

Cognitive Correlates Post COVID-19 in Diverse Settings: The ISAVRAD* Neuropsychological Battery Normative Comparisons

*Interactions between Sars-Cov-2 Infection and Ancestral Genomic Variations in the Risk of Alzheimer’s Disease



Caroline Carlton^{1,2,3} Laura Rabin¹ Jivonsha Ffrench¹ Gabriela Gonzalez Alemán⁴ Gabriel de Erausquin⁵ Cuiling Wang¹ Nickolas Dasher⁴ Juan Toranzo⁵ Marucela Uscamayta Ayvar⁵
Nikole Bonillas Felix⁵ Ryan Alicea¹ Marian Martin¹ Daria Neidre⁵ Jared Bechtel⁶ Nikki Gentile⁶ Kendl Sankary⁶ Mindy Katz¹

1: Saul R. Korey Department of Neurology, Albert Einstein College of Medicine, 2: The Graduate School and University Center of The City University of New York, 3: Queens College, 4: Universidad Católica Argentina, 5: The Glenn Biggs Institute for Alzheimer’s & Neurodegenerative Diseases, UT Health San Antonio, 6: University of Washington

BACKGROUND

Context: The ISAVRAD consortium evaluates cognitive testing across >4,000 older adults from Texas, New York, Washington State, and Argentina.

Challenge: Cross-site differences in language (Spanish vs. English) and cultural background (including Indigenous populations) may systematically influence cognitive test performance, complicating direct normative comparisons.

*The ISAVRAD study examines whole genome variation and COVID-19 infection interaction on cognitive decline risk. For more information visit: <https://www.isavrad.org/index.html>



METHODS

Step 1: Establish a neuropsychological battery with tests validated in respective testing language and dementia diagnosis.

Step 2: Draw normative data from uniform data sets where possible. Where not possible, use normative data from demographically similar populations (e.g., age, native language).

Approach: Measures and norms considered sample characteristics, the National Alzheimer’s Coordinating Center Uniform Data Set (UDS)¹, Argentine data, and expert consensus.

Presented at the 2026 Alzheimer's Association International Conference (AAIC)
London, United Kingdom

Supported by NIH grant U19AG076581

Contact: Caroline Carlton;
caroline.carlton@einsteinmed.edu

References:



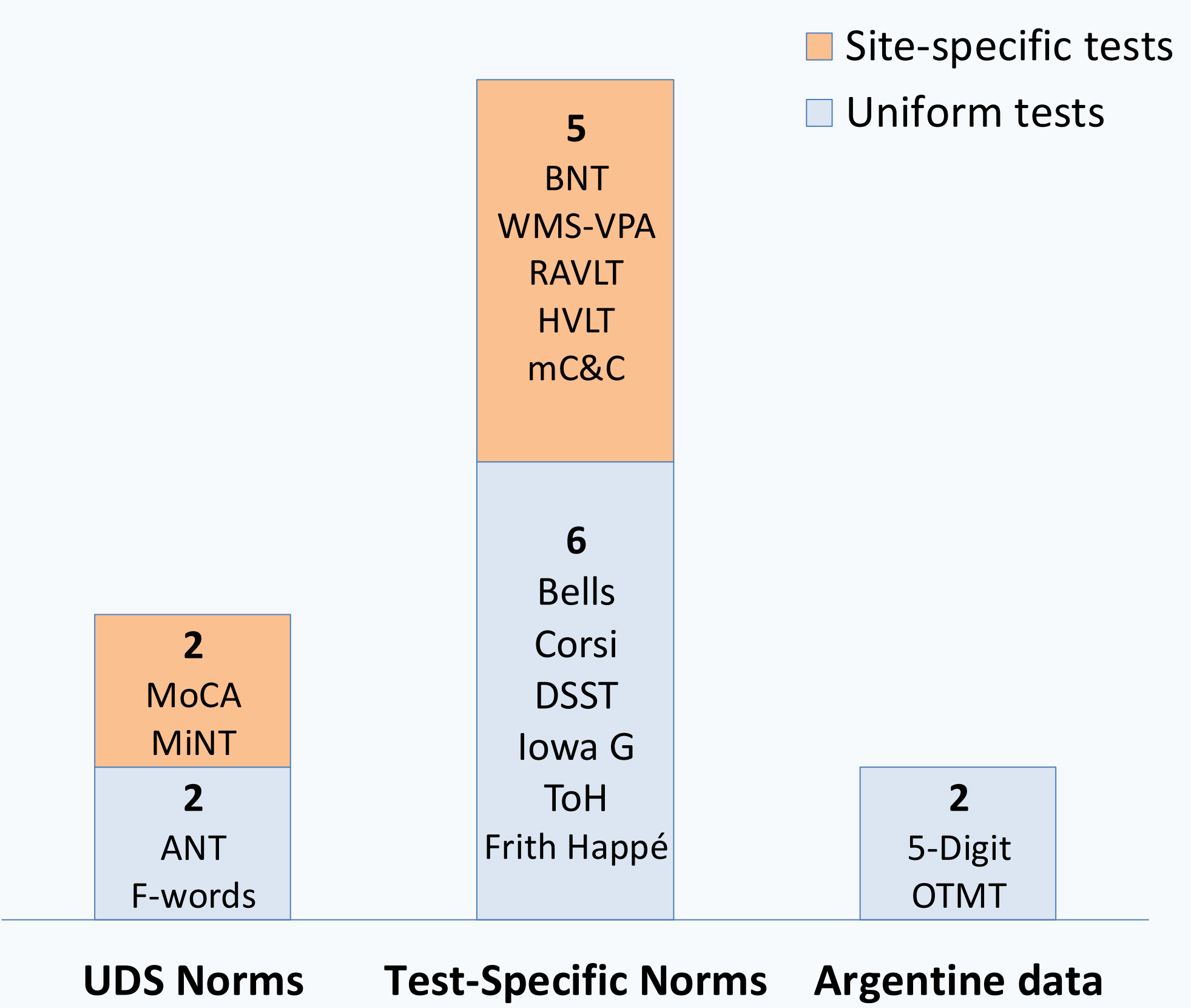


RESULTS

The ISAVRAD Neuropsychological Battery			
COGNITIVE DOMAIN	TEST	SITE	WAVE, RATIONALE
Language, category fluency	Animal Naming Test (ANT)	All sites	1 st and 2 nd waves, uniform
Language, letter fluency	F-words list generation (F-words)		
Visuospatial	Bells Test (Bells)		
Visuospatial, working memory	Corsi Block-Tapping Task (Corsi)		
Processing speed	Digit Symbol Substitution Task (DSST)		
Executive function (EF), Risk aversion	Iowa Gambling Task (Iowa G)		
EF, Decision-making	Tower of Hanoi (ToH)		
EF, Processing speed, inhibition	Five-Digit Test (5-Digit)		
EF, Processing speed, inhibition	Oral Trail-Making Test (OTMT)		
Social cognition, Theory of Mind	Frith Happé animations		
Associative semantic memory	Modified Camel and Cactus Test (mC&C)	All sites	1 st and 2 nd waves, Culturally appropriate reference images used
Language, naming	Boston Naming Test (BNT)	Argentina	1 st wave
Verbal learning, Associative semantic memory	Wechsler Memory Scale-IV: Verbal Paired Associates– Spanish version (WMS-VPA)		
Global cognition	Montreal Cognitive Assessment (MoCA)	TX, WA, NY	2 nd wave, Dementia-validated and Spanish-validated norms
Verbal learning, Verbal short-term memory	Rey Auditory Verbal Learning Test (RAVLT)	WA, NY	
Verbal learning, Associative semantic memory	Hopkins Verbal Learning Test– Spanish version (HVLTL)	TX	
Language, naming	Multilingual Naming Test (MiNT)	TX, WA, NY	

Site Differences		
SITE	LANGUAGE	1 st vs. 2 nd WAVE
Jujuy, Argentina	Spanish	1 st wave
San Antonio, TX		2 nd wave
Seattle, WA	English	
Bronx, NY		

Normative Data Sources for Uniform and Site-specific Tests



GOALS

Validity Priority: Normative comparisons intend to prioritize site-specific validity over cross-site uniformity. Necessity for site-specific variations in tests enhances linguistic and cultural inclusivity across populations.

Future direction: Longitudinal and cross-site analyses to evaluate how culturally tailored norms influence detection and prediction of cognitive decline.