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INTRODUCTION

COGNITIVE ASSESSMENT IN STUDIES

- Clinicopathological studies in population-based cohorts offer the most reliable framework for linking cognitive phenotypes to neuropathology.¹
Complexity and cost often limit sample size and the depth of cognitive characterization.²
- Many studies rely on global cognitive outcomes, which insufficiently capture domain-specific patterns of impairment.¹
- Widely used instruments such as the Clinical Dementia Rating (CDR) and the Informant Questionnaire on Cognitive Decline in the Elderly (IQCODE) include items that implicitly assess multiple cognitive domains.³
- Unlocking this embedded information provides an opportunity to derive more granular cognitive information without additional testing or cost.

OBJECTIVE

- Extract domain-specific cognitive constructs from global cognition instruments using informant-based data.

METHODS

- Population-based Brazilian post-mortem sample (Biobank for Aging Studies) (n=4,504)
- Cognitive abilities assessed using the informant-based version of the CDR scale and the IQCODE.
 - > Global score and CDR sum of boxes (CDR-SOB)
 - > IQCODE 26-item version
- Informant-based assessments of cognitive and functional status in post-mortem settings have been shown to provide reliable and valid estimates for dementia diagnosis.
- Dataset constructed comprising the full interview from the informant section of the CDR and the 26 items of the IQCODE.
- Suitability of the sample assessed using the Kaiser–Meyer–Olkin (KMO) measure, and Bartlett’s test of sphericity.
- Exploratory factor analysis conducted using principal axis factoring with oblique rotation.
- Factor retention guided by parallel analysis and scree plot inspection. Item performance, communalities, and cross-loadings were systematically evaluated through iterative model refinement.

RESULTS

- Sample characteristics:
 - > Mean age=71.2±13.4 yo; 46.6% women; 62.9% White
 - > 74.4% CDR=0 ; mean IQCODE=3.3±0.6
- Overall KMO=0.99 and Bartlett’s test p<0.001 (excellent dataset factorability)
- Iterative analyses supported a stable three-factor structure
 - > **Factor 1** (disproportionately large share of common variance): Items spanning multiple cognitive domains, consistent with a dominant general cognitive dimension.
 - > **Factors 2 and 3** (smaller contribution to common variance): Primarily functional and self-care items.
- Factor 1 prioritized as the foundation for a cognitive domain assessment tool, given its conceptual breadth and statistical predominance.
- Items from Factor 1 assigned to specific cognitive domains using theory-driven considerations.
 - > Currently undergoing expert panel content validation, with confirmatory factor analysis planned.

CONCLUSION

Domain-specific cognitive information can be derived from global cognitive instruments, including informant-based assessments.

REFERENCES

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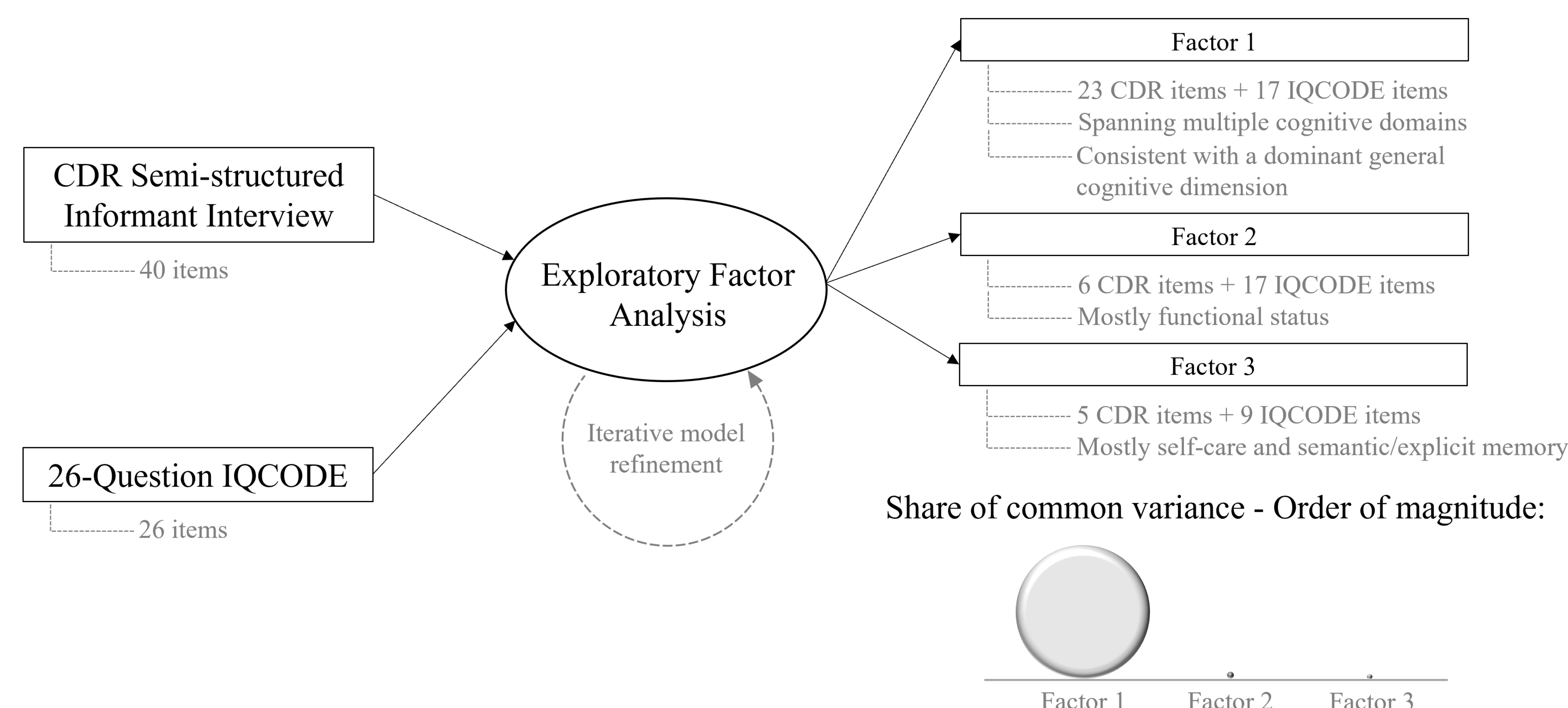


Figure 1. Exploratory factor analysis of informant-based CDR and IQCODE items, illustrating a dominant general cognitive factor and two secondary factors. CDR: Clinical Dementia Rating; IQCODE: Informant Questionnaire on Cognitive Decline in the Elderly.