# Chronic Diseases and Cognitive Decline: A Public Health Issue

An Update to the Nation

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Cognitive Decline and Chronic Disease: A Public Health Issue

The U.S. population has experienced a significant increase in life expectancy over the last century. In 2021, life expectancy at birth was estimated as 76.4 years[[1]](#footnote-2) compared to 54.1 years in1920 .[[2]](#footnote-3) Given that individuals are living longer, there is an increasing emphasis on healthy aging and maintaining a high quality of life. Unfortunately, the likelihood of most chronic diseases, including those that affect brain health and cognition, such as Alzheimer’s disease or a related dementia, increases significantly as individuals age. Between 2018 and 2021, approximately 79.2% of respondents from the Behavioral Risk Factor Surveillance System (BRFSS) aged 65 years or older reported having one or more chronic diseases [including stroke, myocardial infarction (heart attack), coronary heart disease, diabetes, chronic obstructive pulmonary disease, cancer, skin cancer, kidney disease, arthritis, depression, and asthma].[[3]](#footnote-4)

In 2021, Alzheimer’s disease was the 7th leading cause of death in the U.S. The risk of developing Alzheimer’s disease increases with age; 1 in 9 adults aged 65 years or older and 1 in 3 adults aged 85 years or older live with the disease.1,[[4]](#footnote-5) Given the trajectory of the dementia continuum, it is important to identify symptoms early to improve the chances for better outcomes.4 Clinical trials and treatments may be more readily available or effective in early stages. Early detection also affords an opportunity to improve patient autonomy over decisions when planning for the future.

Dementia affects all areas of life including household activities, chores, and the ability to work, volunteer, or engage in social activities outside the home. It can be difficult to measure the number of people who experience dementia, and population-level disease surveillance often measures subjective cognitive decline (SCD). SCD is defined as the self-reported experience of worsening or more frequent confusion or memory loss within the past year.[[5]](#footnote-6) It is a significant public health problem affecting approximately 10% of adults aged 45 years or older surveyed in the U.S. during 2015–2020.[[6]](#footnote-7) Although not all individuals who report worsening memory loss or SCD perform poorly on objective measures of cognitive performance, SCD symptoms can be an early indicator of future potential forms of memory disorders such as Alzheimer’s disease and other related dementias.[[7]](#footnote-8),[[8]](#footnote-9)

While the management of memory loss alone can be challenging, it is often compounded by the presence of other co-morbidities. The physical, social, mental, and financial challenges faced by those living with cognitive decline and co-occurring chronic diseases can put significant strain on the individuals living with the disease, their caregivers, and families.

Data for Public Health Action

This brief presents the characteristics of middle-aged and older adults (aged 45 years or older) who reported experiencing SCD and one or more chronic diseases. The following chronic diseases were examined: stroke, coronary heart disease, myocardial infarction (heart attack), diabetes, current asthma, arthritis, cancer (including skin cancer), kidney disease, depression, and chronic obstructive pulmonary disease (COPD). Data presented in this brief were collected from community-dwelling adults in 2018–2021 through BRFSS and its optional Cognitive Decline Module. The module, which captures responses related to SCD, was administered as part of BRFSS in 48 states, the District of Columbia (D.C.), and Puerto Rico at least once between 2018 and 2021. For states administering the module during multiple years, the most recent year was used for aggregated estimates. This brief is an update to a previous public health brief on SCD using 2015-2017 data from BRFSS, which included 49 states, D.C., and Puerto Rico.

Using the information highlighted in this brief, state and other public health agencies can make informed decisions about public health interventions and resources that reduce the burden of disease among their populations who are aging.

Additional data reports can be generated and viewed through the Centers for Disease Control and Prevention’s (CDC) [Alzheimer’s Disease and Healthy Aging Data Portal](https://www.cdc.gov/aging/agingdata/index.html). These data were examined by age group, sex, race, ethnicity, educational attainment, living status, chronic disease status, SCD status, and other demographic characteristics.



**This brief examines the following questions:**

* What are the characteristics of individuals with and without subjective cognitive decline who have no chronic disease compared to those with at least one chronic disease?
* What is the percentage of different types of chronic diseases among adults with and without subjective cognitive decline?
* What percentage of adults have no, one, two, or three or more chronic diseases among those with and without subjective cognitive decline?
* What percentage of adults aged 45 years or older have subjective cognitive decline and one or more chronic diseases?
* What percentage of adults aged 45 years or older have subjective cognitive decline and two or more chronic diseases?
* What percentage of adults aged 45 years or older have subjective cognitive decline and diabetes?
* What percentage of adults aged 45 years or older have subjective cognitive decline and coronary heart disease or stroke?
* What percentage of adults aged 45 years or older with subjective cognitive decline and one or more co-morbidities talked with their healthcare provider about their memory problems?

Demographic Characteristics of Adults by Chronic Disease and Subjective Cognitive Decline Status

**Table 1:** Demographic characteristics of adults aged 45 years and older with or without subjective cognitive decline by chronic disease status, 2018-2021 BRFSS.

\*Includes stroke, myocardial infarction (heart attack), coronary heart disease, diabetes, chronic obstructive pulmonary disease, cancer, skin cancer, kidney disease, arthritis, depression, and asthma.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **With Subjective Cognitive Decline** | | **Without Subjective  Cognitive Decline** | |
|  | No Chronic Disease (%) | At Least One Chronic Disease\* (%) | No Chronic Disease (%) | At Least One Chronic Disease (%) |
| **Age Group** | | | | |
| 45–64 years | 12.9 | 87.1 | 43.7 | 56.3 |
| 65 years and older | 9.4 | 90.6 | 21.0 | 79.0 |
| **Sex** | | | | |
| Female | 9.8 | 90.2 | 31.2 | 68.8 |
| Male | 13.1 | 86.9 | 38.3 | 61.7 |
| **Race and Ethnicity** | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Non-Hispanic white | 10.3 | 89.7 | 32.0 | 68.0 |
| Non-Hispanic Black | 11.0 | 89.0 | 35.4 | 64.6 |
|  |  |  |  |  |
| Non-Hispanic Asian or Pacific Islander | 24.4 | 75.6 | 54.3 | 45.7 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Highest Level of Education** | | | | |
| Did not graduate from high school | 11.2 | 88.8 | 29.9 | 70.1 |
| Graduated high school | 10.8 | 89.2 | 32.6 | 67.4 |
| Some college or more | 11.6 | 88.4 | 36.0 | 64.0 |
| **Living Status** | | | | |
| Lives alone | 9.0 | 91.0 | 29.4 | 70.6 |
| Does not live alone | 11.8 | 88.2 | 35.3 | 64.7 |

The proportion of those with at least one chronic disease among those with SCD ranged from 75.6% among American Indian or Alaska Native adults to 95.0% among multiracial adults. Among those without SCD, the proportion of multiple chronic diseases ranged from 45.7% among Asian or Pacific Islander adults to 79.0% among adults aged 65 years or older.

**Age:** Age is a strong factor influencing chronic diseases, with proportions of individuals with at least one chronic disease being higher in older age groups (65 years and older versus 45–64 years) among those with and without SCD.

**Sex:** Women aged 45 years or older had a slightly higher prevalence of at least one chronic disease compared with men both with SCD (90.2% versus 86.9%) and without (68.8% versus 61.7%).

**Race and Ethnicity:** Among individuals aged 45 years or older with SCD, those identifying as multiple races had the highest prevalence of having at least one chronic disease (95.0%) and those identifying as non-Hispanic Asian or Pacific Islander had the lowest (75.6%). Similar findings across racial and ethnic groups were noted among those without SCD.

**Education:** Among adults aged 45 years and older with SCD, educational attainment did not appear to influence the proportion of those having at least one chronic disease (approximately 88-89%). More variation was noted among those without SCD, with 70.1% of those who did not graduate from high school having one or more chronic disease versus 64.0% among those who had some college or more.

**Living status:** Among individuals aged 45 years and older with SCD, 91.0% of individuals who lived alone reported one or more chronic diseases. Among those who did not live alone, 88.2% reported one or more chronic diseases. Among individuals without SCD, 70.6% of those living alone and 64.7% not living alone had one or more chronic diseases.

Type of Chronic Disease and Subjective Cognitive Decline Status

**Table 2.** Adults aged 45 years and older with chronic diseases by subjective cognitive decline status, 2018-2021 BRFSS.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Age 45–64 years** | | **Age 65 years or older** | |
| **Disease** | **With SCD (%)** | **Without SCD (%)** | **With SCD (%)** | **Without SCD (%)** |
| Arthritis | 59.1 | 30.1 | 62.7 | 50.1 |
| Asthma (current) | 25.7 | 13.6 | 16.3 | 11.4 |
| Cancer† | 12.8 | 6.6 | 21.1 | 17.9 |
| COPD‡ | 25.1 | 6.6 | 20.3 | 12.1 |
| Coronary Heart Disease§ | 11.2 | 3.6 | 16.6 | 10.0 |
| Diabetes | 25.9 | 13.8 | 32.7 | 21.6 |
| Kidney Disease | 7.8 | 11.1 | 11.1 | 6.7 |
| Stroke | 12.8 | 2.8 | 15.0 | 6.9 |

† Excluding skin cancer. ‡ Chronic obstructive pulmonary disease. § Respondents were classified as having coronary heart disease if they reported having been told by a provider they had coronary heart disease or a heart attack (i.e. myocardial infarction).

Overall, arthritis is the most prevalent disease among adults aged both 45–64 (59.1%, 30.1%) and 65 years or older (62.7%, 50.1%), regardless of the presence of SCD. Among adults aged 45–64 years, the prevalence of cancer is 12.8% among those with SCD and 6.6% among those without SCD. Among adults aged 45–64, the prevalence of COPD among those with SCD was 25.1% and 6.6% among those without SCD. The prevalence of stroke among adults 45–65 years with SCD was 12.8% and 2.8% among those without SCD. Among adults 65 years or older, the prevalence of stroke is 15% among those with SCD and 6.9% among those without SCD.

**Graph 1.** Adults aged 45–64 years by number of chronic diseases and subjective cognitive decline status, 2018-2021 BRFSS.

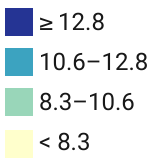
Among younger adults (45–64 years), the majority of those with SCD reported having three or more chronic diseases (43.4%). The highest proportion of those without SCD reported no chronic diseases (43.7%).

**Graph 2.** Adults aged 65 years and older by number of chronic diseases and subjective cognitive decline status, 2018-2021 BRFSS.

Among adults 65 years or older, those with SCD showed 46.3% reported three or more chronic diseases. Among adults aged 65 years or older without SCD, 30.3% reported one chronic disease.

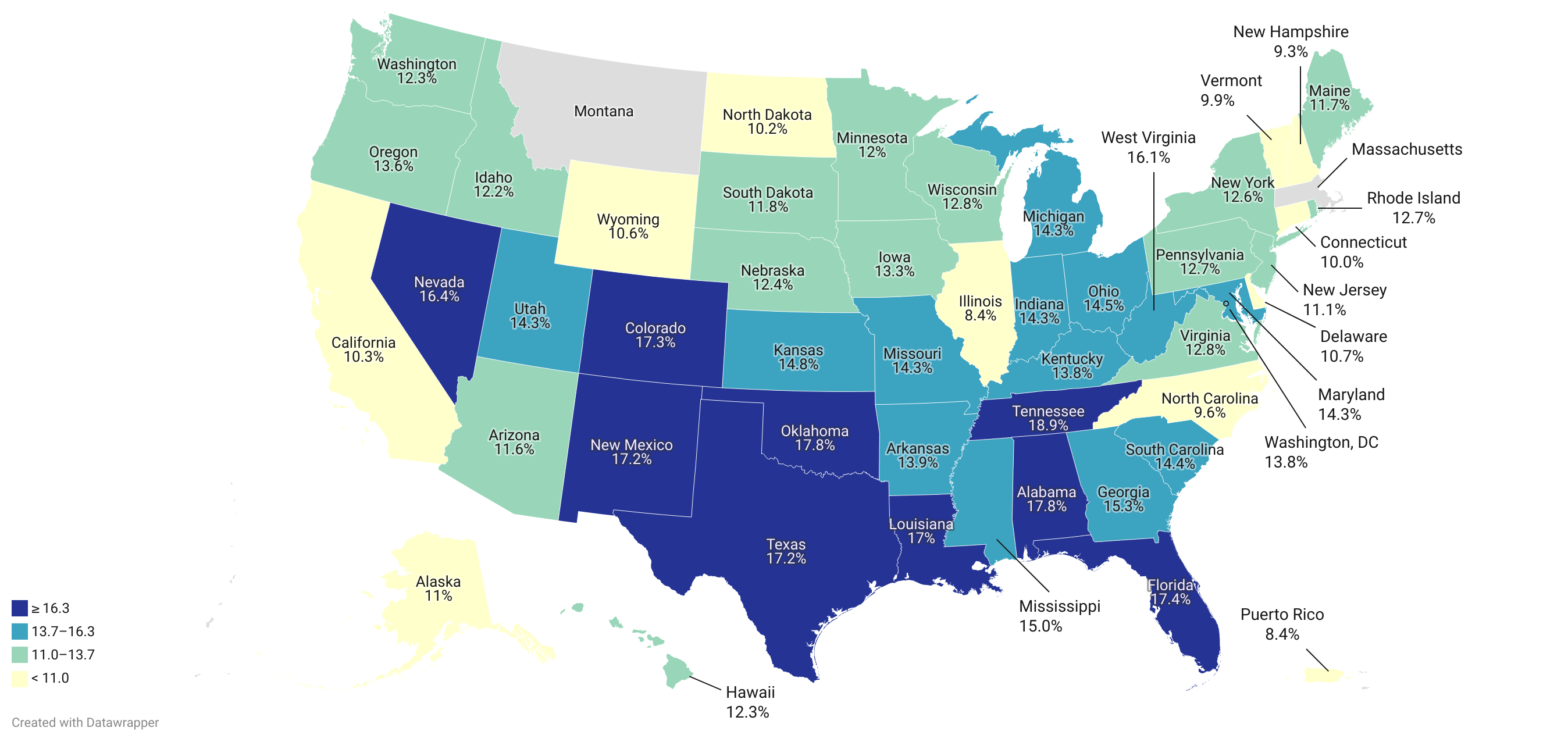
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**Figure 1.** Prevalence of Subjective Cognitive Decline Among Adults Aged 45 Years or Older, 2018–2021 BRFSS.

**Figure 2.** Prevalence of Subjective Cognitive Decline Among Adults Aged 45 Years or Older with One or More ChronicDiseases**,** 2018–2021 BRFSS.

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Description automatically generated with medium confidenceAs shown in Figure 1, the prevalence of SCD by state ranged from 6.1% to 15.0%. The median prevalence of SCD among all states participating in the module was 10.2%. The state prevalence of SCD among adults aged 45 years or older with one or more chronic diseases ranged from 8.4% to 18.9%. As shown in Figure 2, states with a reported higher prevalence of SCD were concentrated in the southeast region of the U.S., while the western and northeast regions reported a lower prevalence of SCD. Note that the gray states do not have data available.

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**Figure 3.** Prevalence of Subjective Cognitive Decline by State Among Adults Aged 45 Years or Older with Three or More Chronic Diseases, 2018–2021 BRFSS.

Map

Description automatically generatedChronic diseases can add to the burden of those living with SCD. Figure 3 shows the state prevalence of SCD among adults aged 45 years or older with three or more chronic diseases ranged from 12.7% to 33.4% with a median of 23.3%.

**Figure 4.** Prevalence of Subjective Cognitive Decline by State Among Adults Aged 45 Years or Older with Diabetes, 2018–2021 BRFSS.

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As shown in Figure 4, the state prevalence of subjective cognitive decline among adults aged 45 years or older with diabetes ranged from 7.8% to 24.0%. The median state prevalence was 16.1%.

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**Figure 5.** Prevalence of Subjective Cognitive Decline by State Among Adults Aged 45 Years or Older with Coronary Heart Disease or Stroke, 2018–2021 BRFSS.

The state prevalence of SCD among adults aged 45 years or older with coronary heart disease or stroke ranged from 10.2% to 35.6% (BRFSS 2018–2021). The median state prevalence was 21.7%.

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**Figure 6.** Talking with a Healthcare Provider About Memory Problems by State Among Adults Aged 45 Years or Older with Subjective Cognitive Decline and One or More Chronic Diseases, 2018–2021 BRFSS.

Figure 6[[9]](#footnote-10) shows that of adults aged 45 years or older who reported SCD and at least one chronic disease, the range of percentages of those reporting talking with their healthcare provider by state was 24.4%–66.1%, with a median state prevalence of 56.4%.

Regardless of their chronic disease status, certain groups of individuals are less likely to talk with their healthcare provider about their memory loss. Among adults aged 45 years and older, men reported speaking with their healthcare provider less than women. Adults aged 65 years and older also reported speaking with a healthcare provider less compared to those 45-64 years (40.9% versus 49.4%, respectively). Among adults aged 45 years and older, 60.6% of those reporting multiple races, 53.5% of Alaska Native or American Indian adults, 47.7% of Black adults, 46.0% of white adults, 41.1% of Hispanic adults and 21.1% of Asian or Pacific Islander adults had discussed their memory problems with a healthcare provider. Lack of health insurance is another important factor in talking with a healthcare provider. Among adults aged 45 years and older with SCD who did not have health insurance, only 31.4% spoke with their healthcare provider about their memory problems compared to 45.1% who had health insurance (BRFSS 2018–2021).

**Table 3.** Adults aged 45 years or older who talked with a healthcare provider about their memory problems, 2018–2021 BRFSS.

|  |  |
| --- | --- |
|  | **Talked with a Provider about Memory Problems** |
| **Age Group** | |
| 45–64 years | 49.4% |
| 65 years or older | 40.9% |
| **Sex** | |
| Female | 49.4% |
| Male | 41.0% |
| **Race and Ethnicity** | |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| **Health Insurance** | |
| Yes | 45.1% |
| No | 31.4% |

Actions from the Healthy Brain Initiative State and Local Road Map for Public Health, 2023–2027

The Healthy Brain Initiative’s (HBI) [State and Local Road Map for Public Health, 2023–2027](https://www.cdc.gov/aging/healthybrain/roadmap.htm) is a guidebook for state and local public health practitioners to address brain health in their communities. It provides a framework for public health action by recommending strategies that promote brain health, address dementia, and support people with dementia and their caregivers. The HBI Road Map has 24 actions across four domains, all aligned to the Essential Public Health Services. The HBI Road Map was jointly developed by the Alzheimer’s Association and the Centers for Disease Control and Prevention, with input from over 100 national experts and stakeholders.

This data brief supports the following HBI Road Map actions:

|  |  |
| --- | --- |
| **Strengthen Partnerships and Policies (P)** [[10]](#footnote-11) | |
| **P-2** | Utilize community-clinical linkages to improve equitable access to community-based chronic disease prevention, dementia support and healthy aging programs. |
| **P-6** | Equip policymakers with information on risk factors, the stigma associated with cognitive impairment, and the impact of social determinants of health; and offer evidence-informed policy options across the life course. |

|  |  |
| --- | --- |
| **Measure, Evaluate and Utilize Data (M)** [[11]](#footnote-12) | |
| **M-1** | Support implementation of the Behavioral Risk Factor Surveillance System (BRFSS) optional modules for Cognitive Decline and Caregiving and use the data to develop and inform programs and policies. |

|  |  |
| --- | --- |
| **Engage and Educate the Public (E)** [[12]](#footnote-13) | |
| **E-1** | Engage diverse audiences to develop culturally responsive messaging about brain health, cognitive decline, healthy aging, and caregiving. |
| **E-2** | Disseminate culturally responsive messaging to encourage conversations about brain health, cognitive decline, healthy aging, and caregiving. |
| **E-4** | Embed cognitive decline risk factors into evidence-informed health promotion and chronic disease prevention awareness and education campaigns. |

Technical Information

The Behavioral Risk Factor Surveillance System (BRFSS) is the nation’s premier system of health-related telephone surveys that collect state data about U.S. residents regarding their health-related risk behaviors, chronic diseases, and use of preventive services. Established in 1984 with 15 states, BRFSS now collects data in all 50 states as well as the District of Columbia and three U.S. territories. BRFSS completes more than 400,000 adult interviews each year, making it the largest and longest continuously conducted health survey system in the world.

The crucial information gathered through this state-based telephone surveillance system is used by national, state, and local public health agencies to identify populations that might be most at risk and to monitor the need for and the effectiveness of various public health interventions. Although BRFSS is a useful tool for assessing chronic diseases in adult populations, it has some limitations: it excludes people who do not have telephones or are in institutions such as nursing homes; it may underrepresent people who are severely impaired because of the functional capacity required to participate in the survey; and responses to BRFSS are self-reported and therefore have not been confirmed by a healthcare provider. Despite these limitations, BRFSS is a uniquely powerful tool to provide the prevalence of chronic diseases, subjective cognitive decline, and related issues among older community-dwelling U.S. adults, due to its large sample size and proven reliability and validity.

BRFSS is administered and supported by the Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion, CDC. For more information, visit <http://www.cdc.gov/brfss>.

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| **Since 1988, the National Association of Chronic Disease Directors and its more than 7,000 Members have worked to strengthen state-based leadership and expertise for chronic disease prevention and control in all states, territories, and nationally.** | |
| The Integrating Alzheimer’s Messages into Chronic Disease Programs project is supported by the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services (HHS) as part of a financial assistance award totaling $500,000 with 100 percent funded by CDC/HHS. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by CDC/HHS, or the U.S. Government. | If you require this document in an alternative format, such as large print or a colored background, contact the Communications and Member Services Department at publications@chronicdisease.org. |
| **chronicdisease.org | 101 W. Ponce De Leon Ave., Suite 400, Decatur, GA 30030** | |

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9. Unlike in previous Figures, for Figure 6, a higher prevalence is the more desirable health outcome. [↑](#footnote-ref-10)
10. Strengthen Partnerships and Policies is a domain in the HBI Road Map. [↑](#footnote-ref-11)
11. Measure, Evaluate and Utilize Data is a domain in the HBI Road Map. [↑](#footnote-ref-12)
12. Engage and Educate the Public is a domain in the HBI Road Map. [↑](#footnote-ref-13)