# Impact of residing in ethnic enclave neighborhoods on cancer survival for Asian American and Latino populations

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## Background/Purpose

Prior studies examining the association of ethnic enclave residence and cancer survival have had mixed findings, likely due to using different measures, geographic scales and regional differences. With Asian American and Hispanic/Latino (hereafter Latino) populations being among the fastest growing populations in the US, it is important to understand the role of ethnic enclaves on cancer outcomes.

We developed ethnic enclave measures for Asian American and Latino populations by applying principal components analysis to data from the American Community Survey (ACS) and decennial U.S. Census across 5 states (CA, FL, NJ, NY, and TX) with large populations of Asian American and Latino residents. Using cancer registry data, we examined the association of enclave residence with survival for breast, cervical and colorectal cancers.

## Methods

### Ethnic enclaves

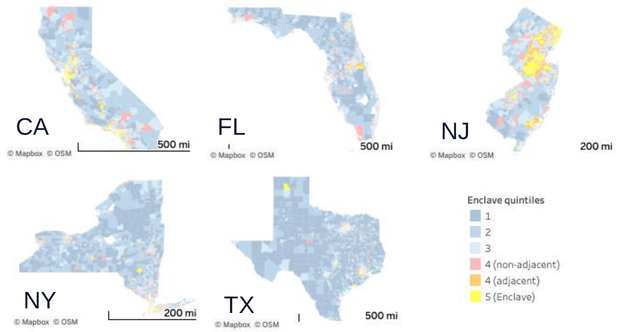
- Ethnic enclave status was derived using principal component analysis (PCA) on US Census (2000) and ACS (2008-2010) data at the census tract level pooled across 5 states and categorized into quintiles (Q): Q1 represents the least and Q5 the most culturally distinct neighborhoods
  - PCA: % Asian American/Latino; % foreign-born Asian American/Latino; % limited English proficiency and Asian/Pacific Islander (PI)/Spanish language speakers; % linguistically isolated households speaking Asian/PI/Spanish languages

### Analyses

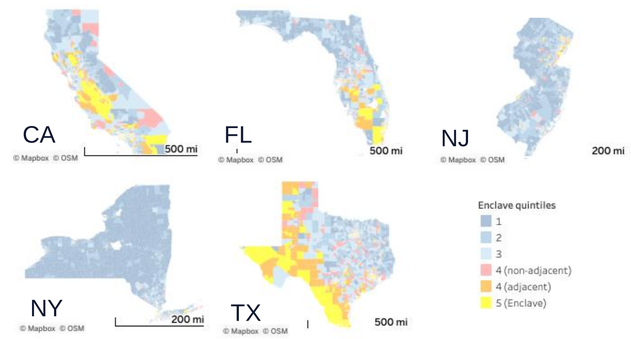
We harmonized and pooled data from population-based cancer registries for breast, cervical and colorectal cancer patients diagnosed 2000 - 2017.

We used Cox Proportional Hazard regression to estimate Hazard Ratio (HRs) and 95% Confidence Intervals (CIs). Competing risk analyses using Fine & Gray regression were also conducted and results were similar.

**Asian American enclave (pooled), 2010**




**Latino enclave (pooled), 2010**




| | Asian American enclave | | Hispanic/Latino enclave | |
|---|---|---|---|---|
| | 2000 | 2010 | 2000 | 2010 |
| Percent recent immigrant | ▲ | ▲ | ▲ | ▲ |
| Percent poverty | ▼ | ▼ | ▲ | ▲ |
| Metropolitan commuting area | ▲ | ▲ | ▲ | ▲ |
| Percent crowded housing | ▲ | ▲ | ▲ | ▲ |
| Population density per square mile | ▲ | ▲ | ▲ | ▲ |
| Residential mobility | ▲ | -- | ▲ | ▲ |
| Proportion under 35 | ▲ | ▲ | ▲ | ▲ |
| Proportion aged 35 to 64 | ▲ | ▲ | ▼ | -- |
| Proportion 65 and older | ▼ | ▼ | ▼ | ▼ |
| Persistent poverty | | ▼ | | ▲ |
| Proportion of park area per tract | | ▲ | | ▼ |
| Percent uninsured | | ▼ | | ▲ |
| Total crime index | | ▼ | | ▲ |
| Percent vehicle access | | ▼ | | ▼ |

▲ Higher for enclave compared to non-enclave, ▼ Lower for enclave compared to non-enclave

References: Guan A et al. Asian American Enclaves and Healthcare Accessibility: An Ecologic Study Across Five States. Am J Prev Med. 2023 Dec;65(6):1015-1025. Guan et al. Latino Enclaves and Healthcare Accessibility: An Ecologic Study across Five States. J Gen Intern Med. 2024

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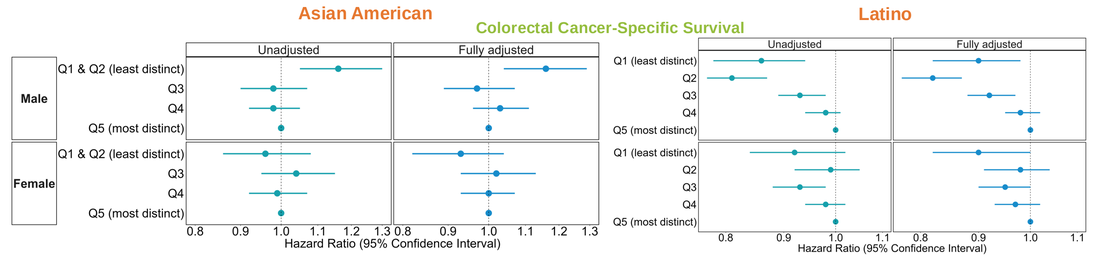
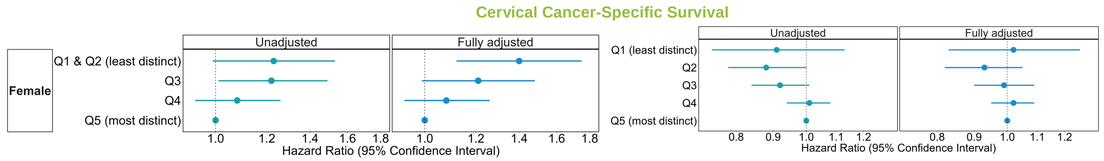
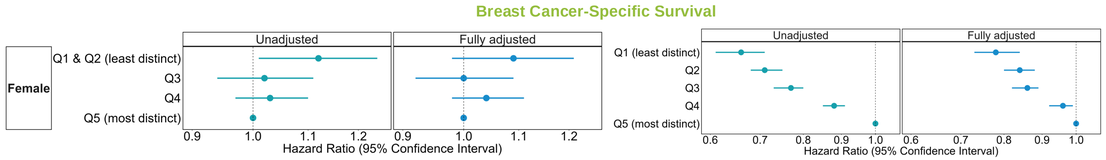
**Associations of ethnic enclave status with cancer-specific survival among Asian American and Latino adults with colorectal, cervical, or breast cancer, 2000-2017 in CA, NJ, NY, TX**




Adjusted models included age and stage (with underlying stratification), year, and state; all models included adjustment for clustering by census tract. FL cancer registry data not available at time of analysis; ethnic enclave measure pooled across the 4 states included was used in Cox models.

## Results and Discussion

- Ethnic enclaves have different associations with survival across racial and ethnic groups, sex, and cancer type.
  - In adjusted models, compared to those residing in more ethnically distinct neighborhoods, those in less distinct neighborhoods experienced:
    - No differences in survival among
      - Asian American females with CRC
      - Asian American females with breast cancer
      - Latino females with cervical cancer
    - Worse survival among
      - Asian American males with CRC
      - Asian American females with cervical cancer
    - Improved survival among
      - Latino males with CRC
      - Latino females with CRC
      - Latino females with breast cancer
- Next steps will include examining associations after accounting for additional individual-level covariates and neighborhood socioeconomic status and examining overall survival

### ENCLAVE data dashboard

Ethnic enclave measures for Latino and Asian American populations were developed for 5 states at the census tract level and can be reviewed at https://cancerregistry.ucsf.edu/enclave