

Gait speed and cognitive performance in older adults with mild cognitive impairment and cognitively healthy controls

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1. Background

Gait speed is widely regarded as an objective measure of overall health status and a reliable indicator of functional ability in older adults. Slower gait speed has been associated with mild cognitive impairment (MCI) and dementia. However, studies addressing this association in Peru are lacking.

2. Objective

This study examined the relationship between gait speed and cognitive performance, as well as the risk of MCI, in older adults.

3. Methods

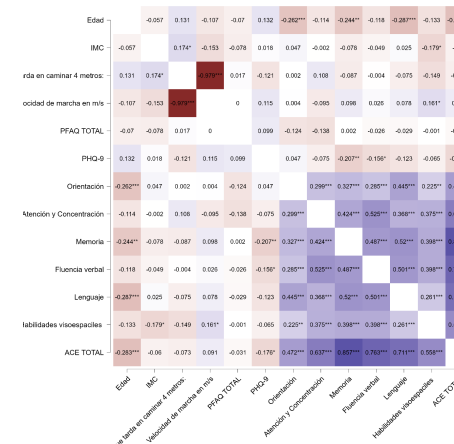
The sample consisted of 164 older adults from Arequipa, Peru (98 with mild cognitive impairment [MCI] and 66 cognitively healthy individuals [CH]). Participants with a history of physical impairments (e.g., fractures), use of gait-assistive devices, or prior diagnoses of neuropsychiatric disorders were excluded. Anthropometric and health measures (glucose levels, blood pressure, and body mass index) as well as sociodemographic data were collected. Cognitive and functional assessments included the Peruvian adaptations of the Addenbrooke's Cognitive Examination (ACE), the Pfeffer Functional Activities Questionnaire (PFAQ), and the Patient Health Questionnaire (PHQ-9). Physical performance was assessed using the 4-meter gait speed test, part of the Short Physical Performance Battery (SPPB). Nonparametric correlations (Spearman's rho) and two logistic regression models were conducted, with cognitive impairment status as the dependent variable and anthropometric measures (Model 1) and sociodemographic variables (Model 2) as predictors. (2021).

Table 1. Sociodemographic data

		Healthy N (%)	MCI N (%)
Sex	Male	23 (34.85%)	26 (26.53%)
	Female	43 (65.15%)	72 (73.47%)
	Single	9 (13.64%)	7 (7.14%)
Marital status	Married	37 (56.06%)	54 (55.10%)
	Cohabitant	4 (6.06%)	6 (6.12%)
	Divorced	4 (6.06%)	1 (1.02%)
	Widow	9 (13.64%)	24 (24.49%)
Employment status	Employed	1 (1.52%)	6 (6.12%)
	Self-employed	15 (22.73%)	16 (16.33%)
	Homemaker	19 (28.79%)	22 (22.45%)
	Retired	7 (10.61%)	10 (10.20%)
	Unemployed	24 (36.36%)	44 (44.90%)
Health insurance	Yes	33 (50.00%)	48 (48.98%)
	No	5 (7.58%)	2 (2.04%)
Level of education	Elementary school	2 (3.03%)	21 (21.43%)
	Middle school	13 (19.70%)	19 (19.39%)
	High school	13 (19.70%)	13 (13.27%)
	University	38 (57.58%)	56 (57.14%)
Ethnicity	Mestizo	56 (84.85%)	81 (81.63%)
	Quechua	2 (3.03%)	7 (7.14%)
	European	2 (3.03%)	8 (8.16%)
	Another	2 (3.03%)	1 (1.02%)

4. Results

A positive correlation was observed between gait speed and visuospatial performance ($\rho = .161, p < .05$). Logistic regression analyses showed that gait speed was significantly associated with increased odds of cognitive impairment in Model 1 ($OR = 1.256, p < .030$), whereas blood pressure, glucose levels, body mass index, and medical history were not. In Model 2, age ($OR = .166, p < .032$), years of education ($OR = .701, p < .001$), and health assistance ($OR = .041, p < .016$) significantly predicted cognitive impairment, while gait speed showed a non-significant trend toward increased risk ($OR = 1.315, p = .073$).



5. Conclusions

Gait speed is associated with better visuospatial abilities and appears to be more strongly related to cognitive impairment risk than traditional anthropometric measures, although less strongly than key sociodemographic factors such as age and education.

6. References

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