

Multimorbidity and cognitive health among Black middle- to older-aged adults: The Rural Roads to Cognitive Resilience cohort

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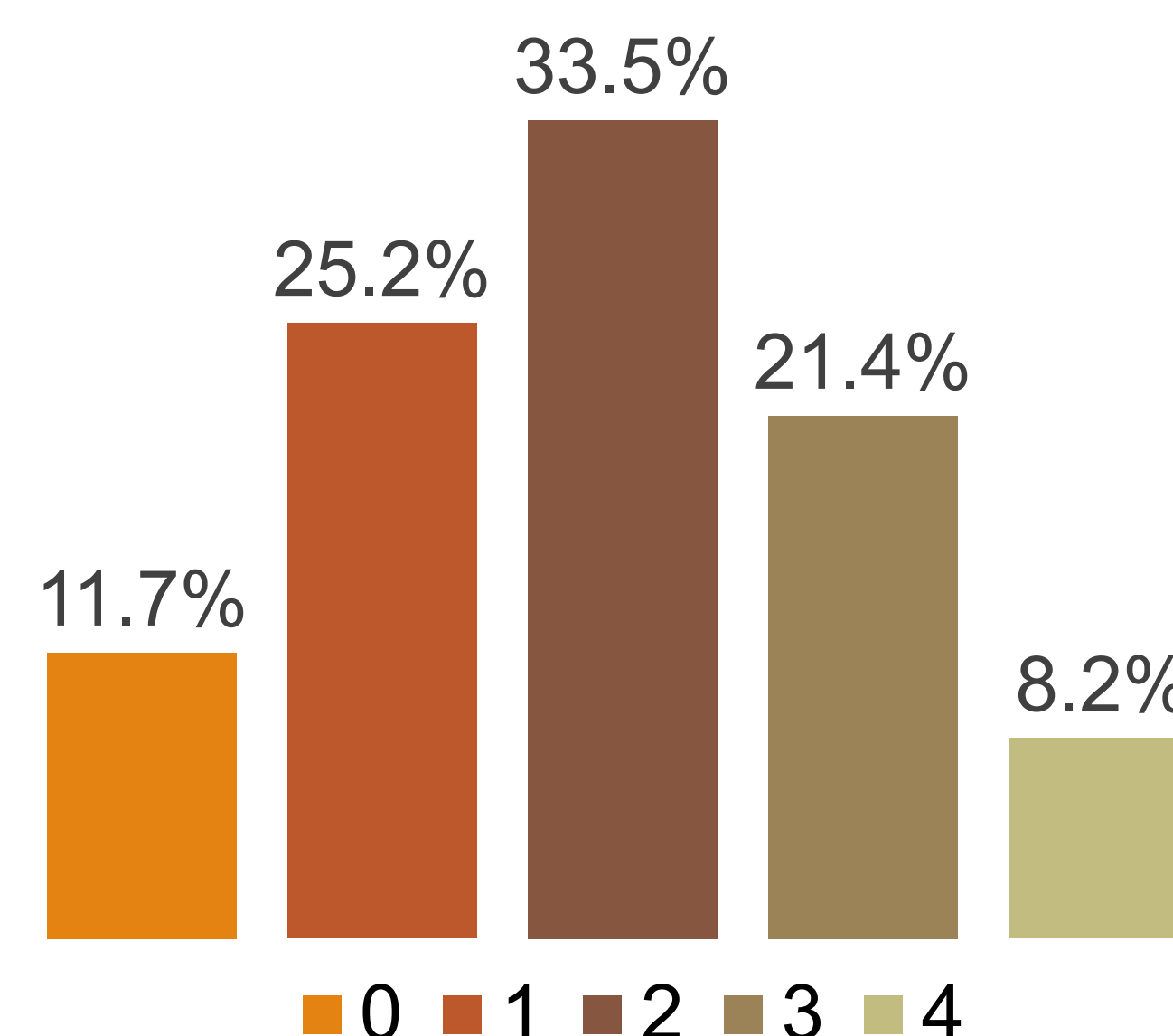
Summary of Findings

Among rural Black middle- to older-aged adults, having more chronic conditions was associated with lower cognitive function and greater cognitive decline, highlighting the need for integrated multimorbidity and cognitive health screening in underserved rural communities.

Background

- A systematic review and meta-analysis found multimorbidity associated with a 49% higher risk of cognitive impairment, with increasing risk for those with a greater number of chronic conditions (Bai et al, 2026, PMID: 41895026).
- Yet, few studies have investigated associations between multimorbidity and cognitive health among rural Black adults.
- Study aim:** Examine whether greater multimorbidity is associated with worse baseline cognitive function and greater cognitive decline over 6 months among Black middle- to older-aged adults living in rural Florida.

Sample's multimorbidity
(number of chronic conditions)



Methods

- Rural Roads to Cognitive Resilience Cohort:** Recruited participants from rural south-central Florida (Lake Okeechobee region) starting in 2024.
- Inclusion criteria:** Community-dwelling; 45 years and older; self-identifies as Black; speaks English, Spanish, or Haitian Creole; lived in area for at least 12 months.
- Multimorbidity score (range: 0-4)** was calculated based on self-reported presence of:
 - Functional impairment (Mini Physical Performance Test score ≥ 12)
 - Obesity ($\geq 30\text{kg/m}^2$)
 - Diabetes
 - Hypertension
- Montreal Cognitive Assessment (MoCA):**
 - Global cognition measure
 - Range: 0-30 (higher: better cognition)
- Multivariable linear and logistic regression:**
 - Determined associations between multimorbidity and cognition.
 - Linear regression model for baseline cognitive score controlled for age, gender, individual-level socioeconomic status (education, employed, car ownership), living alone, town of residence, and neighborhood socioeconomic status.
 - Logistic regression model for 6-month cognitive decline additionally controlled for days between baseline and follow-up cognitive tests.

Results

Sample characteristics	n=635
Age (years), mean $\pm$ SD	64.7 $\pm$ 9.5
Education (years), mean $\pm$ SD	11.9 $\pm$ 3.2
Female, n (%)	441 (69.5%)
Lives alone, n (%)	245 (38.6%)
Employed, n (%)	181 (28.5%)
Own car, n (%)	459 (72.3%)
NSES score*, mean $\pm$ SD	-0.58 $\pm$ 0.42
MoCA total, mean $\pm$ SD	24.9 $\pm$ 4.0
Chronic conditions included in multimorbidity score, n (%)	
Hypertension	419 (66.0%)
Diabetes	202 (31.8%)
Functional impairment	227 (35.8%)
Obesity	354 (55.8%)
NSES=Neighborhood socioeconomic status; MoCA=Montreal Cognitive Assessment; * lower NSES score=more deprived neighborhood (range: -1.81 to 0.89)	

Adjusted associations between multimorbidity and MoCA (global cognition)

	Estimate (95% CI)	OR (95% CI)
	Baseline cognitive score	6-month decline in cognition (yes/no)
Multimorbidity score		
0 (ref)	Ref.	Ref.
1	-2.95 (-4.10, -1.80)*	1.86 (0.91-3.82)
2	-2.35 (-3.35, -1.36)*	1.36 (0.67-2.78)
3	-5.03 (-6.02, -4.03)*	2.23 (0.92-5.41)
4	-4.15 (-5.49, -2.80)*	2.60 (1.11-6.10)*

* p<0.05