

Pre-intervention Assessment Of Cognitive Function: Initial Analysis In The Latam FINGERS Project Using BrainHQ.

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Digital cognitive assessments show strong correlations with traditional neuropsychological measures in Latin American older adults, particularly in processing speed and executive functions.

INTRODUCTION

World-Wide FINGERS was built upon the multidomain lifestyle intervention framework established by the Finnish Geriatric Intervention Study (FINGER). Within this collaborative framework, the **LatAm FINGERS** project aims to promote dementia prevention through a two-year, multidomain, non-pharmacological lifestyle intervention, that compares a highly structured lifestyle intervention (**Systematic group**) with a self-guided lifestyle intervention (**Flexible group**), based on five core components: physical activity, cognitive stimulation delivered through the BrainHQ digital platform, adherence to the MIND diet, social activities, and comprehensive health management. The intervention was implemented across 11 Latin American countries and was culturally and socioeconomically adapted to the regional context.

OBJECTIVES

- To evaluate baseline cognitive performance in the overall sample of the Systematic and Flexible groups.
- Examining the relationship between age, education, and performance in the BrainHQ tests.
- To examine the associations between BrainHQ test scores and LatAm-NTB cognitive composites in processing speed, executive functions, and memory.

METHODS

All participants from both the Systematic and Flexible groups were assessed at baseline using a traditional cognitive assessment, the Latin American Neuropsychological Test Battery (LatAm-NTB), and a digital cognitive assessment (BrainHQ). For the LatAm-NTB domain-specific composite scores were calculated (Table 2) and a global composite was calculated for the BrainHQ tests examine the coherence between digital and traditional measures.

VARIABLE	TOTAL (N=1065)
 Age, mean (SD), years	67.5 (4.7)
 Sex	• Female: 795 (74.6%) • Male: 270 (25.4%)
 Educational Level	• Primary Education: 401 (37.7%) • Secondary Education: 664 (62.3%)
 Mini-Mental State Examination (MMSE), mean (SD)	27.3 (1.7)
 Clinical Dementia Rating (CDR)	• CDR = 0: 811 (78.0%) • CDR = 0.5: 229 (22.0%)

Table 1. Demographic and Inclusion Criteria

COMPOSITE	TEST INCLUDED
 Memory LatAm - NTB	• Logical Memory - Immediate Recall • Logical Memory - Delayed Recall
 Executive Function LatAm - NTB	• Digit Span (forward, backward, sequencing) • Trail Making Test A-B • Stroop PC • Phonological and Semantic Verbal Fluency • Concept Shifting Test - Condition C
 Processing Speed LatAm - NTB	• Trail Making Test A • Stroop C • Concept Shifting Test - Condition A • Digit Symbol Modalities Test (WAIS IV)
 BrainHQ	• Target Tracker: spatial working memory • Double Decision: speed of processing and useful field of view. • Mind Bender: Task switching and mental flexibility

Table 2. NTB and BrainHQ Composites
Domain-specific composites, as well as the BrainHQ global composite, were calculated as the mean of the individual tests included in each composite divided by the number of tests.

RESULTS

BrainHQ performance showed clear sensitivity to key demographic factors, with lower performance at older ages and higher performance with greater educational attainment. Digital cognitive performance demonstrated strong coherence with traditional neuropsychological domains, particularly processing speed and executive functions, while, as expected, memory, a distinct cognitive domain, showed a more modest association.

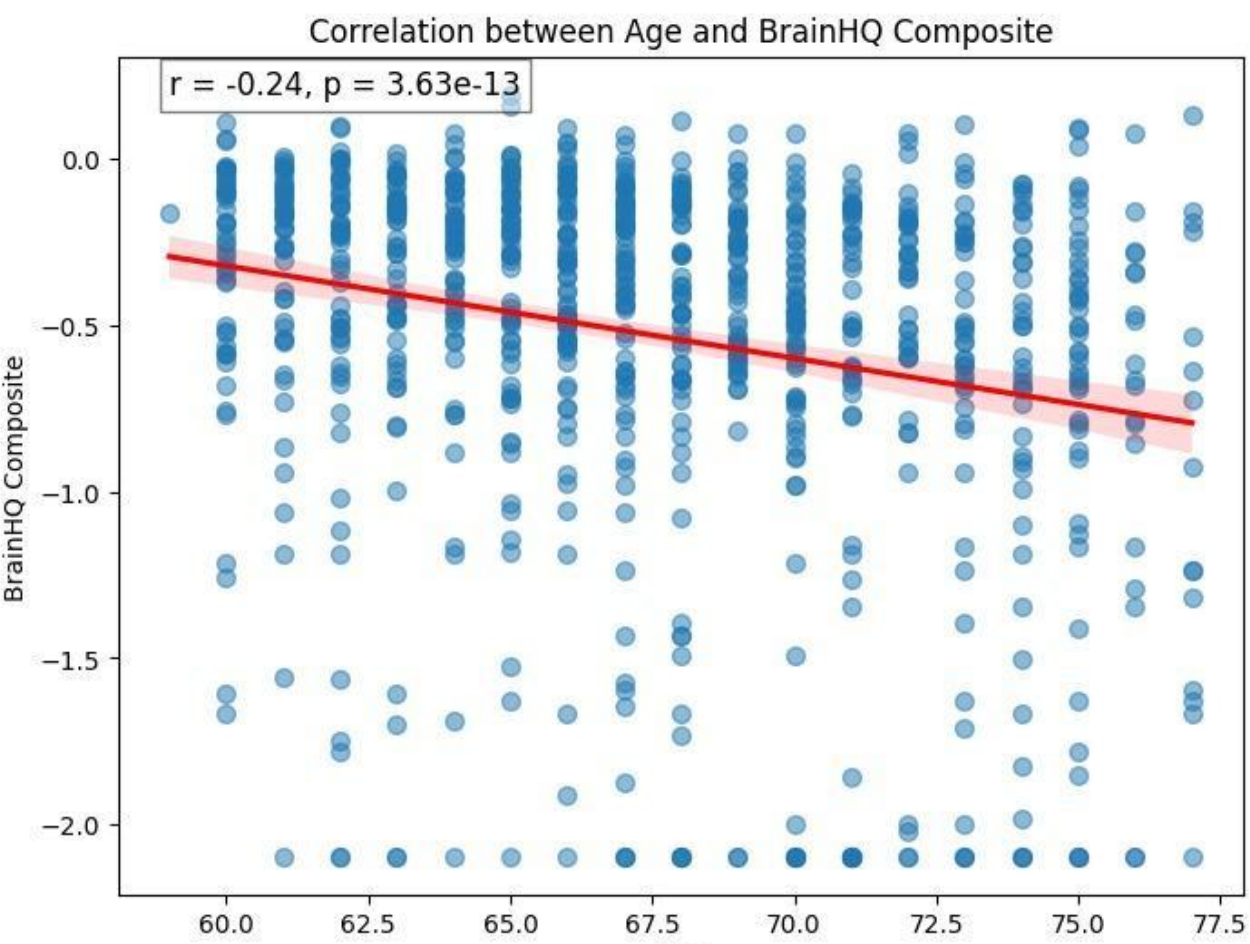


Figure 1. Correlation between **Age** and BrainHQ Composite.

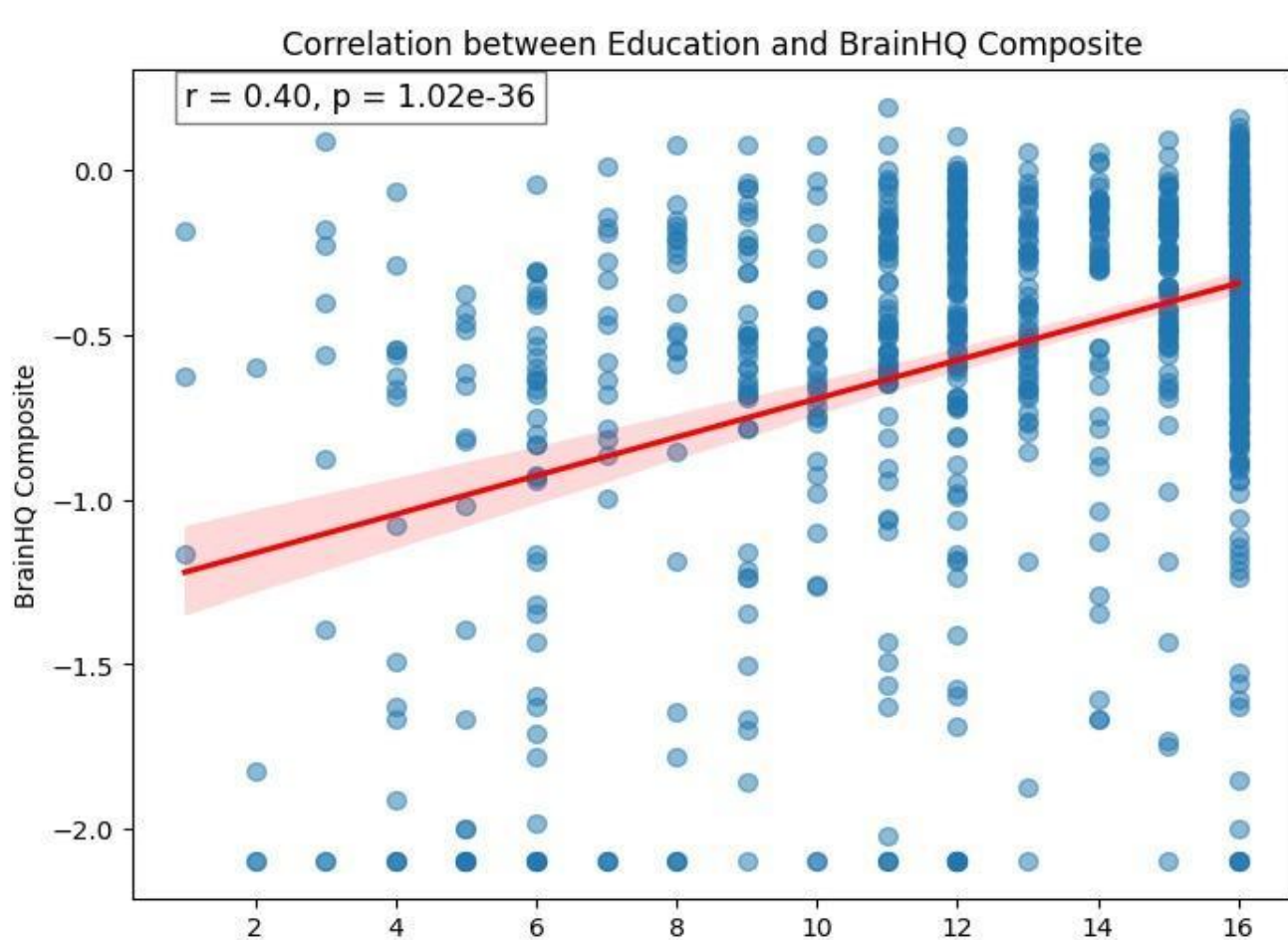


Figure 2. Correlation between **Education** and BrainHQ Composite.

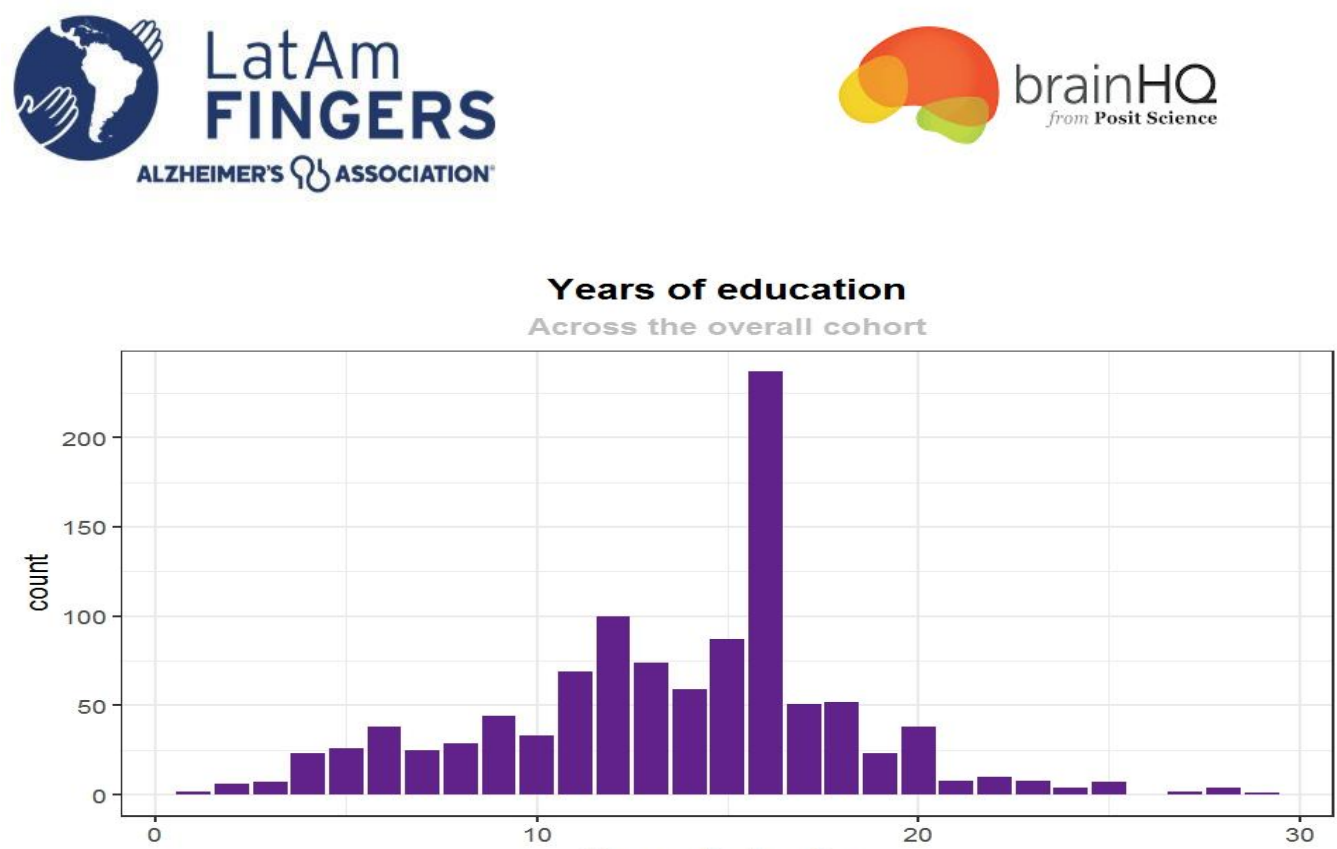


Figure 6. Distribution of years of education across Latin American countries

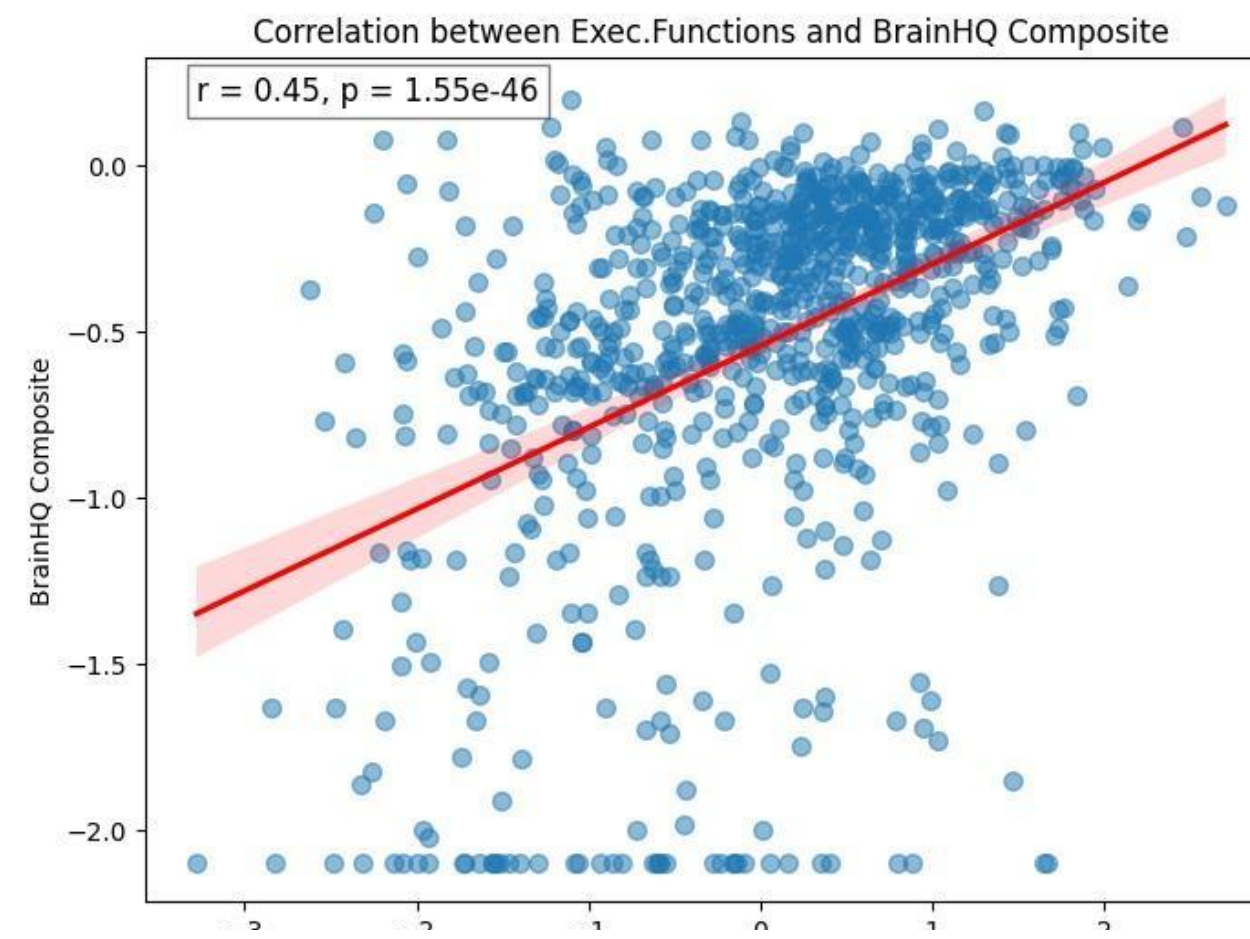


Figure 3. Correlation between **Executive Functions** and BrainHQ Composite.

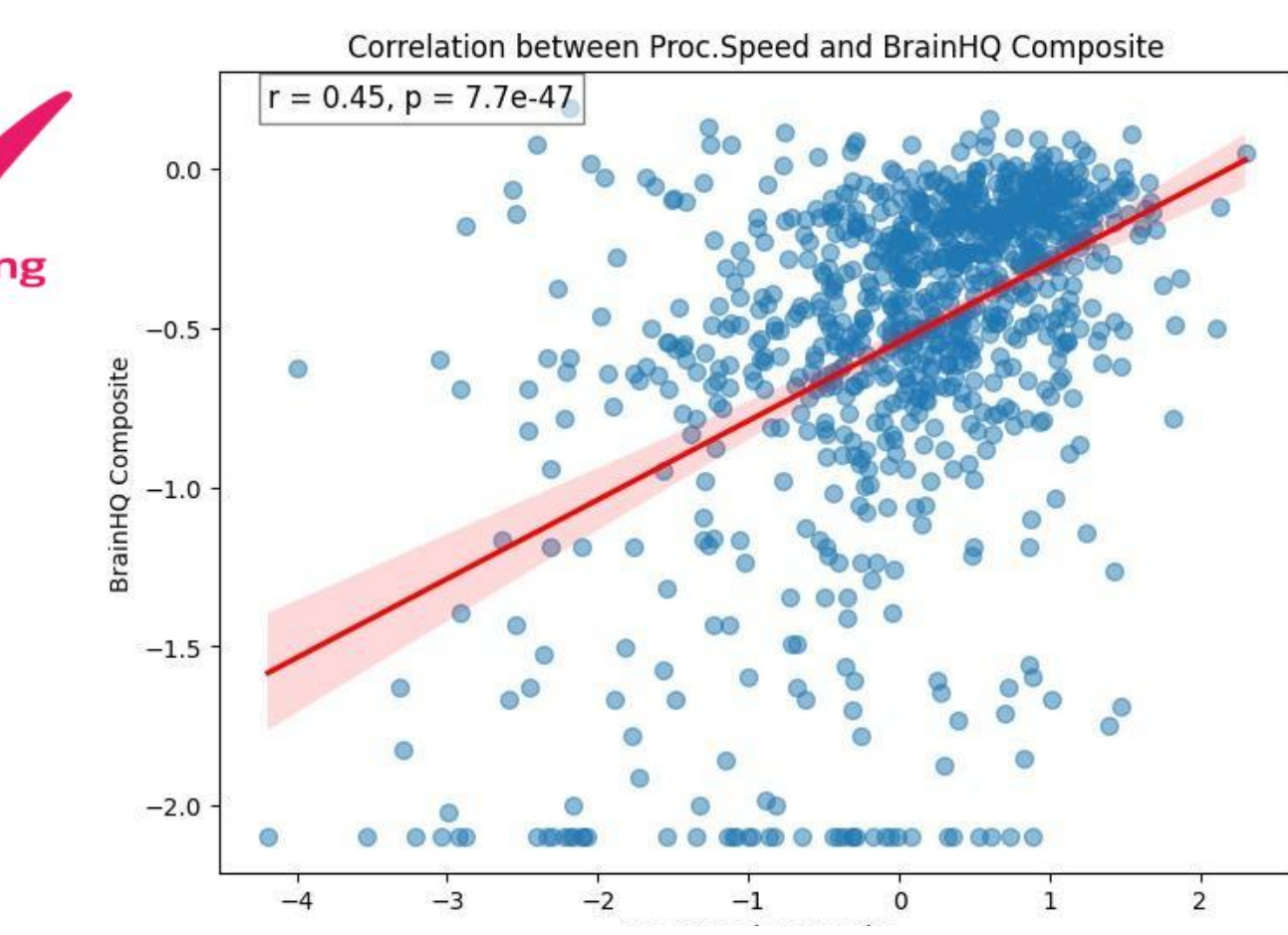


Figure 4. Correlation between **Proc. Speed** and BrainHQ Composite.

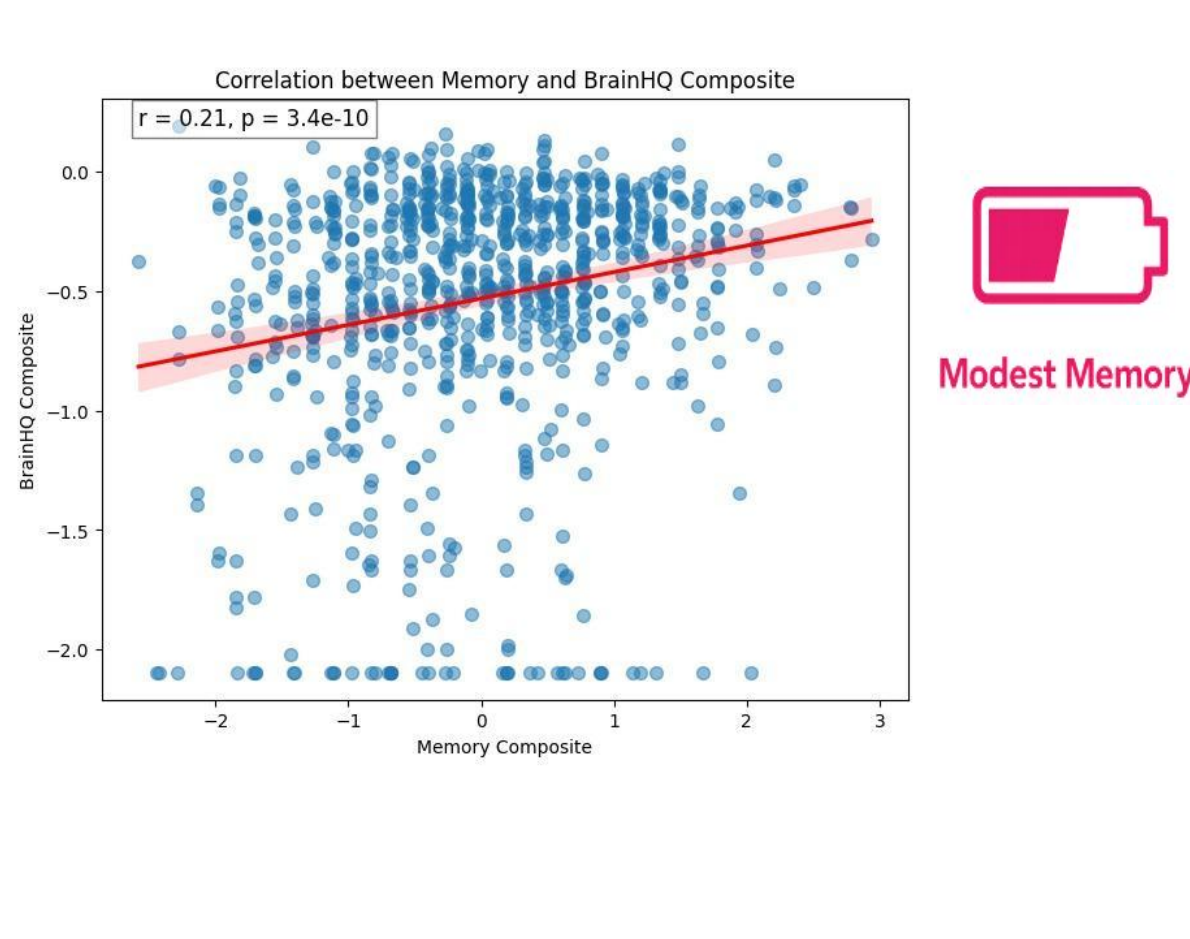
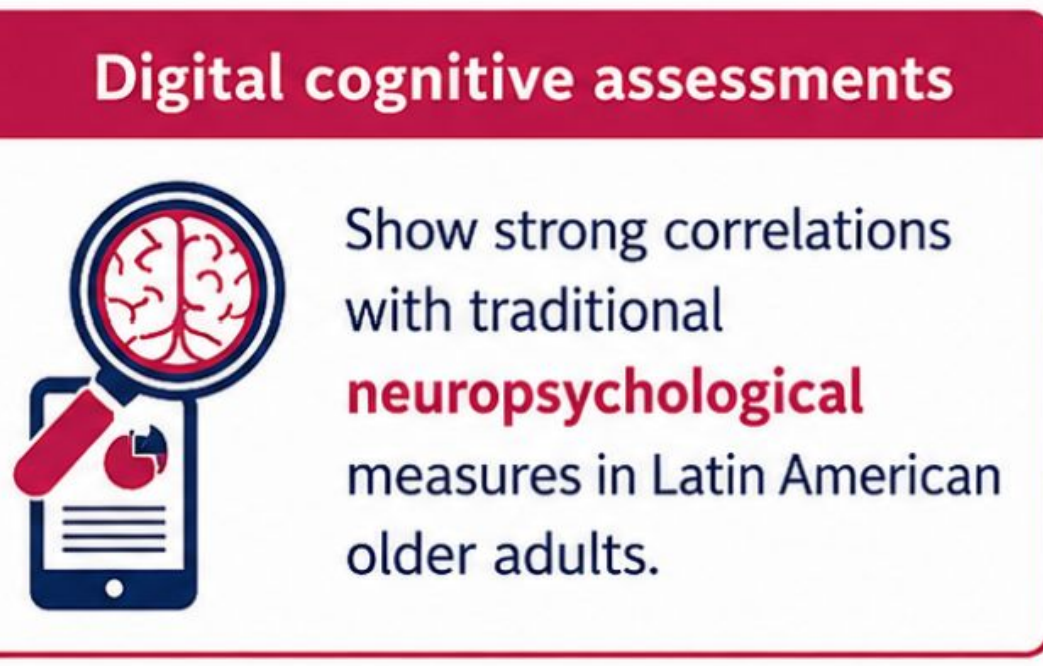


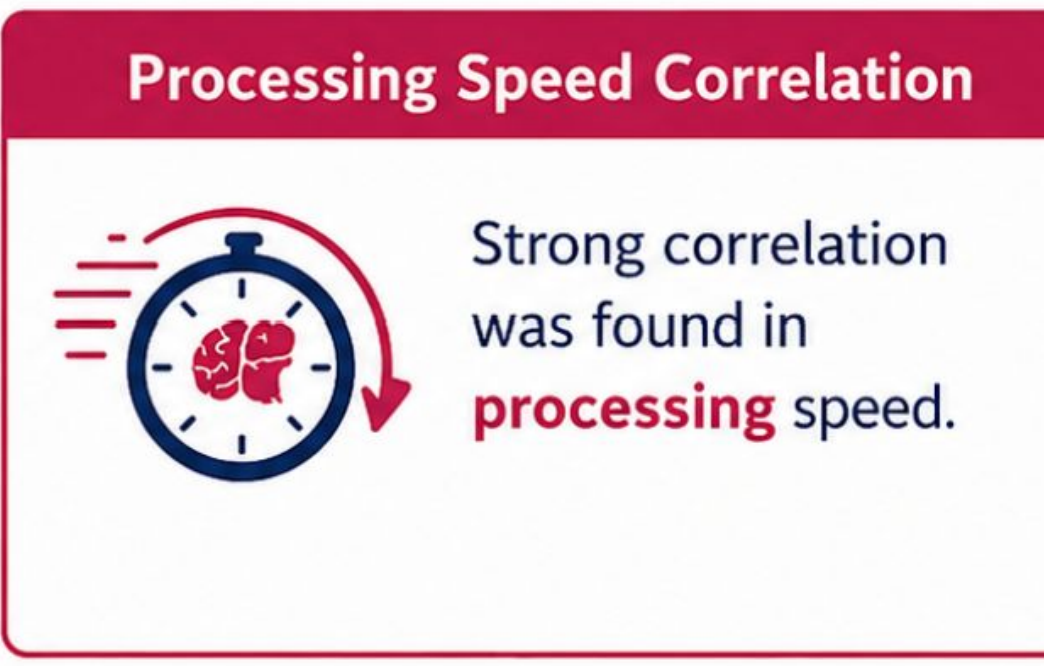
Figure 5. Correlation between **Memory** and BrainHQ Composite.

CONCLUSION



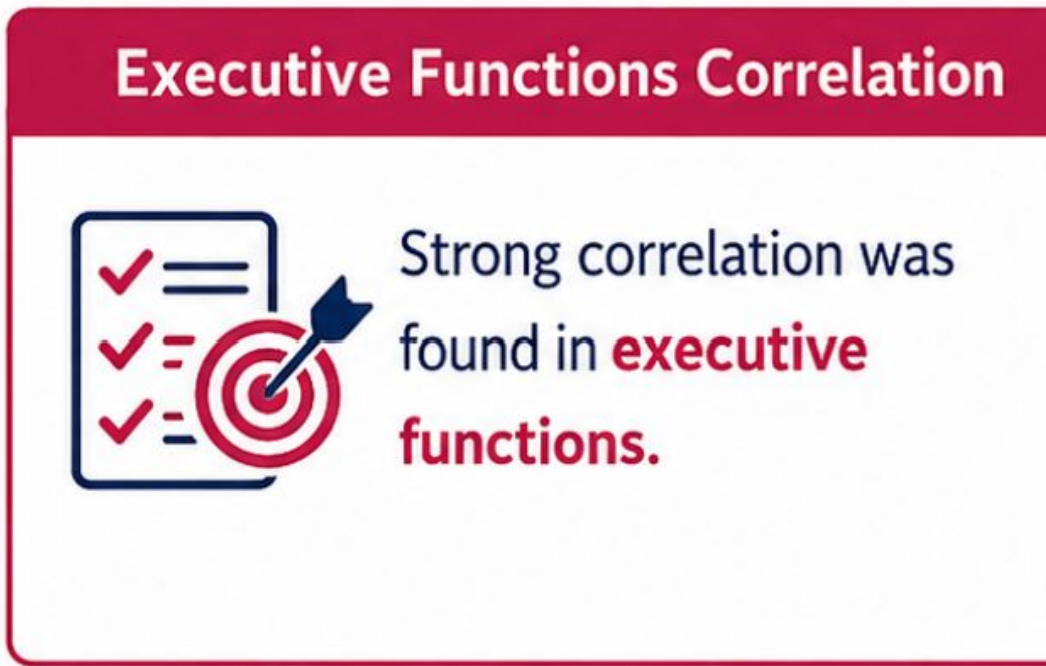
Digital cognitive assessments

Show strong correlations with traditional **neuropsychological** measures in Latin American older adults.



Processing Speed Correlation

Strong correlation was found in **processing speed**.



Executive Functions Correlation

Strong correlation was found in **executive functions**.



Educational Level Influence

Performance is strongly influenced by **educational level**.

CONTACT

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