

Social Determinants of Health in Neurocognitive Disorder Risk among Adults from an Urban-Marginalized Area of Lima, Peru

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KEY TAKEAWAY: Neurocognitive disorder risk was highest among adults with lower socioeconomic status, lower education, and origins in Peru's Andes or Jungle regions - with disparities evident by midlife.

INTRODUCTION

- Neurocognitive disorders (NCD) are increasing in low- and middle-income countries.
- Socioeconomic disadvantage, education, and region of origin may impact cognitive vulnerability across the life course.
- Urban-marginalized communities in Latin America are underrepresented in dementia research.

Objective

Examine NCD, cardiometabolic risk, and depressive symptoms by socioeconomic status (SES), education, and region of origin in Puente Piedra, Lima, Peru.

METHODS

N=1,099 Total adults aged ≥30 years	786 Adults 30-59 years	313 Adults ≥60 years
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Study design

- Population-based, door-to-door study in Puente Piedra, an urban-marginalized district of Lima, Peru.
- Structured demographic, socioeconomic, health, and functional questionnaires.
- Outcomes compared across SES quintiles, education groups, and region of origin.

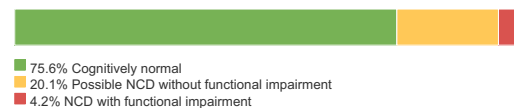
Cognitive assessment

- Younger adults: Addenbrooke's Cognitive Examination-III (ACE-III).
- Older adults: Peruvian Rowland Universal Dementia Assessment Scale (RUDAS-PE).
- Functional impairment: Pfeffer Functional Activities Questionnaire (PFAQ).

Inequality metrics

- Slope Index of Inequality (SII): absolute gradient across ranked groups.
- Relative Index of Inequality (RII): relative gradient.
- Relative Concentration Index (RCI): concentration of NCD across socioeconomic ranking.

SAMPLE NCD STATUS



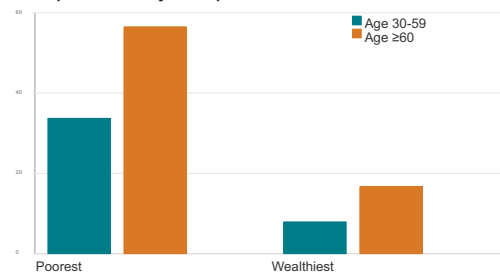
NCD = neurocognitive disorder.

RESULTS: Socioeconomic Status Gradient



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NCD prevalence by SES quintile



NCD prevalence declined substantially from the poorest to wealthiest SES quintile in both age groups.

RESULTS: INEQUALITY INDICES

	SII	RII	RCI
30-59	-0.636***	0.038**	--
≥60	-0.458***	0.262***	0.0415***

Negative SII indicates higher NCD burden concentrated in lower SES groups.
p<0.01; *p<0.001

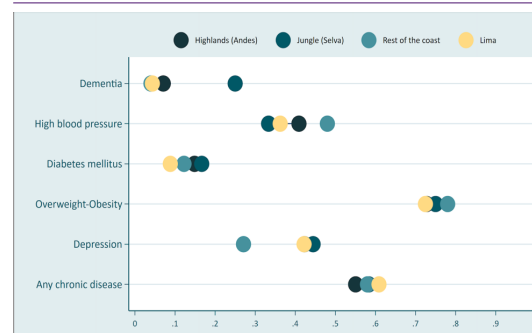
RESULTS: EDUCATION

Education showed the strongest gradient in NCD risk

Across younger and older adults, NCD risk was highest in the no-formal-education group and lowest in the highest education group. Lower education was also associated with higher depressive symptom burden.

Implication: cognitive vulnerability may begin before older adulthood through cumulative social and educational disadvantage.

RESULTS: REGION OF ORIGIN



INTERPRETATION

Life-course social disparities in cognitive vulnerability are detectable by midlife.

Findings support early prevention targeting modifiable social determinants and educational opportunity in Peru.

CONCLUSIONS

- NCD risk was strongly affected by SES and education in both younger and older adults.
- Lower education and lower SES were associated with higher NCD prevalence across the adult life course.
- Region of origin may capture unmeasured life-course exposures linked to rurality, migration, education, and healthcare access.
- Cardiometabolic risk and depressive symptoms were common, but showed less consistent social gradients than NCD.

WHY THIS MATTERS

Urban-marginalized communities in LMICs are aging rapidly, yet most dementia risk evidence comes from high-income settings and older cohorts.

Results highlight the need to address social determinants before older age and to integrate cognitive, mental health, and cardiometabolic prevention strategies.

LIMITATIONS & NEXT STEPS

- Cross-sectional design limits causal inference.
- Different cognitive instruments were used by age group.
- Future longitudinal studies should evaluate incident cognitive decline and mechanisms linking SDOH to NCD.

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