

Comparing the WJIII-COG, NEPSY, and D-KEFS Scores of Executive Functioning in a Mixed Clinical Group Sample

Erin Avirett, B.A., Jordana Mortimer, B.S., Denise Maricle, Ph.D. & Daniel C. Miller, Ph.D., Elizabeth Smith, Ed.S., Valerie Weed, B.S.EE

Texas Woman's University, Denton, Texas

These data were drawn from a archival sample of 316 case studies that were conducted by students in the School Neuropsychology Post-Graduate Certification Program (2001 - 2007). There were 216 males (68%) and 98 females (31%) and 2 not identified (.6%) in the sample. There were 72 Caucasians (22.8%), 8 African-Americans (2.5%), 24 Hispanic/Latino Americans (7.6%), 2 Asian-Americans (.6%), 3 biracial (.9%), 1 foreign-national (.3%), and 206 with ethnicity not identified (65.2%). The range of the ages of the sample was 3.4 to 18.7 years.

School Neuropsychology Conceptual Model (Miller, 2007)

	N	Mean (SD)
INHIBITION		
• WJIII-COG Pair Cancellation	190	92.99 (11.71)
• NEPSY Auditory Attention & Response Set	160	8.89 (6.44)
• NEPSY Visual Attention	168	9.21 (3.27)
PLANNING, REASONING, PROBLEM SOLVING		
• WJIII-COG Concept Formation	186	95.70 (15.10)
• WJIII-COG Planning	81	99.56 (11.83)
• WJIII-COG Pair Cancellation	190	92.99 (11.71)
• WJIII-COG Analysis/Synthesis	153	98.65 (15.21)
RETRIEVAL FLUNCY		
• WJIII-COG Retrieval Fluency	176	89.18 (14.56)
• D-KEFS Design Fluency (Condition 1)	61	8.43 (2.79)
• D-KEFS Design Fluency (Condition 2)	64	8.84 (2.90)
• D-KEFS Verbal Fluency (Condition 1)	79	7.75 (2.95)
• D-KEFS Verbal Fluency (Condition 2)	80	8.49 (3.21)

Exploratory Factor Analyses

Factor Analysis Variables: All variables except D-KEFS subtests

Factor	Eigenvalue	% of variance	Cumulative Variance
1	3.95	49.32%	49.32%
2	1.28	16.03%	65.35%
3	.91	11.38%	76.73%

Factor Loadings:	Factor 1	Factor 2	Factor 3
WJIII-COG Scores			
-Pair Cancellation	.70	.26	.20
-Concept Formation	.82	-.09	-.14
-Planning	-.61	.41	-.39
-Analysis/Synthesis	.67	.32	-.52
-Retrieval Fluency	.69	.08	.29
NEPSY Scores			
-Auditory Attention & Response Set	.75	-.63	-.09
-Response Set	.76	-.57	.13
-Visual Attention	.60	.46	.56
Factor Labels:	General EF	Attention	Visual Discrimination

Implications:

- In general, the WJIII-COG and NEPSY EF measures were highly correlated.
- The D-KEFS EF tasks seem to be measuring different aspects of EFs.
- The WJIII-COG Concept Formation and Analysis/Synthesis along with the NEPSY AA/RS are highly correlated with all measures due to their multiple cognitive demands.
- The WJIII COG and NEPSY scores that are reported to measure executive functioning all principally load on a single EF factor.
- Not all "labeled" EF measures are necessarily measuring the same EF constructs.

	WJIII COG Measures					NEPSY Measures			D-KEFS Measures					
		WJPC	WJCF	WJPL	WJAS	WJRF	AARS	RS	VA	CW (3)	VF (1)	VF (2)	DF (1)	DF (2)
WJIII COG Measures	WJPC	-----	.37 (<.001)	.32 (.004)	.41 (<.001)	.34 (<.001)	.22 (.03)	.44 (<.001)	.47 (<.001)	.43 (.004)	.08 (.61)	.31 (.03)	.23 (.15)	.10 (.52)
	WJCF	-----	-----	.45 (<.001)	.62 (<.001)	.34 (<.001)	.30 (.002)	.43 (<.001)	.27 (.005)	.53 (.001)	.34 (.03)	.33 (.03)	.53 (.002)	.25 (.14)
	WJPL	-----	-----	-----	.53 (<.001)	.39 (.001)	.38 (.02)	.26 (.16)	.32 (.05)	.40 (.06)	.35 (.14)	.24 (.31)	.18 (.48)	.16 (.51)
	WJAS	-----	-----	-----	-----	.24 (.004)	.09 (.40)	.19 (.08)	.23 (.03)	.54 (.001)	.40 (.02)	.20 (.24)	.39 (.04)	.07 (.71)
	WJRF	-----	-----	-----	-----	-----	.35 (<.001)	.40 (<.001)	.46 (<.001)	.28 (.08)	.37 (.02)	.74 (<.001)	-.18 (.34)	-.15 (.41)
	AARS	-----	-----	-----	-----	-----	-----	.36 (<.001)	.17 (.03)	.42 (.10)	.30 (.32)	.20 (.51)	.36 (.23)	-.10 (.76)
NEPSY Measures	RS	-----	-----	-----	-----	-----	-----	.35 (<.001)	.31 (.22)	.29 (.37)	.15 (.65)	.26 (.41)	-.30 (.37)	
	VA	-----	-----	-----	-----	-----	-----	-----	.35 (.16)	.09 (.76)	.28 (.33)	.30 (.30)	-.18 (.55)	
	CW (3)	-----	-----	-----	-----	-----	-----	-----	-----	.19 (.22)	.01 (.94)	-.02 (.92)	.01 (.95)	
D-KEFS Measures	VF (1)	-----	-----	-----	-----	-----	-----	-----	-----	-----	.57 (<.001)	.37 (.007)	.46 (<.001)	
	VF (2)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.25 (.08)	.26 (.06)	
	DF (1)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	.75 (<.001)	
	DF (2)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	

Note: The D-KEFS measures that relate more to shifting attention (e.g., Trail-Making-Test) were excluded from this data set and included in the Attention analyses. Other measures of the D-KEFS were excluded (e.g., Tower) due to sample size limitations.