A Factor Analytic Study of The WISC-V In Children Referred for Psychological Assessment Due to Persistent Academic Difficulties

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Introduction

- The WISC-5 (Wechsler, 2014), a commonly used tool for assessing and quantifying children's intellectual abilities, comprises five cognitive domains (Indexes) that include Visual Spatial (VSI), Fluid Reasoning (FRI), Verbal Comprehension (VCI), Working Memory (WMI), & Processing Speed (PSI). These were derived from factor analyses on the normative data.

- Conflicting results have emerged from studies attempting to replicate the factor structure in a clinical sample, with the suggestion that a four-factor solution provides a more parsimonious explanation. (Canivez et al., 2018 vs Egeland et al., 2021).

Objective

✓ To determine if the five-factor structure of the WISC-V would replicate in a clinical sample of children referred for psychological assessment due to persistent academic difficulties.

Methods

- Confirmatory factor analysis (CFA) was conducted to determine which model best fit the 10 primary subtest scores of the WISC-V, based on two pooled archival databases. School-aged children (N=213; 36.6% female) between 6 to 14 years were referred for psychological assessment for persistent academic and/or behavioural difficulties.

- CFA was run on a series of five different factor models (one through five). Fit statistics were analyzed to determine which factor model best represented the data.
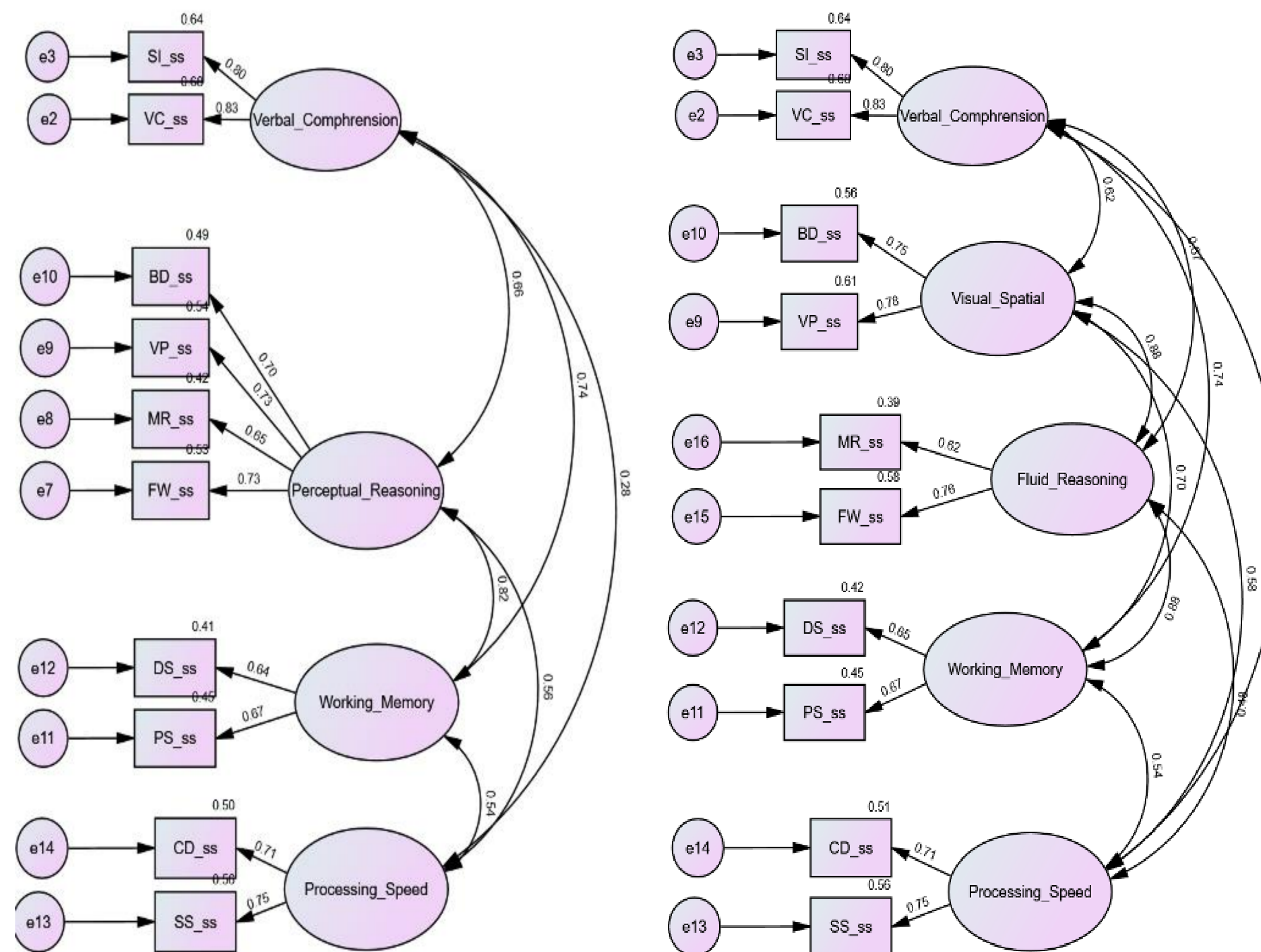
Results

Model	Chi-Square	df	P-Value	CFI	TLI	RMSEA	RMSEA 90% CI	AIC
One-Factor Model (*g*)	177.590	44	.000	.808	.803	.120	(.102, .138)	219. 590
Two-Factor Model (V, P)	151.769	42	.000	.842	.831	.111	(.092, .130)	197.769
Three-Factor Model (V, P, PS)	93.525	38	.000	.920	.905	.083	(.062, .104)	147.525
Four-Factor Model (VC, PR, WM, and PS)	**44.394**	33	**.089**	**.984**	**.978**	**.040**	(.000, .069)	**108.394**
Five-Factor Model (VC, VS, FR, WM, and PS)	**30.568**	27	**.289**	**.995**	**.991**	**.025**	(.000, .061)	**106.568**

P-values reported for the one-, two-, and three-factor models are significant (P ≤ .05), meaning they do not fit the data.

The four-factor and five-factor model presented good fit, with the five-factor model displaying marginally better fit.

Correlation matrices for the four- and five-factor models

Conclusions

- Like the normative sample, findings suggest that both the four-factor model and the five-factor model are sufficient in describing the underlying structure of the WISC-V in a clinical sample.

- Although the five-factor model produced slightly better fit, separating the PRI into the VSI and FRI, it was only marginally better than the four-factor model. Additional research is needed to determine what differentiates these two Indexes.

- There may be occasions when conceptualizing assessment findings using the four-factor model might be preferable, especially when considering issues of parsimony.