California Building Resilience Against Climate Effects (CalBRACE) Project

Short Title: Race/Ethnicity
Full Title: Percent of population of color

CalBRACE Domain: Population Sensitivity

Why is this important to health?

Race and ethnicity are important determinants of health impacts of climate change. Racial and ethnic minorities are more likely to reside in high risk geographies (such as areas with fewer public transit routes and greater wildfire and flooding threats). These populations also experience disproportionately high levels of vulnerabilities to climate change, including co-morbidities, lower income, poorer physical health, multiple chronic conditions, language barriers, elderly living alone, less access to vehicle ownership, less access to air conditioning, urban tree canopy, and occupational exposures such as outdoor environments. The combination of greater exposure to climate change environmental impacts, increased sensitivity, and reduced adaptive capacity compound the overall vulnerability of race/ethnicity minorities to the health impacts of climate change.

Summary of Evidence for Climate and Health

A systematic review found racial or ethnic minorities are associated with the following factors which contribute to increased risk to health impacts of climate change: lower income, poorer physical health, greater flooding threats, living areas with sparse vegetation and more heat-absorbing surfaces, lower air-conditioning ownership and/or more outdoor farming work. Prevalence of central air conditioning among Black households was less than half that among White households in analysis of four urban cities, and deaths among Blacks were more strongly associated with hot temperatures. Nationally, African-Americans were 52% more likely, Asians 32% more likely, and Hispanics 21% more likely than Whites to live in high risk areas where impervious surfaces covered more than half the ground and more than half the population lacked tree canopy. In Fresno County, African-Americans were 8.6 times more likely and Latinos were 4.5 times more likely than Whites to reside in the high risk areas. These high risk areas have greater climate change threats and a greater proportion of elderly living alone, and lower adaptive capacity (i.e., less social cohesion, less transportation options, and fewer air conditioners). In Hurricanes Katrina and Sandy, many residents in low-income communities and communities of color were killed, injured, or had difficulty evacuating and recovering from the storm.

Key References:


**What is the indicator?**

**Detailed Definition**

- Indicator (percent) = \( \frac{\text{Race/ethnicity Population}}{\text{Total Population}} \)
- Stratification: 8 race/ethnicity strata (African American, American Indian Alaska Native, Asian, Hispanic or Latino, Native Hawaiian and Other Pacific Islander, White, Two or more races, Total)
- Interpretation: Populations of some race/ethnicity groups are more sensitive to health impacts of climate change

**Data Source and Methodology**

- [2010 Decennial Census](http://factfinder.census.gov) (http://factfinder.census.gov)
  - Years available: 2010
  - Geographies available: Census tract, city, county, county division, region (derived), state

Population estimates by race/ethnicity were obtained from the 2010 Decennial Census (DP1 table) at census tract, places, county subdivision, counties, and state geographies. Population-weighted regional estimates and standard errors were calculated. Regions in the BRACE project are based on county aggregations in the *Adaptation Planning Guide Understanding Regional Characteristics*. Decile rankings for places and census tracts as well as relative risk were calculated.

**Limitations**

The population in group quarters (GQ) is included in the census. Some types of GQ populations may have race/ethnicity distributions that are different from the household population. The inclusion of the GQ population could therefore have a noticeable impact on race/ethnicity distributions. This is particularly true for areas with a substantial GQ population.

**Acknowledgement and Disclaimer**

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Examples of Maps, Figures, and Tables:

Figure 1. Percent of Population by Race/Ethnicity, California, 2010

Table 1. Percent of Households By Race/Ethnicity, Alameda County, California, 2010

<table>
<thead>
<tr>
<th>Race Ethnicity</th>
<th>Total</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic/Latino</td>
<td>8092</td>
<td>11.0%</td>
</tr>
<tr>
<td>White</td>
<td>33,468</td>
<td>45.3%</td>
</tr>
<tr>
<td>Asian</td>
<td>22,822</td>
<td>30.9%</td>
</tr>
<tr>
<td>African-American</td>
<td>4,516</td>
<td>6.1%</td>
</tr>
<tr>
<td>Two or more races</td>
<td>4,047</td>
<td>5.5%</td>
</tr>
<tr>
<td>Native Hawaiian and other Pacific Islander</td>
<td>342</td>
<td>0.5%</td>
</tr>
<tr>
<td>Other race</td>
<td>278</td>
<td>0.4%</td>
</tr>
<tr>
<td>American Indian and Alaskan Native</td>
<td>247</td>
<td>0.3%</td>
</tr>
<tr>
<td><strong>Alameda County</strong></td>
<td>73,812</td>
<td>100%</td>
</tr>
<tr>
<td><strong>California</strong></td>
<td>37,253,956</td>
<td></td>
</tr>
</tbody>
</table>

Source: Census
Figure 2. Percent of population of color, by Census Tracts, San Diego County, California, 2010

Population estimated includes group quarters (e.g., college residence halls, residential treatment centers, skilled nursing facilities, group homes, military barracks, and correctional facilities) which may have race/ethnicity distributions that are different from household populations.

Legend:
- 0% - 28%
- 29% - 46%
- 47% - 72%
- 73% - 96%
- Census Tract Boundaries

Source: 2010 U.S. Decennial Census

Only cities with population greater than 1,000 were labeled.