PRESENTER

Amani M. Allen, PhD, MPH

Executive Associate Dean
Associate Professor
UC Berkeley School of Public Health

@DrAmaniAllen1

APHA
AMERICAN PUBLIC HEALTH ASSOCIATION

~~The biology of racism~~
To Biologize Racism is to Ignore Its Full Impact on the Human Body

Amani M. Allen

UC Berkeley School of Public Health

June 9, 2020

General Adaptation Syndrome
"fight or flight"
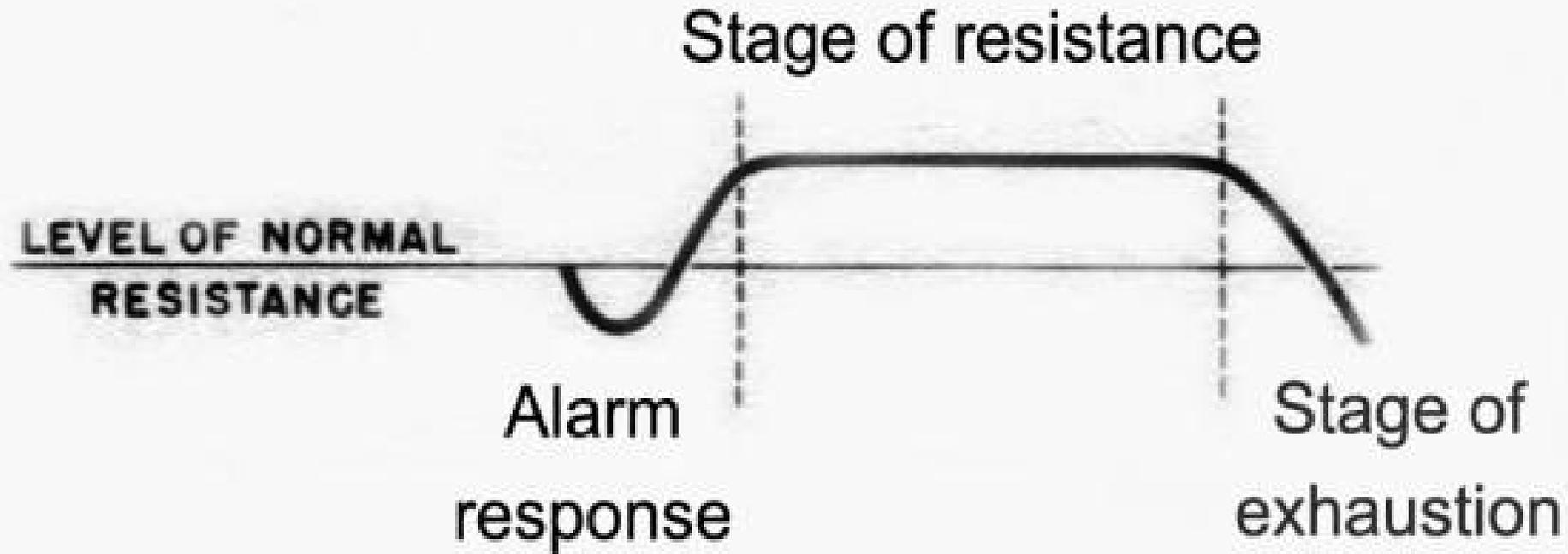
Allostasis & Allostatic Load

McEwen BS, Seeman T. *Annals NY Acad Sci.* 1999 Dec;896(1):30-47.
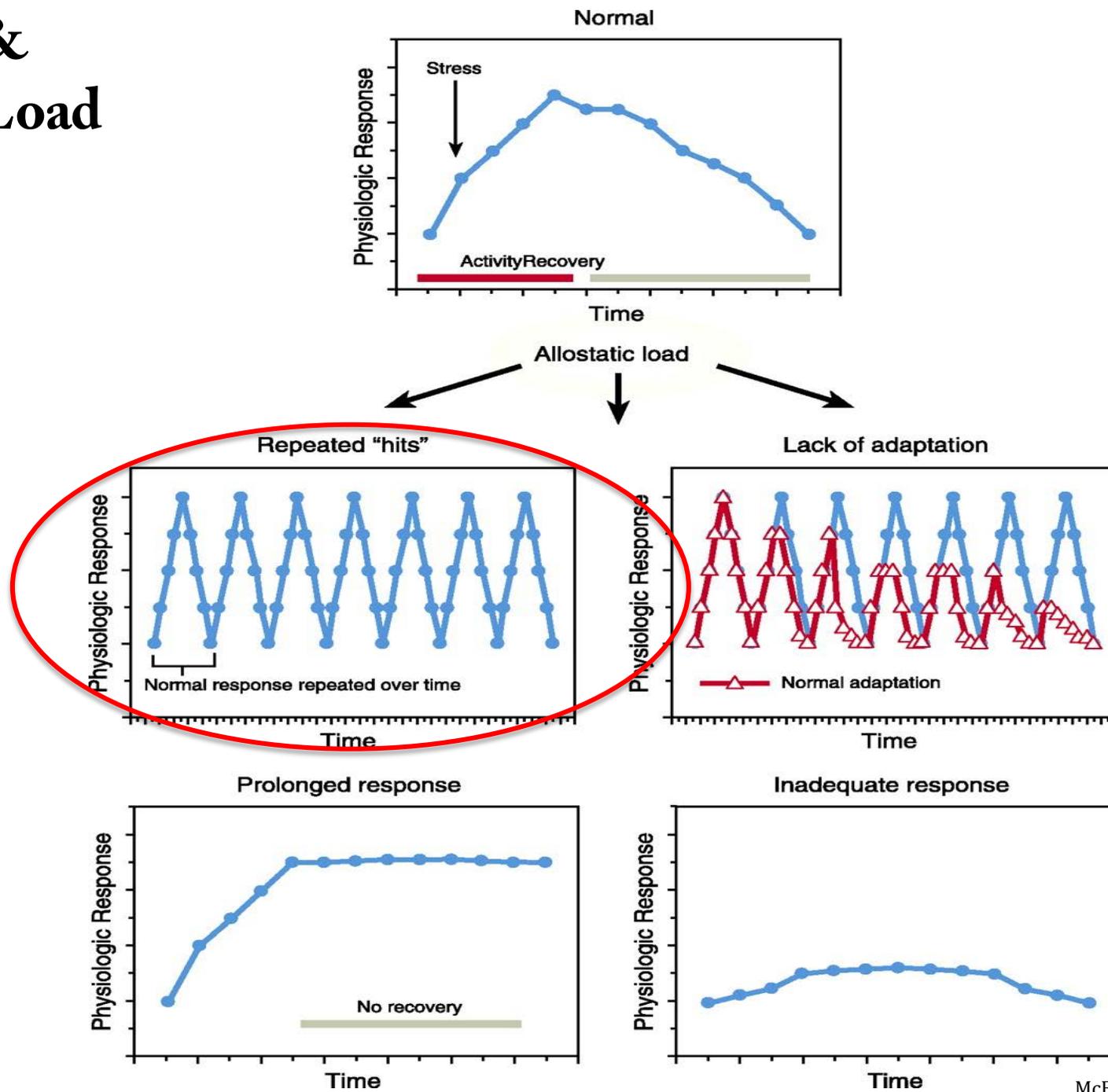
The Stress Response *Process*

McEwen BS, Seeman T. *Annals NY Acad Sci.* 1999 Dec;896(1):30-47.
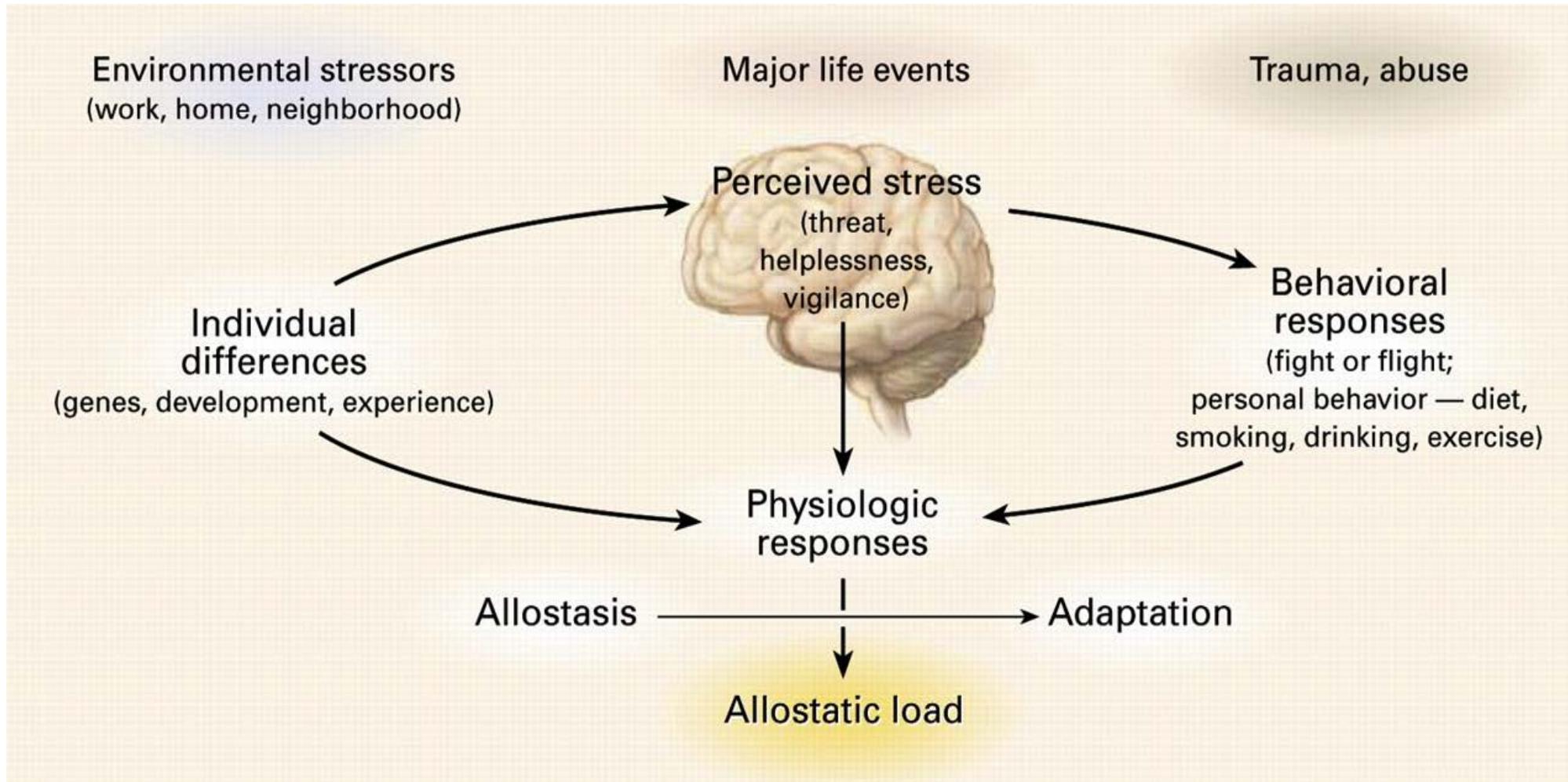
Biopsychosocial Model of Racism Stress

Clark R, Anderson NB, Clark VR, Williams DR. *American Psychologist.* 1999 Oct;54(10):805.

"Weathering"

b
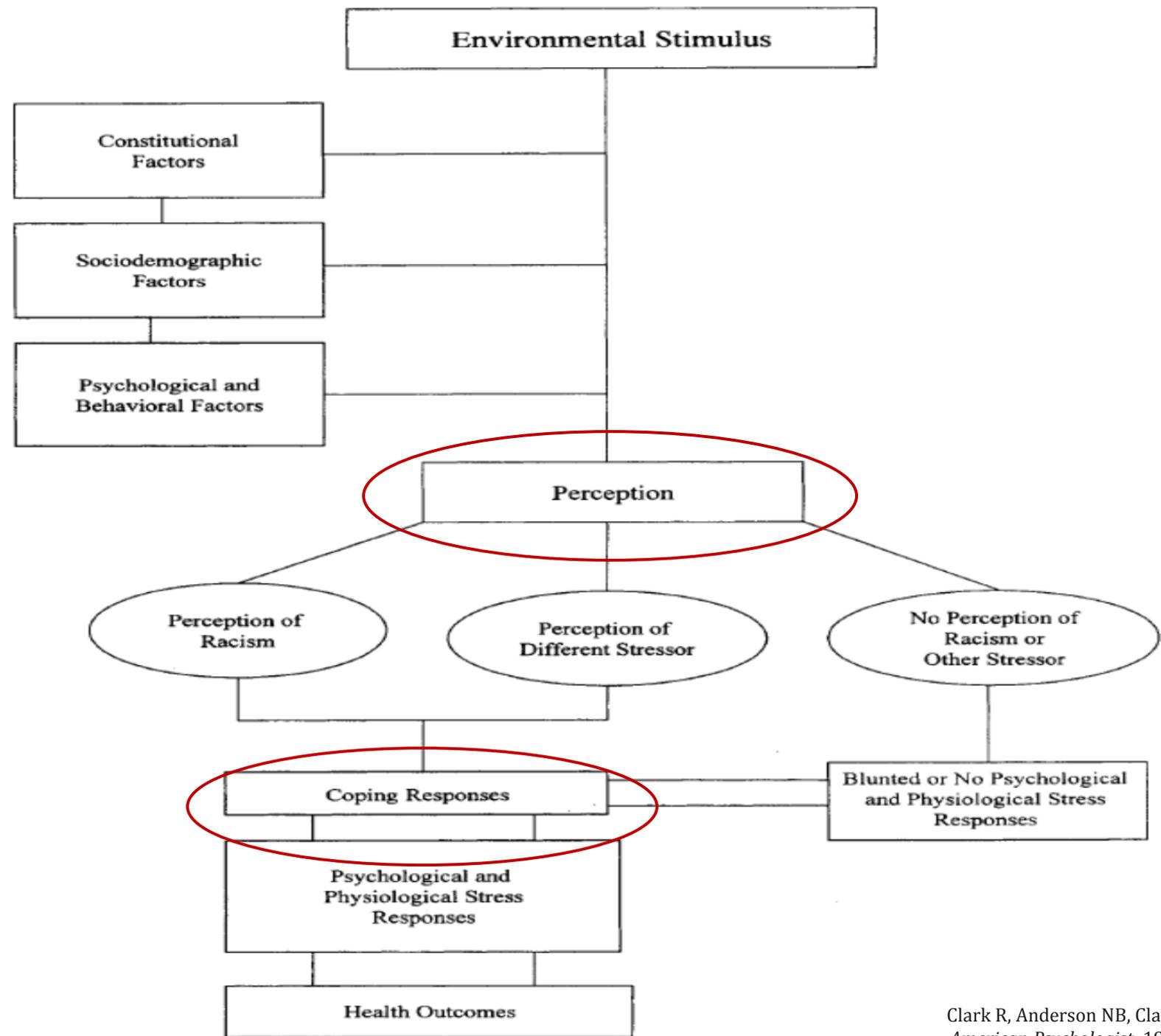
- Numerous studies show Blacks/African Americans have higher allostatic load whites.

- Greatest disparity observed among Black/African American women.

- Pattern consistent after controls for socioeconomic factors.
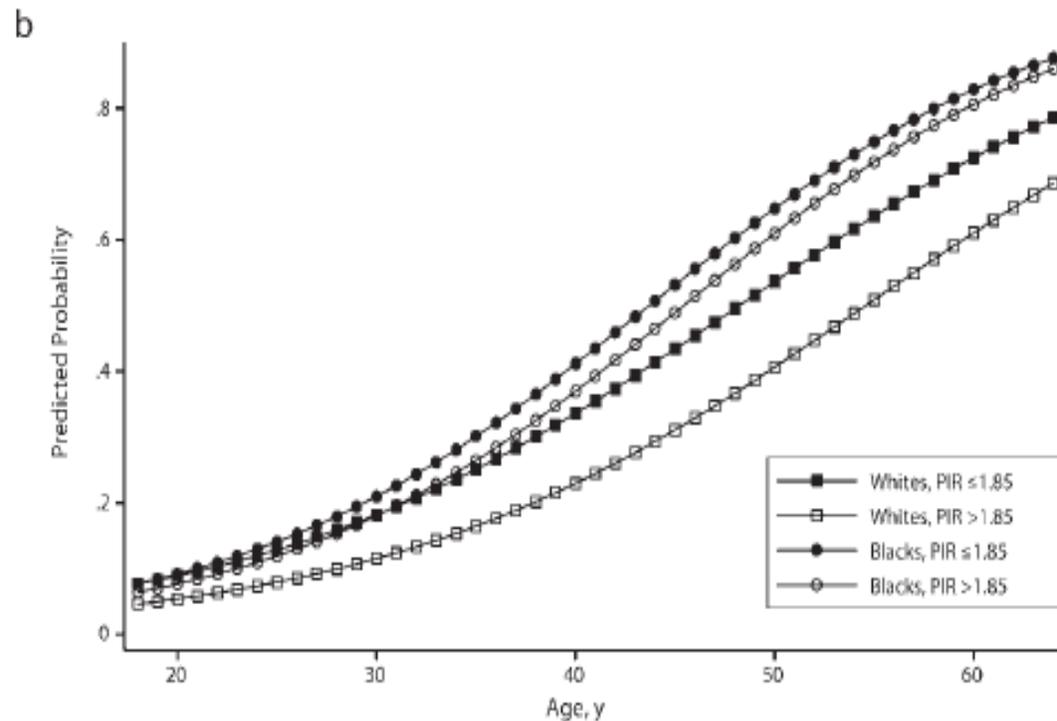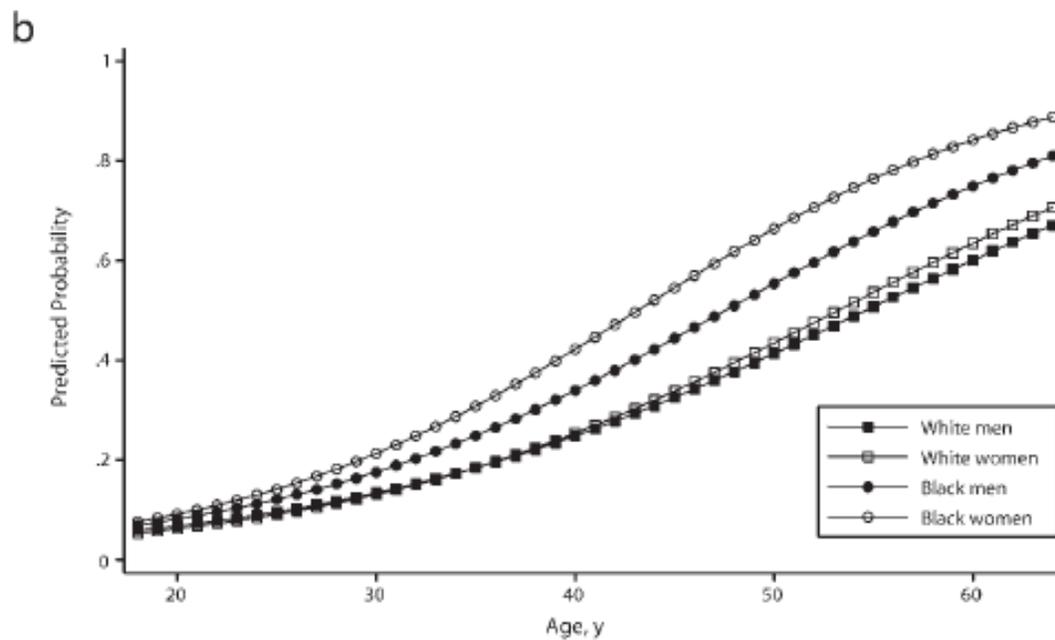
Geronimus AT, Hicken M, Keene D, Bound J. *Am J Public Health*. 2006 May;96(5):826-33.

African American Women's Heart & Health Study

Allen AM, Thomas MD, Michaels EK, Reeves AN, Okoye U, Price MM, Hasson RE, Syme SL, Chae DH. *Psychoneuroendocrinology*. 2019 Jan 1;99:225-35.

African American Women's Heart & Health Study

REMOVED: DATA EMBARGOED UNTIL PUBLICATION

ANNALS *of* THE NEW YORK ACADEMY OF SCIENCES

RACE
STRESS
STRONG
NATURE
SUCCESS
FAILURES
FAMILY
HEALTH

CORTISOL
GLUCOSE
EPINEPHRINE
IL-6
LIPIDS
BLOOD PRESSURE
CRP

VOLUME 1457, SPECIAL ISSUE

DECEMBER 2019

Annals Reports

—— low strength
- - - high strength

—— low emotion
—— high emotion

- - - low succeed
—— high succeed

- - - low help
—— high help

(Each graph: y-axis labeled AL with values 4.00, 5.00, 6.00, 7.00, 8.00; x-axis labeled Discrimination)
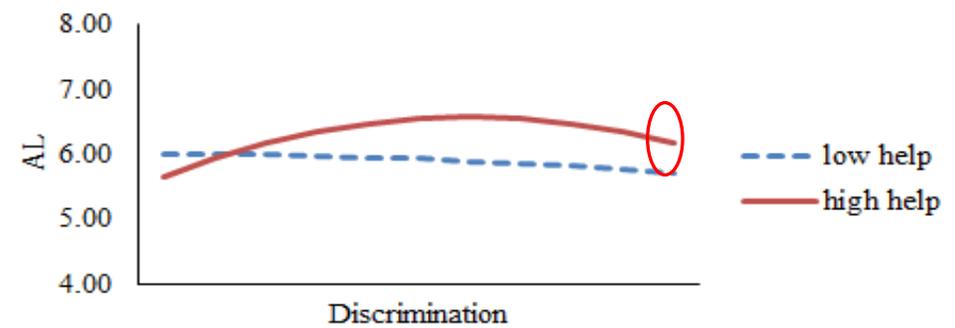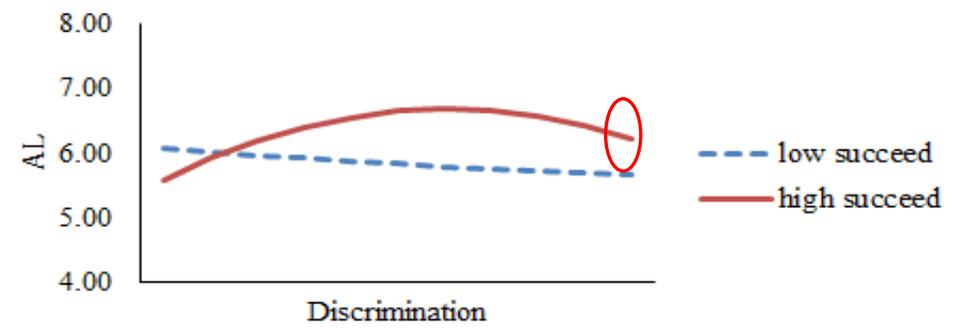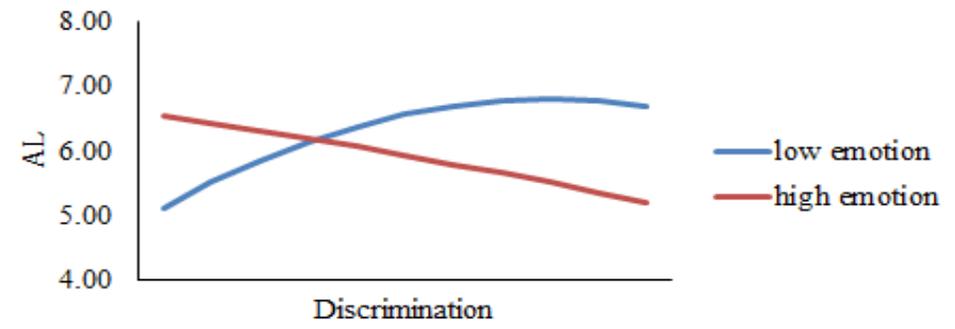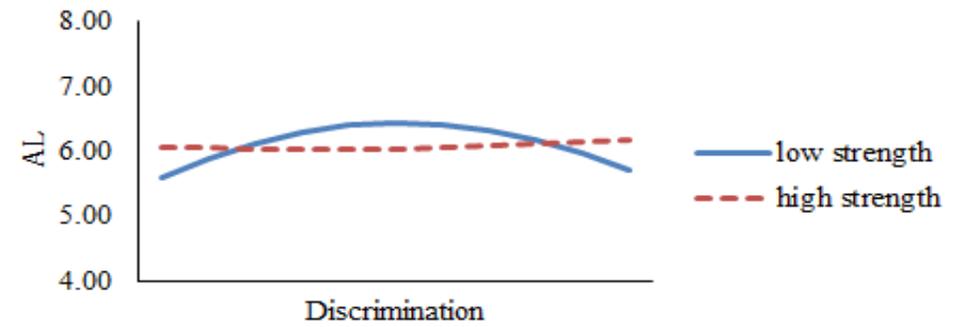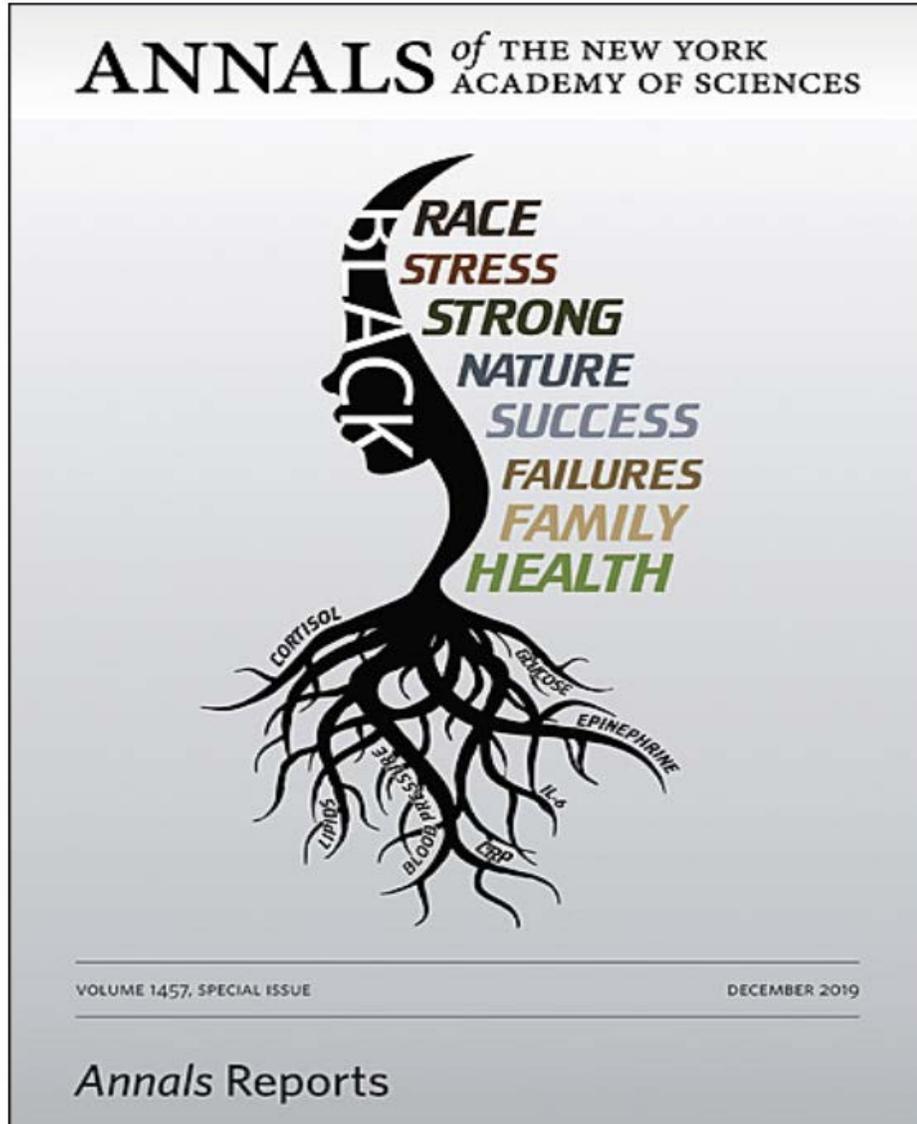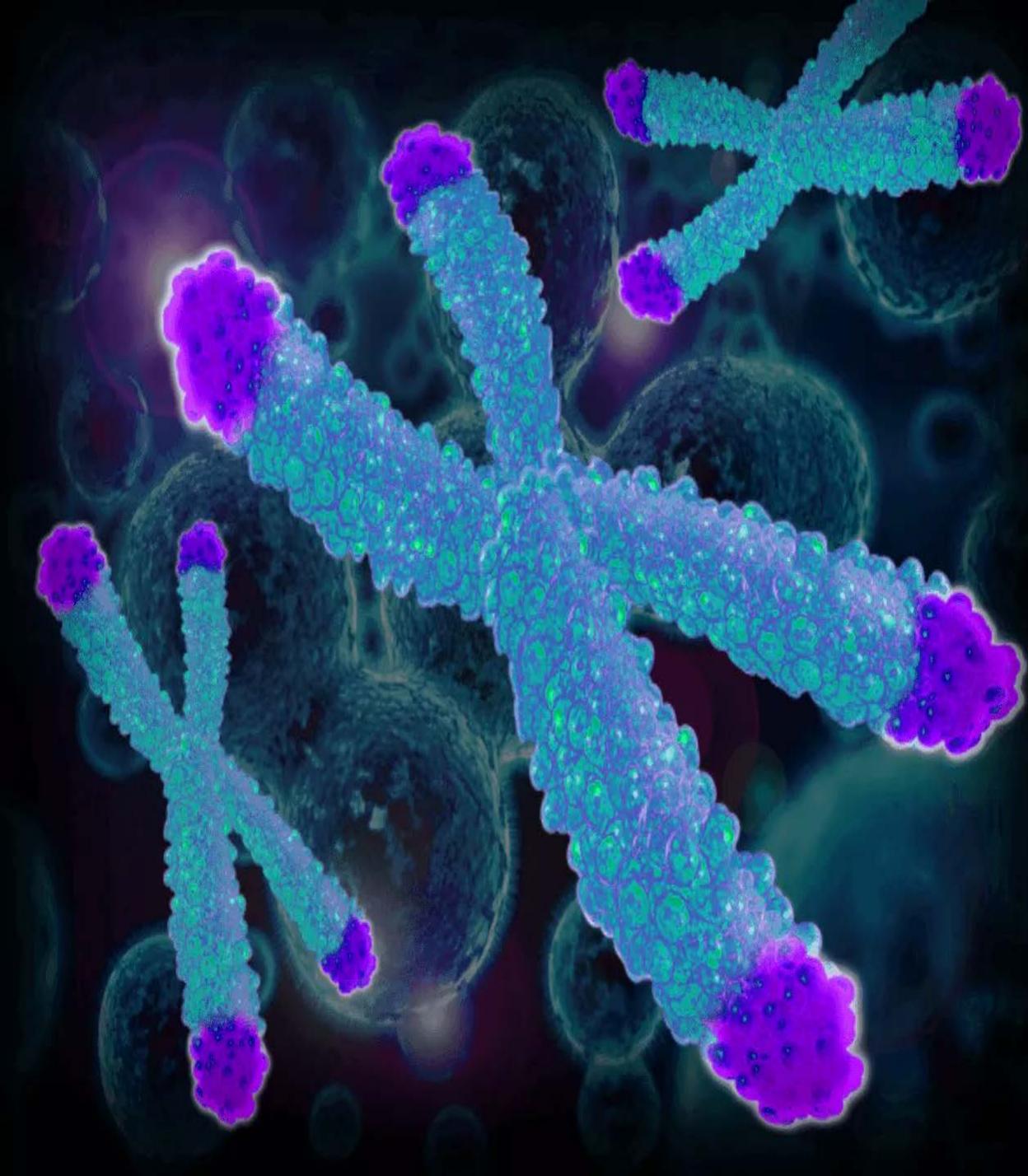
Telomere Length Declines in Dividing Cells as We Age

telomere length in base pairs (human blood cells)

8,000

3,000

1,500

0   35   65

age (years)
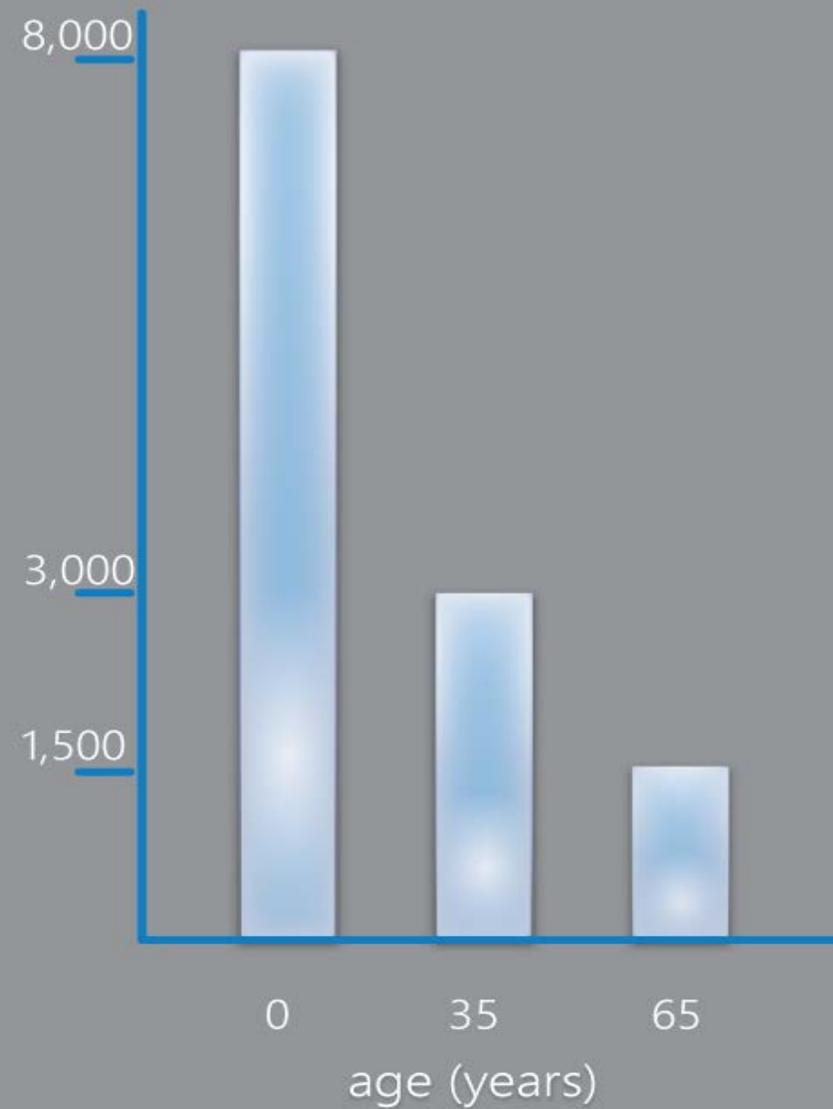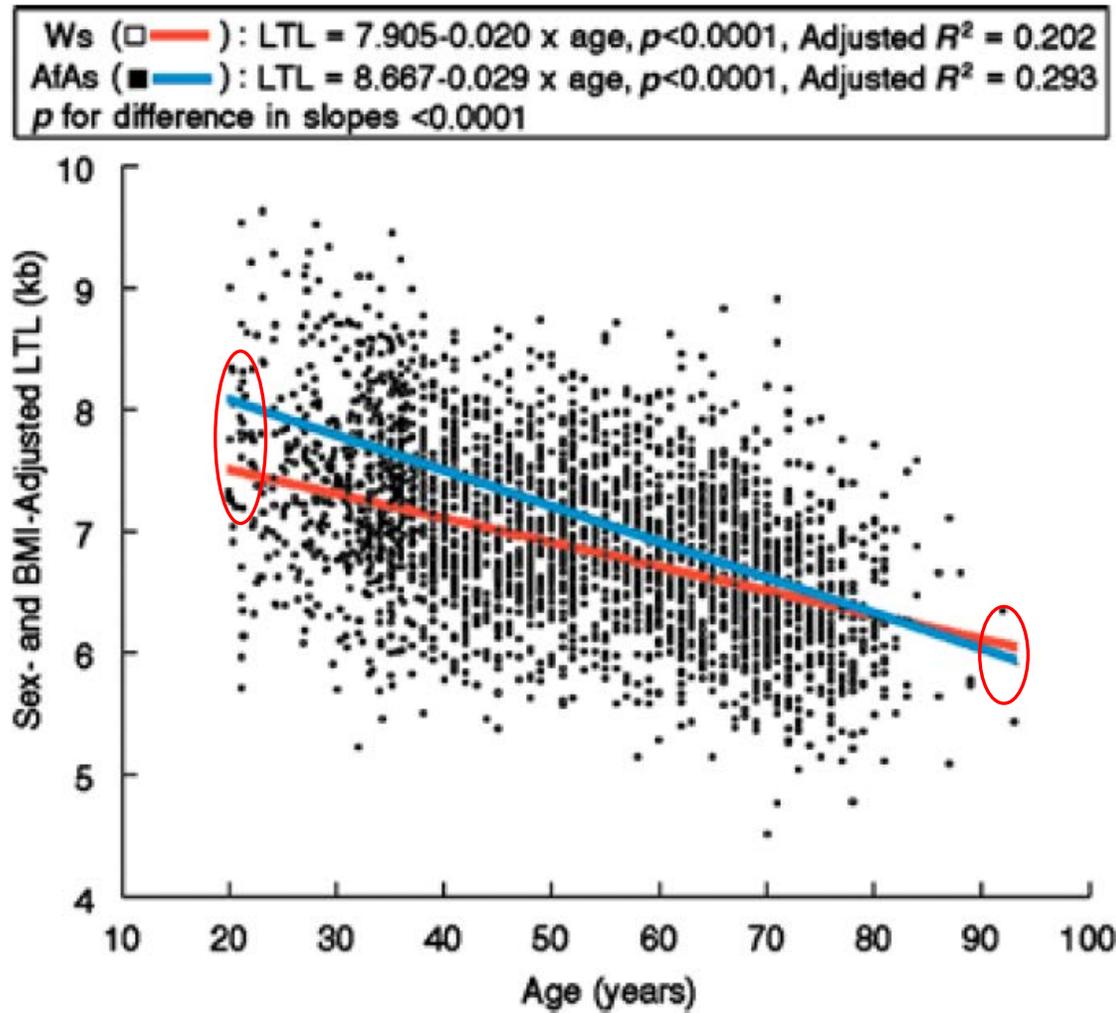
Fig. 3 Sex- and body mass index-adjusted leukocyte telomere length (LTL) vs. age for African Americans and whites from the NHLBI Family Heart Study (FHS) and the Bogalusa Heart Study (BHS) combined.
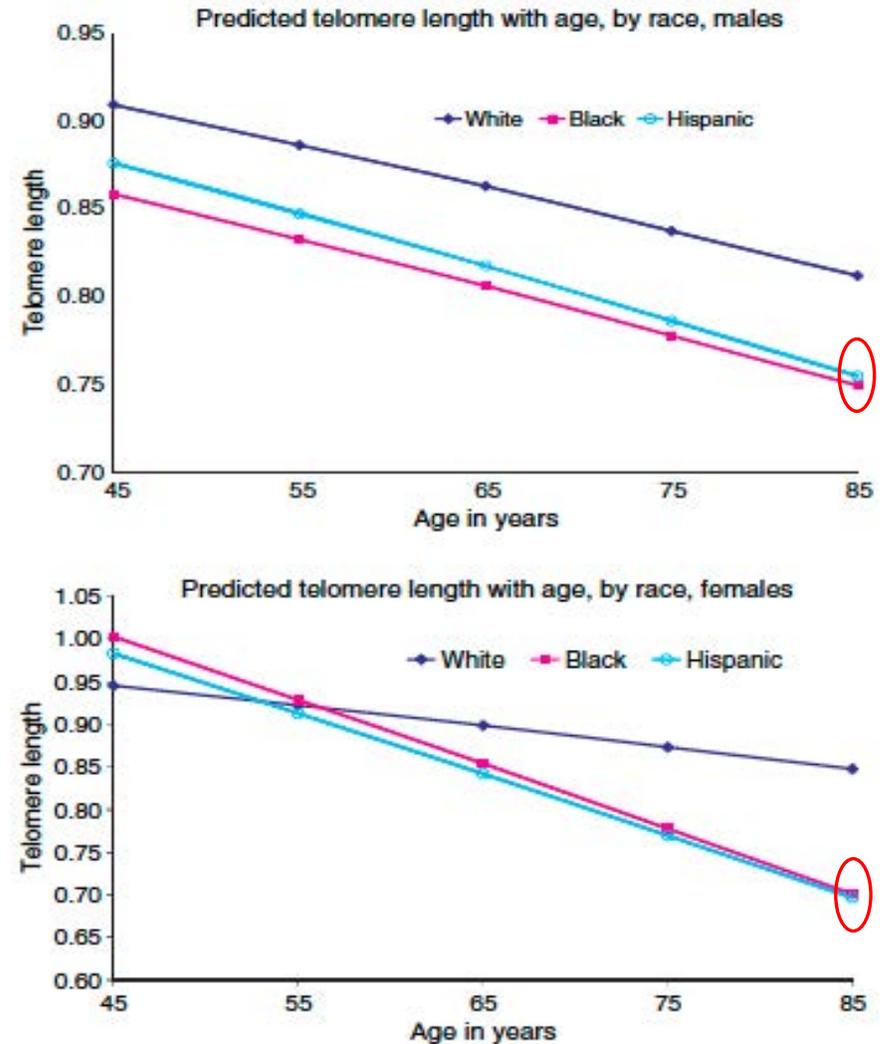
Fig. 1 Predicted telomere length by age, sex and race/ethnicity. Predictions based on sex-stratified full models shown in Table 3. All predictions are at the mean levels of risk factors. In men, *P*-values for differences in slopes (compared to whites) are 0.5 for Blacks and 0.3 for Hispanics; in women they are 0.03 for Blacks and 0.01 for Hispanics.

Hunt SC, Chen W, Gardner JP, et al. *Aging cell*. 2008 Aug;7(4):451-8.

Diez Roux AV, Ranjit N, Jenny NS, et al. *Aging cell*. 2009 Jun;8(3):251-7.

Biological Sensitivity to Context
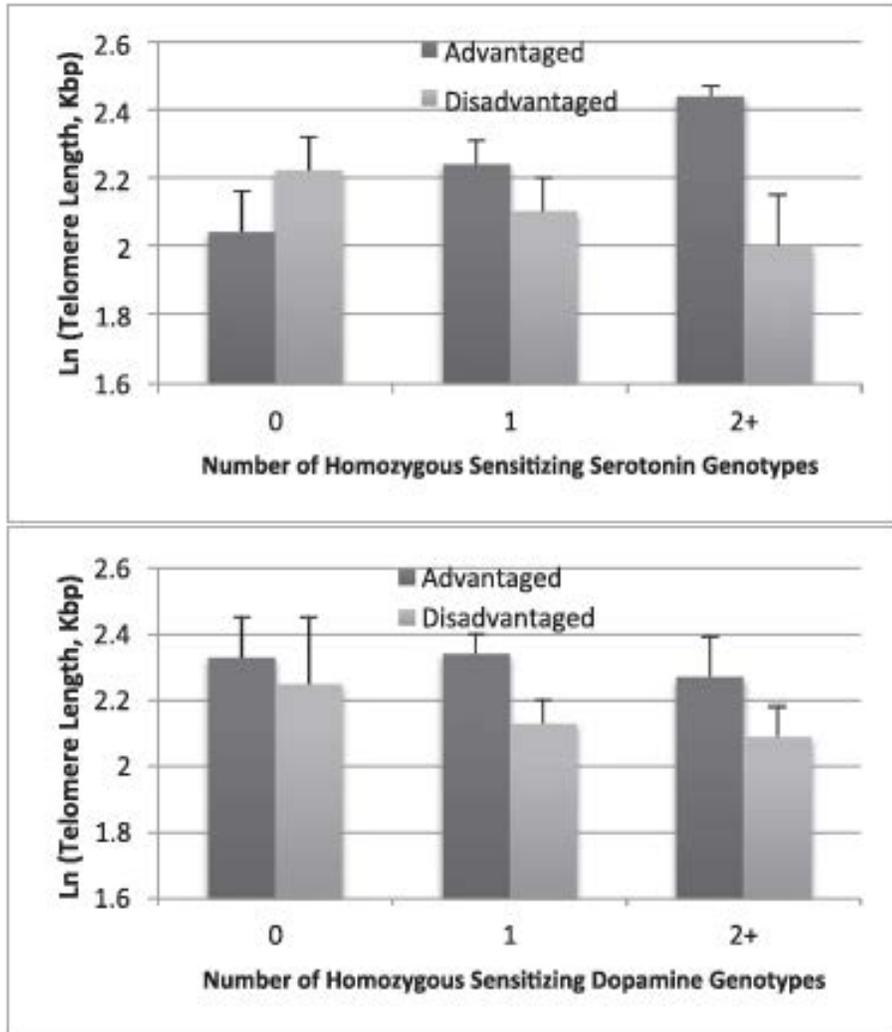
African American boys age 9
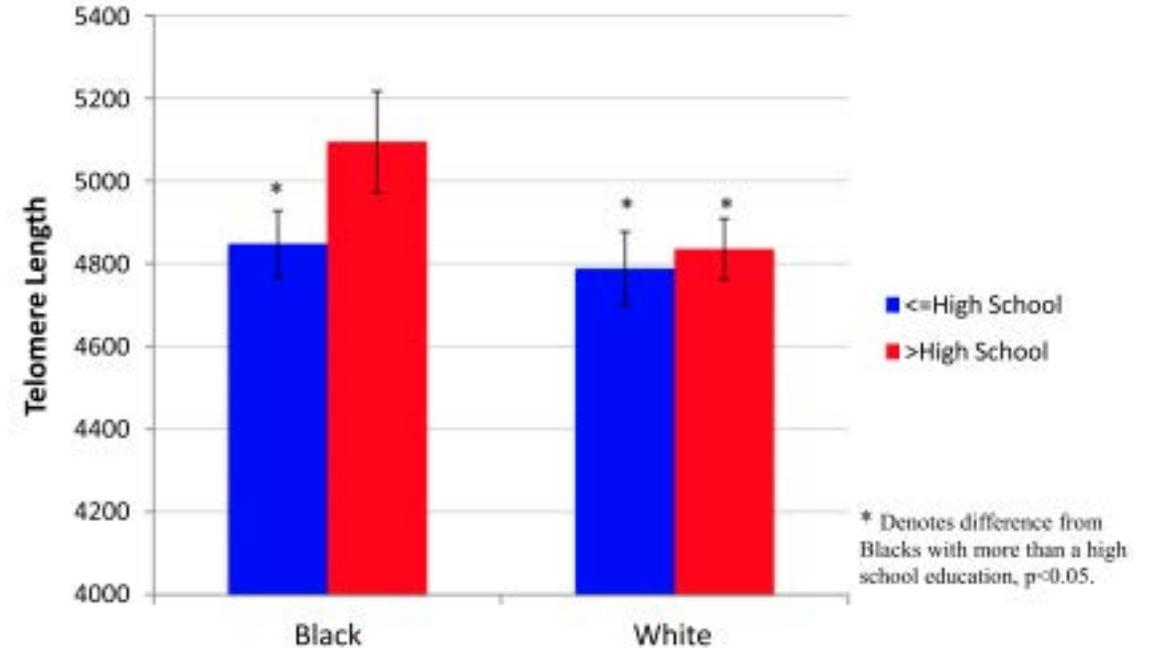
Fig. 1. Age- and gender-adjusted TL, by race and education.

* Denotes difference from Blacks with more than a high school education, p<0.05.

Table 3
Linear regressions predicting telomere length (health behavior analysis), full sample.

| N = 2599 variable	Model A				Model B				Model D			
	Coef	SE	p		Coef	SE	p		Coef	SE	p	
Age	−26.9	7.9	0.001	**	−26.3	7.9	0.001	**	−28.1	8.0	<0.001	**
Female	270.5	46.3	<0.001	**	277.3	46.3	<0.001	**	244.1	48.2	<0.001	**
Black	64.0	49.0	0.192		98.0	50.6	0.053		107.4	51.0	0.035	*
Education > HS	–	–	–		125.0	47.6	0.009	**	119.7	47.6	0.012	*
Exercise	–	–	–		–	–	–		−0.1	0.3	0.717	
Obesity	–	–	–		–	–	–		−85.5	54.2	0.114	
Smoking	–	–	–		–	–	–		−131.5	47.5	0.006	**

Notes: All models adjusted for chronic conditions, study site, and telomere batch.
* p < .05.
** p < .01.

black and white men and women age 70–79 in Pittsburgh, PA and Memphis, TN

Mitchell C, Hobcraft J, McLanahan SS, et al. *PNAS*. 2014 Apr 22;111(16):5944-9.

N. Adler et al. *Brain, Behavior, and Immunity* 27 (2013) 15–21.
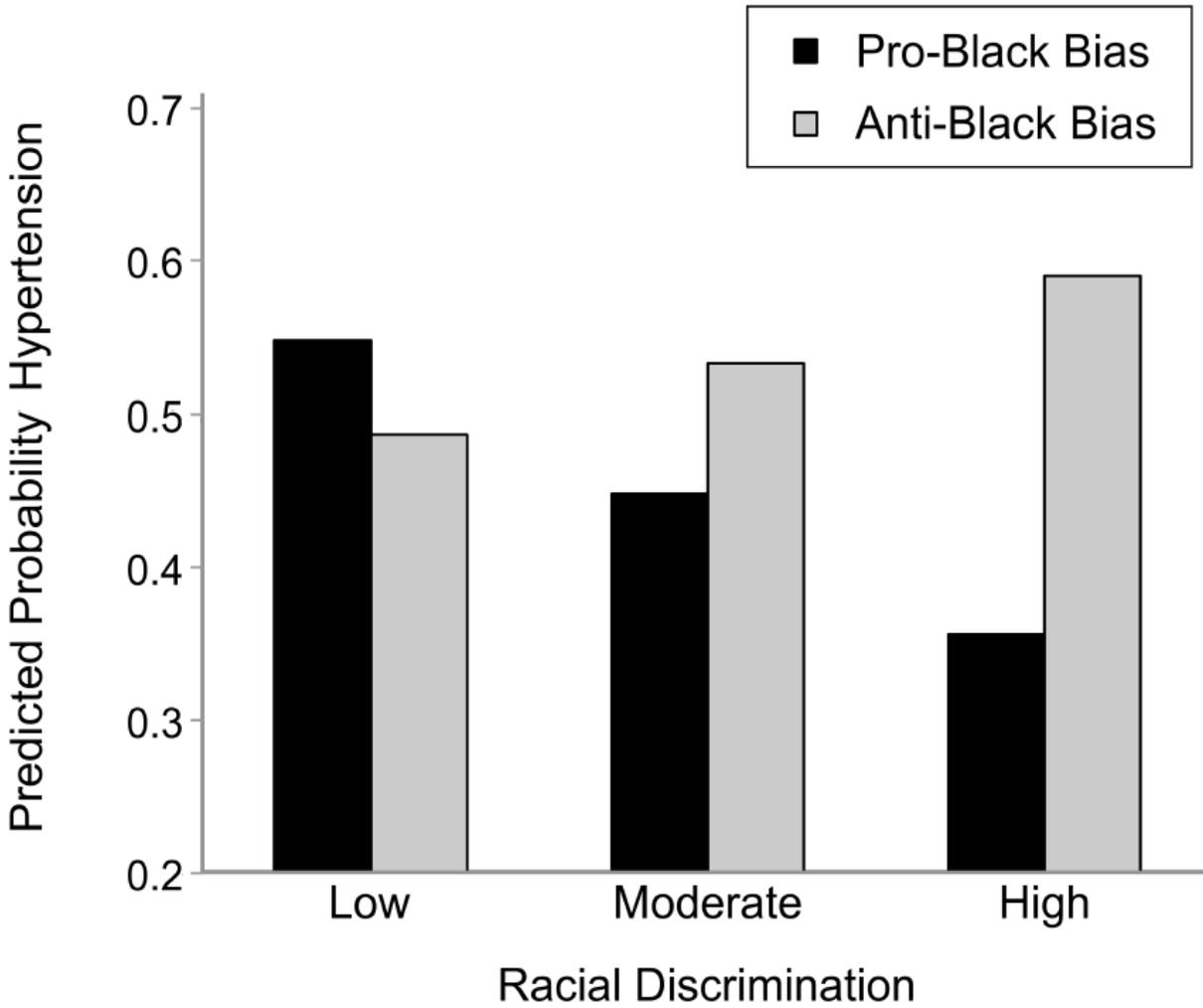
Figure 1.
Predicted probabilities of hypertension by racial discrimination and implicit racial bias among African American men in the Bay Area Heart Health Study (n = 91).
Note: Controlling for age, relationship status, poverty ratio, health insurance, waist-hip ratio, and number of chronic conditions.
Interaction between racial discrimination and implicit racial bias: $\chi^2 = 4.89$, 1 df, p = 0.027.
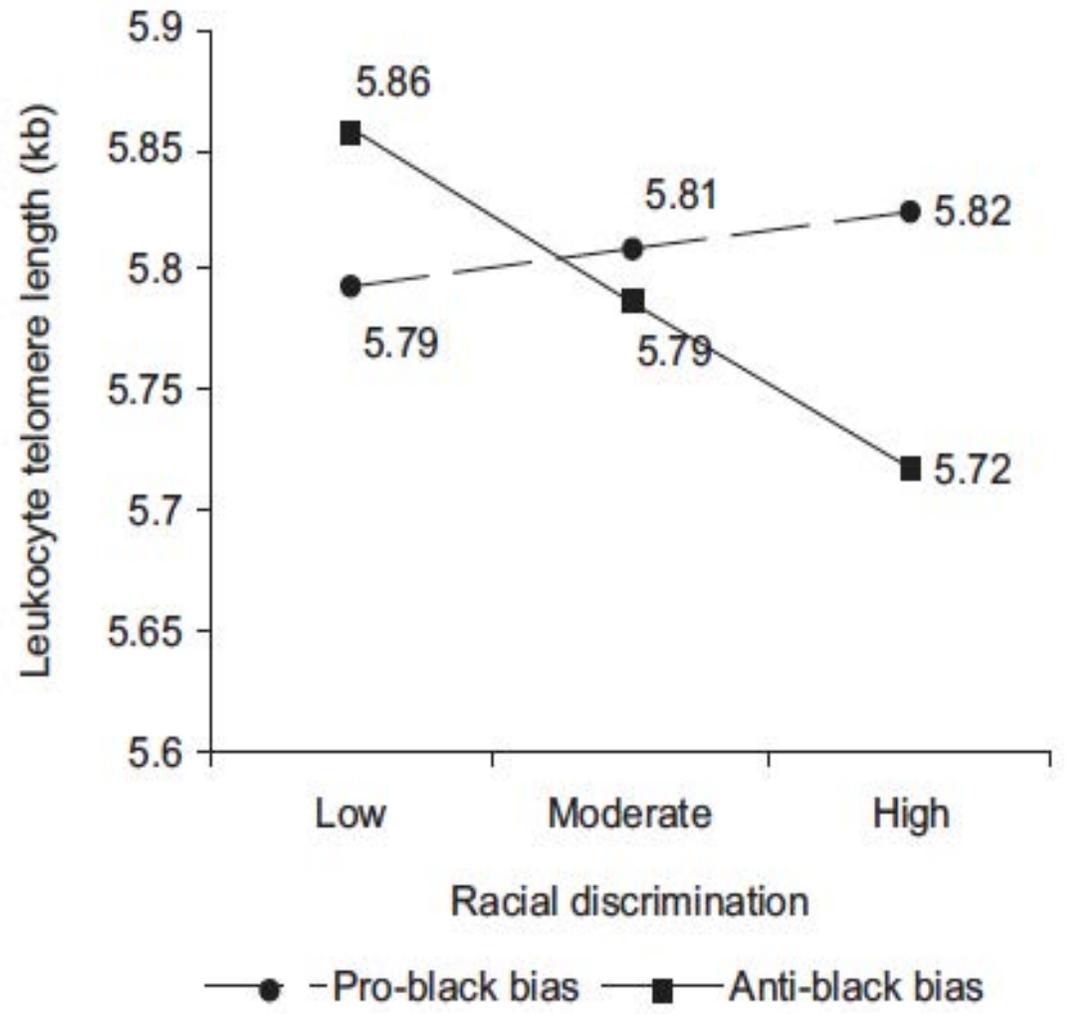
Figure 1. Predicted leukocyte telomere length by racial discrimination and implicit racial bias among African-American men
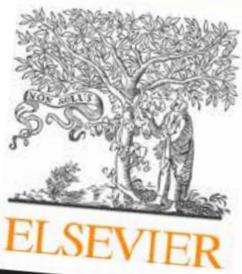
Chae DH, Nuru-Jeter AM, Adler NE, Brody GH, Lin J, Blackburn EH, Epel ES. *Am J Prev Med.* 2014 Feb 1;46(2):103-11.

Chae DH, Nuru-Jeter AM, Adler NE. *Psychosomatic Med.* 2012 Nov;74(9):961.

Biological Psychology

ELSEVIER

BIOLOGICAL PSYCHOLOGY
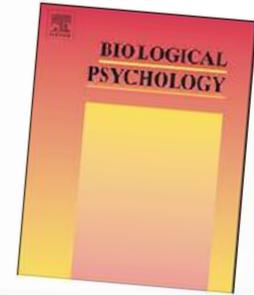
Psychophar

DOI 10.100

ORIGI

ORIGIN

Oxytocin modulates the racial bias in neural responses to others' suffering

Feng Sheng [a,b], Yi Liu [a], Bin Zhou [c], Wen Zhou [c], Shihui Han [a,*]

[a] Department of Psychology, Peking University, Beijing, PR China
[b] Guanghua School of Management, Peking University, Beijing, PR China
[c] Institute of Psychology, Chinese Academy of Sciences, Beijing, PR China

Propranolol reduces implicit negative

ORIGINAL INVESTIGATION

Sylvia Terbeck · Guy Kahane
Julian Savulescu · Philip J. C

β-Adrenoceptor blockade modulates fusiform gyrus activity to black versus white faces

S. Terbeck [1] · G. Kahane [2] · S. McTavish [3] · R. McCutcheon [3] · M. Hewstone [4] · J. Savulescu [2] · L. P. Chesterman [5] · P. J. Cowen [3] · R. Norbury [6]

THE COLOR OF COVID-19: DEATHS BY RACE AND ETHNICITY IN THE U.S.

APM Research Lab, 5/27/20

COVID-19 DEATHS PER 100,000 PEOPLE OF EACH GROUP, THROUGH MAY 26, 2020

Indigenous · Asian · Black · Latino · White · All deaths with known race

ALL

0 · 10 · 20 · 30 · 40 · 50
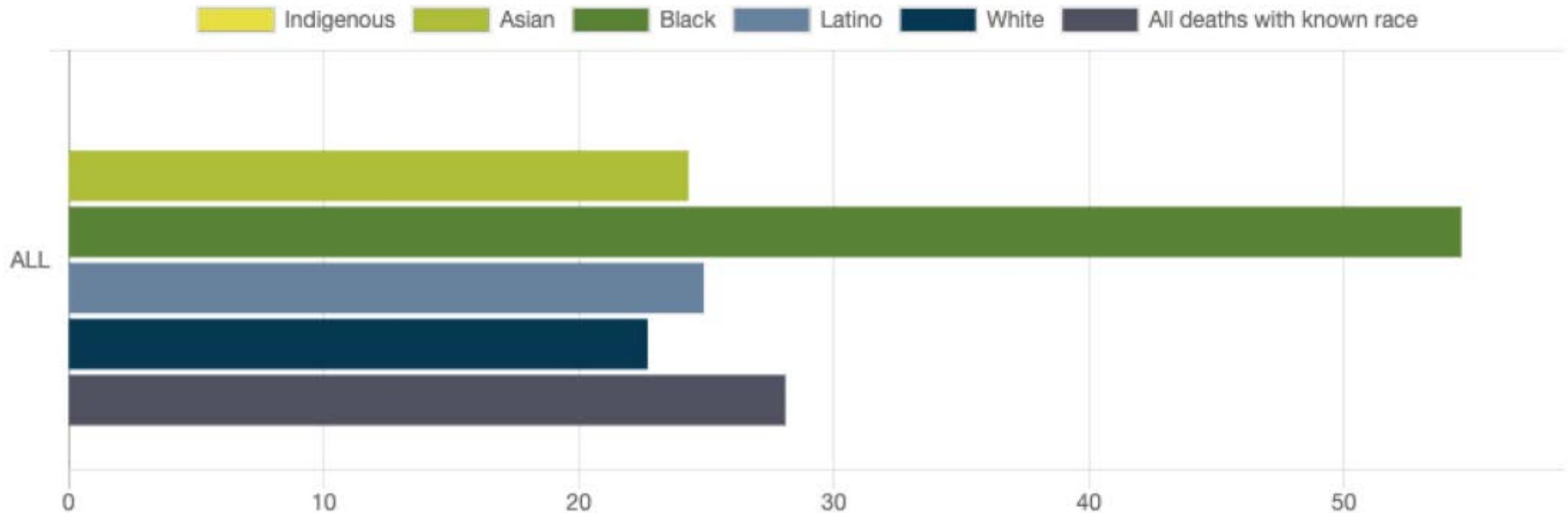
① Black Americans represent 13% of the population in the U.S. but 25% of Covid-19 deaths.

② **The latest COVID-19 mortality rate for Black Americans is 2.4 times as high as the rate for Whites and 2.2 times as high as the rate for Asians and Latinos.**

> **"In New Mexico, the Indigenous death rate is 8 times as high as the White mortality rate. In Arizona, it is more than 5 times the rate for all other groups."**

Indigenous Americans: Percent of COVID-19 deaths and population, through May 26, 2020

For all U.S. states with available data and Washington, D.C., in cases where 10 or more known deaths have occurred. Sorted from most over-represented to most under-represented.

|	% OF POPULATION	% OF DEATHS
New Mexico (182 deaths)	8.8	56
Arizona (133)	3.9	20.7
Mississippi (23)	0.4	3.5
Minnesota (10)	1.1	1.5
Michigan (35)	0.5	0.7
ALL KNOWN DEATHS (454)	0.5	0.5
California (14)	0.4	0.4

100

Includes data from the 6 states of Arizona, California, Michigan, Minnesota, Mississippi and New Mexico. These states are those reporting data that have experienced 10 or more known deaths among Indigenous residents. The states of Alaska, Colorado, Connecticut, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, North Carolina, Oklahoma, Oregon, Washington and Wisconsin are also reporting Indigenous deaths, but have experienced fewer than 10 deaths each. However, those suppressed data are reflected in the "ALL KNOWN DEATHS" figure of 454, an undercount of Indigenous lives lost nationally due to the uneven data reporting across states. The remaining outstanding states are either not reporting Indigenous deaths (tallying them in "Other") or have experienced no Indigenous deaths. States employ varying methods for reporting race and ethnicity data. Population figures shown here align with method used by each state.

Source: APM Research Lab · Get the data · Created with Datawrapper

Testing disparities → morbidity and mortality disparities?

Black residents make up 37 % of Illinois' Covid-19 deaths, but only received 13 percent of the state's tests, as of April 23.
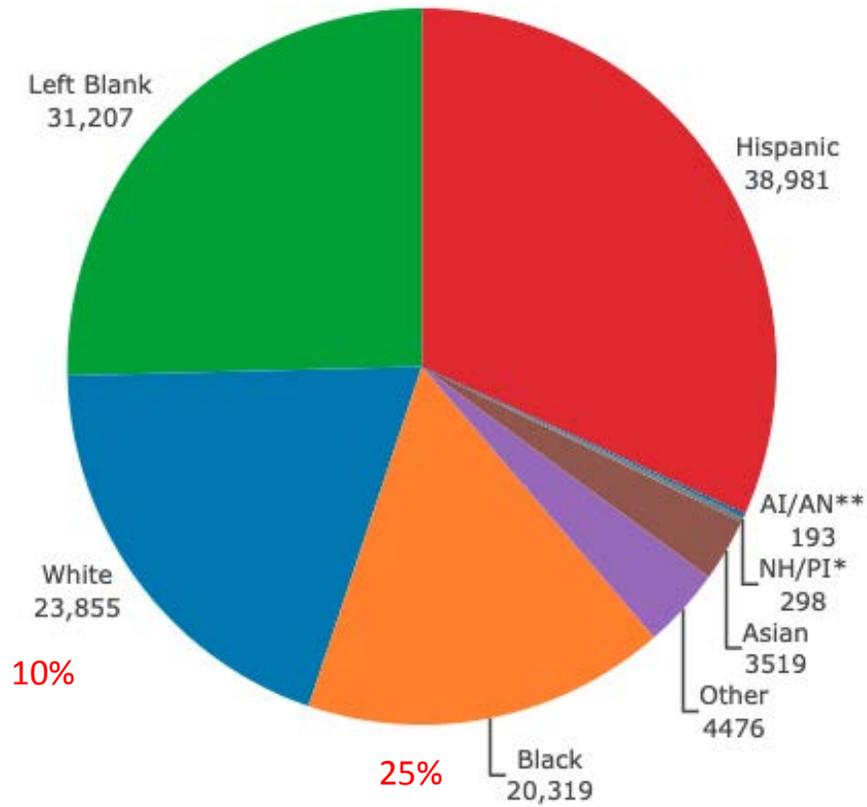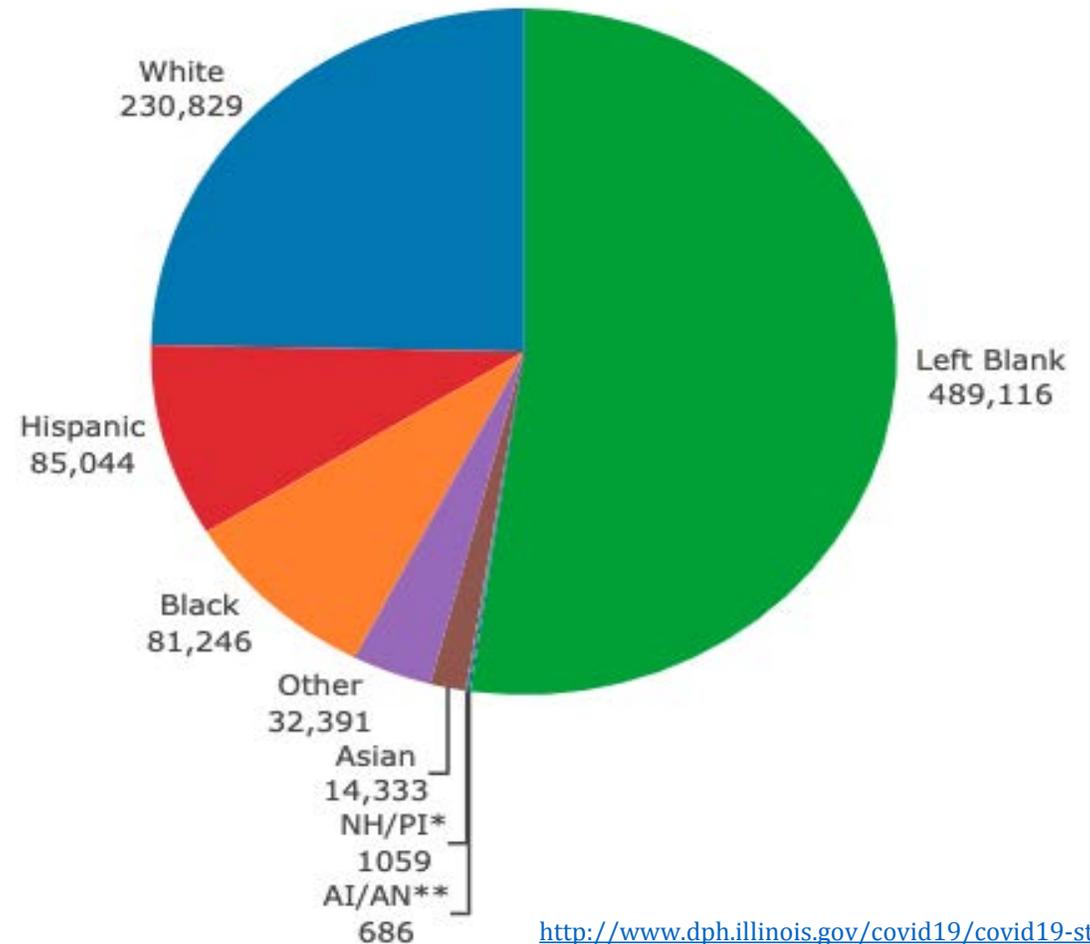
COVID19 Cases among Chicago residents by Chicago zip code n=10,506* through April 16, 2020

~60% white/low inc

~70% white/hshld inc $67-$100k

COVID19 Cases
- 2 - 48
- 49 - 133
- 134 - 220
- 221 - 321
- 322 - 426

Racially diverse/VL inc

90+% Black/VL inc
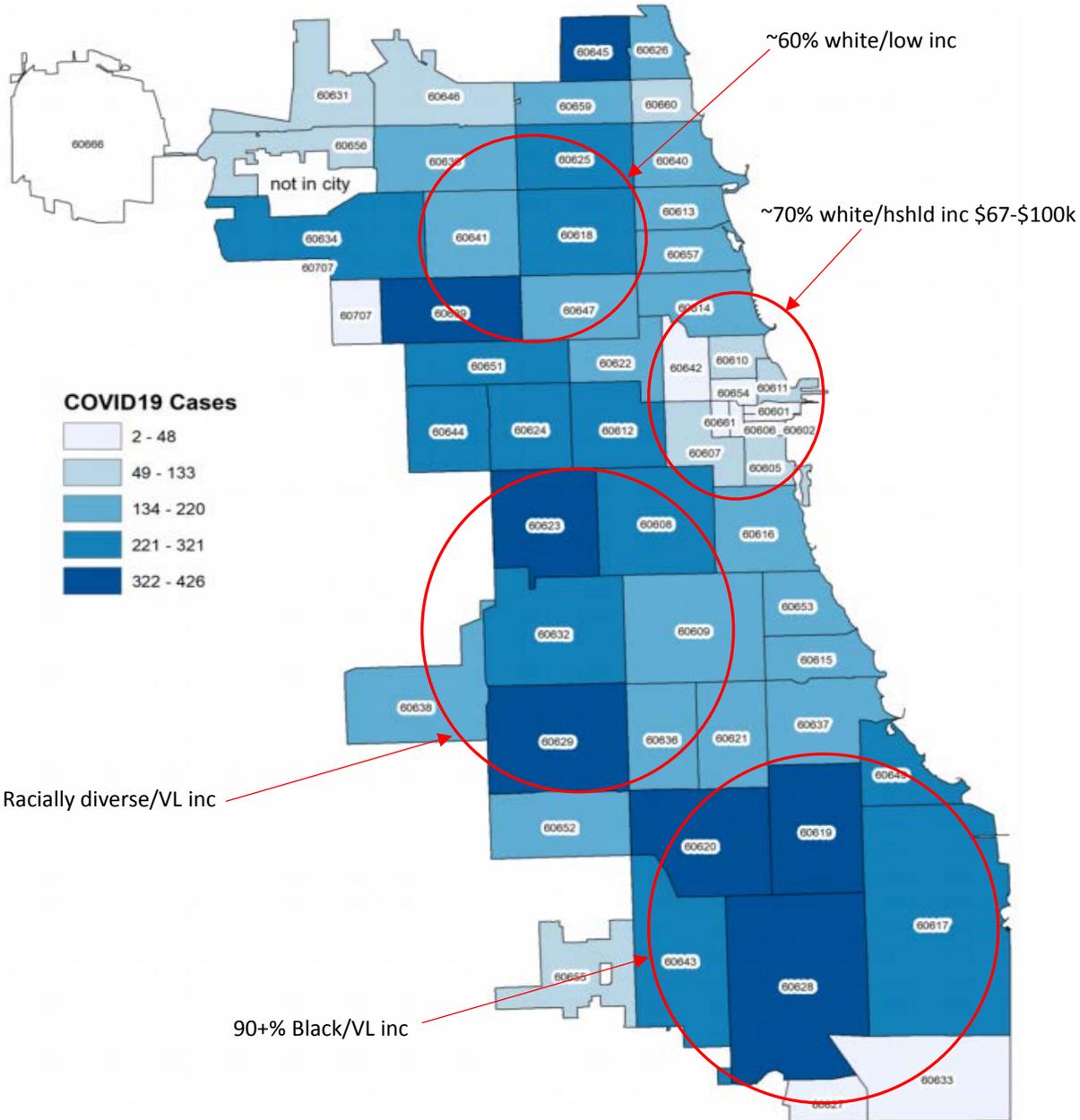
Rate of Individuals tested for COVID-19 by Chicago zip code n=29,428 through April 12, 2020, among Chicago residents

not in city

Rate of Individuals Tested
per 100,000 population
- 146.7 - 479.6
- 479.7 - 879.7
- 879.8 - 1207.2
- 1207.3 - 1742.3
- 1742.4 - 3119.6

REMOVED: DATA EMBARGOED UNTIL PUBLICATION
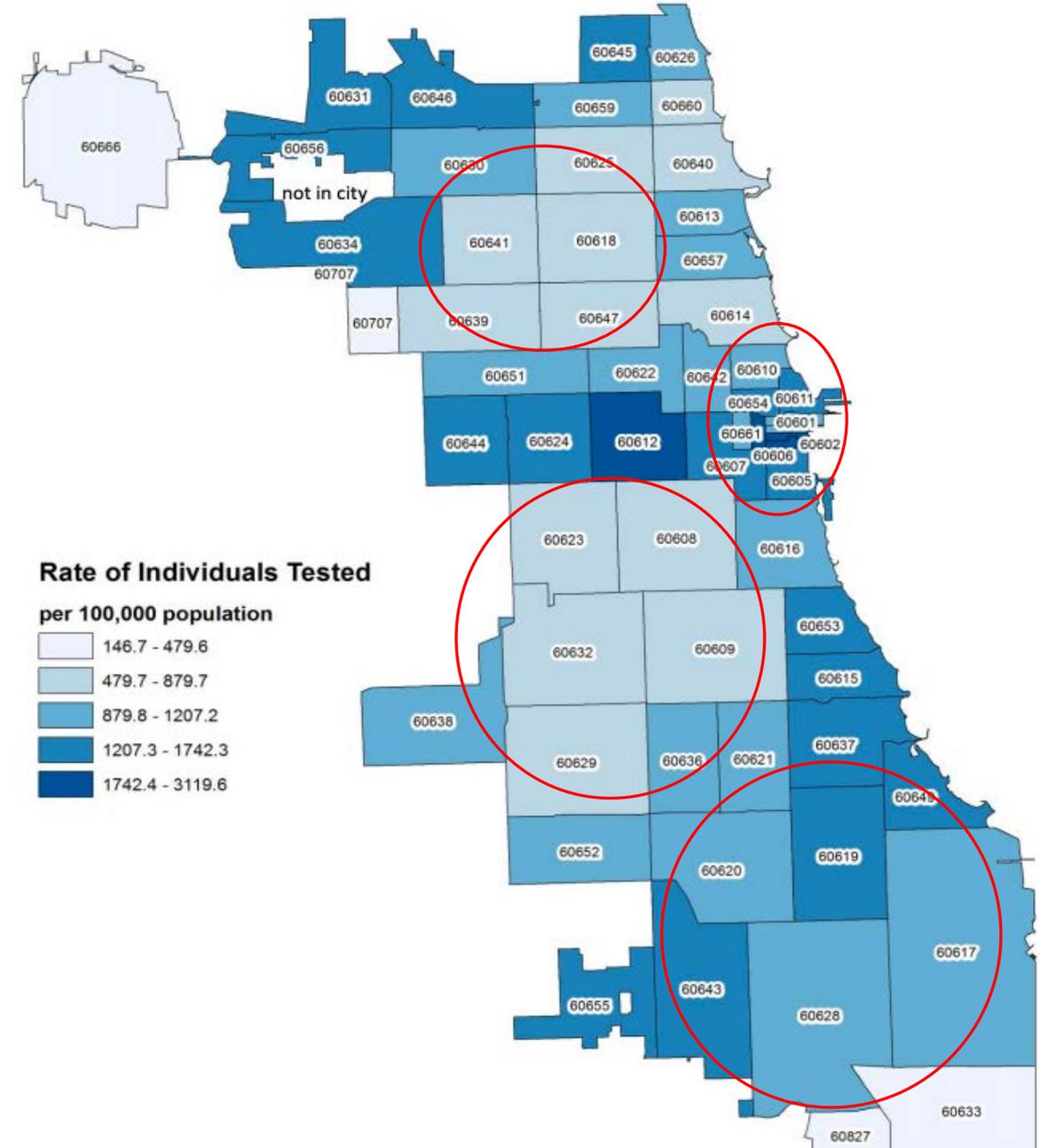
Marilyn D Thomas, Nicholas P Jewel, Amani M Allen. Black and Armed: Statistical interaction with aging and with perceived mental illness among males fatally shot by police during 2015-18 using case-only design

R.I.P. Breonna!

REMOVED: DATA EMBARGOED UNTIL PUBLICATION

Interaction estimates of the risk of being armed versus unarmed for Black compared to White males fatally shot by police 2015-18, WaPO

REMOVED: DATA EMBARGOED UNTIL PUBLICATION

Multivariable negative binomial regression of municipal and county-level police killing rates on 2013 LEMAS policies/practices by agencies in The Counted (2015-16) by all and race-specific killings

REMOVED: DATA EMBARGOED UNTIL PUBLICATION

% of each group saying that being black helps/hurts people's ability to get ahead in our country these days

	Hurts a lot	Hurts a little	Helps a little	Helps a lot	Neither helps nor hurts
White	22	33	12	8	25
Black	42	26	4	5	22
Hispanic	24	26	10	5	34
Asian*	32	32	8	11	17
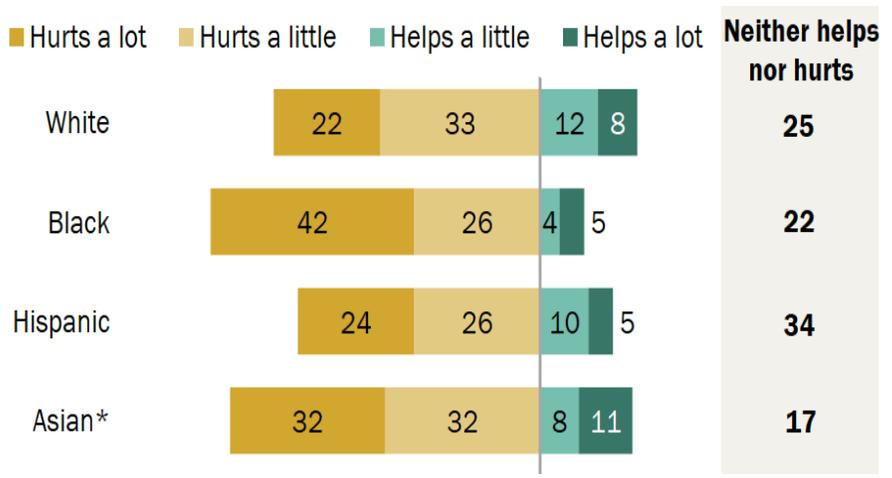
Among those who say being black hurts people's ability to get ahead, % of whites and blacks saying each is a major reason why black people in our country may have a harder time getting ahead than white people

■ White ■ Black

	White	Black
Racial discrimination	54	84
Less access to high-paying jobs	51	76
Less access to good schools	60	72
Family instability	50	42
Lack of good role models	45	31
Lack of motivation to work hard	22	22
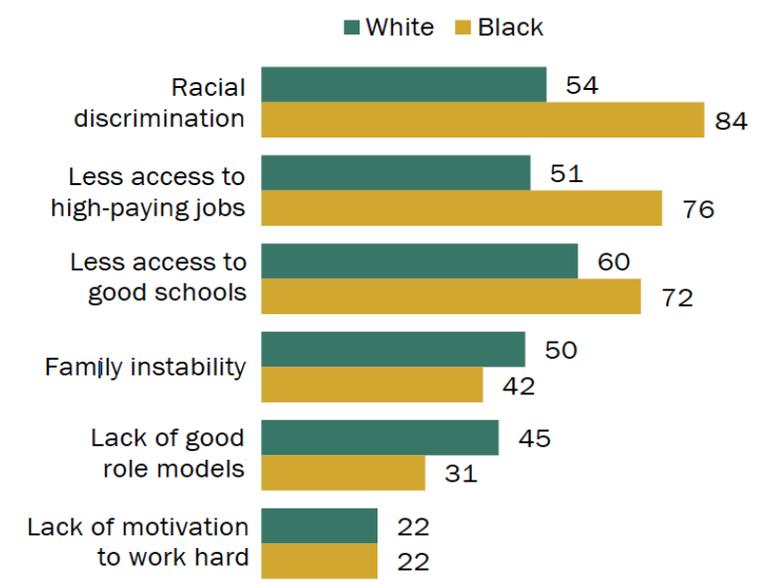
Among whites, % saying that, when it comes to their ability to get ahead, being white has …

	Helped a lot	Helped a little
All white adults	18	27
HS or less	11	24
Some college	16	24
Bachelor's+	28	32
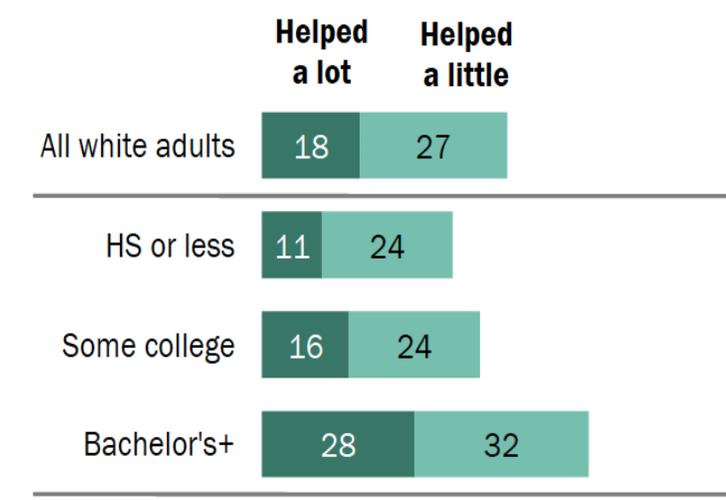
## More see individual, rather than institutional, racism as a bigger problem

% saying discrimination _____ is the bigger problem when it comes to discrimination against black people in the U.S. today

■ Built into laws and institutions
■ Based on the prejudice of individuals

	Built into laws and institutions	Based on the prejudice of individuals
All adults	23	66
Whites	19	70
Blacks	40	48
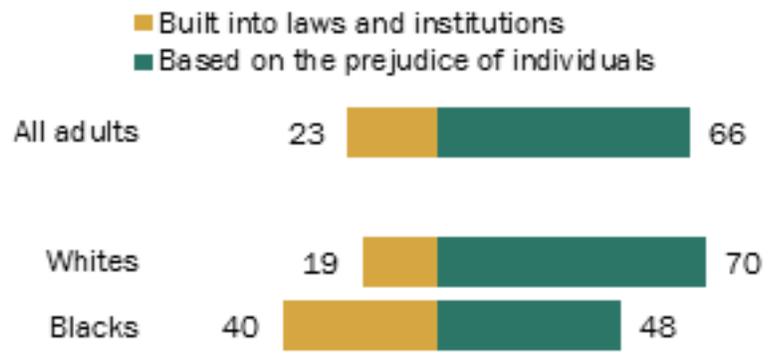
About eight-in-ten blacks say we haven't gone far enough in giving blacks equal rights with whites

% of each group saying that, when it comes to giving black people equal rights with whites, our country has …

	Not gone far enough	Been about right	Gone too far
All adults	45	39	15
White	37	43	19
Black	78	14	6
Hispanic	48	40	9
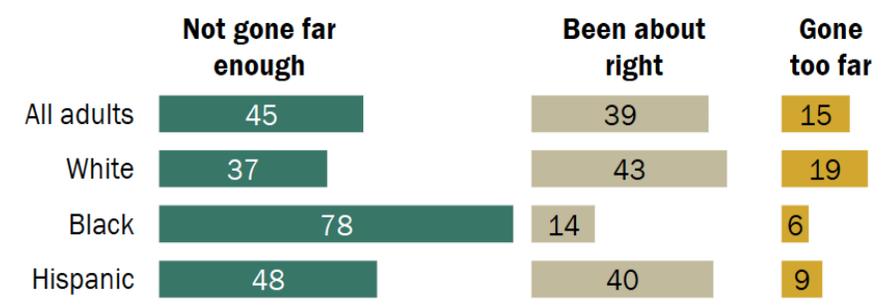
THE CONTRIBUTION OF THE SOCIAL ENVIRONMENT TO HOST RESISTANCE[1]

THE FOURTH WADE HAMPTON FROST LECTURE

JOHN CASSEL[2]

I count myself honored indeed to be included among those who have been chosen to present this, the Wade Hampton Frost Lecture. Unlike my pre this series. I ___ one unique experience, however; I read his collected papers when practicing in South Africa before I had ever heard of the word epidemiology, much less knew what it meant. In a real sense, then, those papers were my introduction to the whole field, and for this I must thank my very wise chief, Dr. Sidney L. Kark, who introduced me to the papers, particularly

think distinguishes creative epid___ studies from stu___ ___ what guides us in ___oping these chains of inference? Unquestionably, in large part the answer is the model of disease causation which we (implicitly or explicitly) espouse. In Frost's day this model, stated in its most general form, was that disease occurred as a result of new exposure to a pathogenic agent. It was recognized, of course, that the consequences of such exposure would be determined both by the pathogenicity of the agent and the degree of resistance or sus-

"throughout all history, disease…not been prevented by finding and treating sick individuals, but by modifying those environmental factors facilitating its occurrence,…"

Population's-at-Risk

Benach J, Malmusi D, Yasui Y, Martinez JM, Muntaner C. *Int J Health Serv*. 2011;41(1):1-9.
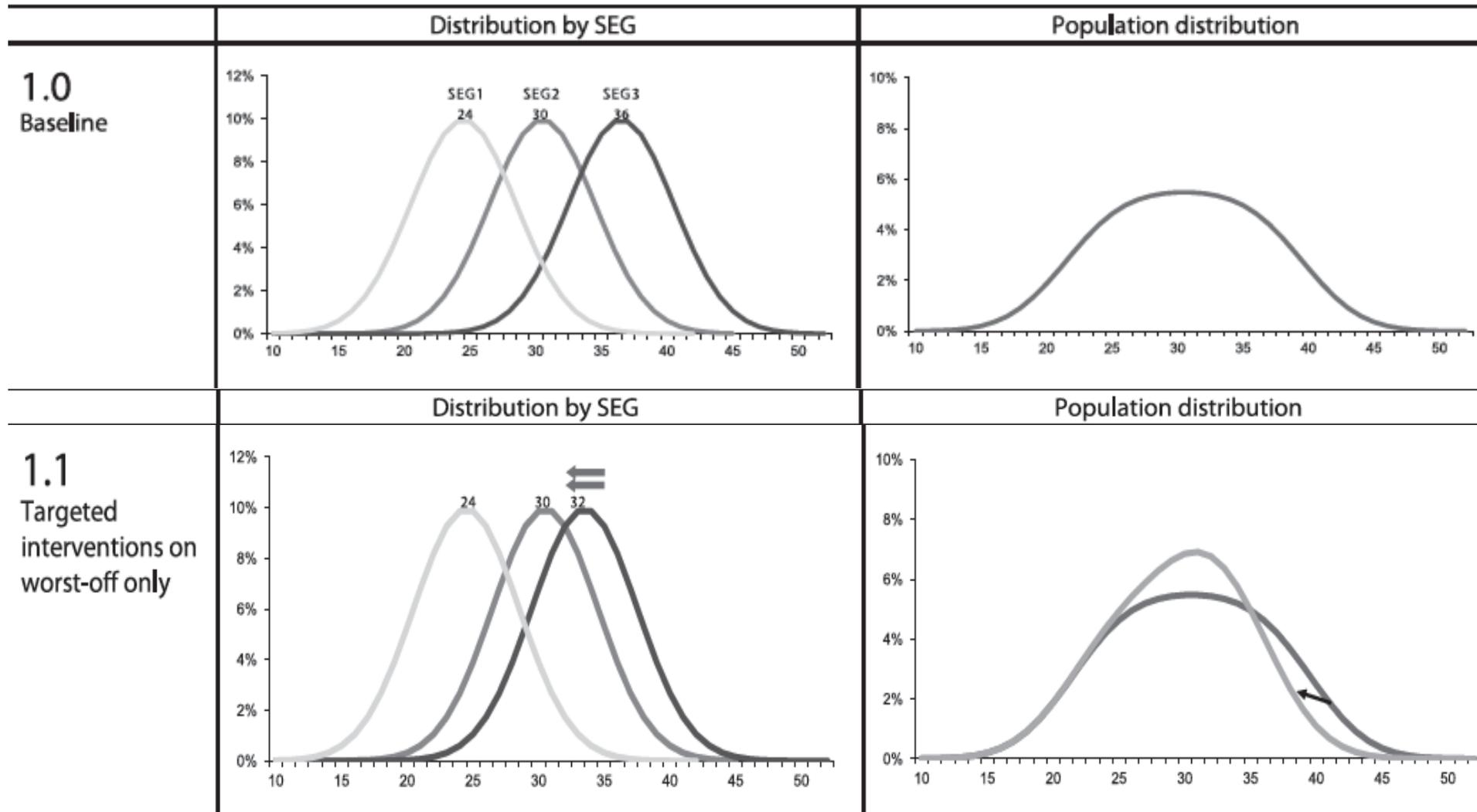
Proportionate Universalism
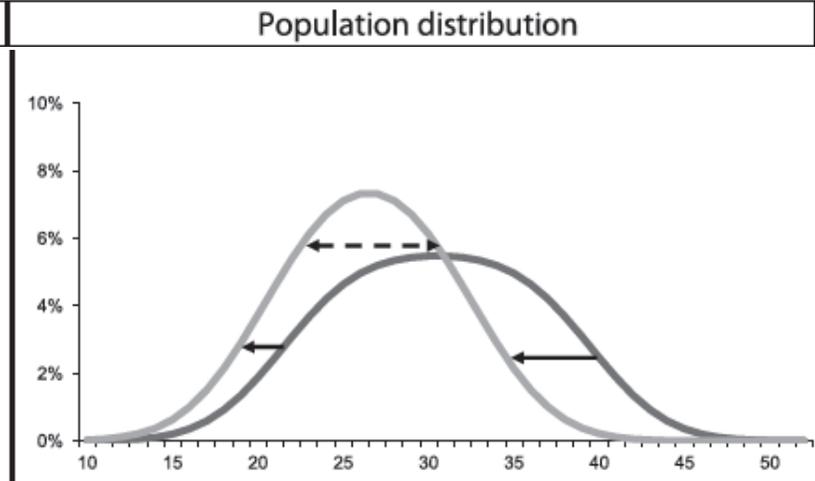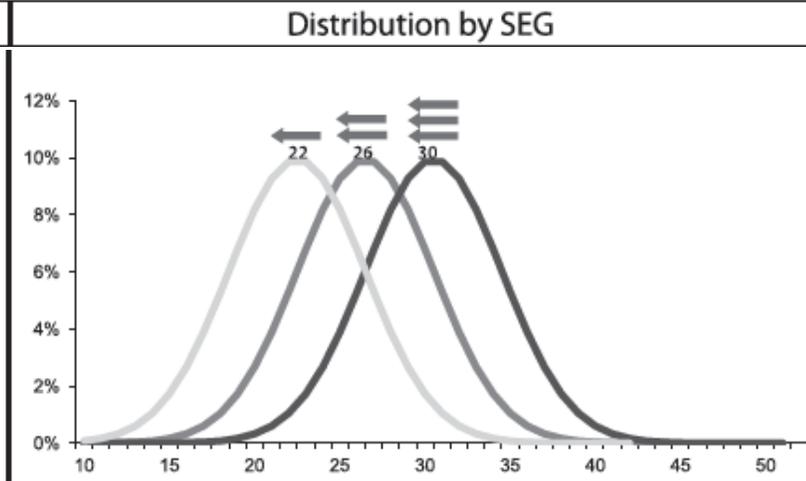
Targeted Universalism
Policy & Practice

by john a. powell, Stephen Menendian, Wendy Ake

HAASINSTITUTE.BERKELEY.EDU

Step 1. Establish a universal goal based upon a broadly shared recognition of a societal problem and collective aspirations

Step 2. Assess general population performance relative to the universal goal

Step 3. Identify groups and places that are performing differently with respect to the goal and disaggregate them

Step 4. Assess and understand the structures that support or impede each group or community from achieving the universal goal

Step 5. Develop and implement targeted strategies for each group to reach the universal goal

Recognizes different groups are situated differently relative to the institutions and resources of society.