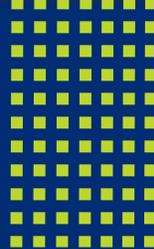




## HEALTH MATTERS BRIEF

Health Inequalities Across Race, Ethnicity, and Where People Live  
in Riverside County, CA (2020-2023)



## INTRODUCTION

As part of its strategic goals, Riverside University Health System - Public Health is committed to eliminating health disparities among different population groups in Riverside County (Riverside University Health System – Public Health, 2025). In recent years, one of the most pressing concerns in the U.S. has been the stark differences in mortality rates by race, ethnicity, and place of residence (Dwyer-Lindgren et al., 2023). These disparities have led public health leaders to reconsider how programs and policies can more effectively address inequities in health outcomes. A critical first step in this effort is having reliable, representative data to establish baseline measures of health inequality. This brief presents evidence on disparities in life expectancy, disability-free life expectancy, and quality-adjusted life expectancy across racial and ethnic groups and by place of residence within Riverside County.

## RIVERSIDE COUNTY KEY FINDINGS



Men's Life Expectancy Can Differ by **16.3 Years** Depending on Race, Ethnicity, and Place of Residence



Women's Life Expectancy Can Differ by **12.7 Years** Depending on Race, Ethnicity, and Place of Residence



Health Inequalities by **Race and Ethnicity** Are Less Severe in Riverside Compared to National Trends



Health Inequalities by **Place of Residence** Are More Severe in Riverside Compared to National Trends

## Measuring Health Disparities

Disparities in health outcomes across census tracts were captured through the construction of equity-relevant quintiles based on the Social Vulnerability Index (SVI), which ranks geographical areas based on 16 social factors (Centers for Disease Control and Prevention, 2024). Details on the SVI, together with a map depicting the geographic distribution of the quintiles across Riverside County, are included in the data and methodology section on page 8. Disparities in health outcomes were also captured across the six following racial/ethnic groups: non-Hispanic American Indian or Alaska Native (AIAN), non-Hispanic Asian, non-Hispanic black, non-Hispanic Native Hawaiian / Pacific Islander (NHPI), non-Hispanic white, and Hispanic). Outcomes were stratified by race and ethnicity to underscore the impacts of structural racism—not to suggest inherent biological differences between populations (Grilo et al., 2023). Finally, a stratified approach was used to capture both geographic (SVI quintile) and racial/ethnic disparities in health outcomes. Stratified estimates were not produced for either the American Indian and Alaska Native populations or the Native Hawaiian and Pacific Islander population. Due to the small size of these populations, stratified life expectancy estimates were either infeasible or unstable for these groups. Due to the complex dynamics of racial self-identification among multiracial individuals (Shaff et al., 2024), estimates for these populations were not produced in this analysis.

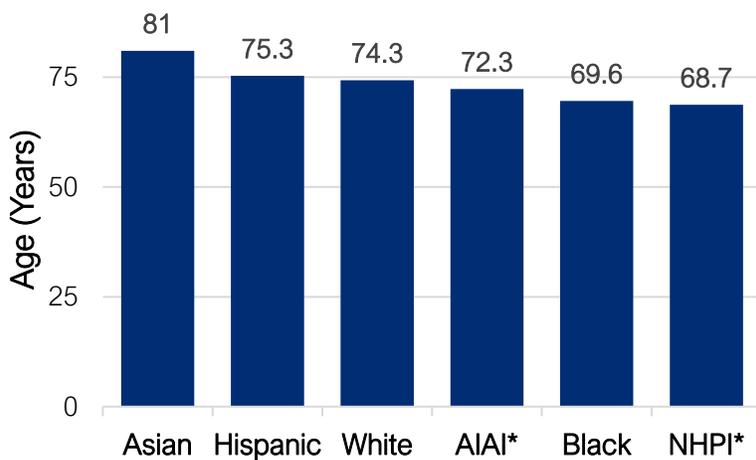




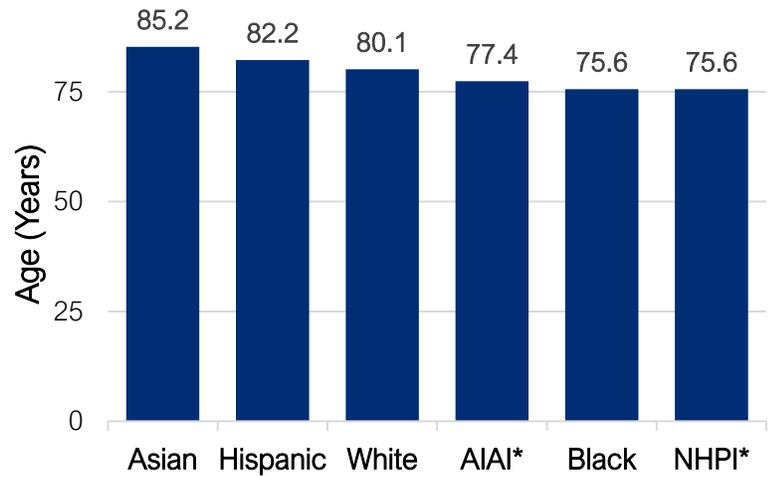
# DISPARITIES IN LIFE EXPECTANCY

Figures 1 and 2 show the life expectancy estimates for men and women, stratified by race/ethnicity. The rank order of racial/ethnic groups by life expectancy is the same for men and women, with the Asian population having the highest life expectancy and the Native Hawaiian and Pacific Islander population having the lowest. Figures 3 and 4 show the life expectancy estimates for men and women, stratified by SVI-related geographic quintiles. These plots show a decline in life expectancy across the five quintile groups from least socially vulnerable (SVI 1) to most socially vulnerable census tracts (SVI 5). Disparities in life expectancy across racial/ethnic groups are larger than those across geographies grouped by social vulnerability. In addition, disparities were found to be larger in men compared to women. Details on the data and methods used to estimate life expectancy can be found in an appendix at the end of the brief.

**Figure 1.** Life expectancy for men by race and ethnicity

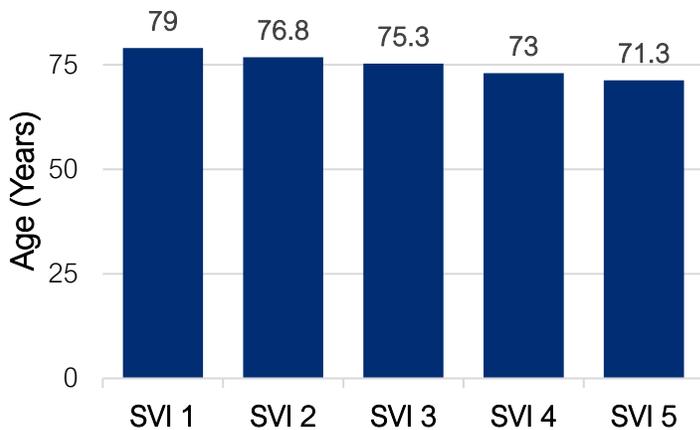


**Figure 2.** Life expectancy for women by race and ethnicity

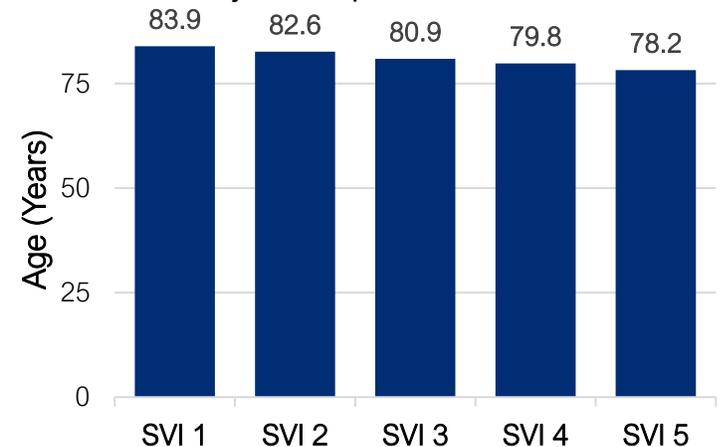


Gap in life expectancy between the Asian population and the Native Hawaiian and Pacific Islander population is **12.3-YEARS** for men and **9.7-YEARS** for women

**Figure 3.** Life expectancy for men by Social Vulnerability Index quintile



**Figure 4.** Life expectancy for women by Social Vulnerability Index quintile



Gap in life expectancy between census tracts in the healthiest and least healthy quintiles is **7.7-YEARS** for men and **5.7-YEARS** for women

\* American Indian and Alaska Native = AIAN; Native Hawaiian and Pacific Islander = NHPI

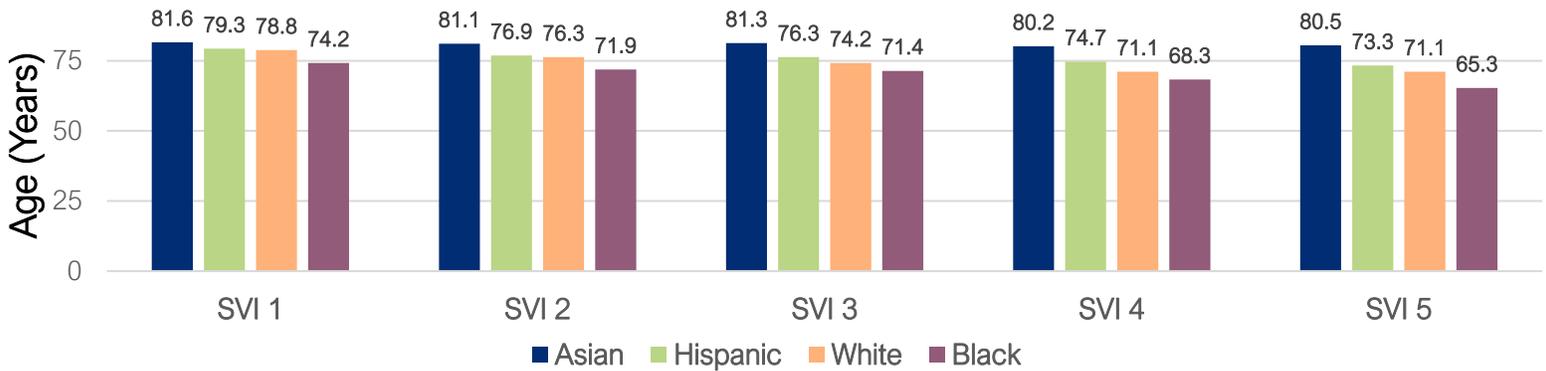




# DISPARITIES IN LIFE EXPECTANCY

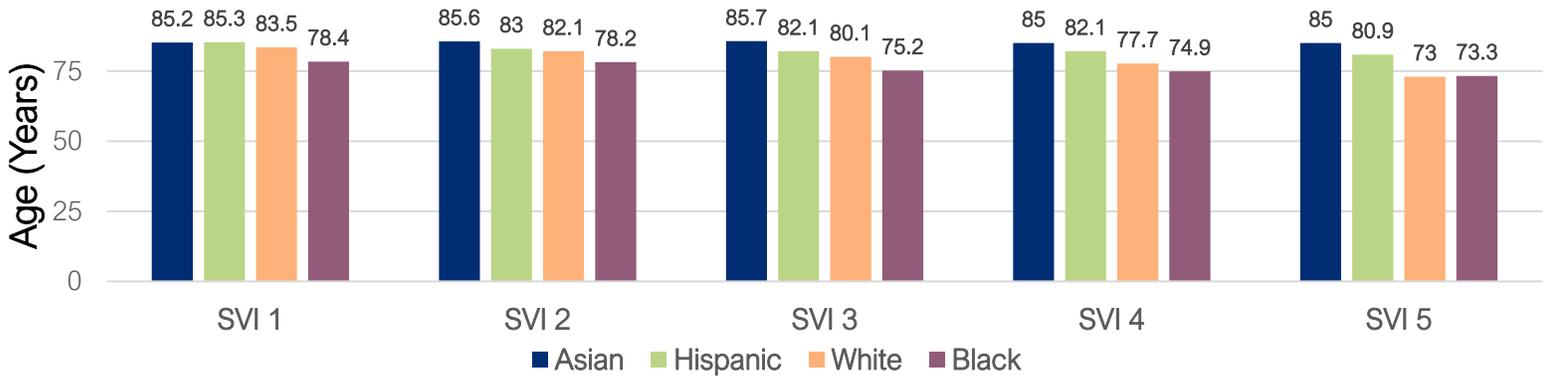
Figures 5 and 6 show the life expectancy estimates for men and women, stratified by race/ethnicity and SVI-related geographic quintiles. These figures show disparities are larger when populations are stratified by both race/ethnicity and geography than by either factor alone. Aside from the Asian population, life expectancy declines from the least (SVI 1) to most socially vulnerable census tracts (SVI 5). Racial/ethnic life expectancy rankings were consistent across SVI quintiles for men but not women. Tables 1 and 2 compare disparities in health outcomes in Riverside County to those for the nation (Kowal et al., 2023). Geographical disparities in life expectancy are larger in Riverside compared to the nation for the Hispanic, White, and Black populations. However, disparities are slightly smaller for the Asian population. Racial/ethnic disparities are mostly either smaller for Riverside or comparable. However, disparities are larger in Riverside for the least healthy.

**Figure 5. Life expectancy for men by race/ethnicity and census tract SVI quintile**



Gap in life expectancy between census tracts in the healthiest and least healthy groups is **16.3-YEARS** for men

**Figure 6. Life expectancy for women by race/ethnicity and census tract SVI quintile**



Gap in life expectancy between census tracts in the healthiest and least healthy groups is **12.7-YEARS** for women

**Table 1. Geographic disparities in life expectancy**

	Riverside		U.S.	
	Men	Women	Men	Women
Asian	2%	1%	3%	3%
Black	12%	7%	6%	4%
Hispanic	10%	6%	7%	5%
White	10%	13%	4%	4%

**Table 2. Racial/ethnic disparities in life expectancy**

	Riverside		U.S.	
	Men	Women	Men	Women
SVI 1	10%	8%	13%	11%
SVI 2	11%	9%	14%	12%
SVI 3	12%	12%	14%	12%
SVI 4	15%	12%	15%	13%
SVI 5	19%	14%	16%	13%

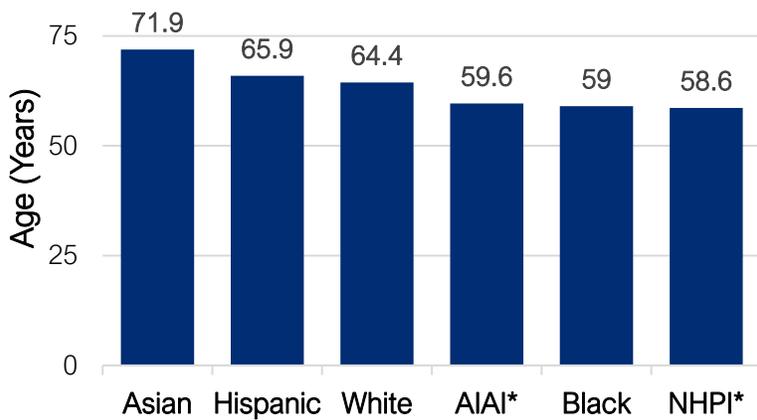




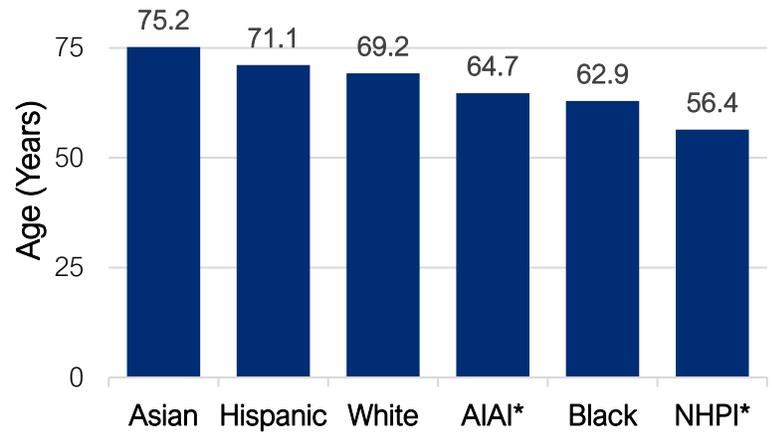
# DISPARITIES IN DISABILITY-FREE LIFE EXPECTANCY

Figures 7 and 8 show disability-free life expectancy (DFLE) estimates for men and women, stratified by race/ethnicity. The rank order of racial/ethnic groups by DFLE is different for men and women, with the American Indian and Alaska Native population being the lowest for men and the Native Hawaiian and Pacific Islander population being the lowest for women. Figures 9 and 10 show the DFLE estimates for men and women, stratified by SVI-related geographic quintiles. These plots show a decline in DFLE across the five quintile groups from least socially vulnerable (SVI 1) to most socially vulnerable census tracts (SVI 5). Disparities across racial/ethnic groups are larger than those across geographies grouped by social vulnerability. Racial disparities were larger among women, whereas geographic disparities were larger among men. Details on the data and methods used to estimate DFLE can be found in an appendix at the end of the brief. The results show that disparities in DFLE are larger than disparities in life expectancy, consistent with findings at the national level (Kowal et al., 2023). This finding shows that, relative to more advantaged groups, disadvantaged populations live shorter lives and spend a larger share of those years experiencing disability.

**Figure 7.** Disability-free life expectancy for men by race and ethnicity

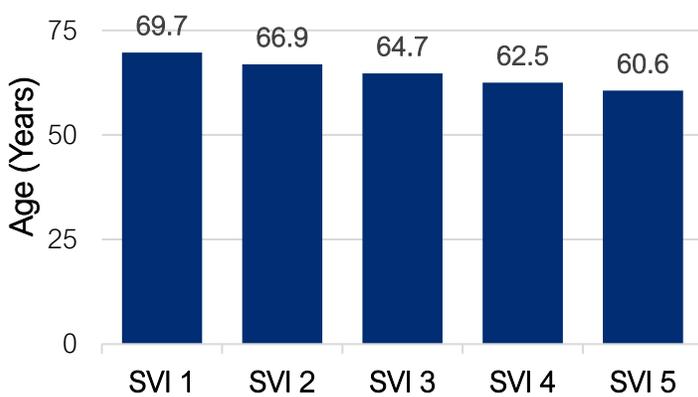


**Figure 8.** Disability-free life expectancy for women by race and ethnicity

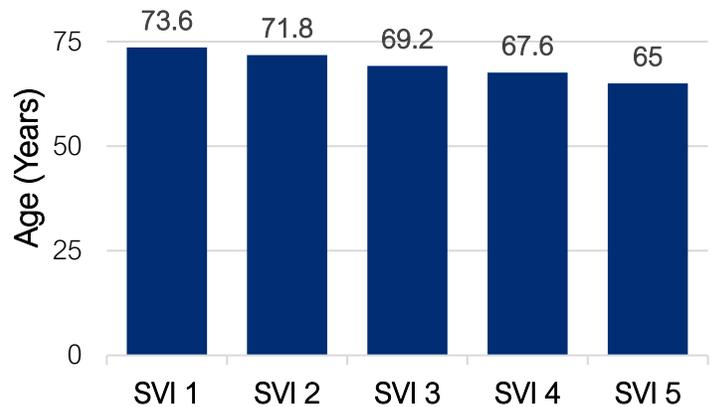


The maximum gap in disability-free life expectancy between the racial-ethnic groups is **13.3-YEARS for men and 18.8-YEARS for women**

**Figure 9.** Disability-free life expectancy for men by Social Vulnerability Index quintile



**Figure 10.** Disability-free life expectancy for women by Social Vulnerability Index quintile



Gap in disability-free life expectancy between census tracts in the healthiest and least healthy quintiles is **9.1-YEARS for men and 8.6-YEARS for women**

\* American Indian and Alaska Native = AI/AN; Native Hawaiian and Pacific Islander = NHPI

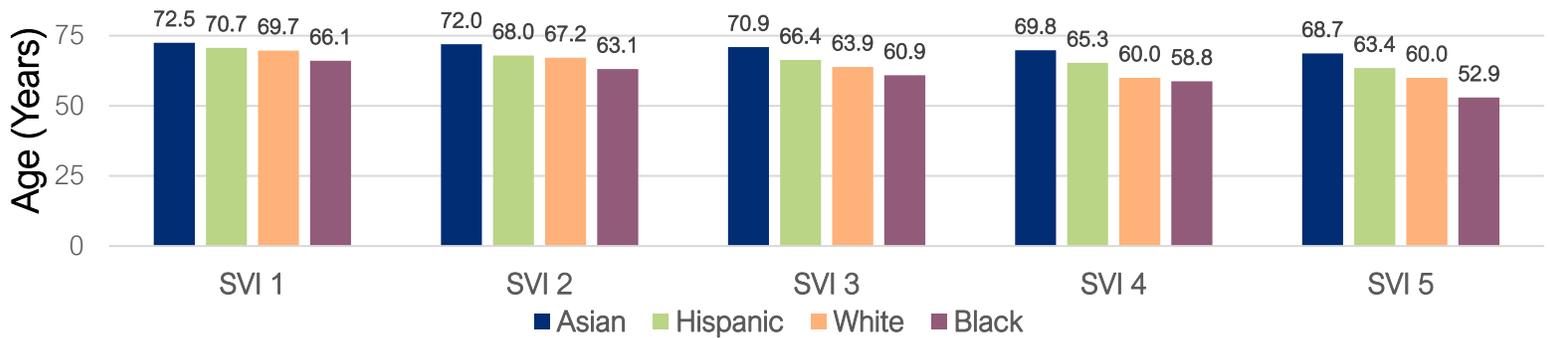




# DISPARITIES IN DISABILITY-FREE LIFE EXPECTANCY

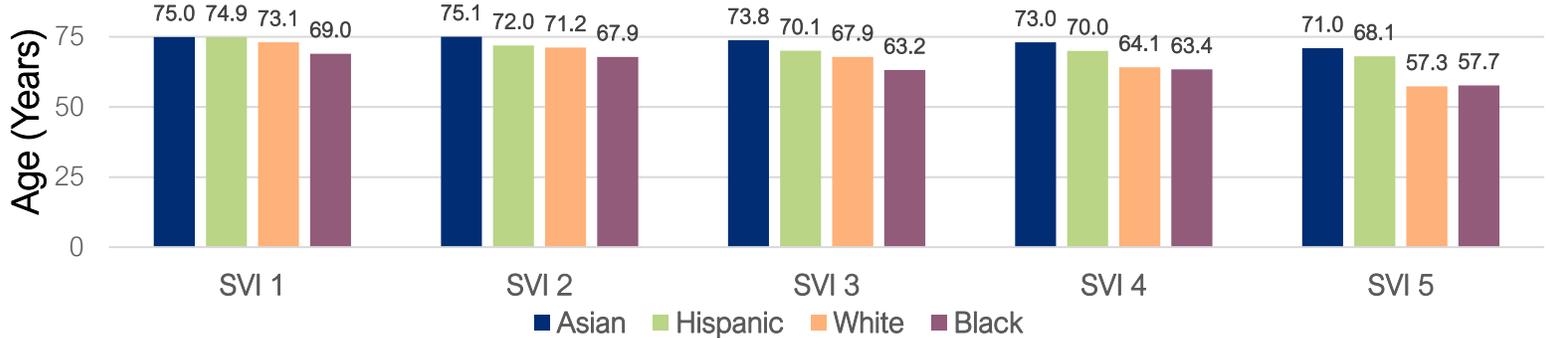
Figures 11 and 12 show disability-free life expectancy (DFLE) estimates for men and women, stratified by race/ethnicity and SVI-related geographic quintiles. Disparities are generally larger when populations are stratified by both race/ethnicity and geography than by either factor alone. An exception to this is the difference between Asian and Native Hawaiian and Pacific Islander female populations. Aside from Asian and Black populations, DFLE declines from the least (SVI 1) to most socially vulnerable census tracts (SVI 5). Racial/ethnic DFLE rankings were consistent across SVI quintiles for women but not men. Tables 3 and 4 compare disparities in DFLE in Riverside County to those for the nation (Kowal et al., 2023). Geographical disparities in DFLE are larger in Riverside compared to the nation for the Hispanic, White, and Black populations, and for Asian men, Disparities are comparable for Asian women. Racial/ethnic disparities are generally smaller for except for women in Riverside for the least healthy.

**Figure 11. Disability-free life expectancy for men by race/ethnicity and census tract SVI quintile**



Gap in disability-free life expectancy between census tracts in the healthiest and least healthy groups is **19.6-YEARS** for men

**Figure 12. Disability-free life expectancy for women by race/ethnicity and census tract SVI quintile**



Gap in disability-free life expectancy between census tracts in the healthiest and least healthy groups is **17.7-YEARS** for women

**Table 3. Geographic disparities in life expectancy**

	Riverside		U.S.	
	Men	Women	Men	Women
Asian	6%	5%	5%	5%
Black	16%	20%	9%	8%
Hispanic	9%	10%	6%	9%
White	22%	14%	8%	8%

**Table 4. Racial/ethnic disparities in life expectancy**

	Riverside		U.S.	
	Men	Women	Men	Women
SVI 1	8%	9%	16%	14%
SVI 2	10%	12%	17%	15%
SVI 3	14%	14%	18%	15%
SVI 4	13%	16%	25%	17%
SVI 5	19%	23%	20%	17%

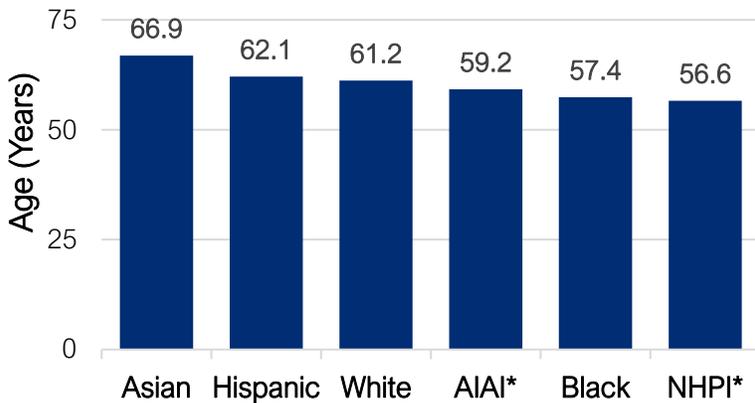




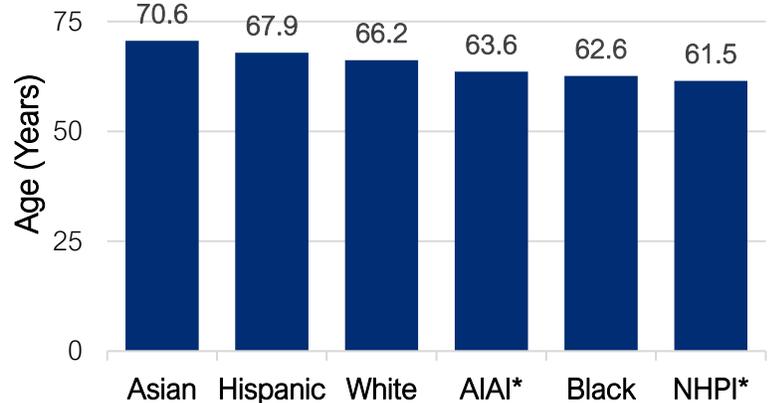
# DISPARITIES IN QUALITY-ADJUSTED LIFE EXPECTANCY

Quality-adjusted life expectancy (QALE) adjusts life expectancy based on health quality, using a scale from 0 (death) to 1 (perfect health). For example, someone with a life expectancy of 80 might have a QALE of 70, meaning they experience the equivalent of 70 years in perfect health. Figures 13 and 14 show QALE estimates for men and women, stratified by race/ethnicity. The rank order of racial/ethnic groups by QALE is the same for men and women, with the Asian population having the highest life expectancy and the Native Hawaiian and Pacific Islander population having the lowest. Figures 15 and 16 show the QALE estimates for men and women, stratified by SVI-related geographic quintiles. These plots show a decline in QALE across the five quintile groups from least socially vulnerable (SVI 1) to most socially vulnerable census tracts (SVI 5). Disparities across racial/ethnic groups are larger than those across geographies grouped by social vulnerability. In addition, disparities were found to be larger in men compared to women. Details on the data and methods used to estimate QALE can be found in an appendix at the end of the brief.

**Figure 13.** Quality-adjusted life expectancy for men by race and ethnicity

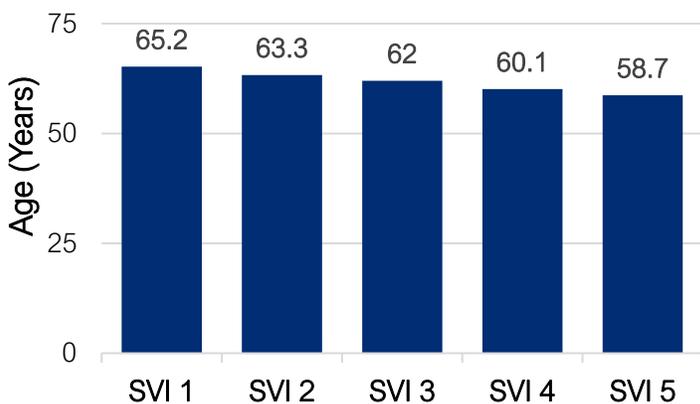


**Figure 14.** Quality-adjusted life expectancy for women by race and ethnicity

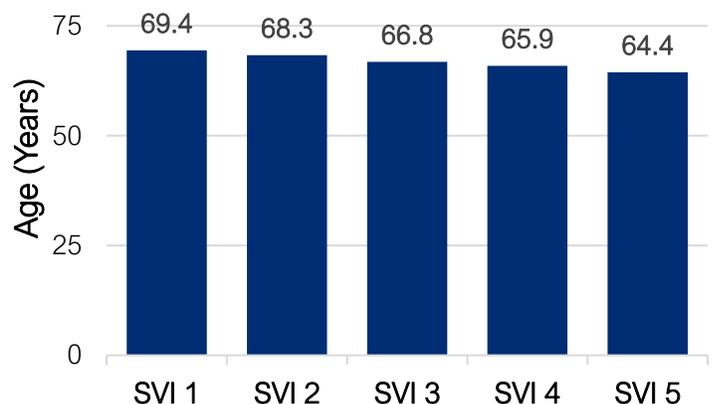


Gap in quality-adjusted life expectancy between the Asian population and the Native Hawaiian and Pacific Islander population is **10.3-YEARS** for men and **9.1-YEARS** for women

**Figure 15.** Quality-adjusted life expectancy for men by Social Vulnerability Index quintile



**Figure 16.** Quality-adjusted life expectancy for women by Social Vulnerability Index quintile



Gap in quality-adjusted life expectancy between census tracts in the healthiest and least healthy quintiles is **6.5-YEARS** for men and **5.0-YEARS** for women

\* American Indian and Alaska Native = AIAN; Native Hawaiian and Pacific Islander = NHPI

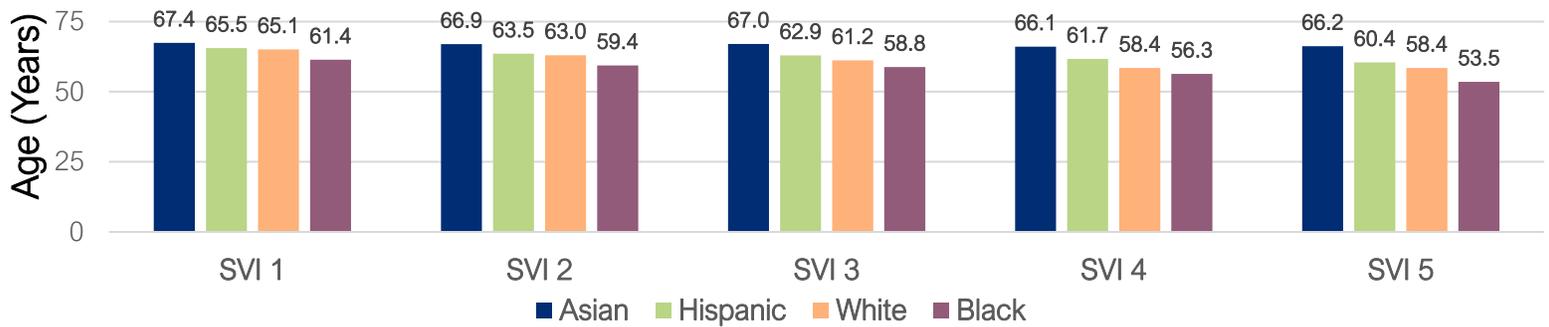




# DISPARITIES IN QUALITY-ADJUSTED LIFE EXPECTANCY

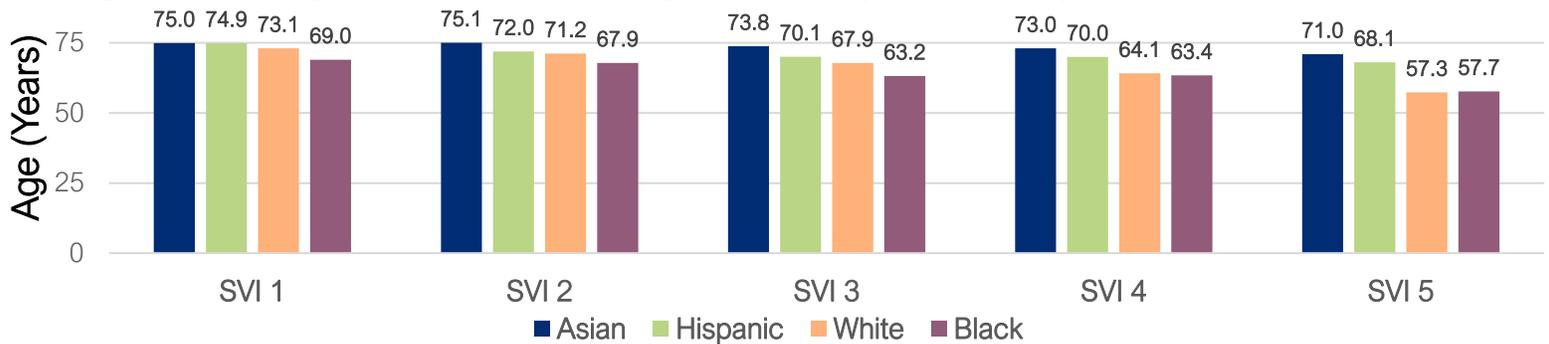
Figures 17 and 18 show quality-adjusted life expectancy (QALE) estimates for men and women, stratified by race/ethnicity and SVI-related geographic quintiles. Disparities are generally larger when populations are stratified by both race/ethnicity and geography than by either factor alone. Aside from the Asian population, declines in QALE can be seen across the five quintile groups from least socially vulnerable (SVI 1) to most socially vulnerable census tracts (SVI 5). The rank order of racial/ethnic groups by QALE remained consistent across SVI-related quintiles for men but not for women. Tables 5 and 6 compare disparities in QALE in Riverside County to those for the nation (Kowal et al., 2023). Geographical disparities in QALE are larger in Riverside compared to the nation for the White and Black populations but are smaller for the Asian and Hispanic populations, Racial/ethnic disparities are generally smaller for except for women in Riverside for the least healthy. However, disparities are larger in Riverside or comparable for the least healthy places.

**Figure 17.** Quality-adjusted life expectancy for men by race/ethnicity and census tract SVI quintile



Gap in quality-adjusted life expectancy between census tracts in the healthiest and least healthy groups is **13.9-YEARS** for men

**Figure 18.** Quality-adjusted life expectancy for women by race/ethnicity and census tract SVI quintile



Gap in quality-adjusted life expectancy between census tracts in the healthiest and least healthy groups is **10.5-YEARS** for women

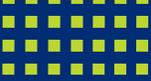
**Table 5.** Geographic disparities in life expectancy

	Riverside		U.S.	
	Men	Women	Men	Women
Asian	2%	1%	6%	5%
Black	13%	8%	7%	7%
Hispanic	8%	6%	10%	8%
White	10%	13%	7%	6%

**Table 6.** Racial/ethnic disparities in life expectancy

	Riverside		U.S.	
	Men	Women	Men	Women
SVI 1	9%	8%	15%	14%
SVI 2	11%	9%	16%	15%
SVI 3	12%	12%	16%	14%
SVI 4	15%	12%	17%	15%
SVI 5	19%	15%	17%	15%





## CONCLUSIONS

This brief provides important baseline evidence on health inequalities by race/ethnicity and place of residence which can be used to inform public health efforts to address disparities in health outcomes. The results show that disparities are generally more pronounced in men compared to women and more pronounced across racial/ethnic groups than across geographical areas. However, we find that health inequalities by race/ethnicity are less severe in Riverside compared to national trends while spatial inequalities are more severe in Riverside (Kowal et al., 2023). Unlike the national level results, this brief presents separate health outcomes for the Asian and Native Hawaiian and Pacific Islander populations. This distinction proved particularly important, as these populations represented the extremes in life expectancy and quality-adjusted life expectancy, i.e., those with the highest and lowest outcomes. This aligns with research emphasizing that Native Hawaiian and Pacific Islander populations are often overlooked in discussions of health outcomes (Taparra & Pellegrin, 2022).

Disparities in health are generally greater when accounting for both race/ethnicity and geographic location compared to either of these factors in isolation. The maximum disparities in health outcomes when accounting for race/ethnicity and place of residence in combination are smaller than estimates for the nation. The White population is the racial/ethnic group with the lowest QALE in the least healthy census tracts in Riverside. This finding differs from trends within the healthier census tracts in the county, where the Black population is typically the racial/ethnic group with the lowest QALE, although it is not unusual when compared to results at the national level. It is important to acknowledge the limitations in the methods and data used in the analyses for this brief. We did not account for the population reporting two or more races because of concerns regarding the alignment of death and population data. Previous research has described the challenges involved when using an aggregate grouping for multiracial people as it can overlook unique health experiences and inequities among subgroups (Grilo et al., 2023). To this end, an intersectoral approach is recommended when interpreting data for multiracial populations (Grilo et al., 2023).

## DATA AND METHODOLOGY

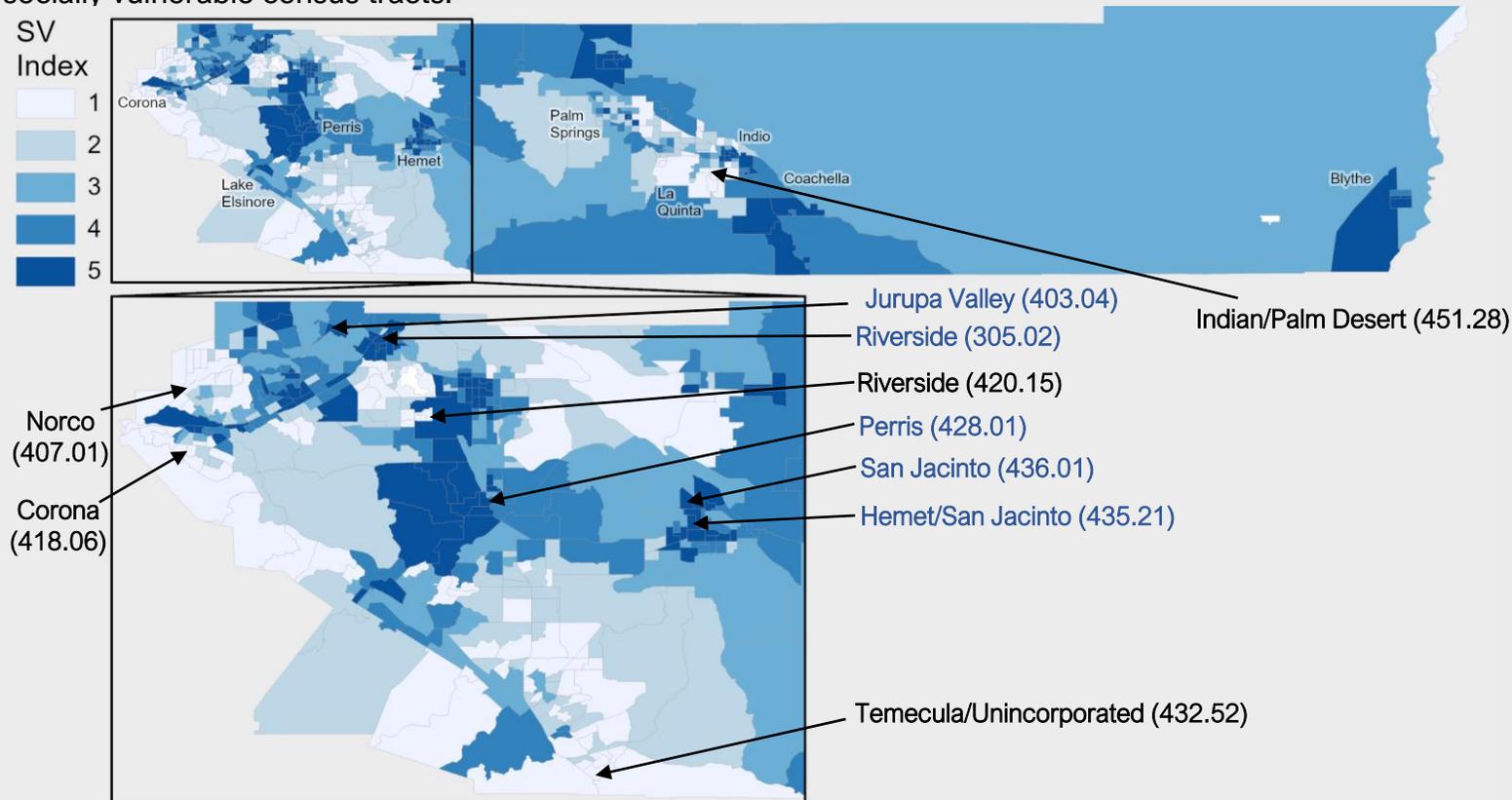
1. The social vulnerability index (SVI) was developed by the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry to identify communities experiencing social vulnerability, particularly in relation to public health emergencies and disasters (Centers for Disease Control and Prevention, 2024). To identify different aspects of social vulnerability, the SVI is calculated using the following 16 variables: percentage of people living below the 150% poverty estimate, unemployment rate, percentage of housing cost-burdened occupied housing units, percentage of people with no high school diploma, percentage of people with no health insurance, percentage of people aged 65 and older, percentage of people aged 17 and younger, percentage of the civilian population with a disability, percentage of single-parent households, percentile percentage with racial and ethnic minority status, percentage of housing in structures with 10 or more units, percentage of mobile homes, percentage of households with more people than rooms, percentage of households with no vehicle available, percentage of people in group quarters. The equity-relevant, geographic quintiles were derived by ranking 516 census tracts in Riverside County by SVI scores and then dividing them into five equal-sized groups. Figure 19 on page 9 shows the location of the geographic quintiles on a map, where higher SVI quintile numbers denote higher levels of social vulnerability.



## DATA AND METHODOLOGY

The five most socially vulnerable census tracts, based on the SVI, can be found in Hemet/San Jacinto (435.21), Jurupa Valley (403.04), San Jacinto (436.01), Perris (428.01), and Riverside (305.02). The five least socially vulnerable census tracts, based on SVI, can be found in Indian/Palm Desert (451.28), Riverside (420.15), Norco (407.01), Corona (418.06), and Temecula/Unincorporated (432.52).

**Figure 19.** Map showing the distribution of equity-relevant geographic quintiles based on the Social Vulnerability Index (SVI) in Riverside County, California. Labels are included to show the **most** and **least** socially vulnerable census tracts.



- Life expectancy was calculated using an established method which uses data on death and population counts to estimate the probability of death for eleven age intervals (Chiang, 1984). The death data for the years 2020 to 2023 were obtained from California Integrated Vital Records Registration System (California Integrated Vital Records System, n.d.) and population estimates were obtained from the 2020 Census (U.S. Census Bureau, 2023a), grouped by age, sex, race/ethnicity, and census tract.
- Disability-free life expectancy was estimated using Sullivan's method (Imai and Soneji, 2007) using data on the prevalence of people with disabilities from the American Community Survey (U.S. Census Bureau, 2023b) grouped by age, sex, race/ethnicity, and census tract, along with death and population counts from the first step. The use of data involve a modified approach to a previous study (Kowal et al., 2023) that explored variations across U.S. counties. Rather than utilizing data at the county level, the analyses for this brief used data for census tracts within Riverside County.
- Quality-adjusted life expectancy (QALE) was estimated by assigning health-related quality of life (HRQoL) values, stratified by age, sex, and disability status, to the expected probabilities of disability-free survival and overall survival estimated in steps 1 and 2.

The HRQoL values were obtained in two stages: (i) EQ-5D-5L estimates associated with self-reported responses to a question on general health status (GHS) were selected from a study by Jiang and colleagues (2020) and were assigned to GHS responses from sample data from California residents in the Behavioral Risk Factor Surveillance System (Centers for Disease Control and Prevention, 2025), (ii) a beta regression was performed on the assigned EQ-5D-5L values with covariates for age, sex, and disability status.

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## SUGGESTED CITATION

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