

Early-, Mid-, and Late- Life Dementia Risk Factors Associated with Subjective Cognitive Decline in a U.S. Population-Based Sample

Drew Blasco, PhD¹, Katie Ehlman, PhD², Jace D. Flatt, PhD¹

¹University of Nevada, Las Vegas, School of Public Health, Las Vegas NV, USA; ²University of Nevada, Reno, School of Public Health, Reno, NV, USA

BACKGROUND

- 7 million Americans currently have an Alzheimer’s disease (AD) diagnosis with increases projected over time and multimorbidity playing a role in risk of development¹⁻³
- Subjective Cognitive Decline (SCD) may increase future risk of AD or dementia and/or may be an early symptomatic disease indicator⁴
- 14 early-, mid-, and late-life population-level modifiable dementia risk factors were identified by the 2024 Lancet Commission report update⁵
- This analysis sought to understand the association between modifiable dementia risk factors measured in the BRFSS and SCD

Table 1. Demographics for individuals ≥ 45 years old (total unweighted n=78,019; total weighted n=40791539.5)		
Variables	Unweighted (n)	% (95% CI)
Age (Mean, SE)	62.96 (0.91)	
Subjective Cognitive Decline (SCD)		
Yes	13070	15.7% (15.1, 16.3)
No	64949	84.3% (83.7, 84.9)
Sex		
Female	42728	53.0% (52.1, 53.9)
Male	35291	47.0% (46.1, 47.9)
LGBQ		
Yes	1590	3.6% (3.1, 4.1)
No	43573	96.4% (95.9, 96.9)
Race and Ethnicity		
White	62474	65.6% (64.7, 66.4)
Black	4606	12.0% (11.3, 12.6)
American Indian	868	0.9% (0.8, 1.1)
Asian and Pacific Islander (API)*	627	1.9% (1.5, 2.2)
Other**	1713	2.8% (2.5, 3.1)
Hispanic/Latino	6447	16.9% (16.2, 17.7)
Education		
Less than High School	4455	11.3% (10.6, 11.9)
High School or GED	19433	26.6% (25.9, 27.4)
Some College or More	53891	62.1% (61.2, 63.0)
Income		
<\$25,000	10341	16.8% (16.1, 17.5)
\$25,000-\$49,000	16549	25.0% (24.2, 25.9)
>\$50,000	37434	58.2% (57.2, 59.1)
Insurance Status		
Insured	73471	95.0% (94.5, 95.5)
No Insurance	2499	5.0% (4.5, 5.5)
Urban/ Rural Status		
Urban	60761	92.5% (92.2, 92.8)
Rural	14407	7.5% (7.2, 7.8)
2+ dementia risk factors		
Yes	32215	44.0% (43.2, 44.9)
No	45804	56.0% (55.1, 56.8)

*Notes: 1. Percentages in the % (95% CI) column are weighted percentages; 2. API includes respondents identifying as Asian and Native Hawaiian and Pacific Islander; 3. Other includes respondents identifying as American Indian or Alaskan Native Only, Other race, and Multiracial

Table 2. Hierarchical Multivariable Logistic Regression Models for Early-, Mid-, and Late- Life Risk Factors for SCD						
	Model 1: Early-Life (unweighted n=44384)		Model 2:Early- & Mid- Life (unweighted n=43173)		Model 3: Early, Mid, Late-Life (unweighted n=43071)	
	aOR (95% CI)	p-value	aOR (95% CI)	p-value	aOR (95% CI)	p-value
Age	1.01 (1.00, 1.01)	0.004	1.01 (1.00, 1.02)	0.001	1.01 (1.01, 1.02)	0.004
Sex						
Female	1.09 (0.98, 1.22).	0.120	0.93 (0.83, 1.05)	0.266	0.92 (0.82, 1.04)	0.173
Male	1.00		1.00		1.00	
Race and Ethnicity		0.002		0.282		0.159
Black	0.93 (0.76, 1.12)		1.03 (0.85, 1.25)		1.01 (0.83, 1.23)	
American Indian	1.57 (0.88, 2.79)		1.47 (0.87, 2.49)		1.43 (0.87, 2.35)	
API	0.89 (0.40,1.97)		1.38 (0.64, 2.97)		1.36 (0.65, 2.85)	
Other	1.64 (1.19, 2.25)		1.18 (0.84, 1.65)		1.16 (0.83, 1.63)	
Hispanic/Latino	0.75 (0.59, 0.94)		0.84 (0.67, 1.06)		0.79 (0.63, 0.99)	
White, non-Hispanic	1.00		1.00		1.00	
LGBQ+						
Yes	1.45 (1.10, 1.92)	0.008	1.18 (0.91, 1.55)	0.217	1.16 (0.89, 1.52)	0.286
No	1.00		1.00		1.00	
Urban/Rural Status						
Rural	1.16 (0.99, 1.36)	0.074	1.13 (0.94, 1.35)	0.186	1.12 (0.93, 1.34)	0.222
Urban	1.00		1.00		1.00	
Low Education						
Less than High School	1.55 (1.28, 1.87)	<0.001	1.23 (1.01, 1.49)	0.044	1.14 (0.93, 1.40)	0.200
High School Degree +	1.00		1.00		1.00	
Depression						
Yes	--		4.05 (3.59, 4.56)	<0.001	3.94 (3.49, 4.45)	<0.001
No			1.00		1.00	
Physical Inactivity						
Yes	--		1.55 (1.36, 1.76)	<0.001	1.53 (1.34, 1.74)	<0.001
No			1.00		1.00	
Diabetes						
Yes	--		1.30 (1.13, 1.49)	<0.001	1.25 (1.09, 1.43)	0.001
No			1.00		1.00	
Smoking						
Yes	--		1.07 (0.91, 1.26)	0.431	1.04 (0.88, 1.23)	0.628
No			1.00		1.00	
Excess Alcohol Use						
Yes	--		1.56 (1.20, 2.03)	<0.001	1.58 (1.21, 2.06)	<0.001
No			1.00		1.00	
Hearing Loss						
Yes	--		2.34 (1.98, 2.77)	<0.001	2.15 (1.81, 2.54)	<0.001
No			1.00		1.00	
Vision Loss						
Yes	--		--		2.21 (1.81, 2.70)	<0.001
No					1.00	

¹Alzheimer's Association. 2025 Alzheimer's disease facts and figures. Alzheimer's & Dementia. 2025;21(4):e70235.

²Du M, Liu M, Liu J. Effects of physical and psychological multimorbidity on the risk of dementia: multinational prospective cohorts and a meta-analysis. BMC Medicine. 2024;22(1):423.

³Fang M, Hu J, Weiss J, et al. Lifetime risk and projected burden of dementia. Nature Medicine. 2025;31(3):772-776. doi:10.1038/s41591-024-03340-9

⁴Jack, C.R., Andrews, J.S., Beach, T.G., et al.,.: Revised criteria for diagnosis and staging of Alzheimer's disease: Alzheimer's Association Workgroup. Alzheimer's & Dementia. 20, 5143–5169 (2024).

⁵Livingston G, Huntley J, Liu KY, et al. Dementia prevention, intervention, and care: 2024 report of the Lancet standing Commission. The Lancet. 2024;404(10452):572-628.

⁶Centers for Disease Control and Prevention. 2024 BRFSS Survey Data and Documentation. Behavioral Risk Factor Surveillance System. Published August 2025.

https://www.cdc.gov/brfss/annual_data/annual_2024.html

METHODS

- 2024 Behavioral Risk Factor Surveillance System data (BRFSS) was analyzed⁶
- Utilized data from optional Cognitive Decline module (19 states/territories***) among 45+
- Weighting methodology includes both design weights and raking
- Descriptive Statistics: Unweighted Frequencies, Weighted Means/Percentages
- Significant Bivariate (risk factors & SCD) associations determined risk factors included in Hierarchical Multivariable Logistic Regression Models:
 - Assess the association between early-, mid-, late-life dementia risk factors and SCD

RESULTS SUMMARY

- Early Life Risk Frequency:
 - Low Education: 11.3%
- Mid Life Risk Frequency:
 - Obesity: 36.0%
 - Physical Inactivity: 28.7
 - Diabetes: 20.8%
 - Depression: 19.9%
 - Smoking: 11.7%
 - Hearing Loss: 11.4%
 - Excess Alcohol Use: 4.9%
- Late Life Risk Frequency:
 - Vision Loss: 7.8%
- Modifiable Risk Factors associated with SCD:
 - Model 1: Early Life: Low Education, Age, Race/Ethnicity, LGBQ+

-Model 2: Early and Mid Life: Low Education, Depression, Physical Inactivity, Diabetes, Excess Alcohol Use, Hearing Loss, Age

-Model 3: Early, Mid, and Late Life: Depression, Physical Inactivity, Diabetes, Excess Alcohol Use, Hearing Loss, Vision Loss

CONCLUSION

- Multiple modifiable factors-low education, depression, physical inactivity, diabetes, excessive alcohol use, hearing and vision loss-were associated with increased likelihood of reporting SCD

Given this, there is a need for both early and multifactor dementia risk reduction interventions in areas such as mental health, sensory health, and common behavioral risk factors like physical activity to reduce the growing dementia incidence in the U.S.

***States/Territories included: Alabama, Alaska, Delaware, Florida, Idaho, Indiana, Maine, Maryland, Missouri, New Hampshire, North Carolina, Oregon, Pennsylvania, Texas, Utah, Vermont, West Virginia, Wyoming, and Puerto Rico