Four-year Change in Cardiometabolic Risk
Does Race/Ethnicity Matter?

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The Health of Aging Racial Minorities

- Compared to whites and Hispanics, blacks live shorter lives and have worse health throughout their lives.

- Measured biological indicators of health and functioning provide an opportunity for identifying causes of health disparities.
Research Questions:
- Are there race differences in health at older ages?
- If so, do these differences increase, decrease, or stay the same as individuals age?

Analytic Sample (n = 5,467):
- Biomarker data from 2006 and 2008 half-samples; 4-years follow-up
- Mean age at baseline: 64.6 (range: 52-95)
- White (85%), Black (8%), Hispanic (7%)
- Female (53%)
Use of Biological Indicators of Health

• Cardiometabolic Risk:
  – Summary measure of risk for cardiovascular and metabolic diseases
  – Risk factors known to predict death, disability and death
  – Can be measured early, before disease diagnosis and progression
### Cardiovascular Biomarkers

<table>
<thead>
<tr>
<th></th>
<th>High Risk Level</th>
<th>% High*</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse Pressure (PP)</td>
<td>≥60 mmHg</td>
<td>22%</td>
<td>Difference between systolic and diastolic blood pressure; associated with stiffening of the arteries</td>
</tr>
<tr>
<td>Heart Rate (HR)</td>
<td>≥90 bpm</td>
<td>5%</td>
<td>Beats per minute; a high heart rate compromises blood flow to the body</td>
</tr>
<tr>
<td>C-reactive Protein (CRP)</td>
<td>≥3.0 mg/L</td>
<td>35%</td>
<td>Measure of chronic inflammation throughout the body that is predictive of cardiovascular disease</td>
</tr>
</tbody>
</table>

### Metabolic Biomarkers

<table>
<thead>
<tr>
<th></th>
<th>High Risk Level</th>
<th>% High*</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cholesterol (TC)</td>
<td>≥240 mg/dL</td>
<td>21%</td>
<td>Combination of high- and low-density lipoproteins and triglycerides</td>
</tr>
<tr>
<td>High-density Lipoprotein (HDL)</td>
<td>&lt;40 mg/dL</td>
<td>19%</td>
<td>Low levels are bad; considered &quot;good&quot; cholesterol because it helps breakdown excess cholesterol</td>
</tr>
<tr>
<td>Hemoglobin A1c (HbA1c)</td>
<td>≥6.5%</td>
<td>10%</td>
<td>A measure of average blood glucose levels over the past 2-3 months</td>
</tr>
<tr>
<td>Waist circumference (WC)</td>
<td>&gt; 35 inches (women)</td>
<td>64%</td>
<td>Measure of excess fat around the abdominal area</td>
</tr>
<tr>
<td></td>
<td>&gt; 40 inches (men)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* At baseline
Blacks Have the Worst Cardiometabolic Risk Scores

Mean Cardiometabolic Risk Score

Age & Gender Adj.  
White  
Black  
Hispanic

Age, Gender & Educ. Adj.  
White  
Black  
Hispanic
The Black-White Difference Increases Over Time

- Risk levels decreased for whites and Hispanics
- Risk levels **increased** among blacks
- Race difference widened in 4 years
The Black-White Difference Increases Over Time

The graph shows the mean change in cardiometabolic risk score over time for different racial and ethnic groups. The difference between Black and White groups increases when factors such as age, gender, and education are adjusted. The change in risk score is measured on the y-axis, and the x-axis indicates the baseline risk adjusted for various factors.
Which Biomarkers are **Whites** doing Better on?

<table>
<thead>
<tr>
<th>Biomarker</th>
<th>Difference in Prevalence of High-risk (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulse Pressure</td>
<td>6</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>4</td>
</tr>
<tr>
<td>C-reactive Protein</td>
<td>-2</td>
</tr>
<tr>
<td>Low HDL</td>
<td>-4</td>
</tr>
<tr>
<td>Total Cholesterol</td>
<td>-6</td>
</tr>
<tr>
<td>HbA1c</td>
<td>10</td>
</tr>
<tr>
<td>Waist</td>
<td>12</td>
</tr>
</tbody>
</table>
Which Biomarkers are Blacks doing Worse on?

- Pulse Pressure
- HbA1c
- Low HDL
- Total Cholesterol
- Waist
- Heart Rate
- C-reactive Protein

Difference in Prevalence of High-risk (%)

12 10 8 6 4 2 0 -2 -4 -6 -8 -10
Summary of Major Findings

• Blacks have higher cardiometabolic risk than whites and Hispanics

• The disparity between blacks and whites widened over time because risk levels increased for blacks, but decreased for whites

Why is the change in cardiometabolic risk different by race?