

# Examining links between late-life depression and functional disabilities in adults over 80

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## Background

The octogenarian years (80-89) are often a period of significant health changes, including the decline of physical performance. By the age of 85, most older adults experience multimorbidity, having three or more comorbid chronic diseases. Between ages 84 and 87, there are increases in severe cognitive and physical impairments, and activities of daily living (ADL) disabilities become common.

Similar to physical declines, late-life depression becomes more prevalent in older age groups. Individuals in their eighties and nineties have a 30-50% greater risk of developing depression than adults in their 70s. Late-life depression is associated with poorer overall physical health and functioning and increased mortality. Older adults commit suicide at higher rates than other age groups, and adults with depression have greater all-cause mortality rates than those without.

Previous research on geriatric health has established a relationship between depression and disability in older adults, but most studies examine 65+ adults as one homogeneous group. With many people living past the age of 80 or 90, it is important to distinguish between age categories of older adulthood and examine the unique issues of these groups.

## Objective

The objective of this research is to examine the associations between depressive symptoms and functional disabilities in adults aged 80 or older in the United States.

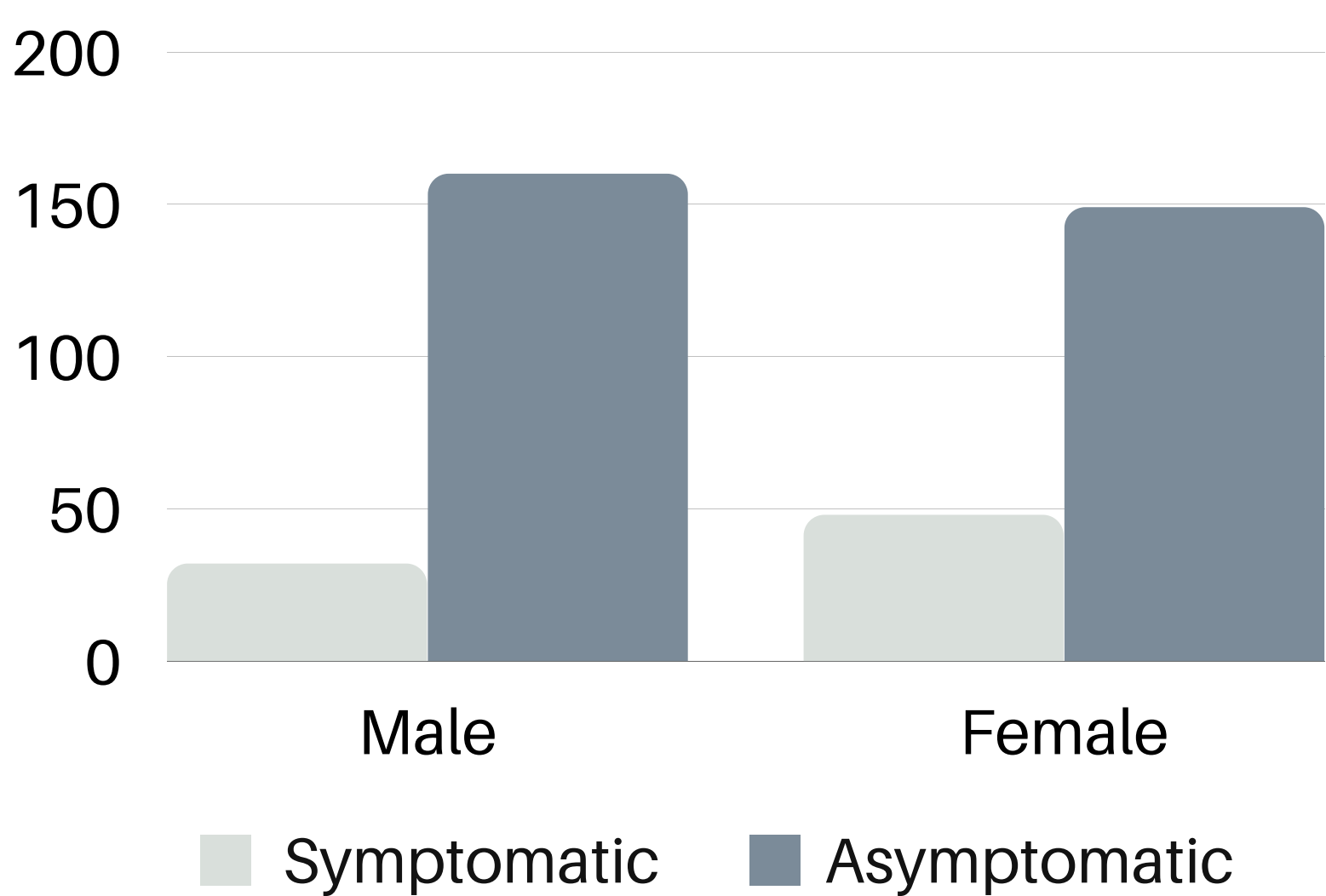
## Methods

Cross-sectional survey data from the National Health and Nutrition Examination Survey (NHANES) were used in this study. Multi-level probability sampling and stratified sampling of subgroups were used to gather a representative sample of the United States civilian population. Between 2017 and 2018, there were 16,211 individuals recruited, and 8,704 enrolled. Participants below the age of 80, and individuals without complete data for disability and depression questionnaire items were excluded from analyses. Disability sum scores were calculated from six items on functional ability, and participants were categorized for depression based on frequency of depressive symptoms. A Chi-Square Test of Proportions was used to analyze sex and depression. Independent samples t-tests were used to analyze associations between sex and disability and between disability and depression.

### Participant Demographics

	n	Percent
Male	192	49.36
Female	197	50.64
Symptomatic for Depression	80	20.57
Asymptomatic for Depression	309	79.43

### Depression symptoms by sex



There was no correlation found between sex and depression symptomology ( $p=0.06$ ).

### Disability score by sex

	Male		Female	
	M	SD	M	SD
Disability Score	1.39	0.11	1.39	0.11

There was no statistically significant difference in disability scores by sex ( $p=0.97$ ).

### Disability score by depression

	Symptomatic		Asymptomatic	
	M	SD	M	SD
Disability Score	1.95	1.65	1.24	1.38

There was a significant difference in disability score by depression. Older adults with depression symptoms had more functional disabilities than older adults without depression symptoms ( $p=0.0006$ ).

## Results

The final sample included 389 participants, approximately half male, with 20.57% of participants experiencing depressive symptoms at least monthly. There was no correlation found between sex and depression symptomology ( $p=0.06$ ). There was no statistically significant difference in disability scores by sex ( $p=0.97$ ). There was a statistically significant difference in disability score by depression symptomology, specifically that individuals over the age of 80 with depression have, on average, more disabilities than those without depression ( $p=0.0006$ ). Older adults with depression symptoms ( $n=80$ ) had an average of 1.95 disabilities of daily living ( $SD=1.65$ ), and older adults without depression symptoms ( $n=309$ ) had an average of 1.24 disabilities of daily living ( $SD=1.38$ ).

## Discussion

Results of this research show an association between depression and ADL disabilities in late-life adults. These findings are consistent with previous research in linking depression to ADL disabilities in adults over 65 and extend knowledge of this association to a narrower age group of adults 80 or older. Aging is associated with declines in physical and cognitive functioning, and many older adults experience a loss of independence as daily tasks become more difficult. This loss of independence is a possible explanation for the increased depressive symptoms in older adults with ADL disabilities, as they must adjust to changes in their abilities.

The cross-sectional design of this study limits the ability to determine temporal associations or define causation, as it is not evident whether depressive symptoms or the ADL disabilities occurred first, or if there is a third variable contributing to changes in both.

## Conclusion

Further research on ADL disabilities and depression in older adults should utilize longitudinal or cohort study designs, which will allow for researchers to observe the association between these variables over time. Future survey designs should prioritize recruitment of older adults, as a greater sample size would also allow for statistical analyses of age subgroups. As more information on the causes of geriatric depression becomes available, health promotion practitioners should plan appropriate interventions for older adults in order to improve health and quality of life for those in late life.