

Correlation between Functional Dependence and Semantic tasks in Brazilians with mild Alzheimer's disease: an exploratory study

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Take away: Education and semantic fluency emerged as key protective factors against functional dependence in mild AD, reinforcing the role of cognitive reserve in preserving independence.

INTRODUCTION

- Alzheimer's disease (AD) reflects loss of independence in daily activities;
- Semantic biomarkers can detect cognitive decline and disease progression;
- This study investigated associations between functional dependence and semantic performance in Brazilians with mild AD.
- Participants were recruited from a dementia outpatient clinic;
- Assessments included: socioeconomic questionnaire, ACE-R, semantic verbal fluency, and Brazilian functional dependence scale;
- Semantic biomarkers (granularity and ongoing semantic variability) were extracted from spontaneous and semi-spontaneous speech using TELL;

METHODS

- Cross-sectional study with individuals >60 years with mild AD (NINCDS-ADRDA; CDR=1);
- Associations were analyzed using Spearman correlations and linear regression.

RESULTS

Table 1 – Clinical and sociodemographic characteristics of the sample.

	N(%) or Mean (SD)
Age ^a	75.8 (8.29)
Education ^a	10.9 (6.90)
Diagnosis time ^a	2.20 (1.91)
Sex - F	13 (52)
Ethnicity - White	21 (84)
Manual dominance - Right	24 (96)
Functional Dependence - Independent	20 (80)
ACE-R	54.4 (18.5)
Semantic fluency	10.6 (4.43)
Spontaneous speech	
Granularity	7.38 (0.50)
Ongoing semantic variability	0.024 (0.011)
Semi-spontaneous speech	
Granularity	6.85 (0.60)
Ongoing semantic variability	0.141 (0.552)

N = number of individuals; SD = Standard Deviation;
^a in years; ACE-R Addenbrooke's Cognitive Examination-Revised.

Table 3 - Linear regression model predicting functional dependence.

	β	Standard error	t	p
Age	0.00995	0.0105	0.951	0.353
Education	0.03432	0.0121	2.829	0.010*
Semantic fluency	-0.04957	0.0185	-2.677	0.014*
Granularity - Semi-spontaneous speech	-0.00021	0.0026	-1.036	0.313
Model Fit	R	0.722	R ²	0.521

Dependent variable: functional dependence; β = Regression Coefficient; t = statistics t; p = p-value; * = $p \leq 0,05$; Linear regression models.

Table 2 - Correlations between functional dependence, sociodemographic, cognitive, and language variables.

	r	p
Age	0.401	0.047*
Education	0.564	0.003*
ACE-R	-0.366	0.072
Semantic fluency	-0.539	0.005*
Spontaneous speech		
Granularity	-0.296	0.151
Ongoing semantic variability	0.060	0.775
Semi-spontaneous speech		
Granularity	-0.411	0.042*
Ongoing semantic variability	0.139	0.507

r = Spearman's correlation coefficient; p = p-value;
* = $p \leq 0,05$; Spearman's correlation.

CONCLUSIONS

The preservation of semantic skills and education is crucial for daily functioning, serving not only as markers of cognitive performance but also as key factors for maintaining everyday functionality.