AN ANALYSIS OF INTRA-INDIVIDUAL COGNITIVE VARIABILITY AND EMOTIONAL-BEHAVIORAL ISSUES

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The objective of this study was to explore how internalizing and externalizing scores differ based on cognitive variability (i.e., split between highest and lowest scores) while controlling for mean and age.

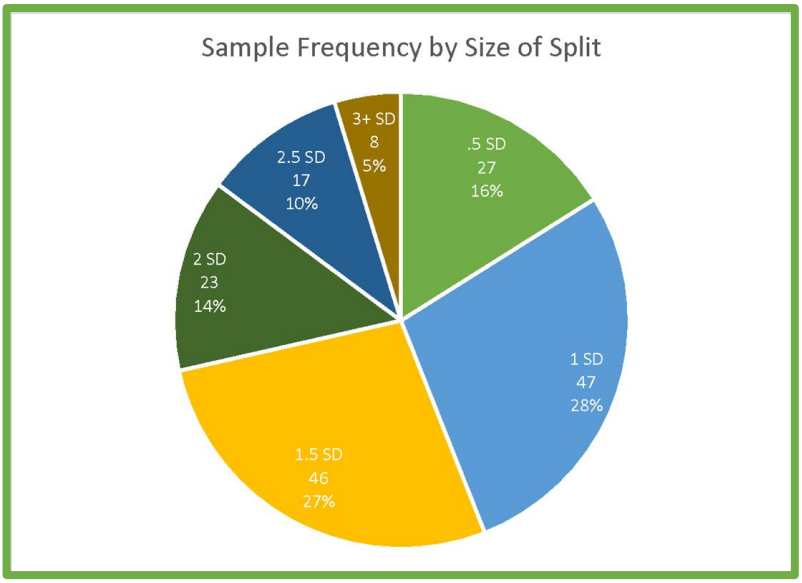
- A child's general intellectual functioning is most commonly thought to be represented by their full-scale score on an intelligence test (Weiss, Saklofske, Holdnack, & Prifitera, 2019). However, in many cases, the full-scale score fails to capture meaningful variability within a child's profile.

- When considering *significant* and *unusual* discrepancies between indices, base rates are often used to identify circumstances in which the discrepancy occurs in less than 15% of the population (see e.g., Pearson, 2014). However, in clinical practice, a lesser split often has meaningful implications. Given the vast and frequent utility of cognitive batteries, it is imperative that data are optimally utilized, in order to inform and guide clinical hypotheses and treatment planning.

- The current utilization of cognitive profile analysis does not support an individualized approach, particularly with respect to the consideration of significant variability within a single intellectual profile. With that said, a pattern being increasingly recognized within clinical environments suggests that children with a large split between their verbal, visual-spatial, and/or fluid reasoning index scores are also presenting with significant emotional and behavioral challenges. This pattern must be further explored, in order to ensure that appropriate clinical decisions are being made from the data available.

METHODS

Participants: The total sample included 168 children and adolescents: 118 male, 50 female. Participants who had completed cognitive testing on the WPPSI-IV, WISC-V, or WAIS-IV were initially selected and the sample was then refined to include only those who also had CBCL and TRF data collected at the time of cognitive assessment.



Methods: All participants were clinically referred children, drawn from a de-identified, archival database that includes data previously collected as part of a normal clinical practice.

Analyses: Statistical and visual analysis were used to identify any outliers and remove them from the data set. Multivariate analysis of covariance was utilized to examine the impact of cognitive variability on parent and teacher ratings of emotional and behavioral challenges.

RESULTS

• Results indicated that when controlling for age and mean test score, the split between highest and lowest index scores accounts for a significant amount of variance in parent-rated externalizing challenges ($p < .001$), parent-rating internalizing challenges ($p = .091$), and teacher-rated externalizing challenges ($p = .080$).

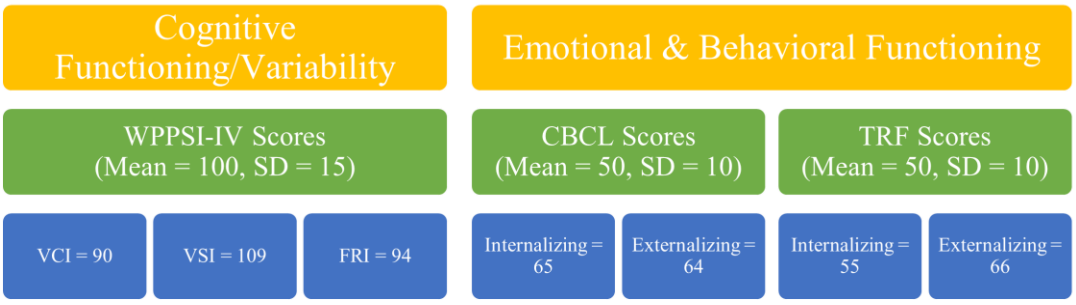
• Results indicate that cognitive variability explains a significant amount of variance in ratings of internalizing and externalizing problems, suggesting that best practices for the interpretation of cognitive data should be reconsidered.

Dependent Variable	p value	eta squared
Parent-Rated Internalizing Behaviors	.091	.057
Parent-Rated Externalizing Behaviors	< .001	.140
Teacher-Rated Internalizing Behaviors	.489	.027
Teacher-Rated Externalizing Behaviors	.080	.059

PRIMARY CONCLUSIONS & IMPLICATIONS

• When it comes to determining if a child qualifies to receive services, practitioners are often making decisions based on if the child's scores fall "below average", without considering variability within the profile. Accordingly, many of those with a large amount of cognitive variability in their profile are not receiving adequate support. These data would suggest that even those with average scores are predisposed to greater emotional and behavioral difficulty if they have a large split within their cognitive profile.

• Schools, clinics, and other mental health providers must recognize cognitive variability as a meaningful data point inclusion in discussion about treatment planning and service provision.



CASE STUDY: This real-life example highlights a commonly seen clinical presentation, where a large split in intellectual scores is seen alongside heightened emotional and behavioral difficulties.

Questions to Consider:

• How may this student's relative verbal weaknesses impact functioning?
• How can this student's visual-spatial skills be used to fuel growth/achievement?
• In absence of formal acknowledgment of the split in the student's cognitive profile, will teachers know what circumstances/learning demands could result in greater emotional or behavioral reactivity?
• Are there signs or symptoms of internalizing challenges that are being missed in the school setting?
• Should students that display high variability be automatically flagged as at-risk?
• Does it matter where the split is within the cognitive profile? (i.e., which scores indicate the variability?)

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