

Construct Validity of the University of Florida DBS Cognitive Rating Scale: What cues neuropsychology to raise a red flag for DBS candidacy?

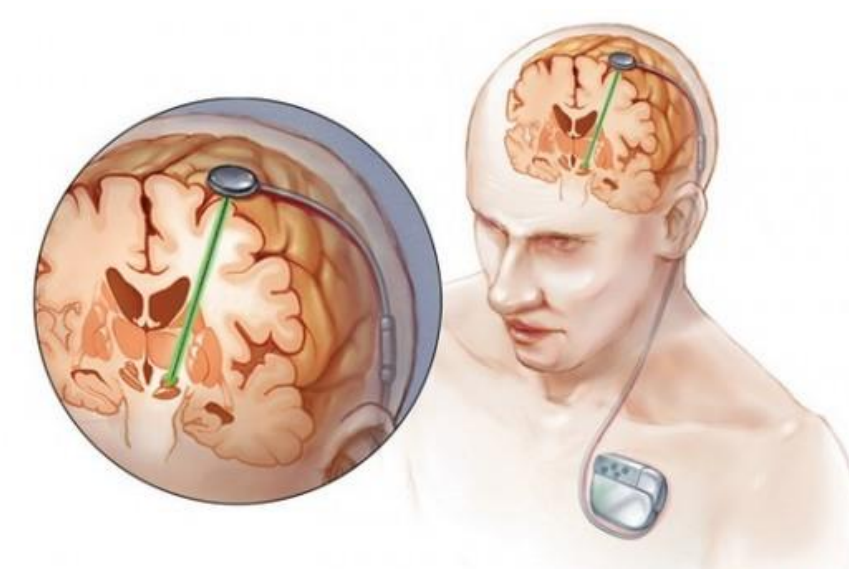
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BACKGROUND

- **Deep Brain Stimulation (DBS)**
 - Common treatment option for medication-refractory symptoms of Parkinson's disease (PD) and essential tremor (ET)
- **DBS Implantation Sites**
 - Globus pallidus and subthalamic nucleus (PD), and thalamus (ET).
- **DBS Patient Candidacy**
 - Independent input and consensus by an interdisciplinary team, including neuropsychology.
- **Neuropsychology Team Input**
 - UF DBS "Cognitive Rating Scale" (DBS-CRS) reflects clinical judgment based on the NP exam
- ❖ **KEY QUESTION**
 - Does the DBS-CRS have construct validity?
- ❖ **HYPOTHESIS**
 - Poor performance in domains least susceptible to typical PD/ET progression (i.e., episodic memory, language) will have greatest influence on DBS-CRS ratings.

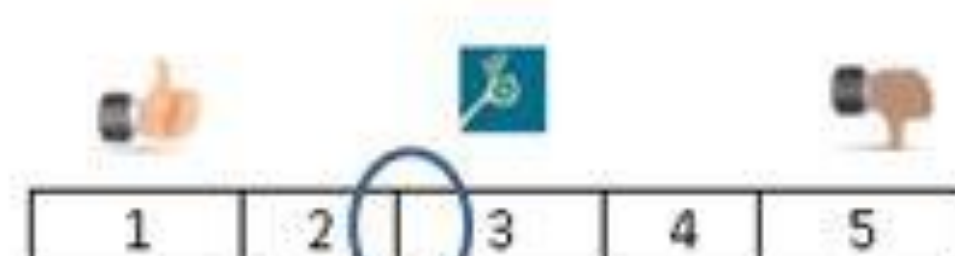


PARTICIPANTS & METHODS

SAMPLE CHARACTERISTICS	PD (n = 106)	ET (n = 46)
	Mean (SD)	Mean (SD)
Age	64.1 (9.8)	70.5 (6.7)
Education	15.2 (2.6)	14.6 (2.7)
Gender (m/f)	78/28	26/20
DRS - 2	135.8 (5.7)	135.1 (5.6)
Symptom Duration (Months)	131.6 (59.8)	369.6 (222.1)
UPDRS Motor	26.0 (10.1)	-
TRS Motor	-	33.3 (9.8)

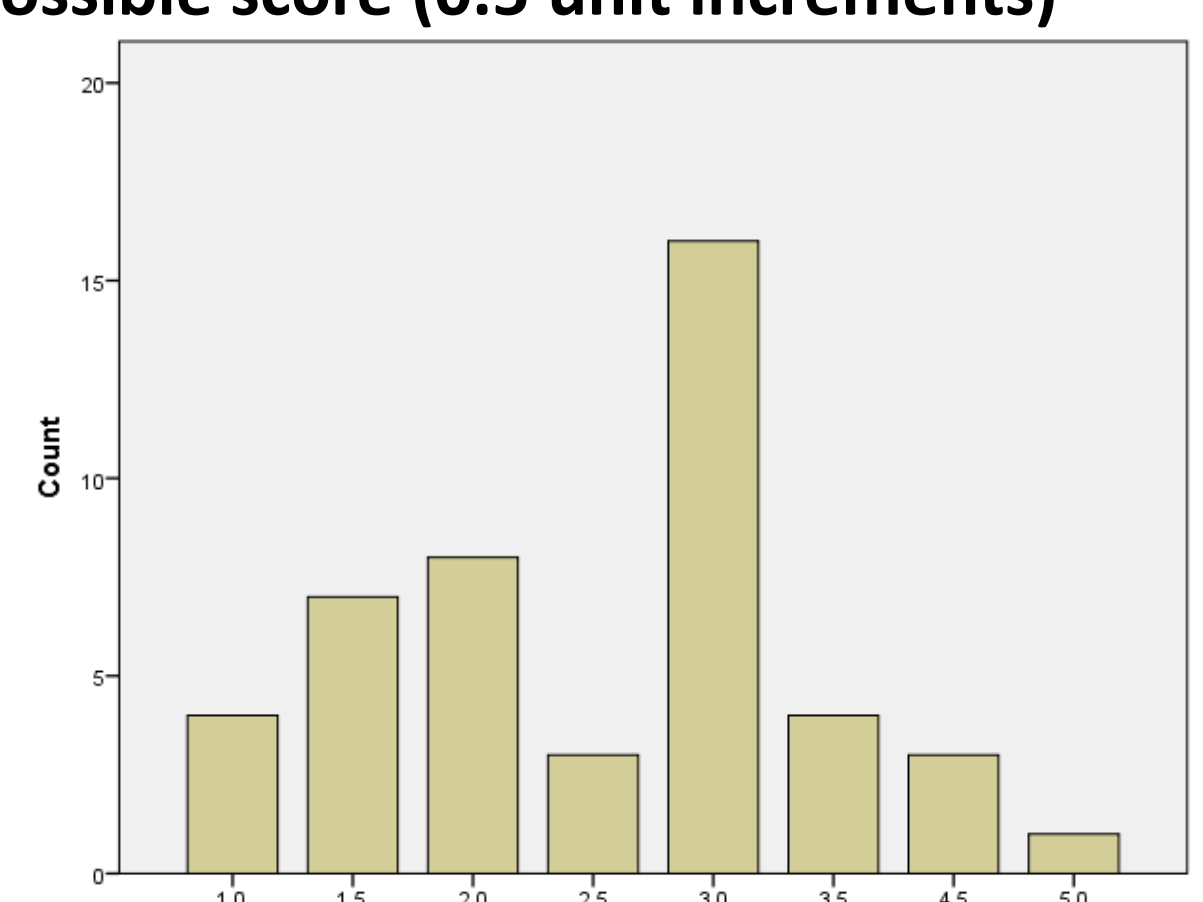
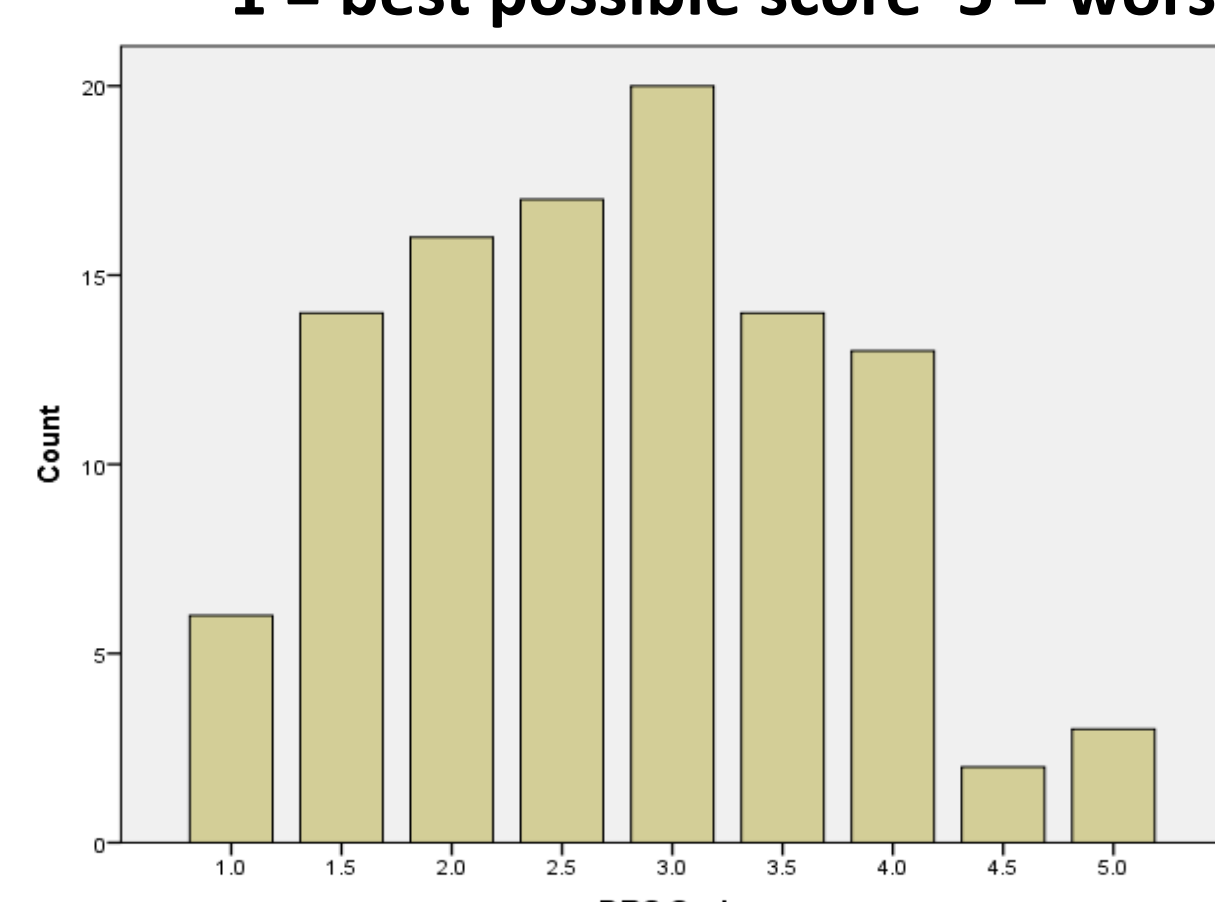
COGNITIVE COMPOSITES	
Delayed Memory Recall	WMS III – Logical Memory Delayed Recall + HVLIT Delayed Recall
Language	Boston Naming Test + Semantic Fluency (Animals)
Visuospatial/perceptual	Judgment of Line Orientation + Facial Recognition Test
Working Memory	WAIS III - Digit Span Forward + Digit Span Backward
Executive Function	Stroop Color-Word + Trail Making Test B + Letter Fluency (FAS)

Neuropsychology Cognitive Rating Scale for DBS: 2.5



Example DBS-CRS as would appear in NP report

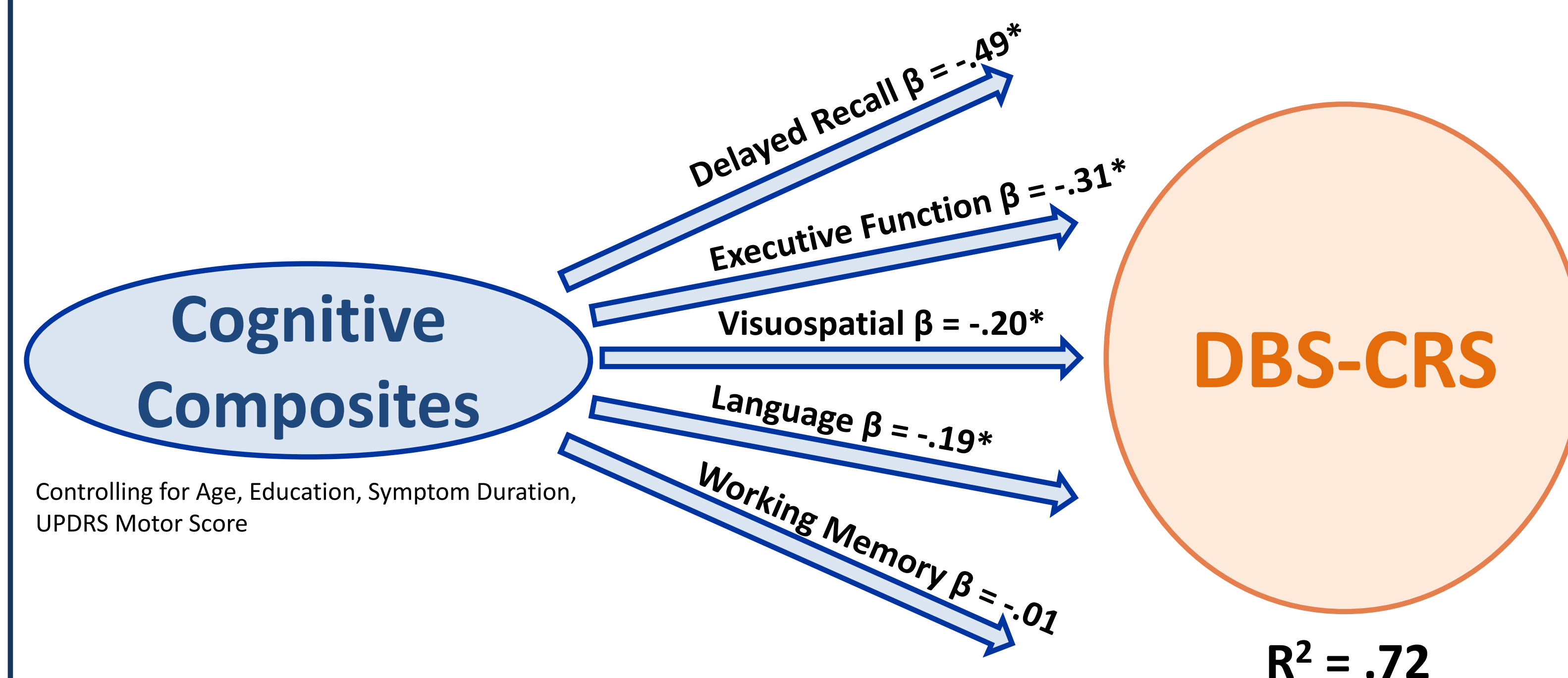
1 = best possible score 5 = worst possible score (0.5 unit increments)



RESULTS

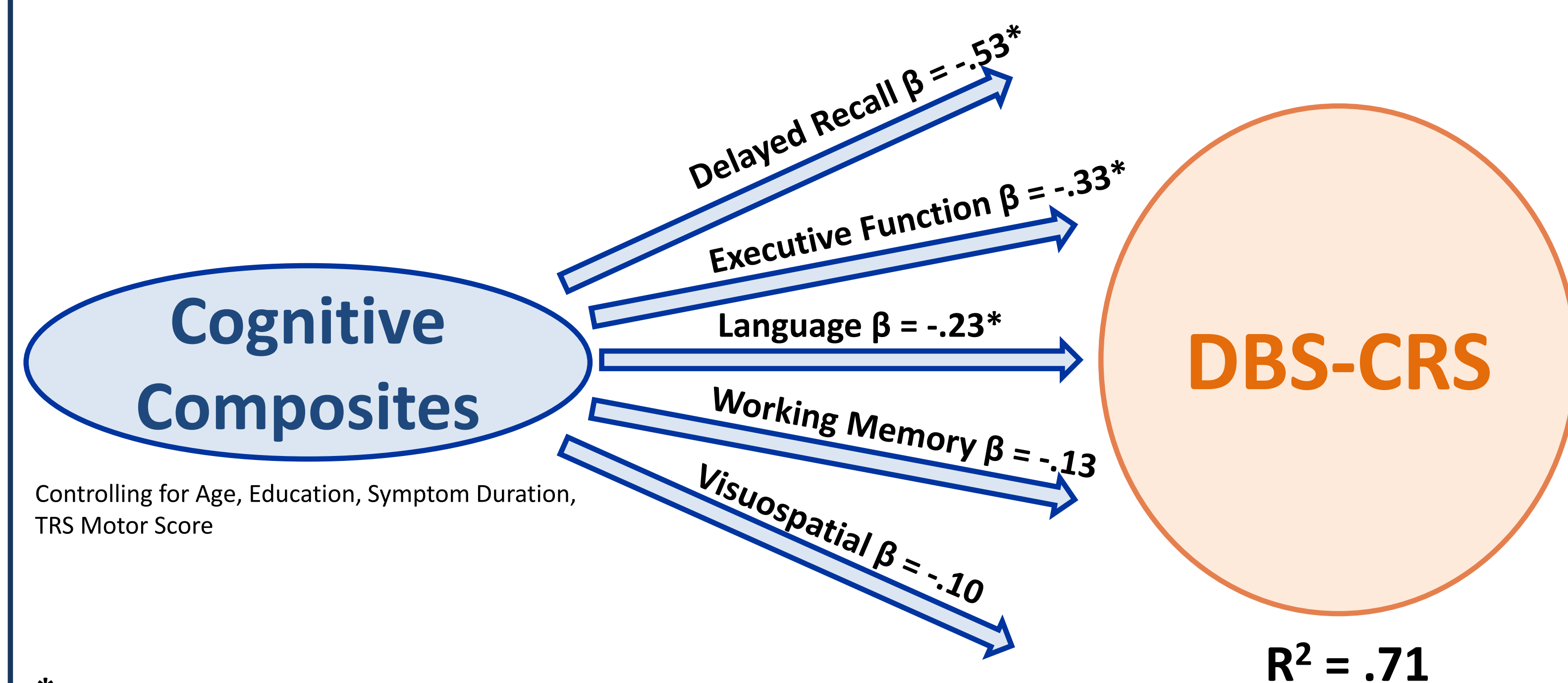
Parkinson's Disease

- Hierarchical regression revealed delayed memory recall and executive function composite scores to be strongest predictors of DBS-CRS, followed by visuospatial and language



Essential Tremor

- Hierarchical regression revealed comparable outcome to PD analysis, with delayed memory recall and executive function as strongest predictors, followed by language



* significant predictor (p < .05)

CONCLUSIONS

- ❖ **Hypothesis supported?**
 - Construct validity of DBS-CRS supported ✓
- ❖ **Key Factors Contributing to DBS-CRS**
 - Poor delayed memory recall, executive function
- **Cause for Concern**
 - Co-occurrence of delayed memory and executive dysfunction raises concern for superimposed dementia or other degenerative process (e.g., Alzheimer's)
- **Implications**
 - Post-surgical cognitive, mood, and behavioral changes can have substantial impact on recovery and outcome
 - DBS-CRS serves to ease team communication by way of a single score reflecting comprehensive assessment
- **Future Studies**
 - Examine *predictive* validity of DBS-CRS in terms of post-operative complications and cognitive decline

