SUPPLEMENTAL MATERIAL

SUPPLEMENT S1: Unidimensional Structural Racism Measures

We measured structural racism in five key dimensions at the Public Use Microdata Area (PUMA) (n=2,338 out of 2,351 PUMAs in the United States). All unidimensional structural racism measures below were derived using the 2019 American Community Survey (ACS) five-year estimates. "White" refers to non-Hispanic Whites, while "Black" refers to Blacks/African Americans, including both Hispanic and non-Hispanic. We were unable to use non-Hispanic Blacks/African Americans alone to derive our unidimensional measures because the ACS does not publish data for that group.

Black-White segregation: measured by the index of dissimilarity (D).[1] This index can be interpreted as the percentage of a group's population that would have to change residence to achieve a uniform distribution of the population. This index ranges from 0 (complete lack of segregation) to 1 (complete segregation).

$$D = \frac{1}{2}\sum_{i=1}^{n}\left(\frac{w_i}{W_T} - \frac{b_i}{B_T}\right)$$

where n = number of census tracts; w_i = number of Whites in tract i; W_T = total number of Whites in the PUMA; b_i = number of Blacks in tract i; B_T = total number of Blacks in the PUMA

Education inequity: measured by the ratio of White to Black college education (i.e., Bachelor's degree or higher) rates among individuals aged 25 years and over. [2]

Employment inequity: measured by the ratio of White to Black employment rates among civilians in the labor force aged 25-64 years.[2]

Income inequity: measured by the index of concentration at the extremes (ICE).[3,4]

$$ICE = \frac{A - P}{T}$$

where A = number of White households with income of $100,000 or higher (privileged group); P = number of Black households with income lower than $25,000 (deprived group); T = total number of Black and White households in the PUMA

This index ranges from -1 (all households are in the deprived group) to 1 (all households are in the privileged group).

Homeownership inequity: measured by the ratio of White to Black homeownership rates.[5]

SUPPLEMENTAL REFERENCES

1. Massey DS, Denton NA. The Dimensions of Residential Segregation. *Soc Forces*. 1988;67(2):281-315. doi:10.1093/sf/67.2.281
2. Lukachko A, Hatzenbuehler ML, Keyes KM. Structural Racism and Myocardial Infarction in the United States. *Soc Sci Med*. 2014;103:42-50. doi:10.1016/j.socscimed.2013.07.021
3. Krieger N, Feldman JM, Waterman PD, Chen JT, Coull BA, Hemenway D. Local Residential Segregation Matters: Stronger Association of Census Tract Compared to Conventional City-Level Measures with Fatal and Non-Fatal Assaults (Total and Firearm Related), Using the Index of Concentration at the Extremes (ICE) for Racial, Econ. *J Urban Heal*. 2017;94(2):244-258. doi:10.1007/s11524-016-0116-z
4. Massey DS. *Sphere of Influence: The Social Ecology of Racial and Class Inequality*. New York, NY: Russell Sage Foundation; 2014.
5. Hamilton TG. *Immigration and the Remaking of Black America*. New York, NY: Russell Sage Foundation; 2019.

SUPPLEMENT S2: Latent Class Model Enumeration and Fit Statistics

# Latent Classes	# PUMAs	Parameters Estimated	Negative Log Likelihood	BIC†	Standardized Entropy‡
2	2,338	11	7,895·7	15,876·6	0·5
3	2,338	17	7,847·0	15,825·9	0·5
4	2,338	23	7,841·5	15,861·3	0·5
5	2,338	29	7,838·7	15,902·3	0·6

† BIC: Bayesian Information Criteria

‡ Standardized entropy ranges from 0 (completely non-distinguishable latent classes) to 1 (completely distinguishable latent classes)

SUPPLEMENT S3: Sensitivity Analysis

In our sensitivity analysis, we categorized the five unidimensional measures of structural racism into tertiles (3 levels for each measure) and quartiles (four levels for each measure) to examine if the use of a finer categorical scale produces better fitting latent class models relative to our original model (i.e., where each measure was dichotomized into high vs. low level at the sample median). Class enumeration and fit statistics of these models are shown in the table below. Overall, the latent class models fitted with the tertile- and quartile-based measures have higher BIC than our original model, with a relative similar standardized entropy. Because these alternative models appear to have a poorer fit than our original model, we retained the latter in the remaining portions of our analysis.

Cutoff Points	# Latent Classes	# PUMAs	Parameters Estimated	Negative Log Likelihood	BIC†	Standardized Entropy‡
Q3&4 (high) vs. Q1&2 (low) *Original model*	2	2,338	11	7,895·7	15,876·6	0·5
	3	2,338	17	7,847·0	15,825·9	0·5
	4	2,338	23	7,841·5	15,861·3	0·5
	5	2,338	29	7,838·7	15,902·3	0·6
Tertile	2	2,338	21	12,537·3	25,237·5	0·5
	3	2,338	32	12,444·2	25,136·7	0·6
	4	2,338	43	12,403·0	25,139·6	0·6
	5	2,338	54	12,382·9	25,184·6	0·5
Quartile	2	2,338	31	15,866·8	31,974·1	0·5
	3	2,338	47	15,766·4	31,897·4	0·6
	4	2,338	63	15,711·4	31,911·5	0·6
	5	*Maximum likelihood algorithm did not converge*				

† BIC: Bayesian Information Criteria

‡ Standardized entropy ranges from 0 (completely non-distinguishable latent classes) to 1 (completely distinguishable latent classes)