Racial disparities in clinical outcomes: Is racism a missing piece of the puzzle?

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## More health care spending but less health: Life expectancy

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>Life Expectancy</th>
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<tbody>
<tr>
<td>1</td>
<td>Japan</td>
<td>82.3 years</td>
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<td>2</td>
<td>Australia</td>
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<td>3</td>
<td>Canada</td>
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<td>Sweden/Switzerland</td>
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<td>Israel</td>
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<td>7</td>
<td>Iceland</td>
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<td>Slovenia</td>
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<tr>
<td>26</td>
<td>Czech Republic</td>
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</tbody>
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Higher income (or education), longer life

Analyses by Braveman et al. of National Longitudinal Mortality Study, 1988-98.

Family Income:
Percent of Federal Poverty Level
- ≤100% FPL
- 101-200% FPL
- 201-400% FPL
- 401%+ FPL

Life expectancy at age 25

Men
- ≤100% FPL: 45.5
- 101-200% FPL: 47.7
- 201-400% FPL: 51.1
- 401%+ FPL: 53.5

Women
- ≤100% FPL: 51.5
- 101-200% FPL: 54.5
- 201-400% FPL: 56.5
- 401%+ FPL: 58.2

Analyses by Braveman et al. of National Longitudinal Mortality Study, 1988-98.
Parents’ income (& education) shapes child health: Poor/fair child health reported by parent

Analyses by Braveman et al. of National Health Interview Survey (NHIS) 2001-2005, Age-adjusted
Higher income (or education), better adult health (self-reported)

Age-adjusted analyses by Braveman et al., of National Health Interview Survey (NHIS) 2001-2005.
Racial/ethnic differences do not explain differences in adult health by income

Age-adjusted analyses by Braveman et al. 
NHIS 2001-2005
Racial/ethnic differences do not explain adult health differences by education

Age-adjusted analyses by Braveman, Egerter et al. of BRFSS 2009,
Both race and socioeconomic factors matter: Self-reported adult health

How could income (or wealth) 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
The stress-health link: Biologically plausible?

- Advances in neuro-science & psycho-neuro-immunology help elucidate how social factors like income and education “get into the body” & lead to chronic disease
- HPA axis, sympathetic nervous system, and immune/inflammatory mechanisms have been demonstrated as responses to stress
  - Relative importance of specific mediators (e.g., cortisol, ANS, cytokines, telomerase) not established
- Chronic stress is a plausible and likely major contributor to both the socioeconomic gradient and racial/ethnic inequalities in health
How could stress affect health?

Source: Center on Social Disparities in Health, UCSF.
Less income, more stressors.
Separation or divorce during pregnancy
(similar patterns for 11 major stressors)

Braveman et al., analyses of CA Maternal & Infant Health Assessment 2003-2006.
Find a way to keep your stress level down. What works for me is making a ton of money & having practically free health care.
Education can shape health behaviors by determining knowledge and skills.
Other plausible pathways from education to health, e.g., via work & income

- Educational attainment
- Work
  - Work-related resources
    - Income
      - Neighborhood environment
        - Diet & exercise options
        - Stress
    - Working conditions
      - Health insurance
      - Sick leave
      - Wellness programs
      - Stress
      - Control / demand imbalance
      - Stress

HEALTH
Psychosocial pathways from education to health

Educational attainment

- Social standing
  - Social & economic resources
  - Perceived status
  - Stress

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

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

- Coping
  - Response to stressors

HEALTH
Childhood socioeconomic conditions shape adult health

- Adult health is shaped by early experiences
  - Lasting effects of in utero/early childhood deprivation, e.g.,
    - → low SES in adulthood (by limiting education)
    - May → neuro-endocrine or immune dysregulation
    - Early childhood socioeconomic conditions could have crucial effects not erased by later circumstances

- Chronic stress/deprivation in childhood
  → chronic disease in childhood and adulthood

- Cumulative effects of disadvantage
Structural racial bias transmits socioeconomic disadvantage across generations

- The legacy of (once-legal) discrimination:
- Lower incomes, wealth, education, occupations
- And, at a given income or educational level, African Americans and Latinos on average:
  - Have far less wealth
  - Live in under-resourced, often unhealthier neighborhoods
  - Were worse off in childhood
  - More hardship with fewer resources to cope
  - Rarely measured but studies often conclude a racial difference is genetic if it persists after “control for SES”
  - Race often captures unmeasured socioeconomic factors
Unmeasured socioeconomic differences could increase African Americans’ risk of ill health

Racial segregation →
- Pollution, toxins, crime
- No safe places to exercise
- Pervasive unhealthy food
- Ads for harmful substances
- Social networks & support
- Norms, role models, peers
- Poor access to jobs → lower income, less wealth → financial hardship → stress, hopelessness
- Poor quality schools
- Blacks tracked into poorer neighborhoods than Whites of similar income
And direct psychological effects of racism-related stress?

- Overt or subtle incidents
- Constant vigilance, fears about loved ones
- Chronic stress increases risk for chronic disease through HPA axis activation → inflammation, immune dysregulation (e.g., via cortisol, CRH, ANS, cytokines, prostaglandins...)
- Both race & SES matter:
  - Racism → low SES
  - Race -- or racism?

Image: http://www.empowermagazine.com/how-racism-affects-your-health/
Improving health & reducing disparities by addressing the role of social factors like racism and poverty

Policies to promote economic development, reduce poverty, and reduce racial segregation

Policies to promote child and youth development and education, infancy through college

Policies to promote healthier homes, neighborhoods, schools and workplaces

Adapted from Braveman et al., Robert Wood Johnson Foundation Commission to Build a Healthier America | www.commissiononhealth.org