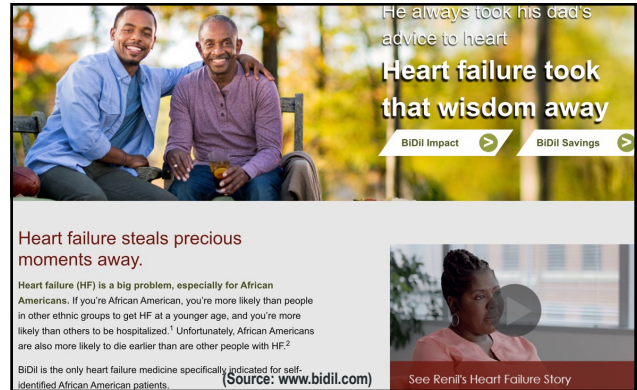


## Advancing Health and Racial Justice through Biomedical Research: A Socio-Psychobiological Approach

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National Academies Committee on the Use of  
Race and Ethnicity in Biomedical Research  
December 14, 2023

1



He always took his dad's advice to heart  
**Heart failure took that wisdom away**

BIDI Impact > BIDI Savings >

**Heart failure steals precious moments away.**

Heart failure (HF) is a big problem, especially for African Americans. If you're African American, you're more likely than people in other ethnic groups to get HF at a younger age, and you're more likely than others to be hospitalized.<sup>1</sup> Unfortunately, African Americans are also more likely to die earlier than are other people with HF.<sup>2</sup>

BIDI is the only heart failure medicine specifically indicated for self-identified African American patients. (Source: [www.bidil.com](http://www.bidil.com))

See Renli's Heart Failure Story

2



**Why is HF different in African Americans?**

HF is almost always caused by some underlying illness or disease that has damaged your heart over time.<sup>2</sup> High blood pressure and diabetes are often to blame—especially if they haven't been well controlled with proper medicines.<sup>2</sup> Sometimes other problems, such as hardening of the arteries or a heart attack, further set HF in motion.<sup>2</sup> Unfortunately, these conditions are more common in African Americans than in other ethnic groups. This may help explain why African Americans are twice as likely to die from HF than other Americans.<sup>3</sup>

**Heart failure can sneak up on you**

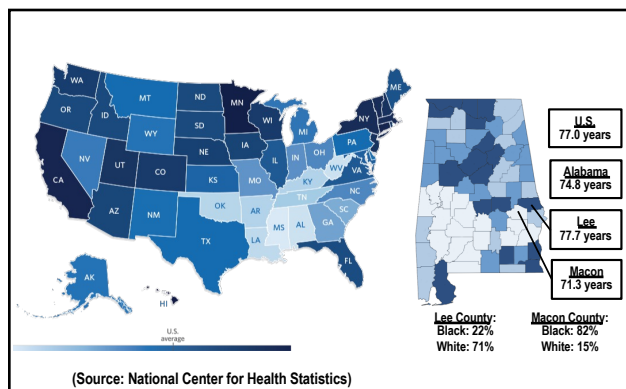
HF doesn't happen all at once. Instead, your heart gets weaker over time. At first, your heart tries to work harder to get its job done to make up for the loss of pumping power. It might pump faster than usual.<sup>4</sup> These changes might help your heart meet the body's needs for a while—and you probably won't notice that anything is different.<sup>4</sup> As time passes, however, your weakened heart won't be able to keep up with your body's needs.<sup>4</sup> That's when the telltale symptoms of HF start. You may feel worn out and short of breath just climbing the stairs. Or you may notice swelling in your feet and legs.<sup>4</sup> If you notice these or other symptoms, it's important to visit your doctor right away. Once symptoms start, they can worsen quickly without proper treatment. This is particularly true for African Americans. Although HF is on the rise all across America, it hits the African American community hardest.<sup>5</sup>

3

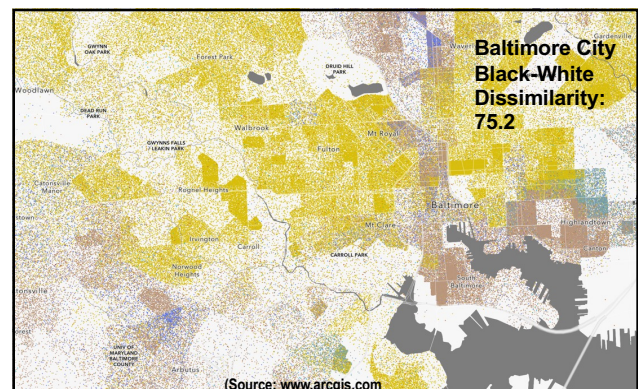
Medical statistics will be our standard of measurement: we will weigh life for life and see where the dead lie thicker, among the workers or among the privileged.

Rudolf Virchow, 1848  
Cited by Paul Farmer in *Infections and Inequalities: The Modern Plagues*

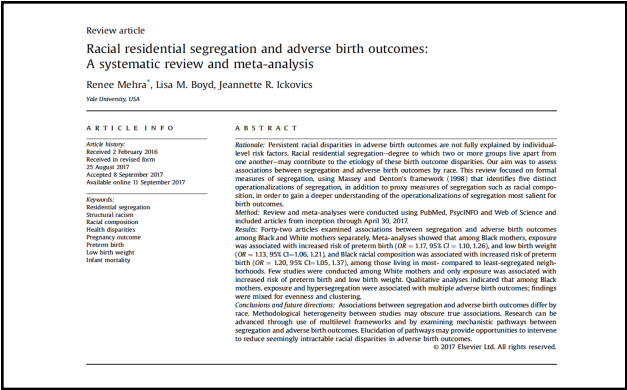
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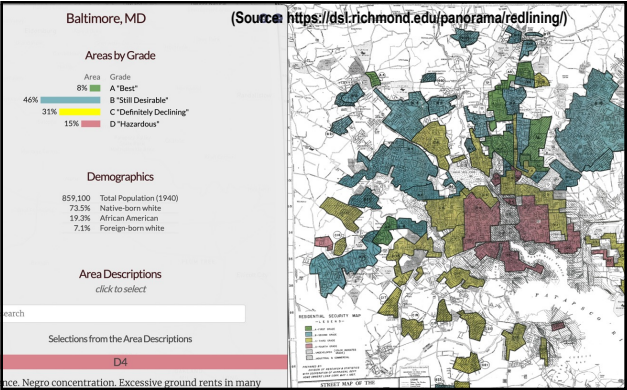
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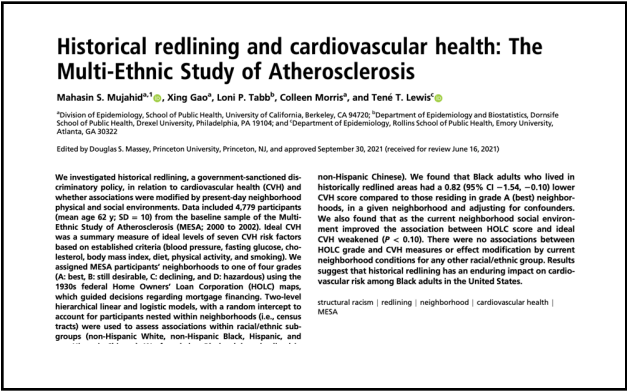
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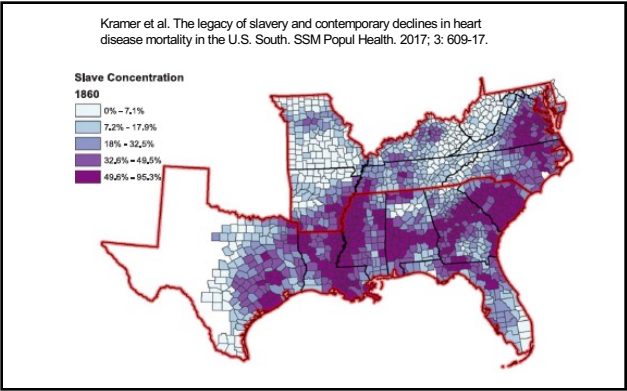
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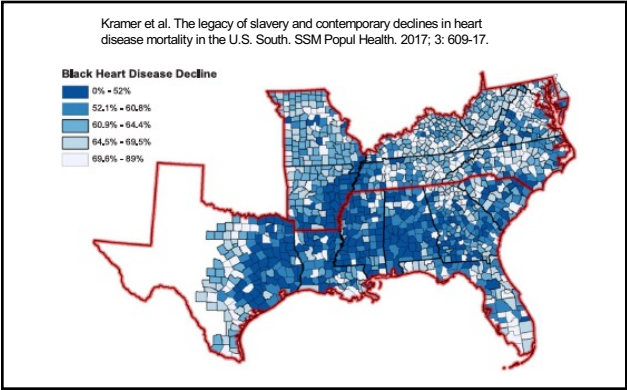
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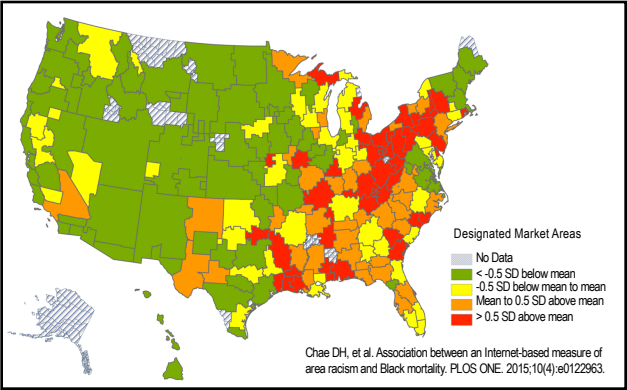
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10



11



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## 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

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## Birth Outcomes

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

|         | PR                   | PR                   |
|---------|----------------------|----------------------|
|         | Preterm Birth        | 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

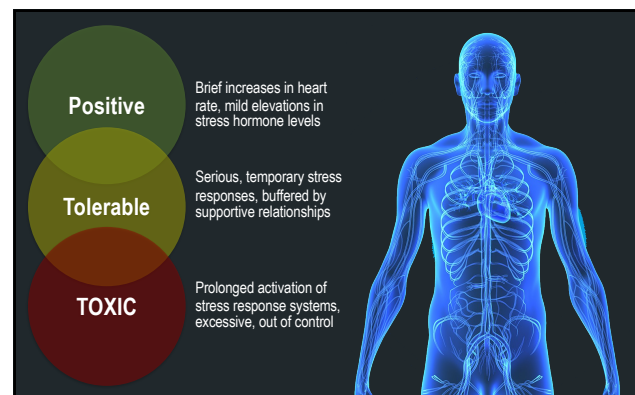
\* p < 0.05 \*\* p < 0.01 \*\*\* p < 0.001

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How does  
racism  
get under  
the skin?

racism  
makes me sick  
it damages my heart, blood  
pressure and my unborn baby

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## Telomeres

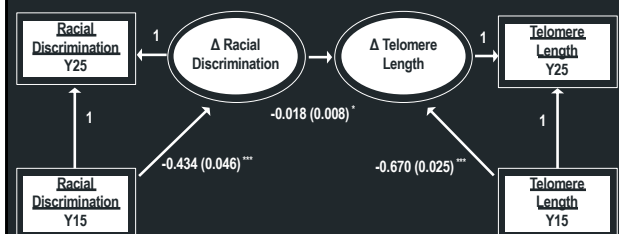
- Involved in DNA replication and the life of the cell.
- Associated with mortality and disease.
- Accelerated shortening due to oxidative stress and inflammation.



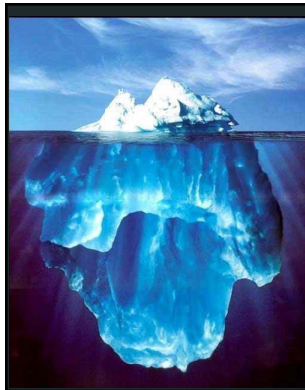
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## Racial Discrimination and 10-Year Change in Telomere Length

(Chae DH et al. Racial discrimination and telomere shortening among African Americans: The Coronary Artery Risk Development in Young Adults (CARDIA) Study. Health Psychology. 2020;39(3):209-219.)



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- 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 racist attitudes, and in structures and institutions?
  - How do macro-social forces (e.g., laws, policies) impact disease risk?
  - What do interventions on social determinants to address racial inequities in health look like?

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