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Healthy Life Expectancy in 2010 for Native Hawaiian, White, Filipino, Japanese, and Chinese Americans Living in Hawai'i

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Abstract

Healthy life expectancy (HALE) varies substantially among countries, regions, and race/ethnicities. Utilizing the Sullivan method, this article examines HALE for Native Hawaiian, White, Filipino, Japanese, and Chinese Americans living in Hawai'i, the United States. HALE varies by sex and race/ethnicity. The HALE at birth in 2010 for females was 78.3, 77.8, 74.2, 73.7, and 62.6 years in contrast to life expectancy of 90, 88, 88.1, 83.4, and 79.4 for Chinese, Japanese, Filipino Americans, White, and Native Hawaiians, respectively. In the same order, HALE at birth for males was 73.0, 71.6, 72.3, 70.7, and 60.7 years, compared with life expectancy of 85.3, 81.2, 80.8, 78.3, and 73.9. The gaps in HALE between Native Hawaiians and the longest living Chinese Americans were 15.7 years for females and 12.3 years for males. Our results highlight sex and racial/ethnic disparities in HALE, which can inform program and policy development.

Keywords

sex; healthy life expectancy; health disparity; life table; race/ethnicity

Introduction

Healthy life expectancy (HALE) at birth is the summary measure of a population's health developed by the World Health Organization that captures how many years a person might live in a healthy state.¹ HALE provides a more complete estimate of population health than does life expectancy (LE) because it considers years spent in disability. The global HALE in 2016 was estimated at 63.3 years, 8.7 years lower than total LE at birth.¹ Global HALE at birth for females was 2.8 years greater than that for males. In comparison, female's LE at

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Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval

This article does not contain any studies with human participants or animals performed by any of the authors.

Informed Consent

Informed consent was obtained from all individual participants participated in the original survey study.

Supplemental Material

Supplemental material for this article is available online.

birth was 4.4 years longer than that for males.¹ The 2016 LE and HALE for the United States were 78.5 and 68.5 years, respectively, similar to that in 2010 (78.7 and 68.7 years).¹

Hawai'i is the most racially and ethnically diverse state in the United States. Its population is composed of Native Hawaiians—the indigenous people of Hawai'i—and others who immigrated primarily from Asia (primarily from Japan, China, and the Philippines) from 1880 to 1930 to work on sugar and pineapple plantations. In 2010, Hawai'i had a total population of 1 360 301 composed of about 21.3% Native Hawaiian, 22.7% Whites, 16.3% Japanese American, 17.2% Filipino American, 6.8% Chinese American, and 15.7% other ethnic groups including Korean, Samoan, other Pacific Islanders, African American, mixed race, and so on.²

Hawai'i has the longest LE of all 50 states in the United States; however, disparities exist among minority ethnic groups, with Chinese Americans living a decade longer than Native Hawaiians.² In 2010, the LE for Chinese Americans was 87.8 years compared with 84.7 years for Japanese Americans, 84.3 years for Filipino Americans, 80.6 years for White residents, and 76.6 years for Native Hawaiians.²

Residents from Hawai'i are also viewed as healthy on most indicators of morbidity and mortality, including chronic conditions (eg, coronary heart disease, cancer, stroke, and diabetes) and lifestyle risk factors (eg, smoking, diet, and physical activity), when compared with other US states.³ However, there are very notable ethnic differences. Compared with Whites, Native Hawaiians have the highest prevalence of coronary heart disease, obesity, diabetes, and certain types of cancer (ie, breast, lung, colorectal, and pancreatic).^{3–8} Native Hawaiians had the highest mortality rates for heart disease, cancer, and other diseases of the circulatory system. Filipinos have higher mortality rates of stroke and coronary heart disease and kidney disease.^{3,5–7,9} Lifestyle factors, including smoking, poor nutrition, and limited physical activity, may also affect Native Hawaiians and Filipinos in Hawai'i.^{10–13} Acculturation has shifted lifestyles to be more sedentary and diets that include more foods with high fat, sugar, salt, and calories.^{3,14}

As individuals live longer, greater attention needs to be placed on the extra years of life lived in a healthy condition, rather than simply attending to LE.¹⁰ The US Centers for Disease Control and Prevention (CDC) estimated state-specific HALEs for adults aged 65 years in the United States from 2007 to 2009 by sex and race (White and Black).¹⁵ In this article, we present the 2010 HALE at birth (ie, <1 year), 1 to 4 years, 5-year intervals from 5 to 84, and 85 years and above by sex for the 5 largest ethnic groups in Hawai'i—Native Hawaiians, Whites, Chinese, Japanese, and Filipino Americans. The goal was to identify notable disparities in HALE among these sub-populations and compare them with LE disparities for 2010.²

Methods

Life tables can be constructed in 2 ways according to the age intervals. A complete life table contains data for every single year of age, but an abridged life table usually contains data by 5- or 10-year age intervals.¹⁶ There have been several published guides to calculating

HALE, all of which adjust LE. The Sullivan method adjusts LE using the portion of self-reported fair/poor health status.^{17,18} It is the most common methodology and has been recommended by the National Center for Health Statistics at the CDC. Self-reported measures of health status has been documented to be reliable and independent predictive measures of morbidity and mortality, and are included in many general population surveys.¹⁹ Because of the small death rates and population sizes by sex and race/ethnicity in Hawai'i, we utilized 5-year intervals to estimate HALE (<1 year, 1–4 years, 5-year intervals from 5 to 84, and 85 years and above) for the 5 major ethnic populations in Hawai'i—White, Native Hawaiian, Filipino, Japanese, and Chinese Americans.^{16–18} The 95% confidence intervals (CIs) for HALE were also estimated for each age group.

Death Record and Population Estimates

The 2010 death record data were provided by the Hawai'i Department of Health. Race/ethnicity was family reported. Numbers of death were calculated based on the mean number over a period of 3.5 years centering on April 1, 2010. Population estimates were based on the Hawai'i Census 2010 and adjusted by ethnicity estimates from the Hawai'i Health Survey (HHS). The HHS is a random-sample telephone survey modeled after the National Health Interview Survey. The HHS ethnic categorization in Hawai'i is defined by the Hawai'i Department of Health. It is based on paternal ethnicity for multi-ethnic children, with exceptions for Whites and Native Hawaiians. If only one parent is White, the child takes the ethnicity of the non-White parent. If one parent is Native Hawaiian or part-Native Hawaiian, the child is classified as part-Native Hawaiian regardless of the other parent's ethnicity. The HHS classification system is also used for death records.

Self-Reported Health Status Measures (HBRFSS/NSCH)

Proportions of self-reported fair/poor health status were computed using data from the Hawai'i Behavioral Risk Factor Surveillance System (HBRFSS) and National Survey of Children's Health (NSCH), the most population representative surveys in Hawai'i.^{20,21} The health status was measured using the following question: "In general, how is your (or your child's) health? Is your health excellent, very good, good, fair, or poor?" To estimate the numerator for fair/poor health for the age group 15–19 years from the NSCH (with data for children age 15–17 years) and HBRFSS (with data for adults age 18–19 years), we took the pooled proportions weighted by survey sample size.

The HBRFSS started in 1986 with results reported annually. Participants are non-institutionalized adults, aged 18 years or older, who reside in Hawai'i. The HBRFSS collects detailed ethnic data, including a breakdown of Asian and Pacific Islander populations. Since 2011, participants are randomly selected from houses with listed and unlisted landline and cellular phone numbers. A new-weighted analysis was applied in 2011 to account for the type of telephones respondents used (eg, cell phone or landline), as well as demographic characteristics (eg, education level, marital status, and home renter/owner) besides age, ethnicity, and sex.²²

The NSCH started in 2003 and is a cross-sectional telephone survey that examines the physical and emotional health of children aged 0 to 17 years, along with factors that may

affect a child's well-being. The NSCH utilizes a large-scale random-digit-dial sampling frame to contact US households with at least one resident child at the time of the interview. The NSCH collects detailed ethnic data for residents in Hawai'i who identified as Native Hawaiian; however, there were no ethnic breakdowns for Asians. The NSCH is a complex survey design, with stratification by state and phone type (landline or cell phone).

We used 2 waves of the HBRFSS (2011 and 2012) and the 2011–2012 wave of NSCH for the analyses of self-reported fair/poor health. The HBRFSS response rates were 53% for the landline sample and 27.9% for the cell phone sample in 2011, and 49.1% and 35.3%, respectively, in 2012. The NSCH 2011–2012 sample's response rates were 38.2% for the landline sample and 15.5% for the cell phone sample. The ethnic categorization schema for both the surveys were the same and based on which ethnicity the participant (HBRFSS) or family member (NSCH) most identified with.

Results

HALE Estimates Differ Across Ethnicity

Presented in Table 1 are HALE estimates and 95% CIs by ethnicity from birth (<1 years) to age 85 years and older (male and female combined). The LE estimates are also listed as comparison.² The pattern of HALE disparities is similar to that of the LE disparities: Native Hawaiians had the shortest HALE among all ethnic groups and thus spend the greatest number of years living with fair/poor health. The greatest gap in HALE was between Native Hawaiians and Chinese American: 13.7 years, compared with the LE gap of 11.1 years.

HALE Estimates Differ by Sex

Table 2 shows the 2010 HALE and 95% CIs by sex and ethnicity from birth (<1 years) to age 85 years and older. The overall sex gap at birth in HALE was 4.1 years (female: 73.7 years; male: 69.6 years) compared with 6.4 years in LE (female: 85.6 years; male: 79.2 years). Figure 1 shows the HALE estimates and 95% CIs at birth by sex and race/ethnicity. The sex differences for White, Japanese Americans, and Chinese Americans are larger and stronger (non-overlapping 95% CIs) than that for Native Hawaiians and Filipinos.

HALE Estimates Differ by Ethnicity for Males

As shown in Figure 1, the HALEs at birth for Chinese, Japanese, and Filipino Americans, and White males were similar to each other (73.0, 71.6, 72.3, and 70.7 years, respectively). However, the HALE at birth for Native Hawaiian males was 60.7 years, which is 12.3 years shorter than for Chinese American males, similar to the 11.4 years of difference in LE at birth (73.9 and 85.3 years, respectively).

HALE Estimates Differ by Ethnicity for Females

Similar patterns were seen among females. The HALE at birth in 2010 for females were 78.3, 77.8, 74.2, 73.7, and 62.6 years in contrast to LE of 90, 88, 88.1, 83.4, and 79.4 for Chinese, Japanese, Filipino Americans, White, and Native Hawaiians, respectively. The gaps of HALE and LE at birth between Native Hawaiian and Chinese American females were 15.7 and 10.6 years, respectively.

Supplementary Figure 1 (available online) visualizes the differences of HALE and LE in Table 2 for all age groups by sex and race/ethnicity. This series of graphs shows that all differences diminish gradually with age.

Discussion

There are significant disparities among ethnic and sex subpopulations among Hawai'i residents. Native Hawaiians not only experience premature mortality but also less years spent in excellent or good health compared with all other ethnic populations in Hawai'i. Similar to research on LE estimates, we found that females live longer than males; females not only live on average 6.4 years longer but also spend 4.1 more years in excellent and good health compared with males in Hawai'i.¹

According to the CDC, the US average HALE for age 65 to 69 years in 2007 to 2009 was 14.8 years for females and 12.9 years for males, with the state of Hawai'i having the highest HALE at 17.3 years for females and 15.0 years for males.¹⁵ Our 2010 HALE estimates for ages 65 to 69 years were 18.3 years for females and 15.9 years for males, which were consistent with the 2007–2009 CDC estimates.

There was a trend for sex and ethnic differences in LE and HALE to get smaller toward the end of life, which can be attributed to mortality disparities and self-rated fair/poor health throughout all age groups. For all age groups, males had higher mortality rates than females, and Native Hawaiians had higher mortality rates than the other race/ethnicities. Native Hawaiians also reported the highest rates of self-reported fair/poor health. The differences are manifested stronger before 65 years of age.⁶

Differences in HALE estimates across sex and ethnicity might be attributed to numerous factors, including socioeconomic status, health care system (eg, access to health care services, culturally competent medical providers), individual behaviors (eg, diet, physical activity, obesity, diabetes, etc), biological factors (eg, genetics), and the built physical environment (eg, transportation infrastructure, access to fast food outlets, etc).^{10–13} For example, individuals with higher educational attainment are more likely to have a longer LE and a higher HALE.¹⁰ In Hawai'i, Native Hawaiians have the lowest levels of educational attainment, lowest mean household income, and highest rates of poverty.^{2,3,5,8} Native Hawaiians are disproportionately affected by various factors that could directly affect both their quality and length of life. However, Filipino had lower levels of socioeconomic status and higher prevalence of chronic diseases but much higher LE and HALE than Native Hawaiians.² It might be due to the fact that Filipino Americans in Hawai'i may return to their home country for end-of-life care. According to practitioners in Hawai'i's community health centers, which serve many of the state's new immigrant groups, it is very likely that older Filipinos return to the Philippines when they are sick and near death, taking advantage of strong family support systems and low medical costs in their natal homes. The phenomenon is also seen in Hispanics.²³ This may confound the true life expectancy of this population, which may in fact be artifactually lower than that calculated.²

The challenge for Hawai'i is to work at eliminating the disparities observed in HALE estimates among Native Hawaiians in Hawai'i. Therefore, our findings can be used in addition to other health indicators that highlight the ethnic disparities in Hawai'i. Our findings can also supplement discussions on the need for policies that seek to improve the health of Hawai'i's indigenous population. As others have noted, our government and private sector need to work together to develop, evaluate, and implement public health policies that focus on early childhood, education, income support, employment, housing, and income redistribution.¹¹ Furthermore, there is an extensive amount of national and international literature on the need for a fundamental paradigm shift to improve the health status of indigenous peoples.^{24,25} Health care and health services research need to not only take a culturally competent approach, but an indigenous-centered approach. It is essential that public health professionals and researchers have an understanding of indigenous peoples' concepts of health, knowledge, science, and research.²⁴ Building capacity of indigenous peoples to raise household income and family security, and collaborating together in the development and dissemination of public health programs and interventions, will ultimately improve health status.^{24,26}

Advancing LE and HALE should lead to increasing numbers of older adults, which suggests the need for a reworking of policies and programs around the globe. Eligibility criteria that use age as a qualifying criterion may need to be altered to reflect longer lives. At the same time, the findings of this study highlight the importance of data disaggregation. For example, in the United States, increasing the age eligibility for national policies and programs such as Social Security or Medicare based on a higher LE may be discriminatory to those with shorter LE, even with accounting for earlier disability. Moreover, increases in LE do not always equate with increases in HALE. Adding years of poor health and disability often result in increased human, family, community, and economic costs. Subsequently, the need for long-term services and supports—those services that provide help to those unable to perform activities of daily living—rely heavily on the availability of aid level personnel; there are international and national shortages in this type of needed help.

There are several limitations in this study. First, NSCH and HBRFSS data are self-reported, and participants' perception of one's health may vary by culture. Research has shown ethnic minorities in the United States typically report poorer self-reported health status than Whites.^{27,28} Among Asian American subpopulations, Chinese reported worse self-reported health status when nativity and English proficiency were not taken into account, which might cause underestimated HALE.²⁸ Second, the low response rate of the HBRFSS and the small sample sizes of NSCH and HBRFSS by age group may have given bias to underestimates of health status.^{28,29} Third, the NSCH did not disaggregate the Asian race into specific ethnicities (eg, Japanese, Chinese, and Filipino). The assignment of the same self-reported health status for these children may have impacted our HALE estimates, resulting in an inaccurate reflection of the Japanese, Chinese, and Filipino ethnicities in this study. Fourth, we had relatively small populations, number of deaths, and multiple data sources with self-reported ethnicity that could have increased the variability in the HALE estimates among ethnic groups. Fifth, we had to use the pooled proportions weighted by survey sample size to estimate the proportion of fair/poor health for the age group 15–19 years. Therefore, the accuracy of the HALE estimates may be reduced. Last, the abridged

life tables were based on 2010 death record and population estimates; however, the self-reported health status data were from 2011 to 2012. When compared with HALE estimates calculated by the CDC, similar patterns were seen; however, our results for Hawai'i were approximately 1 year higher. This could be a result of their HALE estimates being age-specific (ie, aged 65 years) and analyzing 2007 to 2009 BRFSS data.

A major strength of this study is that it is among the first to examine ethnic differences in HALE estimates among the 5 major ethnic groups in Hawai'i, US. The state's multi-ethnic population allowed for comparisons in LE and HALE estimates by sex and by age among Native Hawaiians and Asian American subpopulations (eg, Chinese, Japanese, and Filipino). Therefore, another important strength is that our findings provide some insight into the average number of years lived and the average number of years spent in excellent or good health among other ethnic groups in the United States besides Black and Hispanic populations. The HALE and LE estimates for Chinese, Japanese, and Filipino Americans in this article might provide some insight of differences between these Asian Americans living in the United States versus their home countries.

Conclusion

HALE is a simple measure that public health officials, health care providers, researchers, and policy makers can utilize to not only identify health disparities but also monitor changes in the health of populations. Our results serve as a baseline for Hawai'i to monitor trends in the HALE of residents by age. It also highlights the disparities in LE and HALE experienced by Hawai'i's indigenous population compared with Japanese, Chinese, Filipino, and White residents of Hawai'i. The findings from our study further support the need for our government and private sector to develop and evaluate public health policies that attempt to not only increase the number of years lived, but the proportion of life spent in excellent or good health for Native Hawaiians in Hawai'i.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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What We Already Know

HALE (healthy life expectancy) combines mortality and morbidity or health status data into a single population health measure. The World Health Organization and the US Centers for Disease Control and Prevention utilize HALE at birth to summarize country-level and state-level population health. HALE varies substantially by sex, race/ethnicity, and country. There is an 11-year gap in life expectancy between Native Hawaiians and Chinese Americans residing in Hawai'i, but HALE has not been estimated.

What This Study Adds

Located in the center of Pacific Ocean between Asia and America, Hawai'i is the most racially and ethnically diverse state in the United States. This article examines HALE disparities by sex among the state's 5 largest ethnic groups: Native Hawaiians, Whites, and Filipino, Japanese, and Chinese Americans. Our findings show noteworthy gaps in LE and HALE estimates by age between Native Hawaiians and all other major racial/ethnic groups. Native Hawaiians not only experience premature mortality but also spend less years in excellent or good health compared with all other racial/ethnic populations in Hawai'i.

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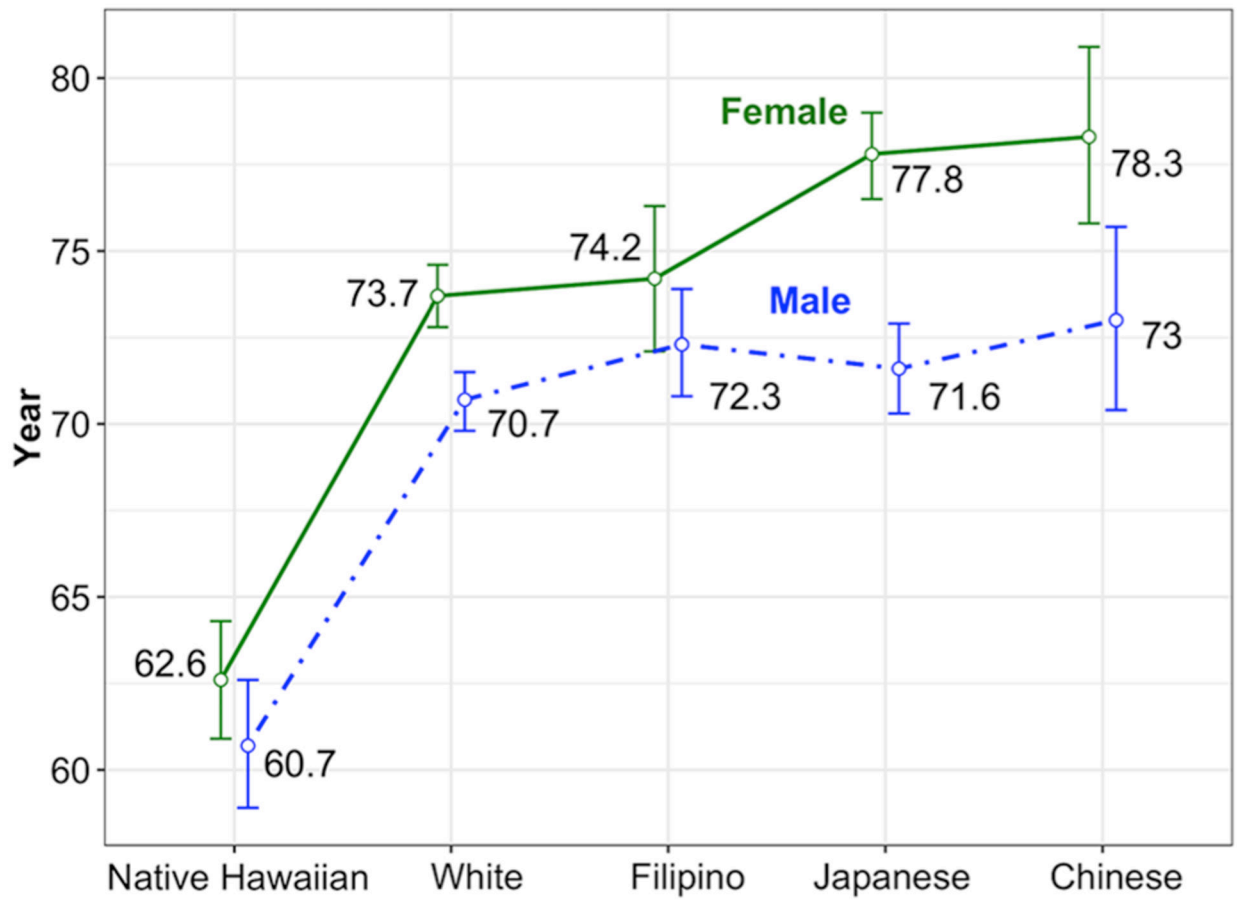


Figure 1. Estimates of healthy life expectancy (HALE) and the 95% confidence intervals for HALE at birth by sex and ethnicity for Hawai'i State, USA.

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Table 1.

Estimates of Healthy Life Expectancy (HALE) and 95% Confidence Intervals (CIs) by Ethnicity (Male and Female Combined) for Hawai'i State, USA. Life Expectancies (LE)^a Are Listed for Comparison.

Age (Years)	Overall		Native Hawaiian		White		Filipino		Japanese		Chinese	
	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)
<1	82.4	67.6 (67.1–68.0)	76.6	62.2 (61.0–63.4)	80.6	72.1 (71.5–72.7)	84.3	73.3 (72.0–74.6)	84.7	74.8 (73.9–75.6)	87.8	75.9 (74.1–77.7)
1–4	81.8	67.0 (66.6–67.4)	76.2	61.7 (60.4–62.9)	79.9	71.4 (70.7–72.0)	83.8	72.7 (71.4–74.0)	84.2	74.3 (73.4–75.1)	87.0	75.1 (73.3–76.9)
5–9	77.9	63.1 (62.6–63.5)	72.3	57.7 (56.5–58.9)	75.9	67.4 (66.8–68.0)	79.8	68.9 (67.6–70.2)	80.3	70.4 (69.6–71.3)	83.0	71.3 (69.4–73.1)
10–14	72.9	58.2 (57.7–58.6)	67.3	52.7 (51.5–53.9)	71.0	62.5 (61.9–63.2)	74.8	63.9 (62.6–65.2)	75.4	65.5 (64.7–66.4)	78.0	66.3 (64.5–68.1)
15–19	68.0	53.4 (53.0–53.8)	62.3	48.2 (47.0–49.3)	66.0	57.8 (57.2–58.3)	69.8	59.2 (57.9–60.4)	70.4	60.8 (60.0–61.7)	73.0	61.6 (59.7–63.4)
20–24	63.1	48.7 (48.2–49.1)	57.5	43.5 (42.3–44.7)	61.2	52.9 (52.3–53.5)	65.0	54.4 (53.2–55.7)	65.5	56.1 (55.2–56.9)	68.1	56.7 (54.9–58.5)
25–29	58.3	48.4 (48.0–48.8)	52.8	38.8 (37.6–39.9)	56.4	48.6 (48.0–49.1)	60.1	50.1 (48.8–51.3)	60.7	51.6 (50.8–52.3)	63.1	52.2 (50.4–53.9)
30–34	53.5	44.1 (43.7–44.5)	48.0	34.6 (33.5–35.8)	51.6	44.2 (43.7–44.7)	55.3	45.5 (44.3–46.8)	55.7	46.9 (46.1–47.6)	58.2	47.8 (46.1–49.4)
35–39	48.7	39.9 (39.5–40.2)	43.3	30.9 (29.8–32.0)	46.9	39.9 (39.4–40.4)	50.5	41.5 (40.3–42.7)	50.8	42.2 (41.4–42.9)	53.3	43.6 (42.0–45.1)
40–44	44.0	35.6 (35.3–36.0)	38.7	27.2 (26.1–28.3)	42.2	35.5 (35.0–36.0)	45.7	37.1 (35.9–38.3)	46.0	37.7 (37.0–38.4)	48.4	39.1 (37.6–40.7)
45–49	39.4	31.6 (31.2–31.9)	34.2	23.8 (22.8–24.9)	37.6	31.3 (30.9–31.8)	41.0	32.9 (31.8–34.1)	41.3	33.4 (32.7–34.0)	43.5	34.6 (33.1–36.0)
50–54	34.9	27.5 (27.2–27.8)	29.8	20.6 (19.6–21.6)	33.2	27.2 (26.8–27.6)	36.4	28.4 (27.3–29.6)	36.7	29.3 (28.6–29.9)	38.8	30.4 (29.0–31.8)
55–59	30.6	23.9 (23.6–24.2)	25.8	17.6 (16.7–18.6)	28.9	23.5 (23.1–23.9)	31.9	24.4 (23.3–25.6)	32.2	25.5 (24.9–26.0)	34.1	26.2 (24.8–27.6)
60–64	26.4	20.5 (20.2–20.8)	21.9	15.5 (14.6–16.5)	24.8	20.0 (19.6–20.4)	27.6	21.4 (20.3–22.5)	27.8	21.8 (21.3–22.4)	29.5	22.3 (21.0–23.6)
65–69	22.3	17.2 (16.8–17.5)	18.3	12.9 (12.0–13.9)	20.7	16.4 (16.0–16.9)	23.3	18.2 (17.1–19.3)	23.6	18.3 (17.7–18.8)	25.0	18.6 (17.3–19.9)
70–74	18.5	14.0 (13.7–14.3)	15.1	10.9 (9.9–11.8)	16.9	13.2 (12.8–13.6)	19.3	15.0 (13.9–16.1)	19.6	14.7 (14.2–15.3)	20.7	15.4 (14.2–16.7)
75–79	15.0	11.2 (10.9–11.5)	12.1	8.8 (7.8–9.8)	13.4	10.1 (9.6–10.5)	15.7	12.1 (11.0–13.2)	15.8	12.1 (11.6–12.6)	16.9	11.4 (10.1–12.7)
80–84	11.9	8.8 (8.4–9.1)	9.5	6.9 (5.8–8.0)	10.4	7.4 (6.9–7.9)	12.5	10.0 (8.8–11.2)	12.4	9.4 (8.9–9.9)	13.3	9.3 (8.1–10.6)
85+	9.3	6.9 (6.6–7.3)	7.5	5.2 (3.9–6.6)	7.8	5.7 (5.1–6.2)	10.1	8.5 (7.2–9.8)	9.5	7.4 (6.9–8.0)	10.2	7.2 (5.9–8.5)

^aLE estimates from 2010 life tables study².

Table 2. Estimates of Healthy Life Expectancy (HALE) and 95% Confidence Intervals (CIs) by Sex and Ethnicity for Hawai'i State, USA. Life Expectancies (LE) Are Listed for Comparison.

Age (Years)	Overall		Native Hawaiian		White		Filipino		Japanese		Chinese	
	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)
<i>Male</i>												
<1	79.2	69.6 (69.0–70.2)	73.9	60.7 (58.9–62.6)	78.3	70.7 (69.8–71.5)	80.8	72.3 (70.8–73.9)	81.2	71.6 (70.3–72.9)	85.3	<1
1–4	78.7	69.1 (68.5–69.7)	73.4	60.2 (58.3–62.1)	77.6	70.0 (69.1–70.8)	80.3	71.8 (70.2–73.4)	80.7	71.0 (69.8–72.3)	84.5	1–4
5–9	74.7	65.2 (64.6–65.8)	69.5	56.3 (54.4–58.1)	73.7	66.0 (65.2–66.8)	76.3	67.9 (66.3–69.5)	76.8	67.2 (66.0–68.5)	80.5	5–9
10–14	69.8	60.3 (59.7–60.9)	64.6	51.3 (49.4–53.2)	68.7	61.1 (60.3–62.0)	71.3	62.9 (61.3–64.5)	71.9	62.3 (61.0–63.5)	75.6	10–14
15–19	64.8	55.5 (54.9–56.1)	59.6	47.1 (45.3–48.9)	63.7	56.4 (55.6–57.1)	66.4	58.0 (56.4–59.6)	66.9	57.4 (56.1–58.6)	70.6	15–19
20–24	60.0	50.8 (50.2–51.4)	54.9	42.4 (40.6–44.3)	59.0	51.6 (50.8–52.4)	61.5	53.4 (51.9–54.9)	62	52.7 (51.5–54.0)	65.6	20–24
25–29	55.3	46.3 (45.8–46.9)	50.2	37.9 (36.1–39.7)	54.2	46.9 (46.1–47.7)	56.8	49.5 (48.0–50.9)	57.2	48.3 (47.2–49.5)	60.7	25–29
30–34	50.5	42.1 (41.6–42.7)	45.6	34.0 (32.2–35.8)	49.5	42.6 (41.9–43.3)	52.0	45.0 (43.6–46.5)	52.3	43.5 (42.4–44.7)	55.7	30–34
35–39	45.8	38.1 (37.6–38.6)	40.9	30.3 (28.6–32.0)	44.8	38.5 (37.8–39.2)	47.3	41.3 (40.0–42.7)	47.5	38.9 (37.8–40.0)	50.9	35–39
40–44	41.2	33.9 (33.4–34.4)	36.4	26.6 (24.9–28.3)	40.1	34.3 (33.7–34.9)	42.6	36.9 (35.6–38.2)	42.7	34.5 (33.5–35.6)	46	40–44
45–49	36.6	30.0 (29.6–30.5)	32.1	23.5 (21.9–25.1)	35.6	30.3 (29.7–30.9)	38.0	32.9 (31.6–34.2)	38	30.6 (29.6–31.6)	41.1	45–49
50–54	32.3	26.0 (25.6–26.5)	27.9	20.0 (18.4–21.6)	31.4	26.2 (25.6–26.8)	33.5	28.5 (27.2–29.8)	33.6	26.5 (25.6–27.4)	36.5	50–54
55–59	28.1	22.4 (22.0–22.8)	24.0	16.9 (15.3–18.5)	27.2	22.5 (21.9–23.0)	29.0	24.3 (23.0–25.6)	29.2	23.1 (22.3–24.0)	31.9	55–59
60–64	24.1	19.1 (18.7–19.6)	20.3	14.8 (13.3–16.4)	23.3	19.1 (18.5–19.7)	24.8	21.4 (20.2–22.6)	24.9	19.5 (18.7–20.3)	27.4	60–64
65–69	20.2	15.9 (15.4–16.3)	16.8	11.9 (10.3–13.5)	19.4	15.7 (15.1–16.2)	20.7	17.8 (16.7–19.0)	20.9	16.2 (15.4–17.0)	23	65–69
70–74	16.6	12.9 (12.5–13.4)	13.9	9.6 (7.9–11.4)	15.7	12.6 (12.0–13.2)	16.9	15.0 (13.9–16.1)	17.1	12.9 (12.0–13.7)	18.9	70–74
75–79	13.2	10.2 (9.7–10.6)	11.1	7.6 (5.6–9.5)	12.4	9.6 (9.0–10.2)	13.5	12.2 (11.2–13.3)	13.5	10.3 (9.5–11.1)	15.2	75–79
80–84	10.3	7.7 (7.2–8.2)	8.6	6.1 (3.9–8.3)	9.6	7.1 (6.4–7.7)	10.5	9.7 (8.7–10.8)	10.2	7.6 (6.8–8.4)	11.8	80–84
85+	7.9	6.0 (5.5–6.5)	6.9	4.1 (1.1–7.0)	7.2	5.6 (4.9–6.3)	8.2	7.7 (6.5–8.9)	7.6	5.6 (4.8–6.5)	9.1	85+
<i>Female</i>												
<1	85.6	73.7 (73.1–74.3)	79.4	62.6 (60.9–64.3)	83.4	73.7 (72.8–74.6)	88.1	74.2 (72.1–76.3)	88.0	77.8 (76.5–79.0)	90.0	78.3 (75.8–80.9)
1–4	85.1	73.1 (72.5–73.7)	79.0	62.0 (60.3–63.7)	82.6	72.9 (72.0–73.8)	87.5	73.6 (71.5–75.6)	87.6	77.3 (76.1–78.5)	89.3	77.6 (75.1–80.1)
5–9	81.1	69.2 (68.6–69.8)	75.0	58.0 (56.4–59.7)	78.6	68.9 (68.0–69.8)	83.6	69.8 (67.7–71.9)	83.6	73.5 (72.3–74.7)	85.3	73.8 (71.2–76.3)
10–14	76.2	64.3 (63.7–64.9)	70.1	53.1 (51.4–54.8)	73.8	64.1 (63.2–65.0)	78.6	64.8 (62.7–66.9)	78.7	68.6 (67.4–69.7)	80.3	68.8 (66.2–71.3)
15–19	71.2	59.5 (58.9–60.1)	65.1	48.2 (46.5–49.9)	68.8	59.3 (58.4–60.2)	73.6	60.3 (58.3–62.3)	73.7	64.1 (62.9–65.2)	75.3	64.3 (61.8–66.8)

Age (Years)	Overall		Native Hawaiian		White		Filipino		Japanese		Chinese	
	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)	LE	HALE (95% CI)
20–24	66.3	54.7 (54.1–55.3)	60.2	43.5 (41.8–45.2)	63.9	54.4 (53.5–55.3)	68.7	55.4 (53.4–57.5)	68.8	59.2 (58.1–60.3)	70.3	59.4 (56.9–61.9)
25–29	61.4	50.4 (49.9–51.0)	55.4	39.7 (38.1–41.4)	59.1	50.4 (49.6–51.2)	63.8	50.7 (48.6–52.7)	63.9	54.6 (53.5–55.6)	65.4	55.1 (52.8–57.5)
30–34	56.5	46.1 (45.5–46.6)	50.4	35.3 (33.7–36.9)	54.2	46.0 (45.2–46.8)	58.8	46.1 (44.1–48.1)	58.9	50.0 (49.0–51.0)	60.4	50.2 (47.8–52.5)
35–39	51.6	41.6 (41.1–42.2)	45.6	31.6 (30.1–33.2)	49.4	41.3 (40.6–42.1)	54.0	41.7 (39.7–43.7)	54.0	45.3 (44.3–46.2)	55.5	45.7 (43.4–47.9)
40–44	46.8	37.3 (36.8–37.9)	40.9	27.9 (26.4–29.4)	44.5	36.8 (36.1–37.5)	49.2	37.4 (35.4–39.3)	49.2	40.7 (39.8–41.6)	50.6	41.6 (39.6–43.6)
45–49	42.1	33.1 (32.6–33.6)	36.2	24.2 (22.8–25.6)	39.8	32.4 (31.7–33.1)	44.3	33.1 (31.2–35.0)	44.3	36.1 (35.2–37.0)	45.7	37.3 (35.4–39.2)
50–54	37.5	29.0 (28.5–29.4)	31.8	21.3 (19.9–22.6)	35.3	28.2 (27.5–28.9)	39.7	28.5 (26.5–30.4)	39.6	31.8 (31.0–32.7)	40.9	32.8 (31.0–34.7)
55–59	33.0	25.3 (24.8–25.8)	27.6	18.4 (17.1–19.7)	30.8	24.6 (23.9–25.2)	35.0	24.7 (22.8–26.6)	34.9	27.6 (26.8–28.5)	36.1	28.6 (26.7–30.4)
60–64	28.6	21.8 (21.4–22.3)	23.4	16.2 (15.0–17.5)	26.4	20.8 (20.2–21.5)	30.6	21.5 (19.6–23.4)	30.4	24.0 (23.2–24.8)	31.4	24.3 (22.5–26.1)
65–69	24.3	18.3 (17.9–18.8)	19.6	13.8 (12.5–15.0)	22.1	17.1 (16.4–17.7)	26.2	18.8 (16.9–20.6)	25.9	20.1 (19.4–20.9)	26.8	20.4 (18.7–22.1)
70–74	20.3	15.0 (14.5–15.4)	16.0	11.7 (10.5–13.0)	18.1	13.7 (13.0–14.3)	22.0	15.4 (13.5–17.3)	21.6	16.3 (15.5–17.0)	22.3	17.1 (15.5–18.7)
75–79	16.5	12.1 (11.6–12.5)	12.9	9.7 (8.5–10.9)	14.3	10.3 (9.7–11.0)	18.1	12.4 (10.5–14.3)	17.7	13.5 (12.8–14.2)	18.3	12.9 (11.2–14.6)
80–84	13.2	9.6 (9.2–10.1)	10.1	7.4 (6.1–8.8)	11.0	7.5 (6.8–8.2)	14.9	10.5 (8.5–12.6)	14.1	10.9 (10.3–11.6)	14.5	10.4 (8.8–12.0)
85+	10.3	7.7 (7.2–8.2)	7.9	5.8 (4.3–7.4)	8.3	5.5 (4.7–6.2)	12.4	9.4 (7.2–11.7)	11.0	8.8 (8.1–9.5)	11.1	8.0 (6.3–9.6)

^aLE estimates from 2010 life tables².