

Heat Exposure among Older Adults by Race/Ethnicity

A multi-scale investigation of thermal inequity

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Background and Motivation

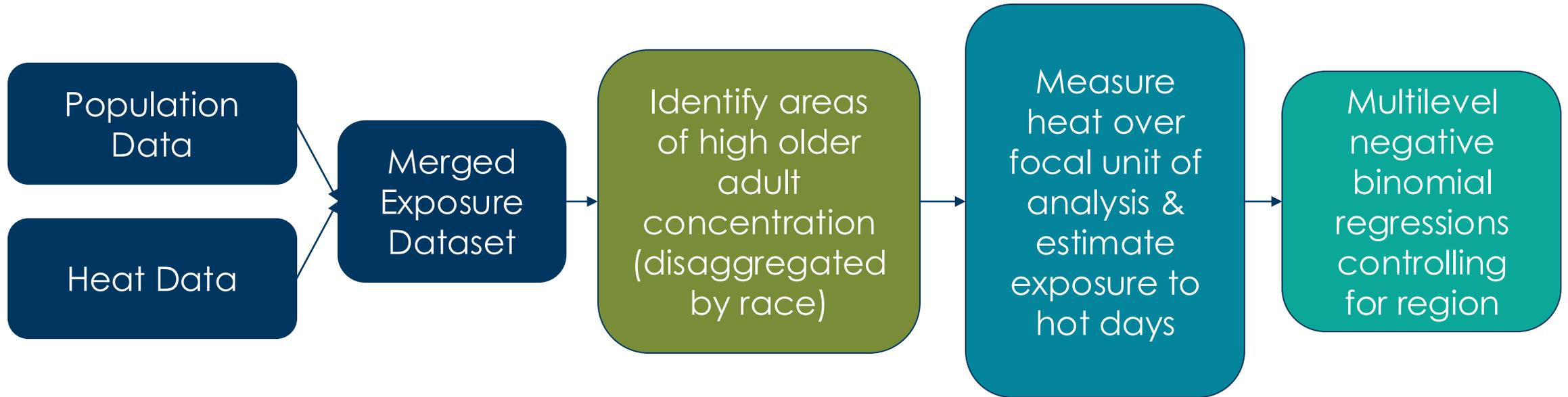
- Heat exposure is an environmental health hazard that is on the rise due to climate change (World Health Organization, 2024)
- Thermal inequity: Not all populations are equally exposed or affected (Mitchell and Chakraborty, 2014; Byrne et al., 2016)
 - Older adults are particularly physiologically vulnerable to heat (Balmain et al., 2018; Joint Center for Housing Studies, 2016)
 - Racial/ethnic minorities are disproportionately exposed to extreme temperatures and are more socially vulnerable to heat effects in the United States (Manware et al., 2024; Liu et al., 2024)
- Spatial scale matters

Research Questions

1. Where do concentrations of older adults exist in the United States and how do these concentrations vary by race/ethnicity?
1. How does heat exposure vary between areas of high and lower concentrations of older adults of different racial/ethnic groups?
1. How does the spatial scale of measurement impact estimates of exposure to heat?

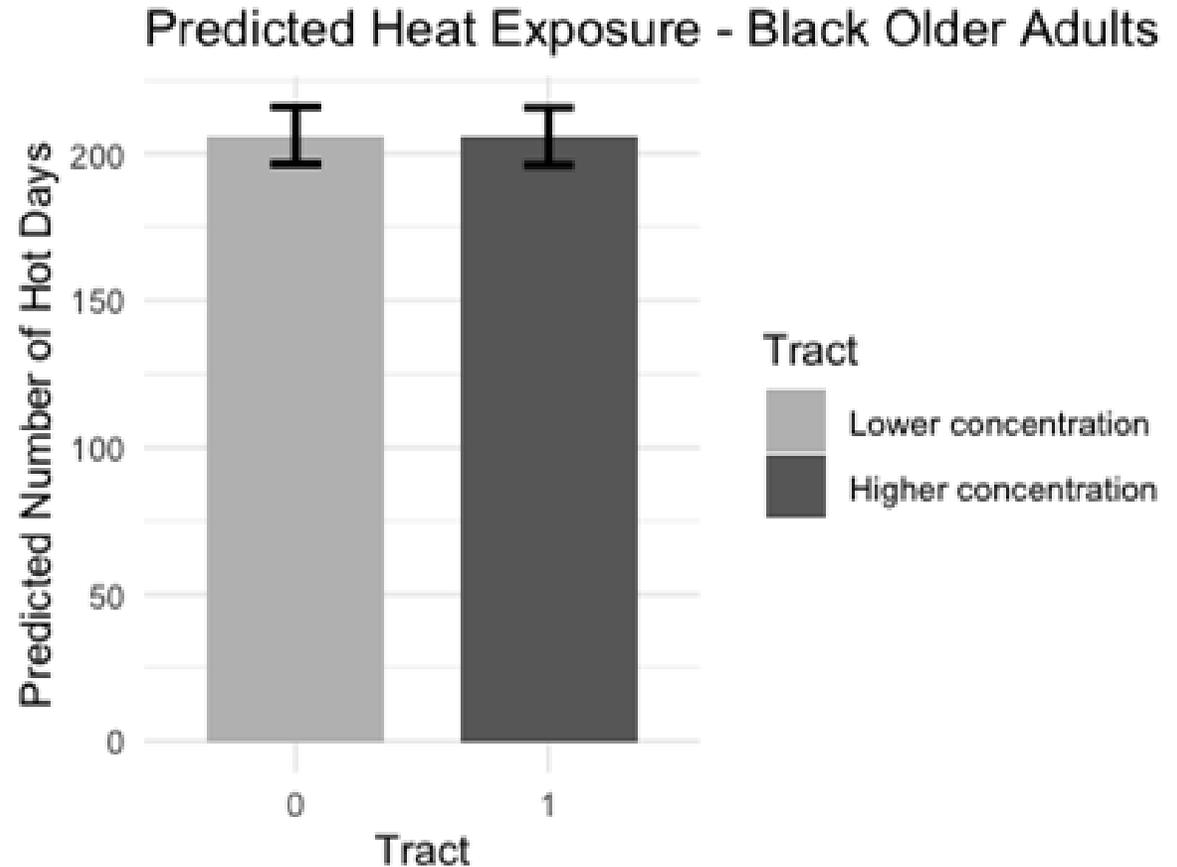
Data and Methods

Tract & County Scale



Key Findings

- Exposure to heat varies spatially in these places with different concentrations of racial/ethnic groups
- Spatial scale matters when estimating exposure



Next Steps

- Sensitivity checks!
 - Re-estimating models with a different threshold for what constitutes a hot day
 - Or a different threshold for what constitutes an area of high concentration for a particular group
 - Thinking about how best to capture what might be going on at the tract level
- Broadly interested in integrating data on overlapping hazards
 - Humid heat
 - Air pollution

Hopes for this workshop :)

- Learning about the methods and data others are using!
 - Especially any mixed-methods work
- Sharing what I've learned about the data/methods I use
- Data I'm working with:
 - Temperature:
 - PRISM, Daymet, NOAA station data
 - Population:
 - Census, PSID
 - CA Dept of Ed, Stanford Education Data Archive (for a project on children's heat exposure in schools)

Thank you!

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