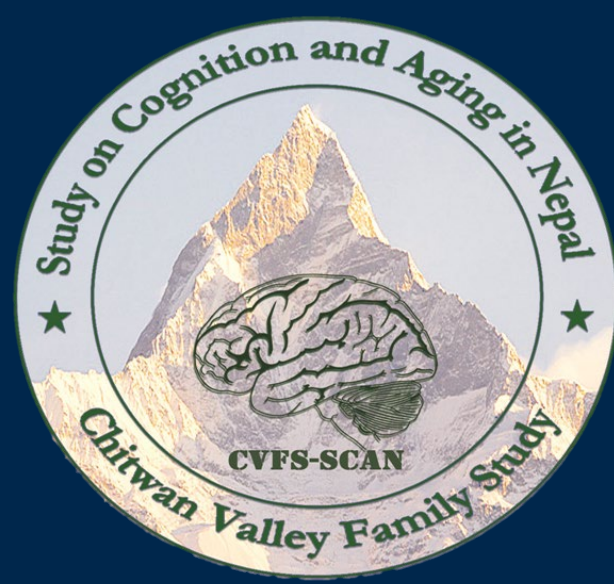


Factor Structure Of The Harmonized Cognitive Assessment Protocol In Nepal



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BACKGROUND

- Nepal's aging population highlights the need for population-based research on cognitive aging.
- Chitwan Valley Family Study- Study on Cognition and Aging in Nepal (CVFS-SCAN) adapted the Harmonized Cognitive Assessment Protocol for use in Nepal (N-HCAP).
- We assess the construct validity of the N-HCAP using a confirmatory factor analysis (CFA) model established in prior cross-national HCAP studies.

PARTICIPANTS & METHODS

Participants

- The Chitwan Valley Family Study (CVFS) is a population-based longitudinal cohort conducted in Nepal since 1995.
- CVFS-SCAN builds on CVFS to advance research on aging, Alzheimer's disease and related dementias (ADRD), and other age-related health conditions in Nepal.
- Participants were consecutively recruited from the surviving CVFS cohort aged ≥ 50 years enrolled in CVFS-SCAN.¹
- The analytic sample included 3,051 participants aged 50–99 years; 51.6% were female and 49.7% had no formal school.

Data Collection

- Trained interviewers administered the N-HCAP in Nepali using standardized administration and scoring procedures.

Statistical Analysis

- CFA models previously developed in HCAP network studies were applied.
- Five domain-specific unidimensional models were evaluated: orientation, memory, executive functioning, language/fluency and visuospatial.
- A hierarchical model was then fitted, consisting of five cognitive domains and a second-order General Cognitive Performance (GCP) factor.

Model Fit

- Standardized Root Mean Square Residual (SRMR) ≤ 0.08
- Comparative Fit Index (CFI) ≥ 0.90
- Root Mean Square Error of Approximation (RMSEA) ≤ 0.08

RESULTS

- The hierarchical model is shown in Figure 1. Standardized factor loadings ranged from 0.30 to 0.90 across cognitive domains.
- Both the domain-specific CFA models and the hierarchical GCP model showed acceptable fit (Table 1).
- Figure 2 illustrates how reliability varies across the latent trait range for each cognitive domain.

Figure 1. Confirmatory factor analysis model

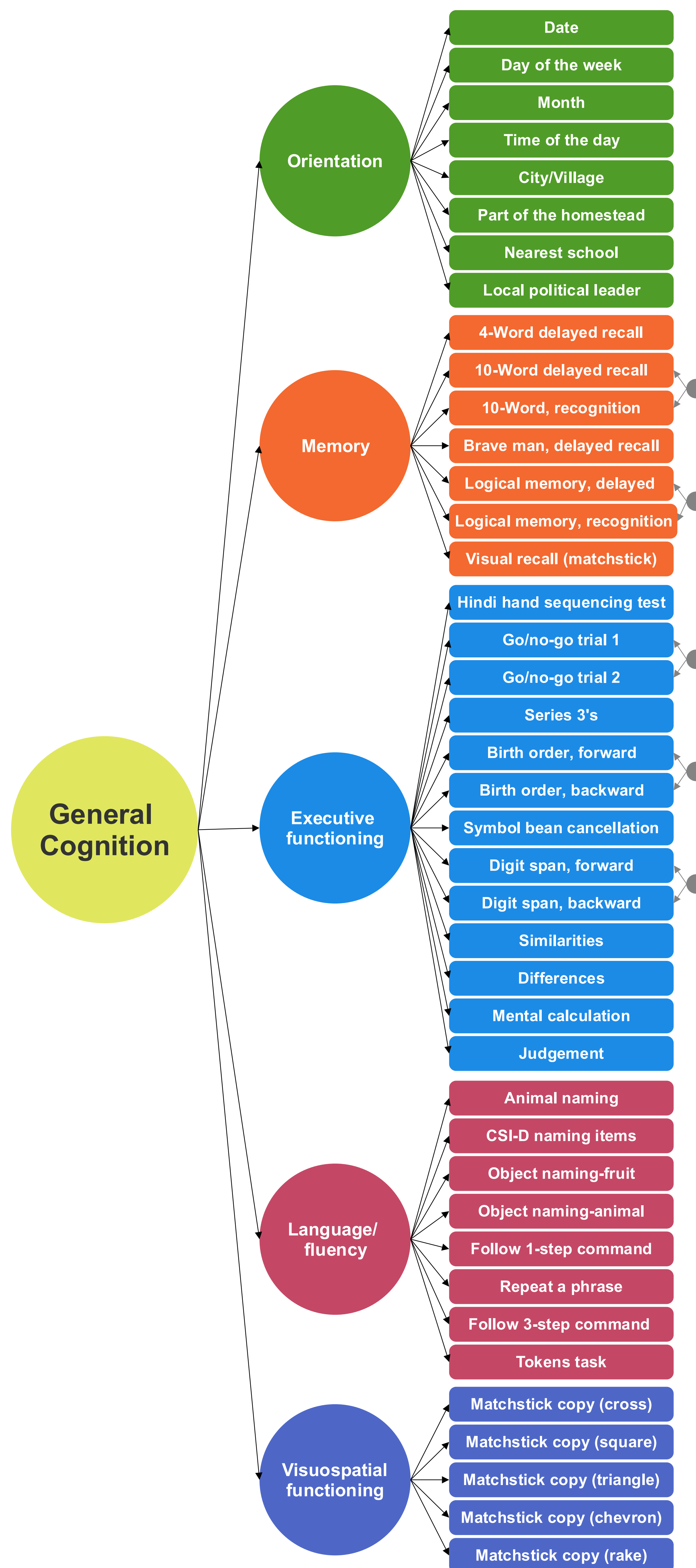
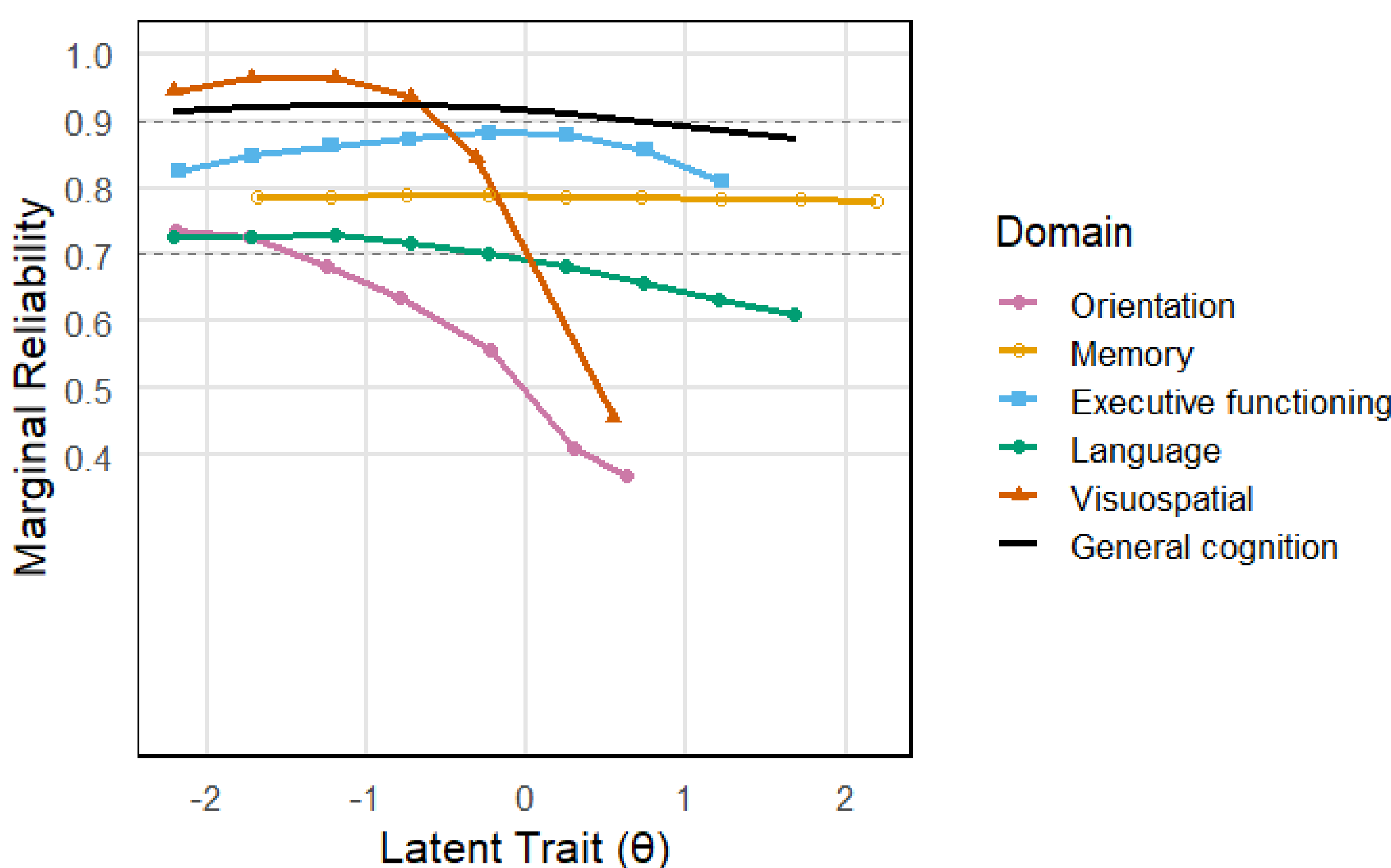


Table 1. Fit Statistics of N-HCAP (N= 3051)

Domain	RMSEA	CFI	SRMR
Orientation	0.03	0.95	0.08
Memory	0.06	0.95	0.03
Executive functioning	0.03	0.98	0.03
Language/fluency	0.02	0.99	0.04
Visuospatial	0.04	1.00	0.02
GCP	0.03	0.96	0.05

Figure 2. Reliability across Domains



DISCUSSION

- The N-HCAP showed psychometric evidence of construct validity among older adults in Nepal.
- Consistent with other HCAP studies², the hypothesized factor structure fit the data well.
- The N-HCAP provides a robust tool for studying cognitive aging in Nepal and enables future cross-national comparisons.

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