

# Chronic Diseases and Cognitive Decline: A Public Health Issue

An Update to the Nation

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NATIONAL ASSOCIATION OF  
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CONTROL AND PREVENTION

## 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<sup>1</sup> compared to 57.1 years in 1929 (among death-registration states).<sup>2</sup> 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 and older reported having one or more selected 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].<sup>3</sup>

In 2021, Alzheimer's disease was the 7<sup>th</sup> leading cause of death in the U.S.<sup>1</sup> The risk of developing Alzheimer's disease increases with age; 1 in 9 adults aged 65 years and older and 1 in 3 adults aged 85 years and older live with the disease.<sup>4</sup> Given the trajectory of the dementia continuum, it is important to identify symptoms early to improve the chances for better outcomes.<sup>4</sup> 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 at the population level, and disease surveillance often measures subjective cognitive decline (SCD) instead. SCD is defined as the self-reported experience of worsening or more frequent confusion or memory loss within the past year.<sup>5</sup> It is a significant public health problem affecting approximately 10% of adults aged 45 years and older surveyed in the U.S. during 2015–2020.<sup>6</sup> 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.<sup>7,8</sup>

<sup>1</sup> Xu JQ, Murphy SL, et al, 2021. Mortality in the United States, 2021. NCHS Data Brief, no 456. Hyattsville, MD: National Center for Health Statistics. 2022. DOI: <https://dx.doi.org/10.15620/cdc.122516> accessed on 12/13/23.

<sup>2</sup> National Center for Health Statistics. 2019. Table 19. Estimated life expectancy at birth, in years, by race, Hispanic origin, and sex: Death-registration states, 1900–1928, and United States, 1929–2017. National Vital Statistics Reports, Vol. 68, No. 7. DOI: [https://www.cdc.gov/nchs/pressroom/LE\\_TRENDS.pdf](https://www.cdc.gov/nchs/pressroom/LE_TRENDS.pdf)

<sup>3</sup> Behavioral Risk Factor Surveillance Survey, 2018-2021. The Centers for Disease Control & Prevention, Atlanta, GA. <https://www.cdc.gov/brfss/index.html> accessed on 1/23/2023.

<sup>4</sup> Alzheimer's Association. 2024 Alzheimer's Disease Facts and Figures. *Alzheimers Dement* 2024;20(5). <https://www.alz.org/media/documents/alzheimers-facts-and-figures.pdf>

<sup>5</sup> Chronic Disease and Cognitive Decline: A Public Health Issue. National Association for Chronic Disease Directors and the Centers for Disease Control & Prevention; Atlanta, GA. <https://www.cdc.gov/aging/publications/chronic-diseases-brief.html> accessed on 5/11/2023.

<sup>6</sup> Wooten KG, McGuire LC, et al. Racial and Ethnic Differences in Subjective Cognitive Decline — United States, 2015–2020. *MMWR Morbidity and Mortality Weekly Report* 2023;72:249–255. DOI: <http://dx.doi.org/10.15585/mmwr.mm7210a1>

<sup>7</sup> Olivari BS, Baumgart M, et al. Population measures of subjective cognitive decline: A means of advancing public health policy to address cognitive health. *Alzheimer's & Dementia: Translational Research & Clinical Interventions*. 2021; 7:e12142. <https://doi.org/10.1002/trc2.12142>

<sup>8</sup> Brody DJ, Kramarow EA, Taylor CA, McGuire LC. Cognitive Performance in Adults Aged 60 and Over: National Health and Nutrition Examination Survey, 2011–2014. National Health Statistics Reports; no. 126. Hyattsville, MD: National Center for Health Statistics. 2019. <https://www.cdc.gov/nchs/data/nhsr/nhsr126-508.pdf>

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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, as well as their caregivers and families.

## Data for Public Health Action

This brief presents the characteristics of middle-aged and older adults (aged 45 years and 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 the BRFSS and its optional Cognitive Decline Module. The module, which captures responses related to SCD, was administered as part of the 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 the 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.

These data were examined by age group, sex, race, ethnicity, educational attainment, living status, chronic disease status, SCD status, and other demographic characteristics. 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](#).



## This brief examines the following questions:

- How does the proportion of adults with at least one chronic disease differ by demographic characteristics among adults with and without cognitive decline?
- What is the proportion of adults with different types of chronic diseases among adults with and without subjective cognitive decline?
- What proportion of adults have no, one, two, or three or more chronic diseases among those with and without subjective cognitive decline?
- In each state, what proportion of adults aged 45 years and older with one or more chronic diseases have subjective cognitive decline?
- In each state, what proportion of adults aged 45 years and older with two or more chronic diseases have subjective cognitive decline?
- In each state, what proportion of adults aged 45 years and older with diabetes have subjective cognitive decline?
- In each state, what proportion of adults aged 45 years and older with coronary heart disease or stroke have subjective cognitive decline?
- In each state, what proportion of adults aged 45 years and older with subjective cognitive decline and one or more co-morbidities have talked with their healthcare provider about their memory problems?

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

**Table 1:** Proportion of adults aged 45 years and older with no or at least one chronic disease among individuals with and without subjective cognitive decline, by demographic characteristics, 2018-2021 BRFSS.

	With Subjective Cognitive Decline		Without Subjective Cognitive Decline	
	No Chronic Disease (%)	At Least One Chronic Disease* (%)	No Chronic Disease (%)	At Least One Chronic Disease* (%)
	10.6%		89.4%	
<b>Overall</b>	11.3	88.7	34.5	65.5
<b>Age Group</b>				
45–64 years	12.9	87.1	43.7	56.3
65 years and older	9.4	90.6	21.0	79.0
<b>Sex</b>				
Female	9.8	90.2	31.2	68.8
Male	13.1	86.9	38.3	61.7
<b>Race and Ethnicity</b>				
Multiracial	5.0	95.0	27.2	72.8
Non-Hispanic American Indian or Alaskan Native	8.3	91.7	29.1	70.8
Non-Hispanic white	10.3	89.7	32.0	68.0
Non-Hispanic Black	11.0	89.0	35.4	64.6
Hispanic, any race	16.4	83.6	43.7	56.3
Non-Hispanic Asian or Pacific Islander	24.4	75.6	54.3	45.7
<b>Highest Level of Education</b>				
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
<b>Living Status</b>				
Lives alone	9.0	91.0	29.4	70.6
Does not live alone	11.8	88.2	35.3	64.7

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

The proportion with at least one chronic disease among those with SCD ranged from 75.6% among Asian or Pacific Islander adults to 95.0% among multiracial adults. Among those without SCD, the proportion with one or more chronic diseases ranged from 45.7% among Asian or Pacific Islander adults to 72.8% among multiracial adults.

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**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 and 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 and 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.** Proportion of adults aged 45 years and older with individual chronic diseases by subjective cognitive decline status, 2018–2021 BRFSS.

Disease	Age 45–64 years		Age 65 years and older	
	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 <sup>†</sup>	12.8	6.6	21.1	17.9
COPD <sup>‡</sup>	25.1	6.6	20.3	12.1
Coronary Heart Disease <sup>§</sup>	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

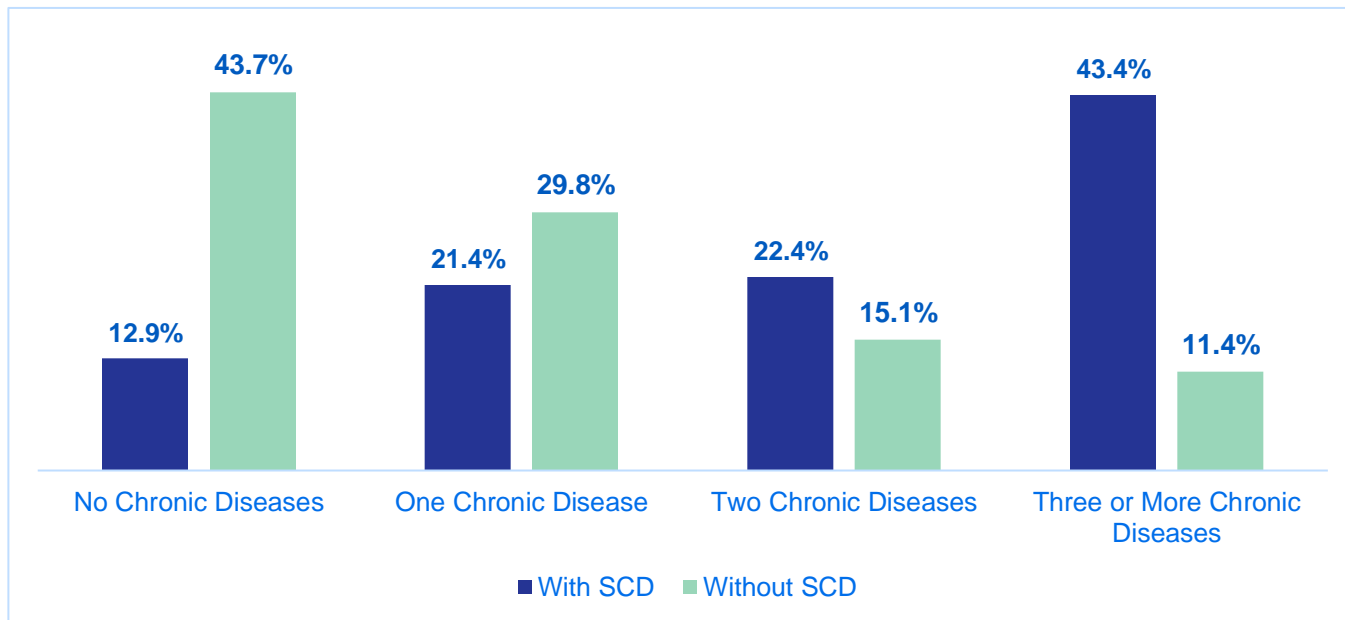
<sup>†</sup> Excluding skin cancer.

<sup>‡</sup> Chronic obstructive pulmonary disease.

<sup>§</sup> Respondents were classified as having coronary heart disease (CHD) if they reported having been told by a provider they had CHD, angina, or a heart attack (i.e. myocardial infarction).

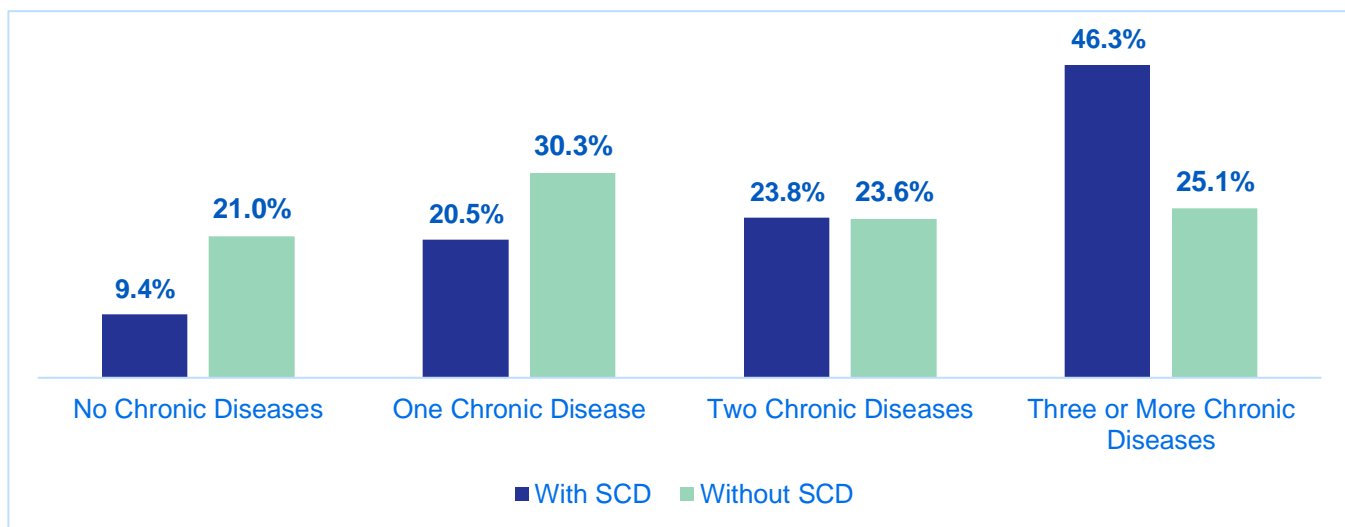
Overall, arthritis is the most prevalent disease among adults aged 45–64 (with SCD: 59.1%, without SCD: 30.1%) and aged 65 years and older (with SCD: 62.7%, without SCD: 50.1%) regardless of the presence of SCD. Among adults aged 45–64 years, the prevalence of diabetes is 25.9% among those with SCD and 13.8% 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. Current asthma was reported among 25.7% of adults aged 45–64 years with SCD while 13.6% of those without SCD reported current asthma. 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 and older, the prevalence of stroke was 15.0% among those with SCD and 6.9% among those without SCD. Among adults aged 65 years and older, the prevalence of diabetes was 32.7% for those with SCD and 21.6% for those without SCD.

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



Among adults aged 45–64 years, 2 in 5 adults with SCD reported having three or more chronic diseases (43.4%) while 2 in 5 adults without SCD reported no chronic diseases (43.7%).

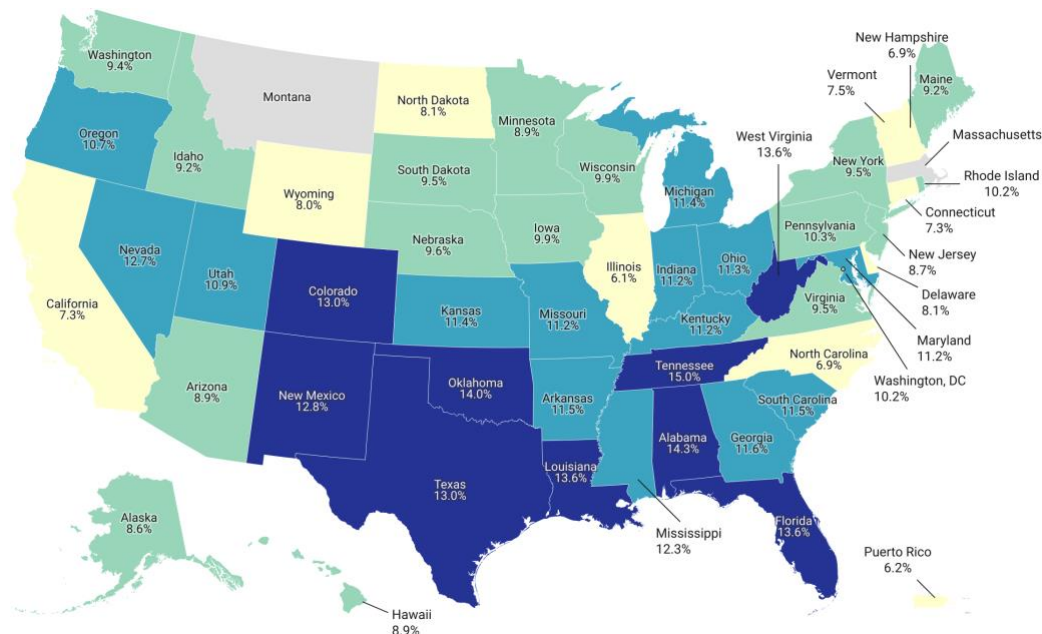
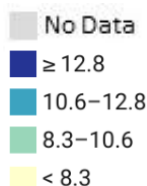
**Graph 2.** Adults aged 65 years and older by number of chronic diseases and subjective cognitive decline status, 2018-2021 BRFSS.



Among adults aged 65 and older, nearly half of those with SCD (46.3%) and a quarter of those without SCD (25.1%) reported having three or more chronic diseases.

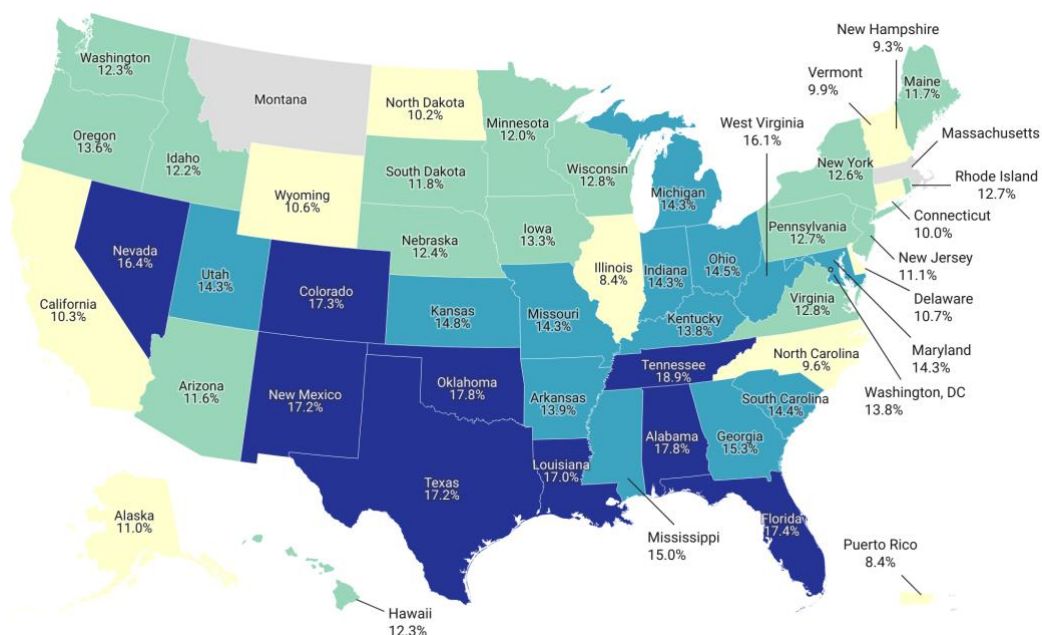
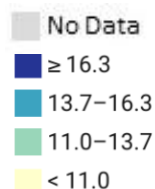


**Figure 1.**  
Prevalence of Subjective Cognitive Decline Among Adults Aged 45 Years and Older, 2018–2021 BRFSS.

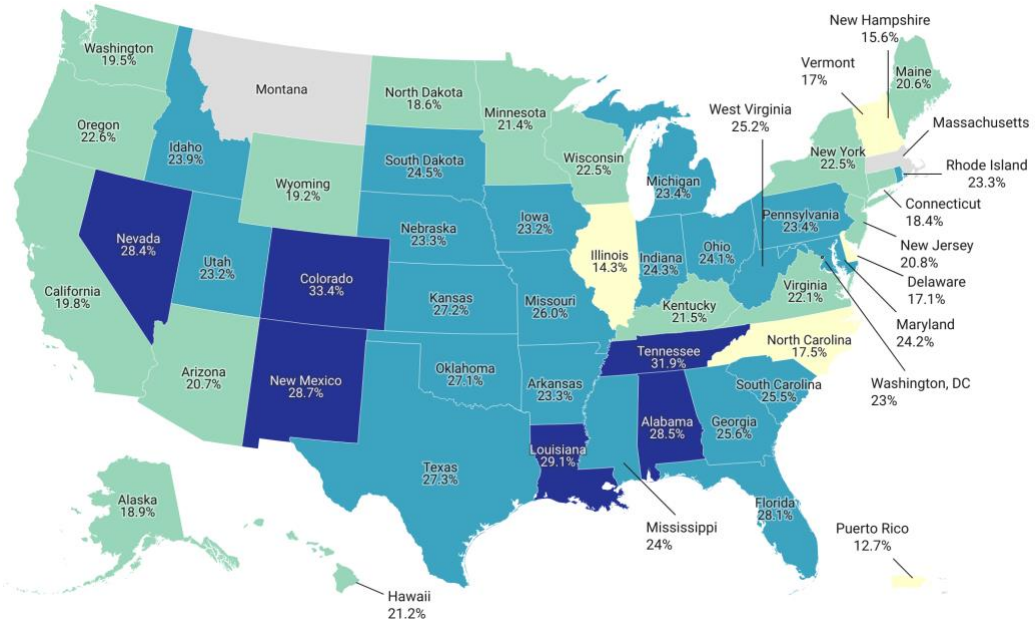
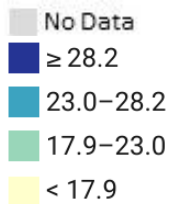


As shown in Figure 1, the prevalence of SCD by state ranged from 6.1% to 15.0%. The median prevalence of SCD among all states participating in the module was 10.2%. The state prevalence of SCD among adults aged 45 years and older with one or more chronic diseases ranged from 8.4% to 18.9%. As shown in Figure 2, states with a reported higher prevalence of SCD among adults with one or more chronic diseases 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.

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

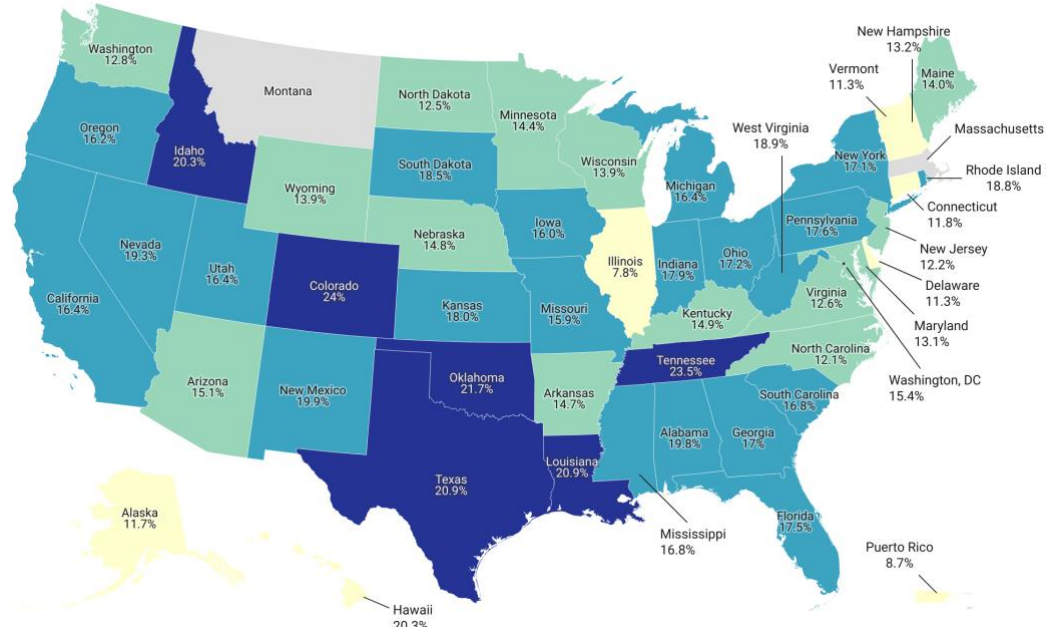
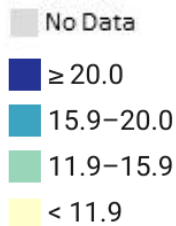


**Figure 3.** Prevalence of Subjective Cognitive Decline by State Among Adults Aged 45 Years and Older with Three or More Chronic Diseases, 2018–2021 BRFSS.



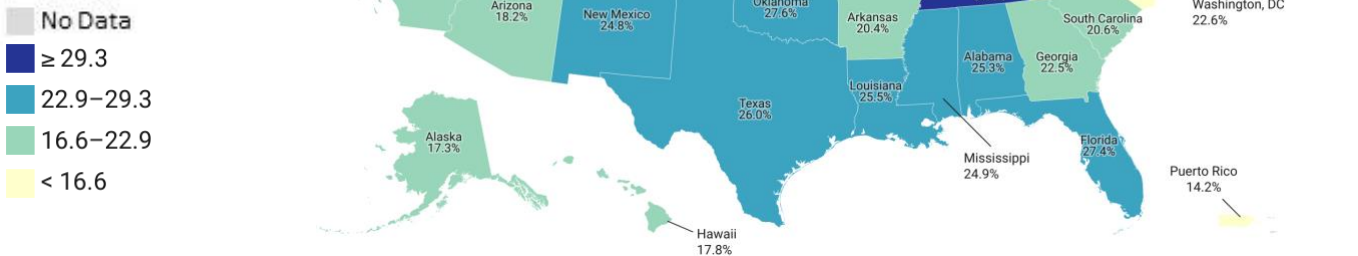
Chronic diseases can add to the burden of those living with SCD. Figure 3 shows the state prevalence of SCD among adults aged 45 years and older with three or more chronic diseases ranged from 12.7% to 33.4% with a median of 23.3%.

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



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

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



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

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

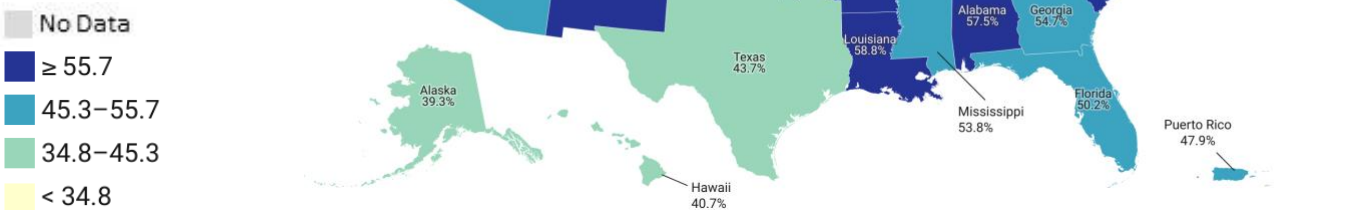


Figure 6<sup>9</sup> shows that of adults aged 45 years and older who reported SCD and at least one chronic disease, the range of percentages of those reporting talking with their healthcare provider by state was 24.4%–66.1%, with a median state prevalence of 56.4%.

<sup>9</sup> Unlike in previous Figures, for Figure 6, a higher prevalence is the more desirable health outcome.

Regardless of their chronic disease status, certain groups of individuals are less likely to talk with their healthcare provider about their memory loss (Table 3). 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 adults 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 21.4% 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
<b>Overall</b>	45.3%
<b>Age Group</b>	
45–64 years	49.4%
65 years and older	40.9%
<b>Sex</b>	
Female	49.4%
Male	41.0%
<b>Race and Ethnicity</b>	
Multiracial	60.6%
Non-Hispanic American Indian or Alaska Native	53.5%
Non-Hispanic Black	47.7%
Non-Hispanic white	46.0%
Hispanic, any race	41.1%
Non-Hispanic Asian or Pacific Islander	21.4%
<b>Health Insurance</b>	
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](#) 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 key informants.

This data brief supports the following HBI Road Map actions:

<b>Strengthen Partnerships and Policies (P)</b> <sup>10</sup>	
<b>P-2</b>	Utilize community-clinical linkages to improve equitable access to community-based chronic disease prevention, dementia support and healthy aging programs.
<b>P-6</b>	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.
<b>Measure, Evaluate and Utilize Data (M)</b> <sup>11</sup>	
<b>M-1</b>	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.
<b>Engage and Educate the Public (E)</b> <sup>12</sup>	
<b>E-1</b>	Engage diverse audiences to develop culturally responsive messaging about brain health, cognitive decline, healthy aging, and caregiving.
<b>E-2</b>	Disseminate culturally responsive messaging to encourage conversations about brain health, cognitive decline, healthy aging, and caregiving.
<b>E-4</b>	Embed cognitive decline risk factors into evidence-informed health promotion and chronic disease prevention awareness and education campaigns.

<sup>10</sup> Strengthen Partnerships and Policies is a domain in the HBI Road Map.

<sup>11</sup> Measure, Evaluate and Utilize Data is a domain in the HBI Road Map.

<sup>12</sup> Engage and Educate the Public is a domain in the HBI Road Map.

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## 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>.

**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.**

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