Race and Health: The case of Hispanics

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Department of Epidemiology
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Outline

- Hispanics
  - Origin of the term
  - Heterogeneity

- Evidence of the effect of Race on Hispanics
  - Social mobility
  - Health

- Empirical evidence on Hypertension and Diabetes
Hispanic or Latino: Who asks for a name?

### TABLE 1—US Census Race Categories, 1790–2000

- **1790**: Free White Males; Free White Females; All Other Free Persons; Slaves
- **1800**: Free White Males; Free White Females; All Other Free Persons, except Indians Not Taxed; Slaves
- **1810**: Free White Males; Free White Females; All Other Free Persons, except Indians Not Taxed; Slaves
- **1820**: Free White Males; Free White Females; Free Colored Persons, All other persons, except Indians Not Taxed; Slaves
- **1830**: Free White Persons; Free Colored Persons; Slaves
- **1840**: Free White Persons; Free Colored Persons; Slaves
- **1850**: Black; Mulatto
- **1860**: Black; Mulatto; (Indian)
- **1880**: White; Black; Mulatto; Chinese; Indian
- **1890**: White; Black; Mulatto; Quadroon; Octoroon; Chinese, Japanese; American
- **1900**: White; Black; Chinese; Japanese; Indian
- **1910**: White; Black; Mulatto; Chinese; Japanese; Indian; Other (+ write in)
- **1920**: White; Black; Mulatto; Indian; Chinese; Japanese; Filipino; Hindu; Korean; Other (+ write in)
- **1930**: White; Negro; Mexican; Indian; Chinese; Japanese; Filipino; Hindu; Korean; Other (Other races, spell out in full)
- **1940**: White; Negro; Indian; Chinese; Japanese; Filipino; Hindu; Korean; Other (Other races, spell out in full)
- **1950**: White; Negro; Indian; Chinese; Japanese; Filipino; (Other race—spell out)
- **1960**: White; Negro; American Indian; Japanese; Chinese; Filipino; Hawaiian; Part-Hawaiian; Aleut Eskimo, etc.
- **1970**: White; Negro or Black; American Indian; Japanese; Chinese; Filipino; Hawaiian; Korean; Other (print race)
- **1980**: White; Negro or Black; Japanese; Filipino; Korean; Vietnamese; American Indian; Asian Indian; Hawaiian; Guamanian; Samoan; Eskimo; Aleut; Other (specify)
- **1990**: White; Black or Negro; American Indian; Asian Indian; Japanese; Filipino; Chinese; Hawaiian; Korean; Vietnamese; Japanese; Asian Indian; Samoan; Guamanian; Other API (American or Pacific Islander); Other (specify)
- **2000**: White; Black; African American; or Negro; American Indian or Alaska Native; Asian Indian; Chinese; Korean; Vietnamese; Native Hawaiian; Guamanian or Chamorro; Saipanese; Micronesian (Print Race); Other Pacific Islander (Print Race); Some other race (Print Race); Some other race (Print Race)

**Note.** Categories are presented in the order in which they appeared on schedules.

Source: US Bureau of the Census.

*In 1850 and 1860, free persons were enumerated on schedules for “free inhabitants”; slaves were enumerated on schedules designated for “slave inhabitants.” On the free-inhabitants schedule, instructions to enumerators read, in part: “In all cases where the person is white leave the space blank in the column marked ‘Color.’”*

*Although “Indian” was not listed on the census schedule, the instructions read: “Indian”—Indians not taxed are not to be enumerated. The families of Indians who have renounced tribal rule, and who under State or Territorial laws exercise the rights of citizens, are to be enumerated. In all such cases write ‘Ind.’ opposite their names, in column 6, under heading ‘Color.’”*
Hispanic or Latino: The history behind the standardized terminology

- Mexicans
  - Origin
  - Race
- Puerto Rican birth or parentage
- Cuban birth or parentage
- Spanish-origin self-identifier
- Public Law 94-311
- Directive 15: Hispanic category
Hispanic Population Growth


Population: 14.6, 22.3, 35.3
Hispanics and their Heterogeneity

Reproduction of Questions on Race and Hispanic Origin From Census 2000

5. Is this person Spanish/Hispanic/Latino? Mark ❌ the "No" box if not Spanish/Hispanic/Latino.
   ☐ No, not Spanish/Hispanic/Latino       ☐ Yes, Puerto Rican
   ☐ Yes, Mexican, Mexican Am., Chicano   ☐ Yes, Cuban
   ☐ Yes, other Spanish/Hispanic/Latino — Print group.

6. What is this person's race? Mark ❌ one or more races to indicate what this person considers himself/herself to be.
   ☐ White
   ☐ Black, African Am., or Negro
   ☐ American Indian or Alaska Native — Print name of enrolled or principal tribe.
   ☐ Asian Indian       ☐ Japanese       ☐ Native Hawaiian
   ☐ Chinese           ☐ Korean          ☐ Guamanian or Chamorro
   ☐ Filipino          ☐ Vietnamese       ☐ Samoan
   ☐ Other Asian — Print race.            ☐ Other Pacific Islander — Print race.
   ☐ Some other race — Print race.
Hispanic Subgroups


Mexican Americans: 66.9%
Puerto Ricans: 8.6%
Cubans: 3.7%
Central and South Americans: 14.3%
Others: 6.5%
Hispanics and their Heterogeneity...

Reproduction of Questions on Race and Hispanic Origin From Census 2000

5. Is this person Spanish/Hispanic/Latino? Mark the "No" box if not Spanish/Hispanic/Latino.
   - No, not Spanish/Hispanic/Latino
   - Yes, Puerto Rican
   - Yes, Mexican, Mexican Am., Chicano
   - Yes, other Spanish/Hispanic/Latino — Print group.
   - [ ] Dominican

6. What is this person’s race? Mark one or more races to indicate what this person considers himself/herself to be.
   - White
   - Black, African Am., or Negro
   - American Indian or Alaska Native — Print name of enrolled or principal tribe.
   - Asian Indian
   - Chinese
   - Filipino
   - Other Asian — Print race.
   - Japanese
   - Korean
   - Vietnamese
   - Other Pacific Islander — Print race.
   - Native Hawaiian
   - Guamanian or Chamorro
   - Samoan
   - Some other race — Print race.

Source: U.S. Census Bureau, Census 2000 questionnaire.
Hispanics and Race

2000 US Census

- White: 47.9%
- Black: 2%
- Asian, AIAN, NHPI: 1.6%
- Some other race: 42.2%
How does race affect Hispanics?
FIGURE 1. A framework for the study of the role of race in health.
Racial classification among Hispanics and health and well-being: A Conceptual Model

- Individual Characteristics
  - Age, gender, marital status, SEP Indicators, Hispanic subgroup, immigration characteristics

- Psychosocial Factors
  - Racism/Discrimination
  - Social support/Isolation
  - Self-perceived social mobility

- Contextual Factors
  - Neighborhood SES
  - Segregation/racial-ethnic composition
  - Access to care
  - Social capital
  - Environmental hazards

- Health And Well being

Racial classification in the US Census categories among Hispanics
What do we measure when we measured 'Race'?

Race has been an empirically robust predictor of variation in morbidity and mortality in the US because it reflects the unequal distribution of risks and opportunities in our society.
Hispanics, Race and Social Mobility

Puerto Ricans, Dominicans, Cubans and Mexican Americans who self-identify as black/Native American report more discrimination & lower opportunity for improving their economic status in US society.
Indicators of life chances by observed phenotype among Mexican Americans*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Light / European</th>
<th>Dark / Indian</th>
<th>Prestige Occupation Score</th>
<th>Perceived discrimination index</th>
<th>Education (Yrs)</th>
<th>Median Income ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived discrimination index</td>
<td>25.6</td>
<td>27.1</td>
<td></td>
<td>1.5</td>
<td>9.5</td>
<td>7.8</td>
</tr>
<tr>
<td>Education (Yrs)</td>
<td>9.5</td>
<td>7.8</td>
<td></td>
<td>1.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prestige Occupation Score</td>
<td>29.6</td>
<td>25.4</td>
<td></td>
<td>4.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median Income ($)</td>
<td>12,721</td>
<td>10,480</td>
<td></td>
<td>2,241</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Hispanics, Race and Social Mobility...

Mean household income and poverty among Puerto Ricans in NYC by race and gender, 1980*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>White</th>
<th>Black</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean household income ($)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Men</td>
<td>15,630</td>
<td>13,972</td>
<td>1,658</td>
<td>620</td>
</tr>
<tr>
<td>Women</td>
<td>13,508</td>
<td>12,888</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Percent living below Poverty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>22.3</td>
<td>27.7</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>33.6</td>
<td>39.0</td>
<td>5.4</td>
<td></td>
</tr>
</tbody>
</table>

Hispanics, Race and Social Mobility...


“On the basis of social similarity, if it is necessary to combine Hispanic blacks with another group, there is now better data to support the classification of black Hispanics as non-Hispanic black rather than as Hispanics”
Hispanics, Race and Health

- Dark-skinned Puerto Rican men:
  - Higher prevalence of left ventricular hypertrophy & higher systolic blood pressure than their light skinned counterparts

- Skin color:
  - Low birth weight in Puerto Rican infants
How does race affect Hispanics and non-Hispanics?

To understand the effect of race, we need to think about:

- how “race” affects individual’s position within the social structure

- how that position influences what individuals get exposed to that may lead to the outcome of interest
Race, Self-reported Hypertension and Diabetes among Hispanics and non-Hispanics in the National Health Interview Survey
Background

- Race is a strong risk factor for hypertension and diabetes among non-Hispanics

- The associations of race with hypertension and diabetes have not been examined among Hispanics
Background...

These conditions have been racialized in the US.

Why study these conditions among Hispanics to examine race?

- The prevalence of hypertension is lower among Hispanics/Mexican Americans.
- The prevalence of diabetes is higher among Hispanics/Mexican Americans.
Hypertension and Race: Study Aims

- To investigate the association between race and hypertension among Hispanics and non-Hispanics.
- To compare the strength of these associations among Hispanics and non-Hispanics.

Ethnicity & Disease 2006;16:71-77
Study Design and Sample

- National Health Interview Survey 2000-2002

- Hispanic and non-Hispanic adults 18 years of age and older for a final sample of 88,453 adults including 12,083 Hispanics

- Self-reported hypertension

Ethnicity & Disease 2006;16:71-77
Study Design and Sample...

Race/ethnicity

- Hispanic black
- Hispanic white
- Non-Hispanic black
- Non-Hispanic white

Ethnicity & Disease 2006;16:71-77
Study Design and Sample...

Covariates

- Demographic characteristics
- Access to care and socioeconomic position indicators
- Selected health-related risk factors

Ethnicity & Disease 2006;16:71-77

MSPH Columbia University
Table 2. Prevalence of hypertension for selected covariates among Hispanic and non-Hispanic adults ≥18 years of age by race: NHIS 2000–2002

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Hispanic</th>
<th>Non-Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black</td>
<td>White*</td>
</tr>
<tr>
<td>Overall</td>
<td>18.3 (3.23)</td>
<td>16.8 (0.43)</td>
</tr>
<tr>
<td><strong>Sociodemographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (y)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–45</td>
<td>10.0 (2.77)</td>
<td>7.2 (0.33)</td>
</tr>
<tr>
<td>46–85</td>
<td>44.0 (9.81)</td>
<td>36.7 (1.01)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>27.1 (7.05)</td>
<td>14.8 (0.59)</td>
</tr>
<tr>
<td>Female</td>
<td>11.8 (2.70)</td>
<td>18.8 (0.66)</td>
</tr>
<tr>
<td>Region</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>17.5 (3.86)</td>
<td>16.9 (1.16)</td>
</tr>
<tr>
<td>Midwest</td>
<td>7.8 (6.13)</td>
<td>16.9 (1.87)</td>
</tr>
<tr>
<td>South</td>
<td>22.0 (6.8)</td>
<td>17.7 (0.75)</td>
</tr>
<tr>
<td>West</td>
<td>22.7 (11.6)</td>
<td>16.0 (0.61)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>21.4 (6.84)</td>
<td>17.3 (0.55)</td>
</tr>
<tr>
<td>Divorced</td>
<td>22.6 (6.95)</td>
<td>22.1 (1.25)</td>
</tr>
<tr>
<td>Widow</td>
<td>5.5 (5.77)</td>
<td>50.1 (2.66)</td>
</tr>
<tr>
<td>Single</td>
<td>12.7 (4.71)</td>
<td>6.4 (0.54)</td>
</tr>
<tr>
<td><strong>Socioeconomic position and access to care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>11.9 (3.79)</td>
<td>19.0 (0.69)</td>
</tr>
<tr>
<td>High school/GED</td>
<td>21.9 (6.45)</td>
<td>16.0 (0.94)</td>
</tr>
<tr>
<td>Some college</td>
<td>13.4 (5.78)</td>
<td>12.8 (0.94)</td>
</tr>
<tr>
<td>Complete college or higher</td>
<td>39.2 (16.7)</td>
<td>16.1 (1.36)</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$20,000</td>
<td>16.8 (4.98)</td>
<td>10.7 (0.53)</td>
</tr>
<tr>
<td>$20,000–$44,999</td>
<td>10.0 (3.96)</td>
<td>12.3 (0.83)</td>
</tr>
<tr>
<td>≥$45,000</td>
<td>49.2 (21.2)</td>
<td>17.1 (1.57)</td>
</tr>
</tbody>
</table>
Table 3. Crude and adjusted odds ratios (OR)* and 95% confidence intervals for hypertension by race/ethnicity among adults ≥18 years of age: NHIS 2000–2002

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>Crude</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic White</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>(1.29–1.43)</td>
<td>(1.82–2.03)</td>
<td>(1.46–1.66)</td>
<td>(1.40–1.68)</td>
</tr>
<tr>
<td>Non-Hispanic Black</td>
<td>1.36</td>
<td>1.92</td>
<td>1.56</td>
<td>1.53</td>
</tr>
<tr>
<td></td>
<td>(0.60–0.68)</td>
<td>(0.96–1.13)</td>
<td>(0.78–0.93)</td>
<td></td>
</tr>
<tr>
<td>Hispanic White</td>
<td>0.64</td>
<td>1.04</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.60–0.68)</td>
<td>(0.96–1.13)</td>
<td>(0.78–0.93)</td>
<td></td>
</tr>
<tr>
<td>Hispanic Black</td>
<td>0.71</td>
<td>1.54</td>
<td>1.13</td>
<td>1.29</td>
</tr>
<tr>
<td></td>
<td>(0.46–1.09)</td>
<td>(0.99–2.38)</td>
<td>(0.69–1.86)</td>
<td>(0.68–2.47)</td>
</tr>
</tbody>
</table>

* Crude association between race/ethnicity and self-reported hypertension (crude); ORs adjusted for age, gender, marital status, survey year, US region, place of birth and length in the US (model 1); additionally adjusted for health insurance, diabetes, BMI, physical activity, smoking, and alcohol consumption (model 2); and adjusted for all covariates as in model 2 plus education, income, and occupation (model 3).

BMI = body mass index.
Race, Ethnicity and Hypertension

There was no difference on the strength of the association between race and hypertension among Hispanics and non-Hispanics (ORs: 1.31 vs 1.52, $p$-interaction 0.91)
Diabetes and Race: Study Aims

- To investigate the independent effect of race on diabetes among Hispanics and non-Hispanics
- To compare the strength of the associations between race and diabetes among Hispanics and non-Hispanics
- To determine whether the association between race and diabetes varies with country of birth and length of stay in the US among Hispanics

Borrell, Crawford, Dallo. Under review: Public Health Reports
Study Design and Sample

- NHIS 2000-2003
- Hispanics and non-Hispanics 18 years and older who self-identified as white or black/African American for a final sample of 117,825 adults including 17,327 Hispanics
- Self-reported Diabetes

Borrell, Crawford, Dallo. Under review: Public Health Reports
# Prevalence of diabetes for selected covariates among Hispanic and non-Hispanic adults by race: NHIS 2000-2003

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Hispanic</th>
<th></th>
<th>Non-Hispanic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
<td>Black</td>
<td>White</td>
</tr>
<tr>
<td>Prevalence</td>
<td>7.3 (2.15)</td>
<td>7.2 (0.25)</td>
<td>9.7 (0.28)</td>
<td>6.9 (0.11)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; High school</td>
<td>11.2 (3.46)</td>
<td>8.8 (0.45)</td>
<td>15.4 (0.71)</td>
<td>12.6 (0.34)</td>
</tr>
<tr>
<td>High school/ GED</td>
<td>6.3 (3.11)</td>
<td>6.3 (0.50)</td>
<td>8.8 (0.42)</td>
<td>7.8 (0.19)</td>
</tr>
<tr>
<td>Some college</td>
<td>2.1 (1.25)</td>
<td>5.5 (0.51)</td>
<td>7.4 (0.51)</td>
<td>6.1 (0.21)</td>
</tr>
<tr>
<td>College or higher</td>
<td>17.0 (13.48)</td>
<td>6.7 (0.81)</td>
<td>8.0 (0.65)</td>
<td>5.3 (0.20)</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>&lt;$20,000</td>
<td>8.1 (2.90)</td>
<td>4.8 (0.29)</td>
<td>5.9 (0.38)</td>
<td>5.0 (0.19)</td>
</tr>
<tr>
<td>$20,000-$44,999</td>
<td>-</td>
<td>4.7 (0.42)</td>
<td>6.4 (0.48)</td>
<td>4.1 (0.17)</td>
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<tr>
<td>$\geq$45,000</td>
<td>18.8 (15.91)</td>
<td>4.4 (0.75)</td>
<td>6.7 (0.62)</td>
<td>3.8 (0.18)</td>
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<tr>
<td>Characteristics</td>
<td>Hispanic</td>
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<td>Non-Hispanic</td>
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<tr>
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<td>Black</td>
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<td>7.2 (0.25)</td>
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<td>6.9 (0.11)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
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<td>5.9 (0.38)</td>
<td>5.0 (0.19)</td>
</tr>
<tr>
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<td>-</td>
<td>4.7 (0.42)</td>
<td>6.4 (0.48)</td>
<td>4.1 (0.17)</td>
</tr>
<tr>
<td>=$45,000</td>
<td>18.8 (15.91)</td>
<td>4.4 (0.75)</td>
<td>6.7 (0.62)</td>
<td>3.8 (0.18)</td>
</tr>
</tbody>
</table>
Crude and adjusted odds ratios (OR)* for diabetes by race/ethnicity among adults ≥18 years of age: NHIS 2000-2003

| Race/ethnicity       | Diabetes |  |  |
|----------------------|----------|-----------------------------|
|                      | Crude    | Model 1                    | Model 2 |
| NH-White             | 1.00     | 1.00                        | 1.00    |
| NH-Black             | 1.46     | (1.37, 1.56)               | 1.94    | (1.81, 2.07) | 1.45 | (1.29, 1.64) |
| Hispanic White       | 1.06     | (0.98, 1.15)               | 1.90    | (1.71, 2.11) | 1.56 | (1.32, 1.84) |
| Hispanic Black       | 1.07     | (0.57, 1.99)               | 2.26    | (1.21, 4.22) | 2.64 | (1.10, 6.35) |

*ORs adjusted for age, gender, marital status, survey year, US region, and country of birth/length in the US (Model 1); additionally adjusted for health insurance, physical activity, smoking, BMI, education and income (Model 2)
Race, Ethnicity and Diabetes

There was no difference on the effect of race on diabetes among Hispanics and non-Hispanics (OR: 1.76 versus 1.43, $p$-interaction: 0.72)
Race, Country of Birth and Length of Stay in the US and Diabetes

- When compared to US-born Hispanic whites, US-born Hispanic blacks were 3.54 times more likely to report having diabetes.

- There was no difference in diabetes reporting between foreign-born Hispanic whites and blacks regardless of length of stay in the US.
Study Limitations

- Cross-sectional nature of the data
- Self-reported nature of hypertension and diabetes
- Exclusion of 17% of Hispanics who self-identified as 'Other'
- Small sample size for Hispanic blacks
Conclusions

- Race acts as a proxy for unmeasured exposures not only among non-Hispanics but also among Hispanics.

- Racial assimilation may channel Hispanics to (or lack thereof) opportunities and resources that may influence their health status.
Conclusions...

- Hispanics who identify as black can experience racial discrimination, an important risk factor for health among non-Hispanic blacks.

- As time goes by, it will be interesting to see how the increase of Hispanics who identify as black influence the life and health of Hispanics overall.
Implications for Health Disparities

Studying race among Hispanics can help illuminate how ‘race’ works in the creation of health disparities:

- The observed racial disparities in health are the end product of the mutually reinforcing dynamics among social, economic and political factors.

- Racial discrimination as a risk factor for health at the individual and structural level.
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