WISC-IV

WECHSLER INTELLIGENCE SCALE FOR CHILDREN® – FOURTH EDITION

Clinical Validity

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OVERVIEW

This is the third in a series of technical reports on WISC–IV. Technical Report #1 presented the theoretical structure and subtest changes from WISC–III. Technical Report #2 presented the normative sample, basic psychometric properties, correlations, and mean differences with other Wechsler tests. This report explores the clinical validity of the WISC–IV at the composite score level. (For further information about subtest and process scores in the special and clinical groups, please refer to the WISC–IV Technical & Interpretive Manual, pp. 75–98.) The following studies compare the mean performance of children identified as belonging to special groups to performance of controls matched on key demographic variables.

Children Identified as Intellectually Gifted

Composite scores for the intellectually gifted group were significantly higher than those obtained in the matched control group. Effect sizes for the mean composite score differences were large for VCI and PRI. The PSI was relatively lower than the other composites for the intellectually gifted group, with the lowest mean subtest scores on the Cancellation and Coding subtests. These results are consistent with previous research and the WISC–III special group study, which found that children identified as gifted exhibited greater variability and lower overall performance on subtests that measure processing speed (Sparrow & Gurland, 1998; Watkins, Greenawalt, & Marcell, 2002; Wechsler, 1991). The effect size for the WMI is moderate, with a mean composite score of approximately 113. Note that the Arithmetic Subtest, which measures working memory in the context of a crystallized academic skill, was replaced by the Letter-Number Sequencing Subtest, which is a purer measure of working memory, in this composite. The Intellectually Gifted sample scored much higher on the Arithmetic (14.2) than the Letter-Number Sequencing Subtest (12.6). The gifted sample mean score on Picture Concepts (12.7) was the lowest among the three core PRI subtests, yet very similar to the supplemental PRI subtest of Picture Completion (13.0). There is also no significant difference between the mean subtest scores for Block Design (13.8) and Block Design No Time Bonus (13.6) in the gifted sample. Overall, 84% of children identified as intellectually gifted had VCI, PRI, or FSIQ scores of 120 points or higher, versus only 13% of children who achieved these scores in the matched control group.

Table 1 Mean Performance Intellectually Gifted and Matched Control Groups

	Intellectually Gifted		Matched Control Group			Group Mean Comparison			
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	124.7	11.0	106.6	14.2	63	-18.14	-9.04	<.01	-1.43
PRI	120.4	11.0	105.6	13.0	63	-14.87	-7.79	<.01	-1.24
WMI	112.5	11.9	103.0	13.7	60	-9.43	-4.99	<.01	-.74
PSI	110.6	11.5	102.8	14.8	62	-7.84	-4.03	<.01	-.59
FSIQ	123.5	8.5	106.7	13.5	59	-16.80	-10.33	<.01	-1.49

Children with Mild or Moderate Mental Retardation

For the mild severity subgroup, composite scores ranged from 60.5 (FSIQ) to 73.0 (PSI), and all were significantly lower than the corresponding means of the matched control group. As expected, the composite score means for children with moderate mental retardation were even lower, ranging from 46.4 (FSIQ) to 58.2 (PSI). All effect sizes for the mean composite score differences were large.

Table 2 Mean Performance of Mental Retardation–Mild Severity and Matched Control Groups

	Mental Retardation –Mild Severity		Matched Control Group			Group Mean Comparison			
Composite	**Mean**	***SD***	**Mean**	***SD***	***N***	**Difference**	***t* value**	***p* value**	**Effect Size**
VCI	67.1	9.1	98.7	12.5	58	31.62	13.94	<.01	2.90
PRI	65.5	10.3	98.7	15.2	63	33.16	14.01	<.01	2.55
WMI	66.8	11.1	99.4	13.8	62	32.61	14.39	<.01	2.60
PSI	73.0	11.6	98.3	13.5	61	25.36	11.48	<.01	2.01
FSIQ	60.5	9.2	99.2	13.6	56	38.64	16.59	<.01	3.33

Table 3 Mean Performance of Mental Retardation–Moderate Severity and Matched Control Groups

	Mental Retardation –Moderate Severity		Matched Control Group			Group Mean Comparison			
Composite	**Mean**	***SD***	**Mean**	***SD***	***N***	**Difference**	***t* value**	***p* value**	**Effect Size**
VCI	52.3	7.5	97.2	14.1	55	44.93	19.07	<.01	3.97
PRI	52.5	9.2	99.2	15.2	57	46.63	19.14	<.01	3.72
WMI	57.0	9.5	98.9	14.6	53	41.85	15.80	<.01	3.41
PSI	58.2	11.0	97.3	12.3	51	39.12	15.20	<.01	3.36
FSIQ	46.4	8.5	98.0	14.5	47	51.62	18.32	<.01	4.35

The variability in the performance is very small at both levels of severity, with even less variability in the composite scores of the moderate subgroup than in the mild subgroup. At the mild level of severity, the standard deviations for composite scores range from 9.1 (VCI) to 11.6 (PSI), and from 7.5 (VCI) to 11.0 (PSI) at the moderate level of severity. Both of these ranges are much smaller than that found in the general population (15). A similar pattern was found in the standard deviations of the subtests. The within-group comparisons of children with mild and moderate mental retardation revealed a trend toward the expected pattern of slightly better performance on the PSI (means = 73.0 and 58.2, respectively) than on the VCI (means = 67.1 and 52.3, respectively), and PRI (means = 65.5 and 52.5, respectively) composites. The results for both levels of severity are generally consistent with previous reports by Atkinson (1992), Craft and Kronenberger (1979), and Spruill (1991) for adult participants, and Wechsler (1991, 2002) for children.

Children with Reading, Written Expression, and Mathematics Disorders

Reading Disorder. When compared to a matched control group, children with reading disorders obtained significantly lower mean scores for all composites, with the largest effect size observed on the WMI. This is consistent with contemporary research that indicates a relationship between reading achievement and difficulties with tasks requiring auditory working memory (Gathercole, Hitch, Service, & Martin, 1997; Swanson & Howell, 2001).

In addition to the core subtests included in the WMI, large effect sizes were also observed for the Information, Vocabulary, and Arithmetic subtests. The low scores on Information and Vocabulary may reflect, in part, a deficiency in the general fund of information typically acquired through reading, whereas the low score on Arithmetic supports the possible role of working memory in reading disorders.

Table 4 Mean Performance of Reading Disorder and Matched Control Groups

	Reading Disorder		Matched Control Group		Group Mean Comparison				
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	91.9	9.7	100.9	10.6	55	9.00	4.84	<.01	.89
PRI	94.4	11.2	99.3	9.2	56	4.91	2.96	<.01	.48
WMI	87.0	12.9	99.8	10.3	54	12.81	5.62	<.01	1.10
PSI	92.5	11.7	98.6	11.7	56	6.16	2.69	.01	.53
FSIQ	89.1	10.3	99.9	9.7	53	10.79	6.01	<.01	1.08

Reading and Written Expression Disorders (RWD). With the exception of the PRI, all group mean differences for the composite scores were significant, with medium to large effect sizes. Both the RD and RWD groups have large effect sizes for WMI. The RWD group is distinguished from the RD group by the PSI, which seems to play a larger role in the RWD group.

Table 5 Mean Performance of Reading and Written Expression Disorders (RWD) and Matched Control Groups

	RWD		Matched Control Group		Group Mean Comparison				
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	94.8	11.1	101.3	15.1	33	6.52	2.47	.02	.49
PRI	98.0	11.4	101.0	13.2	35	3.06	1.14	.26	.25
WMI	90.2	13.2	100.0	12.2	34	9.79	3.76	<.01	.77
PSI	90.6	13.3	102.0	12.9	35	11.43	3.67	<.01	.87
FSIQ	92.5	11.1	101.8	13.4	32	9.31	3.76	<.01	.76

Mathematics Disorder (MD). Mean scores for the MD group were significantly lower than mean scores for the matched control group for all composites except the PSI. Among the index group comparisons, the effect size for the mean PRI difference was largest. This is due primarily to differential performance on the Picture Concepts subtest, which requires fluid reasoning with abstract verbal concepts. At the subtest level, a large effect was observed for solving word problems mentally on the Arithmetic subtest, which may suggest deficits in numerical skill and working memory. Performance on the Digit Span subtest differs between digits forward (short term auditory memory) and digits backward (working memory), with the MD group scoring lower on Digit Span Backward (8.6) than DSF (9.6). With the medium effect size for between-group differences on the WMI, these findings are consistent with research that suggests there is an association between working memory difficulties and the occurrence of learning disabilities in mathematics (Adams & Hitch, 1997; Bull & Scerif, 2001; Greiffenstein & Baker, 2002).

Table 6 Mean Performance of Mathematics Disorder (MD) and Matched Control Groups

	MD		Matched Control Group		Group Mean Comparison				
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	93.2	6.4	99.3	12.7	32	6.09	2.28	.03	.61
PRI	87.7	9.3	97.2	14.1	33	9.55	3.57	<.01	.80
WMI	92.9	10.6	99.7	13.4	32	6.72	2.28	.03	.56
PSI	90.6	14.1	95.6	14.3	32	5.03	1.58	.12	.36
FSIQ	88.7	8.6	99.4	12.5	30	10.63	4.15	<.01	.99

Reading, Written Expression, and Mathematics Disorders (RWMD). All composite scores for the RWMD group were significantly lower than those obtained by the matched control group, however, clear trends regarding relative performance across the cognitive domains were more difficult to discern in this sample of mixed learning disorders. These results demonstrate the importance of homogeneous clinical groups, or grouping learning disorders according to common underlying neuropsychological processes for research.

Table 7 Mean Performance of Reading, Written Expression, and Mathematics Disorders and Matched Control Groups

	RWMD		Matched Control Group			Group Mean Comparison			
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	89.8	11.4	101.0	12.9	39	11.18	4.12	<.01	.92
PRI	90.1	12.5	98.9	16.7	42	8.83	2.47	.02	.60
WMI	89.7	12.3	100.1	14.2	41	10.44	3.94	<.01	.79
PSI	90.5	12.6	100.3	17.0	42	9.79	2.99	<.01	.65
FSIQ	87.6	10.6	16.2	16.1	38	12.97	4.35	<.01	.95

In general, results for the set of learning disorder studies reported in Table 7 are consistent with previous research on children with various learning disabilities (Adams & Hitch, 1997; Gathercole et al., 1997; Wechsler, 1991). Unfortunately, previous investigations often collapse the various types of learning disabilities or disorders into one group for comparison, differ in inclusion criteria, or fail to adequately describe the specific learning difficulties experienced by participants (Korkman & Pesonen, 1994; Mayes, Calhoun, & Crowell, 1998b, 2000; Wechsler, 1991). Additional research is needed to determine the similarities and differences in cognitive abilities that are associated with various academic disorders, with more focus on the differential cognitive processes required within academic areas across grade levels.

Children With Learning Disabilities and Attention-Deficit/ Hyperactivity Disorder Dual Diagnoses

Learning Disabilities and AD/HD. Sixty five percent of children in the LD/ADHD sample were on medication at the time of testing. All mean composite scores for the LD/ADHD group were significantly lower than those for the matched control group. Effect sizes for the mean composite score differences are considered medium for the VCI and PRI, and large for the WMI and PSI. In addition, a large effect size was observed on the Arithmetic Subtest as compared to controls. The LD/ADHD group also scored lower on Digit Span Backward (8.0) than Digit Span Forward (9.4). Taken together, this information suggests a deficit in executive control of working memory and processing speed related to attentional issues. However, there was no significant difference between the mean scores of this group on Block Design (9.5) and Block Design No Time Bonus (9.7).

Table 8 Mean Performance of Learning Disorder/ADHD Dual Diagnoses and Matched Control Groups

	LD/ADHD		Matched Control Group			Group Mean Comparison			
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	92.7	15.8	103.1	13.1	44	10.41	4.13	<.01	.72
PRI	92.7	13.7	101.9	14.7	45	9.16	3.58	<.01	.64
WMI	88.7	13.7	100.9	14.1	45	12.20	4.60	<.01	.88
PSI	88.2	12.3	100.5	13.8	42	12.29	4.26	<.01	.94
FSIQ	88.1	13.0	102.2	13.0	41	14.10	5.76	<.01	1.08

Recent research suggests that the cognitive abilities of children with dual diagnoses of Learning Disorder and ADHD may vary with the specific type of learning disability (Mayes, Calhoun, & Crowell, 1998a; Seidman, Biederman, Monuteaux, Doyle, & Faraone, 2001). Additional research is needed to closely examine the cognitive abilities of ADHD children with specific types of learning disabilities by medication status.

Attention-Deficit/Hyperactivity Disorder. Sixty-four percent of the children in the ADHD group were on medication at the time of testing. A medium effect size for the group mean difference for the PSI was noted, and small effect sizes for the VCI, and WMI, were observed. At the subtest level, largest effect sizes for group mean scaled score differences occurred on the Coding and Arithmetic subtests. These results are consistent with research indicating that children with ADHD typically achieve scores near the normative range of intellectual functioning, but may perform worse on measures of processing speed and working memory than on measures of verbal or perceptual–organizational ability (Barkley, Murphy, & Bush, 2001; Denckla, 1993, 1996; Doyle, Biederman, Seidman, Weber, & Faraone, 2000; Hinshaw, Carte, Sami, Treuting, & Zupan, 2002; Pennington, Bennetto, McAleer, & Roberts, 1996; Pennington & Ozonoff, 1996; Willcutt, Pennington, Boada, Ogline, Tunick, Chhabildas & Olson, 2001).

Table 9 Mean Performance of Attention-Deficit/Hyperactivity Disorder and Matched Control Groups

	ADHD		Matched Control Group			Group Mean Comparison			
Composite	**Mean**	***SD***	**Mean**	***SD***	***N***	**Difference**	***t* value**	***p* value**	**Effect Size**
VCI	99.0	13.6	102.5	13.2	83	3.43	1.81	.07	.26
PRI	100.1	14.2	102.3	13.0	89	2.15	1.23	.22	.16
WMI	96.1	15.5	101.7	13.4	89	5.57	2.52	.01	.38
PSI	93.4	12.6	100.7	12.3	87	7.30	3.88	<.01	.59
FSIQ	97.6	14.0	102.7	12.5	82	5.06	2.71	.01	.38

Children With Expressive and/or Receptive Language Disorder

Expressive Language Disorder (ELD). The composite score differences between the ELD and matched control group produced large effect sizes for the VCI and WMI comparisons. At the subtest level, large effect sizes for group mean differences were noted for the Comprehension, Information, and Arithmetic subtests. These findings are consistent with research indicating that children with Expressive Language Disorder may continue to have difficulty with tasks requiring verbal reasoning, drawing conclusions, and sequential reasoning well into their school age years (Phelps, 1998).

Table 10 Mean Performance of Expressive Language Disorder and Matched Control Groups

	ELD		Matched Control Group			Group Mean Comparison			
Composite	**Mean**	***SD***	**Mean**	***SD***	***N***	**Difference**	***t* value**	***p* value**	**Effect Size**
VCI	82.7	11.7	93.4	14.1	26	10.69	3.18	<.01	.83
PRI	91.6	12.9	95.0	13.5	25	3.36	1.43	.17	.25
WMI	85.6	12.2	96.2	13.5	24	10.58	3.69	<.01	.82
PSI	87.7	11.9	91.0	16.0	27	3.37	.82	.42	.24
FSIQ	83.0	11.1	92.3	13.7	22	9.32	2.86	.01	.75

Mixed Receptive-Expressive Language Disorder (RELD). Large effect sizes were observed for all composite level comparisons between the RELD and matched control samples, with the largest effect size noted for the VCI. At the subtest level, large effect sizes were observed for five Verbal Comprehension subtests, two Working Memory subtests, and two Processing Speed subtests. These results are consistent with research that suggests older children with language disorders tend to have global deficits in cognitive functioning, and relatively better performance on nonverbal than verbal tasks (Beitchman, Wilson, Brownlie, Walters, & Lancee, 1996; Bishop, 1992; Doll & Boren, 1993; Rose, Lincoln, & Allen, 1992).

Table 11 Mean Performance of Receptive-Expressive Language Disorder (RELD) and Matched Control Groups

	RELD		Matched Control Group			Group Mean Comparison			
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	78.2	11.4	100.1	13.4	40	21.90	8.46	<.01	1.76
PRI	86.7	15.8	99.7	11.0	40	12.95	4.55	<.01	.95
WMI	83.1	12.3	100.9	13.6	38	17.84	5.66	<.01	1.38
PSI	79.3	12.8	100.1	12.5	40	20.73	7.23	<.01	1.64
FSIQ	77.3	12.6	100.4	10.2	38	23.03	9.32	<.01	2.01

Children with Traumatic Brain Injury (TBI)

The two TBI groups were composed of 16 children with Open Head Injury (OHI) and 27 children with Closed Head Injury (CHI).

Open Head Injury. At the composite level, the largest effect sizes were observed for the PSI and PRI group comparisons. Although the group mean differences for the WMI and FSIQ failed to attain statistical significance due to the small sample, effect sizes for these differences are considered medium. There was no significant group mean difference or notable effect size for the VCI. At the subtest level, the largest effect sizes were observed for Symbol Search and Block Design, however, there was no difference between the OHI group's mean scores on Block Design (7.9) and Block Design No Time Bonus (7.9). This research is consistent with previous research that indicates the reduced impact on verbal ability as compared to other cognitive abilities following TBI (Lezak, 1995; Tremont, Mittenberg & Miller, 1999).

Table 12 Mean Performance of Open Head Injury and Matched Control Group

	Open Head Injury		Matched Control Group			Group Mean Comparison			
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	94.0	14.1	102.7	13.8	26	8.69	2.07	.05	.62
PRI	92.6	12.5	104.3	13.8	27	11.70	3.05	.01	.89
WMI	95.2	15.1	102.3	13.4	27	7.15	1.61	.12	.50
PSI	85.0	10.0	103.2	13.5	26	18.27	5.31	<.01	1.54
FSIQ	90.0	12.2	105.1	14.4	25	15.08	3.55	<.01	1.13

Closed Head Injury. Similar to the OHI study, the PSI group mean difference produced the largest effect size, and large effect sizes were also noted for the PRI. Effect sizes for the VCI and WMI group mean differences were moderate. At the subtest level, children in the CHI and matched control groups obtained significant group mean differences with large effect sizes on Symbol Search, Block Design, Cancellation, Coding, and Arithmetic. In comparison to the matched controls, the children with CHI appear to exhibit a greater range of cognitive impairments than the children with OHI. At the index score level, however, the actual level of performance between the groups is remarkably similar. Not surprisingly, the children with open head injuries were more heterogeneous in their cognitive performance as evident in the larger standard deviations at the subtest and index level.

Table 13 Mean Performance of Closed Head Injury and Matched Control Group

	Closed Head Injury		Matched Control Group			Group Mean Comparison			
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	94.5	16.4	97.3	12.9	15	2.80	.64	.53	.19
PRI	93.8	14.9	104.3	11.7	16	10.50	2.27	.04	.78
WMI	93.3	17.8	102.0	16.0	15	8.73	1.33	.21	.52
PSI	84.1	20.3	100.8	16.9	16	16.69	2.27	.04	.89
FSIQ	92.4	17.8	100.3	13.7	14	7.86	1.45	.17	.50

Children with Autistic Disorder

Autistic Disorder (AD). The AD group scored significantly lower than the matched control group on all composites. Effect sizes for all mean composite score differences are large. These results are consistent with previous investigations that indicate lower general intellectual functioning in children with AD than that of children without pervasive developmental disorders, especially on verbal tasks (Bishop, 1997; Green, Fein, Joy, & Waterhouse, 1995; Miller & Ozonoff, 2000; Siegel, Minshew, & Goldstein, 1996). The group's mean scaled score differences were significant for all subtests except Block Design and Arithmetic. Previous research has also noted that children with AD perform high on the Block Design subtest relative to their performance on other subtests (Dennis, Lockyer, Lazenby, Donnelly, Wilkinson, & Schoonheyt, 1999; Siegel et al., 1996).

Table 14 Mean Performance of Autistic Disorder and Matched Control Groups

	Autistic Disorder		Matched Control Group		Group Mean Comparison				
Composite	**Mean**	***SD***	**Mean**	***SD***	***N***	**Difference**	***t* value**	***p* value**	**Effect Size**
VCI	80.2	17.4	106.1	12.0	18	25.83	7.20	<.01	1.73
PRI	85.7	20.6	101.6	12.2	19	15.89	2.93	.01	.94
WMI	76.9	16.5	102.9	13.1	18	26.06	4.35	<.01	1.75
PSI	70.2	18.3	96.8	12.2	19	26.63	5.58	<.01	1.71
FSIQ	76.4	19.5	103.9	11.1	17	27.53	5.52	<.01	1.74

Children with Asperger's Disorder

Asperger's Disorder. The PSI group mean difference exhibited a large effect size, and the WMI group mean differences produced a medium effect size. At the subtest level, the Asperger's group performed better on the random presentation (8.4) than the structured presentation (7.5) of the Cancellation task. Also interesting, was this group's significantly better performance on Similarities (12.1) than Picture Concepts (8.7). It should be noted that there has been some controversy regarding the differential diagnosis of Autistic Disorder and Asperger's Disorder (Miller & Ozonoff, 2000). However, these data are consistent with diagnostic criteria and previous investigations finding less severe deficits in verbal ability in children with Asperger's Disorder than in children with Autistic Disorder (DSM-IV-TR, 2000; Gilchrist, Green, Cox, Burton, Rutter & Le Couteur, 2001).

Table 15 Mean Performance of Asperger's Disorder and Matched Control Groups

	Asperger's Disorder		Matched Control Group		Group Mean Comparison				
Composite	**Mean**	***SD***	**Mean**	***SD***	***N***	**Difference**	***t* value**	***p* value**	**Effect Size**
VCI	105.6	18.5	109.7	12.0	27	4.15	1.11	.28	.27
PRI	101.2	18.5	107.3	12.0	26	6.04	1.49	.15	.39
WMI	95.4	17.8	104.9	14.8	26	9.46	1.82	.08	.58
PSI	86.5	17.1	100.6	12.5	26	14.08	3.43	<.01	.94
FSIQ	99.2	17.7	107.1	12.5	24	7.96	1.98	.06	.52

Children with Motor Impairment

Motor Impairment (MI). A large effect size was observed between the MI and matched control groups for the PSI mean scores, and a medium effect size was noted for the PRI. At the subtest level, group mean scaled score comparisons produced large effect sizes for the Coding, Symbol Search, Cancellation, and Arithmetic subtests. In general, the results of this study are consistent with previous research indicating that children with delays in motor development typically have lower scores than matched control groups on the majority of Performance subtests on the Wechsler intelligence scales (Coleman, Piek, & Livesay, 2001; Lord & Hulme, 1987; Wechsler, 2002). In addition, results suggest that the VCI provides a more accurate estimate of intellectual ability for children with motor difficulties. Interestingly, there was no significant difference between the MI group's mean scores on Block Design (6.9) and Block Design No Time Bonus (7.0). The MI group scored significantly higher on Picture Completion (8.2) than Block Design. *Note:* When evaluating children with MI, use Picture Completion instead of Block Design because the Picture Completion task has fewer motor demands than Block Design.

Table 16 Mean Performance of Motor Impairment and Matched Control Groups

	Motor Impairment		Matched Control Group		Group Mean Comparison				
Composite	Mean	*SD*	Mean	*SD*	*N*	Difference	*t* value	*p* value	Effect Size
VCI	95.5	11.2	97.9	13.4	18	2.44	.50	.62	.20
PRI	83.8	16.0	94.8	12.0	21	11.05	2.09	.05	.78
WMI	92.0	13.1	96.5	13.3	21	4.52	1.00	.33	.34
PSI	78.2	17.8	97.7	17.5	21	19.52	4.32	<.01	1.11
FSIQ	85.7	14.9	96.7	15.1	18	10.94	1.86	.08	.73

Conclusions from WISC–IV Special Group Studies

The majority of the results presented in this report are consistent with expectations based on previous research and theoretical foundations of the scale's development. Results from these special group studies support the clinical validity of the WISC–IV Verbal Comprehension, Perceptual Reasoning, Working Memory, and Processing Speed tasks. As an aggregate score, the FSIQ can sometimes obfuscate meaningful differences in these specific cognitive abilities within and between groups of children who have learning disorders or are clinically referred. Clinicians should consider primarily the four index scores for interpretation when evaluating referred children, followed by selected subtest and process score comparisons, and then history and other test data. Recommended practice involves the use of test data to corroborate *a priori* hypotheses based on the referral question and background information. It is expected that future investigations with the WISC–IV in different clinical settings and populations will provide further evidence of the scale's clinical utility.

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