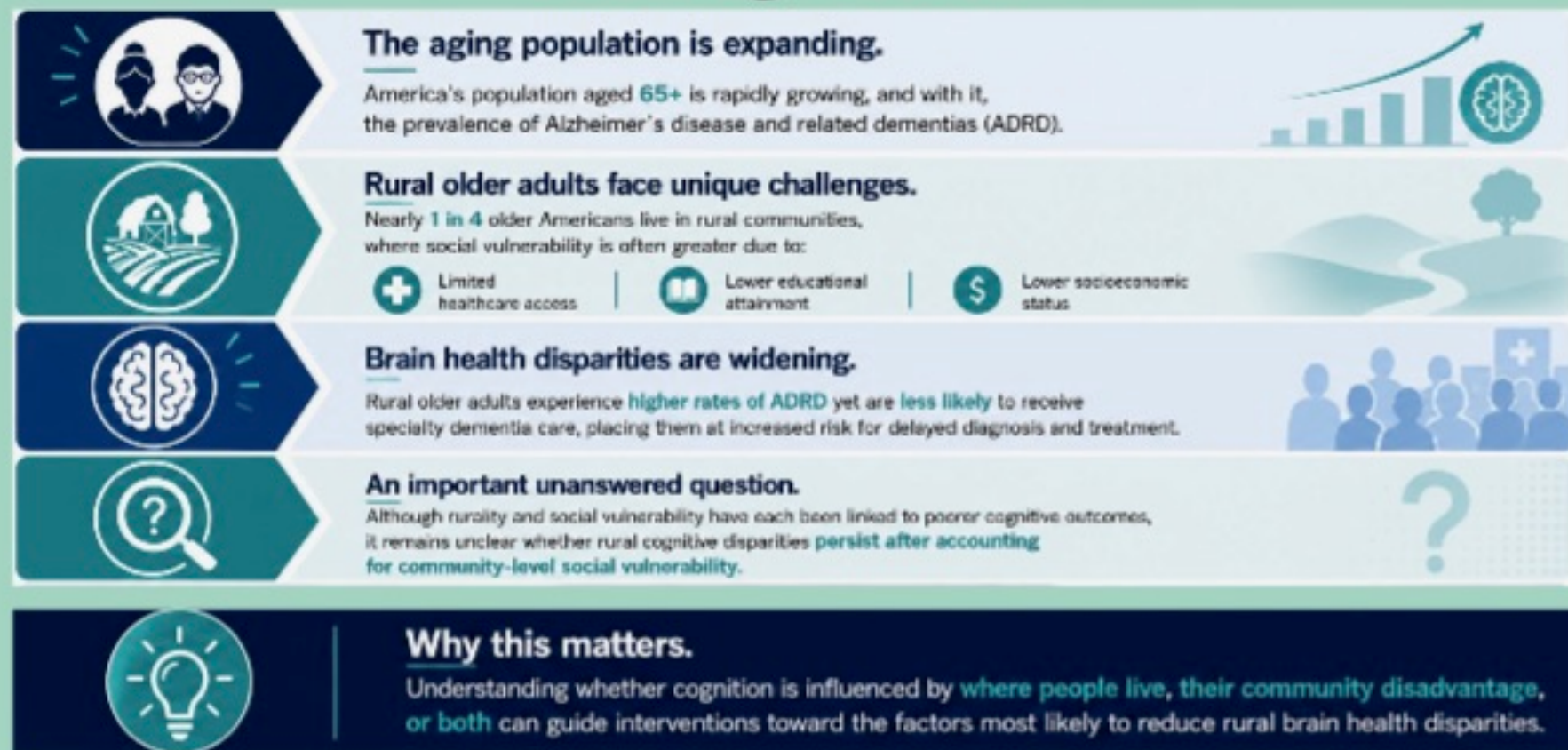


Geographical Context and Cognitive Aging: The Roles of Rurality and Community-Level Social Vulnerability

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Background



Results

- After adjusting for demographics, rurality was independently and significantly associated with poorer executive functioning, whereas community social vulnerability and its interaction with rurality were not significant (Tables 2 & 3)
- Rurality was not associated with global cognition or other cognitive domains

Table 2. Hierarchical Linear Regression Predicting Executive Function

Step	Predictors Added	ΔR^2	p
1	Demographics	.169	<.001
2	Rurality	.010	.013
3	Social Vulnerability	.003	.193
4	Rurality $\times$ Social Vulnerability	<.001	.719

Table 3. Final Model Predictors

Predictor	β	p
Age	-.280	<.001
Education	.237	<.001
Gender	-.104	.010
Ethnicity	-.196	<.001
Rurality	-.092	.027
Social Vulnerability	-.044	.377
Rurality $\times$ Social Vulnerability	-.018	.719

Objective

To examine the **independent** and **interactive** effects of rurality and social vulnerability on cognitive functioning in older adults

Participants / Methods

Participants:

- Patients (N = 751) presenting with cognitive concerns at the University of Arkansas for Medical Sciences Neuropsychology Program (Table 1)

Predictors: Demographic and Geographic Characteristics

- Demographics: age, education years, gender/sex, race/ethnicity
- Rurality: Rural-Urban Commuting Area Codes
- Social Vulnerability: CDC Social Vulnerability Index

Outcome: Cognitive Functioning

- Patients underwent comprehensive neuropsychological evaluation.
- Global and cognitive domain composites were calculated using robust z-scores derived with cognitively normal patients as the reference group

Table 1. Participant Characteristics

Variable	Rural (n = 222)	Non-Rural (n = 529)	P
Demographic Characteristics			
Age (years)	70.87 $\pm$ 6.82	72.99 $\pm$ 7.56	<.001
Education (years)	13.52 $\pm$ 2.84	14.28 $\pm$ 2.96	<.001
%Female gender	58.6 (n=130)	60.3 (n=318)	.649
%White, non-Hispanic	89.6 (n=199)	82.8 (n=437)	.017
Social Vulnerability	0.754 $\pm$ 0.210	0.688 $\pm$ 0.193	<.001
Cognitive Characteristics			
Global Cognition	-1.34 $\pm$ 1.21	-1.25 $\pm$ 1.14	.186
Attention/Processing Speed	-1.20 $\pm$ 1.72	-0.88 $\pm$ 1.57	.014
Executive Function	-1.15 $\pm$ 1.41	-0.88 $\pm$ 1.22	.012
Language	-1.85 $\pm$ 2.29	-1.89 $\pm$ 2.43	.419
Visuospatial	-1.00 $\pm$ 1.51	-0.98 $\pm$ 1.41	.431
Immediate Memory	-1.21 $\pm$ 1.07	-1.26 $\pm$ 1.02	.300
Delayed Memory	-1.29 $\pm$ 1.16	-1.41 $\pm$ 1.10	.117

Discussion



Translating these results to practice:

- Rural populations often struggle to access brain health care. Reaching these populations via telehealth could increase access to early detection of dementia risk and help to mitigate brain health disparities

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