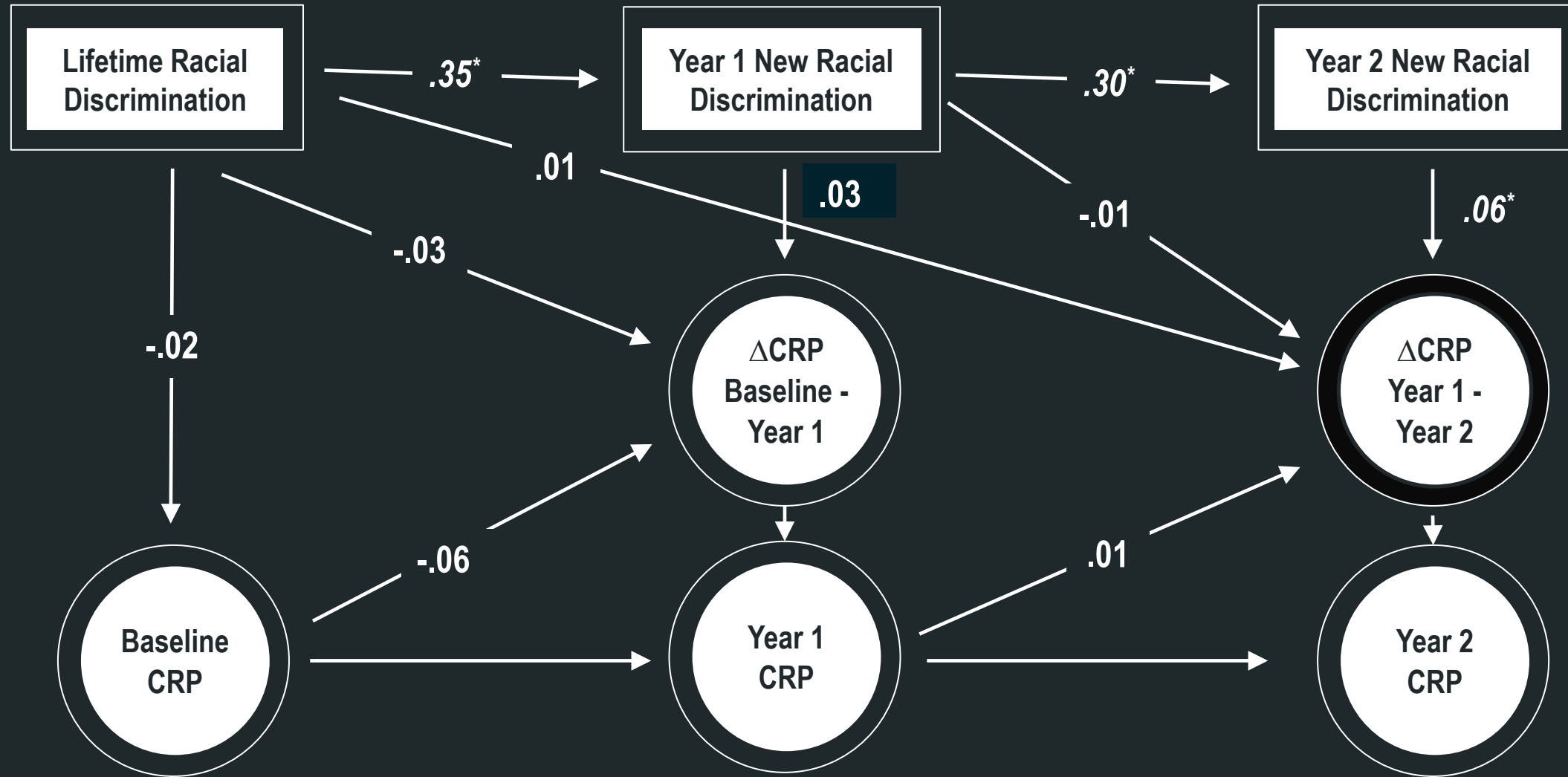
Year 1 Start: April 2015

Year 2 End: February 2019

W1 LTL: $b=0.71$ $SE=0.05$, $p<0.001$

**W2 Discrimination:
 $b=-0.9$ $SE=0.04$, $p=0.02$**

Latent Change in CRP and Annual Incidence of Racial Discrimination



Uncovering COVID Experiences and Realities



Vicarious Racism and Vigilance During the COVID-19 Pandemic: Mental Health Implications Among Asian and Black Americans

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David H. Chae, ScD, MA¹; Tiffany Yip, PhD²; Connor D. Martz, MS³ ; Kara Chung, MS¹; Jennifer A. Richeson, PhD⁴; Anjum Hajat, PhD⁵; David S. Curtis, PhD⁶; Leoandra Onnie Rogers, PhD⁷; and Thomas A. LaVeist, PhD¹

Abstract

Objectives: Experiences of vicarious racism—hearing about racism directed toward one’s racial group or racist acts committed against other racial group members—and vigilance about racial discrimination have been salient during the COVID-19 pandemic. This study examined vicarious racism and vigilance in relation to symptoms of depression and anxiety among Asian and Black Americans.

Methods: We used data from a cross-sectional study of 604 Asian American and 844 Black American adults aged ≥18 in the United States recruited from 5 US cities from May 21 through July 15, 2020. Multivariable linear regression models examined levels of depression and anxiety by self-reported vicarious racism and vigilance.

Results: Controlling for sociodemographic characteristics, among both Asian and Black Americans, greater self-reported vicarious racism was associated with more symptoms of depression (Asian: $\beta = 1.92$ [95% CI, 0.97-2.87]; Black: $\beta = 1.72$ [95% CI, 0.95-2.49]) and anxiety (Asian: $\beta = 2.40$ [95% CI, 1.48-3.32]; Black: $\beta = 1.98$ [95% CI, 1.17-2.78]). Vigilance was also positively related to symptoms of depression (Asian: $\beta = 1.54$ [95% CI, 0.58-2.50]; Black: $\beta = 0.90$ [95% CI, 0.12-1.67]) and anxiety (Asian: $\beta = 1.98$ [95% CI, 1.05-2.91]; Black: $\beta = 1.64$ [95% CI, 0.82-2.45]).

Conclusions: Mental health problems are a pressing concern during the COVID-19 pandemic. Results from our study suggest that heightened racist sentiment, harassment, and violence against Asian and Black Americans contribute to increased risk of depression and anxiety via vicarious racism and vigilance. Public health efforts during this period should address endemic racism as well as COVID-19.

Highly public anti-Black violence is associated with poor mental health days for Black Americans

David S. Curtis^{a,1} , Tessa Washburn^a , Hedwig Lee^b, Ken R. Smith^a , Jaewhan Kim^c , Connor D. Martz^d , Michael R. Kramer^e , and David H. Chae^f

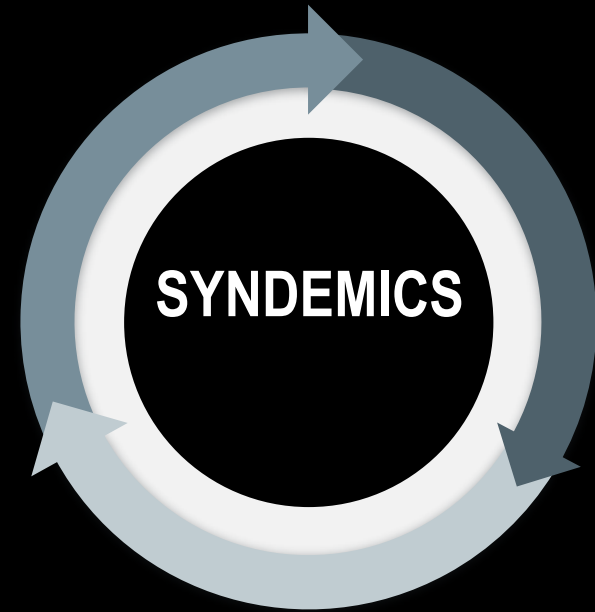
^aDepartment of Family and Consumer Studies, University of Utah, Salt Lake City, UT 84112; ^bDepartment of Sociology, Washington University in St. Louis, St. Louis, MO 63130; ^cDepartment of Physical Therapy, University of Utah, Salt Lake City, UT 84112; ^dDepartment of Human Development and Family Science, Auburn University, Auburn, AL 36849; ^eDepartment of Epidemiology, Emory University, Atlanta, GA 30322; and ^fDepartment of Global Community Health and Behavioral Sciences, Tulane University, New Orleans, LA 70112

Edited by David R. Williams, Harvard University, Boston, MA, and approved March 1, 2021 (received for review September 25, 2020)

Highly public anti-Black violence in the United States may cause widely experienced distress for Black Americans. This study identifies 49 publicized incidents of racial violence and quantifies national interest based on Google searches; incidents include police killings of Black individuals, decisions not to indict or convict the officer involved, and hate crime murders. Weekly time series of population mental health are produced for 2012 through 2017 using two sources: 1) Google Trends as national search volume for psychological distress terms and 2) the Behavioral Risk Factor Surveillance System (BRFSS) as average poor mental health days in the past 30 d among Black respondents (mean weekly sample size of 696). Autoregressive moving average (ARMA) models accounted for autocorrelation, monthly unemployment, season and year effects, 52-wk lags, news-related searches for suicide (for Google Trends), and depression prevalence

and percent female (for BRFSS). National search interest varied more than 100-fold between racial violence incidents. Black BRFSS respondents reported 0.26 more poor mental health days during weeks with two or more racial incidents relative to none, and 0.13 more days with each $\log_{10}$ increase in national interest. Estimates were robust to sensitivity tests, including controlling for monthly number of Black homicide victims and weekly search interest in riots. As expected, racial incidents did not predict average poor mental health days among White BRFSS respondents. Results with national psychological distress from Google Trends were mixed but generally unsupportive of hypotheses. Reducing anti-Black violence may benefit Black Americans' mental health nationally.

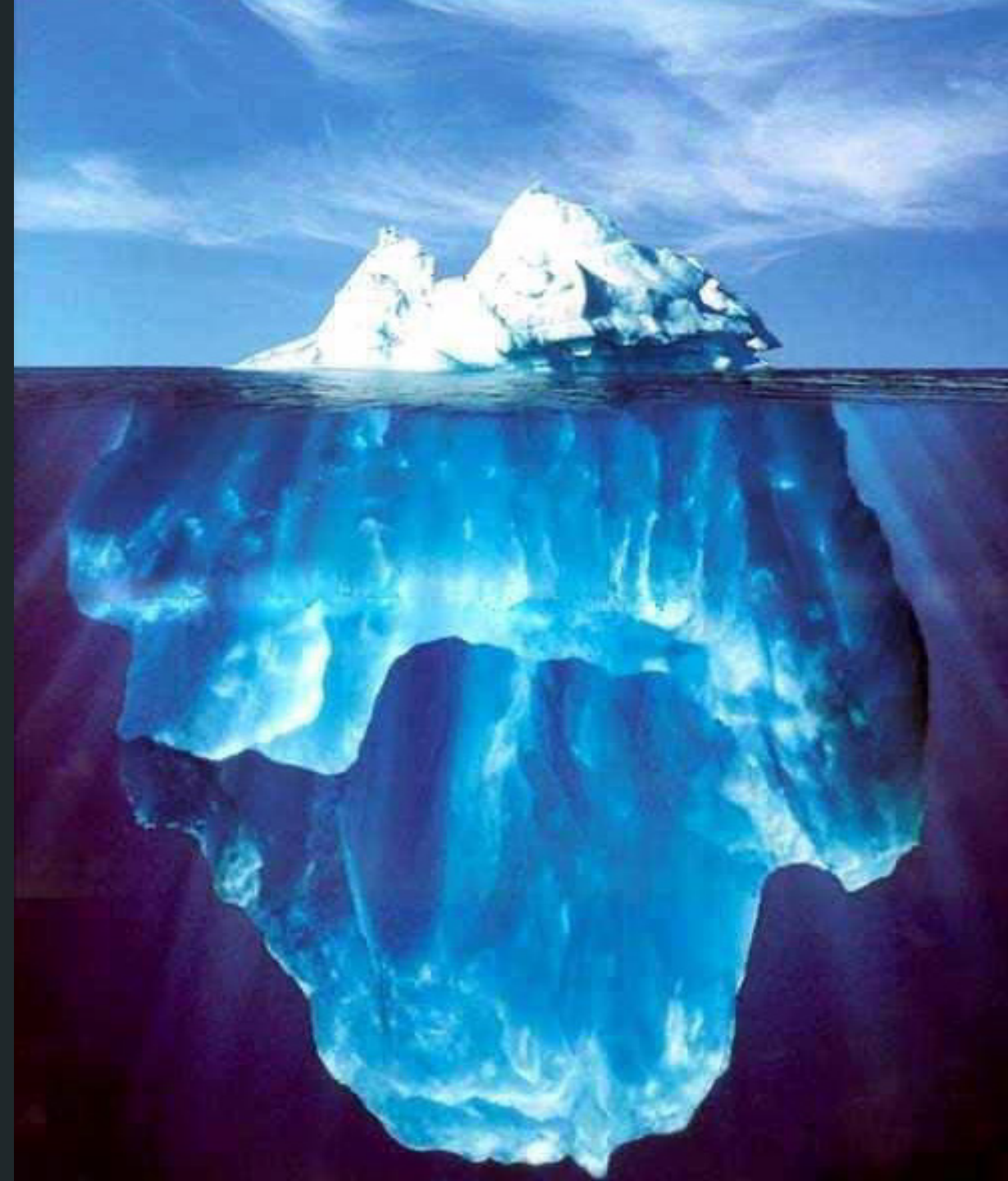
racism | mental health | population health | disparities | big data



RACISM

COVID-19

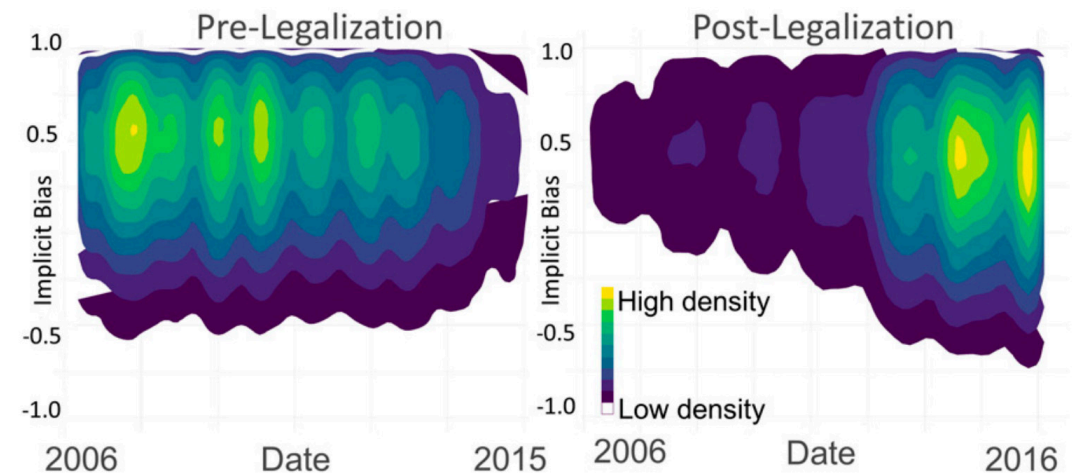
ECONOMIC



- Racism is a fundamental cause of racial inequities in health.
- Leads to accelerated disease progression via social determinants of health.
- Generates biological vulnerability.

-
- How can we capture racism at the population level, including in structures and institutions?
 - How do macro-social forces, such as laws and policies impact disease risk?
 - Interventions addressing social determinants of health that are feasible to implement, can result in sustained improvements in health, and eliminate racial inequities in SLE.

^aDepartment of Psychology, McGill University, Montréal, QC H3A 0G4, Canada; ^bEccles School of Business, The University of Utah, Salt Lake City, UT 84112; and ^cDepartment of Psychology, The University of Utah, Salt Lake City, UT 84112

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Promoting Color Brave Conversations in Families: A Public Health Strategy to Advance Racial Equity



The Color Brave Study focuses on the role that families can play in addressing racism. We are designing and testing a mobile app program that uses videos, stories, and interactive games to help guide and encourage parents to have more meaningful conversations about race and racism with their kids. We know that talking about racism can be hard. Our hope is that this app can make these conversations a little less challenging by providing tools and resources so parents and kids can learn and talk about race together! The goal of this study is to help support parents in raising the next generation of anti-racist partners.

What is involved?

Participation in this program will involve participating in brief interviews and surveys and completing the mobile app program with your child. Participation will involve:

1. An initial interview: This will include filling out a brief online survey, including questions asked by an interviewer and some that you'll answer on your own. We will also interview your child.
2. The 6-week mobile app program: Each week you will be asked to complete one part of the program at home with your child.
3. Follow-up Interviews: After you complete the program, we would love to continue to hear how you and your child are doing and will ask you to complete a couple follow-up interviews.

For more information about what the study components please [click here](#).

A large crowd of people is gathered at night, holding up lit candles. The scene is illuminated by the warm glow of the candles and the cool light of street lamps in the background. The crowd is dense, and the candles are held high, creating a sea of light. The text "NOW, WE TRANSFORM" is overlaid in a bold, yellow, sans-serif font across the center of the image.

NOW, WE TRANSFORM

BLACK
LIVES
MATTER



"My question is: Are we making an impact?"

Source: Sam Gross.