How do economic inequality and racism create health inequality?

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Paula Braveman, MD, MPH
Professor of Family & Community Medicine
Director, Center on Social Disparities in Health
University of California, San Francisco
More health care spending but less health: Life expectancy

1. Japan (82.3 years)
2. Australia
3. Canada
4. Spain
5. Sweden/Switzerland
6. Israel
7. Iceland
8. New Zealand
9. Italy
10. Norway
11. Ireland
12. United Kingdom
13. Greece
14. Austria
15. Netherlands
16. Luxembourg
17. Germany
18. Belgium
19. Finland
20. Korea
21. Denmark
22. Portugal
23. United States (78.2 years)
24. Chile
25. Slovenia
26. Czech Republic

Improved living conditions, not medical care, explain infant mortality decline in England and Wales.

Higher income, longer life: Life expectancy at age 25

Higher income, better health:
Poor/fair self-reported health, age 25+

<table>
<thead>
<tr>
<th>Family Income (Percent of Federal Poverty Level)</th>
<th>% of adults aged ≥25 years with self-reported poor/fair health</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;100% FPL</td>
<td>30.9</td>
</tr>
<tr>
<td>100%-199% FPL</td>
<td>21.2</td>
</tr>
<tr>
<td>200-299% FPL</td>
<td>14.0</td>
</tr>
<tr>
<td>300-399% FPL</td>
<td>10.1</td>
</tr>
<tr>
<td>≥400% FPL</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Racial/ethnic differences do not explain differences in adult health by income

Analyses by Braveman et al., UCSF.
How could income affect health?

Income can shape:
• Medical care
• Nutrition & physical activity options
• Housing & neighborhood conditions
• Services
Which can affect:
• Stress
• Family stability

Parents’ income shapes offspring’s:
• Education
• Occupation
• Income
• Work conditions
Less income, more stressors.
Separation or divorce during pregnancy (similar patterns for 11 major stressors)

<table>
<thead>
<tr>
<th>Family Income: Percent of Federal Poverty Level</th>
<th>% of women separated or divorced during pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤100%</td>
<td>12.7</td>
</tr>
<tr>
<td>101-200%</td>
<td>7.0</td>
</tr>
<tr>
<td>201-300%</td>
<td>3.6</td>
</tr>
<tr>
<td>301-400%</td>
<td>3.0</td>
</tr>
<tr>
<td>&gt;400%</td>
<td>1.2</td>
</tr>
</tbody>
</table>

Income shapes neighborhood options. How could a neighborhood affect health?

- Pollution, toxic waste
- Safe places to exercise
- Access to healthy food
- Ads for harmful substances
- Social networks & support
- Norms, role models, peer pressure
- Quality of schools
- Racial segregation tracks Blacks & Latinos into poorer neighborhoods than Whites of similar income
Education can shape health-related behaviors by determining knowledge and skills

- Educational attainment
- Health knowledge
- Literacy
- Problem-solving
- Coping skills
- Diet
- Exercise
- Smoking
- Health/disease management
Other plausible pathways from education to health, e.g., via work & income

Educational attainment → Work → Income → Work-related resources → Working conditions → HEALTH

- Neighborhood environment
- Diet & exercise options
- Stress
- Health insurance
- Sick leave
- Wellness programs
- Stress
- Physical hazards
- Control / demand imbalance
- Stress
Psychosocial pathways from education to health

Educational attainment

- Social networks
  - Control beliefs (powerlessness, sense/locus of control, fatalism, mastery)

Social standing

- Social & economic resources
- Perceived status
- Stress

Health

- Social & economic resources
- Norms
- Social support
- Stress

- Coping
- Response to stressors
How could education affect health?

Educational attainment ➔ Health knowledge, literacy, coping & problem solving ➔ HEALTH

- Diet
- Exercise
- Smoking
- Health/disease management

Educational attainment ➔ Work ➔ HEALTH

- Working conditions
  - Exposure to hazards
  - Control / demand imbalance
  - Stress
- Work-related resources
  - Health insurance
  - Sick leave
  - Stress
- Income
  - Housing
  - Neighborhood environment
  - Diet & exercise options
  - Stress

Educational attainment ➔ Social standing ➔ HEALTH

- Control beliefs
  - Coping & problem solving
  - Response to stressors
  - Health-related behaviors
- Social networks
  - Social & economic resources
  - Perceived status
  - Stress
- Social standing
  - Social & economic resources
  - Social Support
  - Norms for healthy behavior
  - Stress
How could racial discrimination harm health?

- **Socioeconomic effects:** The legacy of formerly legal discrimination—lower incomes, wealth, education, occupations & poorer neighborhoods
  - Race captures unmeasured socioeconomic factors

- **Psychological effects:** Chronically stressful experiences related to racial discrimination
  - Chronic vigilance & subtle experiences could harm health, even without overt incidents
  - Potential effects on self-esteem/self-doubt
  - Experienced by all socioeconomic groups
The stress-health link: Biologically plausible?

- Advances in neuro-science indicate how social factors like income, education, and racial discrimination “get into the body”
- Multiple pathways, mechanisms, & brain regions have been identified in stress response: HPA axis, ANS, immune system, metabolic & vascular responses
  — Cortisol, epinephrine, cytokines, telomerase...
  — Changes in brain architecture & function in young children exposed to adversity
- Chronic stress is likely a major contributor to both socioeconomic and racial/ethnic inequalities in health
How could stress affect health?

- Stressor
- Hypothalamus
  - CRH
  - Pituitary Gland
    - ACTH
  - Adrenal Glands
    - CORTISOL

DAMAGE TO MULTIPLE ORGANS & SYSTEMS → inflammation, immune suppression, chronic disease, premature aging

Source: Center on Social Disparities in Health, UCSF.
Major scientific advances re the social determinants of health

- Advances in neuro-science indicate how social factors like income, education, racial discrimination and stress “get into the body”
- Chronic stress is likely a major contributor to both socioeconomic and racial/ethnic inequalities in health
- Childhood experiences shape adult health
- Understanding how racism shapes health across generations
- Epigenetics: “Genes load the gun; the environment pulls the trigger” (J Stern, UC Davis)
What produces health disparities across the life course and across generations?

- **SOCIETY**
  - Social Context
    - Reducing social inequality
      - 1. Social inequality
  - Policy Context
    - Reducing harmful exposures
      - 2. Differential exposure
    - Reducing vulnerability
      - 3. Differential vulnerability
    - Preventing unequal consequences
      - 4. Differential consequences
    - More social inequality
      - 5. More social inequality

- **INDIVIDUAL**
  - Social position, e.g. by race & class
    - Specific exposure
  - Disease
    - Social consequences of ill health

Adapted from Diderichsen, U. Copenhagen
Find a way to keep your stress level down. What works for me is making a ton of money & having practically free health care.
Reducing health inequality by addressing “the causes of the causes”

Interactions between genes and experiences

HEALTH

Economic & Social Opportunities and Resources

Living & Working Conditions in Homes and Communities

Behaviors

Medical Care

Money, education, power, inclusion

Healthier homes, neighborhoods, schools, workplaces. Safety nets.

P Braveman et al., University of CA., San Francisco, adapted from version originally created for the Robert Wood Johnson Foundation Commission to Build a Healthier America www.rwjf.org
“Good news—I hear the paradigm is shifting.”
Higher income, healthier children: Poor/fair child health reported by parent

% of children age 0-17 years with poor/fair health, age adjusted

Family Income (% of Federal Poverty Level)
- <100% FPL
- 100%-199% FPL
- 200-299% FPL
- 300-399% FPL
- ≥400% FPL

Racial/ethnic differences do not explain adult health differences by education

Braveman, Egerter et al., 2009.
Data source: BRFSS. Age-adjusted.
Both race and income matter

UPSTREAM: The source

DOWNSTREAM: Exposure and health effects
Reducing health inequality by addressing “the causes of the causes”

- Reduce poverty & segregation.
- Promote economic development in disadvantaged communities.
- Promote child & youth development & education, infancy through college;
  - Job creation & training.

Promote healthier homes, neighborhoods, schools & workplaces. Strengthen safety nets.

Interactions between genes and experiences

Economic & Social Opportunities and Resources

Living & Working Conditions in Homes and Communities

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HEALTH

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