A PILOT STUDY OF THE USE OF THE WAIS III WITH PEOPLE WITH A LEARNING DISABILITY

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ABSTRACT

The present study is a pilot examining how a group of people (n=133) with a learning disability perform on the Wechsler Adult Intelligence Scale – Third Edition (1997). The study found that Full Scale IQ was not always predictive of performance on individual subtests or of performance on the Indices. Implications for clinical practice are discussed.

INTRODUCTION

The Wechsler Adult Intelligence Scales have an extensive research base (Groth-Marnat et al., 2000) and are used in many areas of clinical psychology, including helping in differential diagnosis, charting the initial cognitive presentation and development of diseases and helping with the planning and evaluation of treatment and interventions. In particular, this tool is widely used by clinicians to contribute to the assessment of whether an individual would fall within the remit of learning disability services. Recent guidance from the British Psychological Society (BPS) emphasises that such intellectual assessments must be based on an 'individually administered test which is recognised as being reliable, valid and properly standardised' (British Psychological Society, 2001, p4). In addition, intellectual assessments form only one aspect of determining if a person falls within the classification of learning disability, and the clinician must also assess the individuals' adaptive functioning and determine if any impairments in relation to both of these areas were acquired during childhood.

Important decisions affecting peoples' lives can be influenced by results obtained from these assessments. An assessment of a person's degree of mental impairment may be used in a number of contexts including mental health legislation, accessing benefits and in order to inform legal decision making processes (BPS, 2001, McKay, 1991). The recent BPS guidance gives detailed examples of this and cautions against using intellectual assessments alone to inform the provision and rationing of services (BPS, 2001).

The Wechsler Intelligence Scales were revised in 1997, allowing the test to measure IQ ranges from 45 –155. Researchers have, however, expressed concern that the standard norms and underlying assumptions of the Wechsler Scales may not be applicable to certain groups. These include those who have a different cultural or linguistic background, minority groups and those who are disadvantaged socioeconomically (Groth-Marnat et al., 2000).

Despite this cautionary note about the validity of the WAIS III when applied to certain groups, there would not appear to be the same concern when using the Wechsler Scales with people with a learning disability. This may be because the WAIS III was also administered to 108 adults diagnosed as having a learning disability, 62 of whom had a mild learning disability and 46 of whom were in the moderate range. Recent BPS guidance (BPS, 2001) now defines the former group as having significant intellectual impairment and the latter as having severe intellectual impairment (BPS, 2001). The Letter-Number Sequencing sub-test was not, however, administered with this group and, therefore, the working memory index scores were not calculated. Impairments were found to be equally distributed across all domains of cognitive functioning (WAIS III Technical Manual, 1997).

There has been little research carried out on the use of the WAIS III with people with a learning disability. Some previous studies which examined the performance of people with a learning disability on the Wechsler Adult Intelligence Scales – Revised (WAIS-R, 1981) reported a similar factor structure of the WAIS-R to normative data for people with

a learning disability (Atkinson, 1992; Atkinson and Cyr, 1988) and that it had reasonably good test-retest reliability (Watkins & Campbell, 1992). However, the former studies also included individuals who were functioning intellectually in the borderline range. In addition, some studies of people with a learning disability actually related to groups of people with specific educational difficulties (e.g. Maller and McDermott, 1997). Zimmerman and Woo-Sam (1973) reviewed 14 studies that demonstrated that the WAIS-R did not produce consistent Verbal-Performance profiles. Some studies have also demonstrated a pattern of Verbal scores being greatest, with small standard deviations found in the IQs (Mandes et al., 1991).

Some studies, therefore, have indicated that the profile of sub-test scores for people with a learning disability may not follow a uniform pattern and this may have implications for the validity of the WAIS-R with this client group. It would also, therefore, be important to try and determine the validity of the WAIS III for people with a learning disability. The current study aims, therefore, to look at how a population of people with a learning disability perform on the WAIS III with specific reference to sub-scale, index and IQ score patterns.

METHOD

Scores from 133 participants' performances on the WAIS III, collected as a part of routine clinical work, were collated and analysed. All participants met the three criteria for a learning disability (BPS, 2001). Sixty-nine were male and 64 were female. The mean age of the group was 33.08 (S.D. = 14.92; Range = 16-76). The mean IQ of the group was 57.41 (S.D.= 6.84; Range = 45–69). Participants were grouped according to whether they fell into the significant (IQ 55-69) or severe (IQ = 54 or below) impairment ranges on the basis of their Full Scale IQ scores. The percentages of individuals falling in each IQ range (including the borderline and average range) for each IQ and Index score was calculated. Also, the percentages of individuals obtaining the same scaled scores were calculated for each sub-test.

RESULTS

Sub-test scaled score profiles are recorded below in Table 1. The percentage of individuals within each ability level for IQ and Index scores are recorded below in Table 2.

Table 1. Percentages of scaled scores obtained by participants for each sub-test

Percentage of Participants														
Scaled Score	Picture Comp.	Vocab-ulary	D.S.-Coding	Simi-larities	Block Design	Arith-metic	Matrix Reason.	Digit Span	Infor-mation	Picture Arrange	Comp-rehens.	Symbol Search	L-N Sequen.	Object Assem.
1	11.3	5.3	26.3	21.1	10.5	40.6	5.3	12.0	4.5	15.0	5.3	45.9	48.1	8.4
2	32.3	24.1	30.8	15.0	15.8	24.1	5.3	18.8	12.8	10.5	29.3	9.8	15.8	19.6
3	17.3	27.8	18.8	9.0	19.5	18.8	27.1	15.0	23.3	21.1	30.1	24.1	10.5	23.4
4	22.6	19.5	9.8	10.5	28.6	9.0	33.8	31.6	21.8	25.6	24.8	6.8	10.5	14.0
5	5.3	14.3	8.3	15.8	11.3	1.5	24.1	5.3	21.8	12.8	2.3	5.3	9.0	8.4
6	4.5	6.0	1.5	16.5	11.3	3.8	3.0	12.0	4.5	5.3	3.0	3.8	1.5	14.0
7	3.8	1.5	2.3	7.5	1.5	1.5	1.5	1.5	3.8	6.0	4.5	4.5	2.3	6.5
8	1.5	0.8	0.8	4.5	1.5	0.0	0.0	2.3	2.3	3.0	0.8	0.0	0.8	5.6
9	1.5	0.8	1.5	0.0	0.0	0.0	0.0	0.0	3.8	0.8	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.8	0.0	0.0	0.0	1.5	0.0
11	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0

Table 2. Percentages of participants falling within each ability level range for IQ and Index Scores

LEVEL OF ABILITY	IQ SCORES			INDEX SCORES			
	Full Scale	Verbal	Performance	Verbal Comprehension	Perceptual Organisation	Working Memory	Processing Speed
	%	%	%	%	%	%	%
Severe Impairment (IQ=54 or less)	41.4	20.3	25.6	6.8	12.8	48.9	25.6
Significant Impairment (IQ=55-69)	58.6	65.4	66.1	60.1	72.2	44.3	59.4
Borderline (IQ=70-79)	0.0	14.3	8.3	23.3	13.5	4.5	12.7
Low Average (IQ=80-89)	0.0	0.0	0.0	8.3	1.5	2.3	2.3
Average (IQ=90-110)	0.0	0.0	0.0	1.5	0.0	0.0	0.0

DISCUSSION

Table 1 shows that the percentage of participants falling within each category of scaled score for each individual sub-test is not uniform. Each test has a different distribution and profile, with some tests exhibiting a possible floor effect e.g. Arithmetic and Letter-Number sequencing, while others show a greater spread of scores e.g. Digit span and Information. Table 2 illustrates that the proportions of participants in the significant and severe impairment ranges as defined by their Full Scale IQ scores are not equal to the proportions in other IQ or Index Score groupings. The data demonstrates a tendency for participants to have higher verbal abilities with 14.3% and 33.1% falling outwith the learning disability range for Verbal IQ and Verbal Comprehension Index scores respectively. With the exception of Working Memory, Index scores tended to produce a higher proportion of participants in ability ranges above the severe intellectual impairment range in comparison to Full Scale IQ scores. Working Memory, by contrast, produced a greater proportion in the severe impairment range with 7.5% more than for Full Scale IQ. Finally, there was a relatively large proportion of participants falling within the significant impairment range (72.2%) for the Perceptual Organisation Index with few in the ranges either side.

With the exception of Working Memory, a greater proportion of the individuals with a learning disability in this study were found to score more highly on each of the other three index scores in comparison to their overall intellectual levels. This would suggest that Full Scale IQ scores are not necessarily predictive of individual intellectual functioning in specific areas of cognitive functioning. In addition, there was also a

greater proportion of individuals falling outwith the learning disability range in tests of verbal abilities. These findings suggest that, as ability levels decrease, verbal abilities demonstrate relatively less impairment in comparison to overall abilities but, working memory becomes relatively more impaired at an earlier stage, indicating that more people score at a low level on these subtests. This result may be an artefact of the test itself i.e. the items may not accurately discriminate because the earlier items are too difficult even for those with a higher Full Scale IQ. This would be despite a number of new items being introduced e.g. on the Arithmetic subtest, which were designed to overcome this floor effect.

An alternative explanation may be that the standardised instructions are too difficult for most clients with a learning disability to understand. The instructions for the Letter-Number Sequencing subtest, in particular, involve a number of more abstract concepts e.g. alphabetical order, which may be difficult for clients with a learning disability to understand. It may, therefore, be that individual performances on these subtests are constrained by verbal comprehension of the instructions rather than by working memory. Alternatively, the results may reflect a true finding that Full Scale IQ is not predictive of specific cognitive functioning for people with a learning disability. This concern has been raised in relation to general neuropsychological testing (Lezak, 1995).

The results of the present study also has a potential impact on the validity of neuropsychological testing and the use of short-forms of the Wechsler Scales. In relation to the former, the conclusions drawn about whether a particular pattern of sub-test score

profiles and their diagnostic potential, as might be used as a part of a differential diagnosis of dementia, are likely to be less reliable than with someone whose intellectual abilities were in the average range. Scores might simply represent an established pattern of disability rather than be related to an ongoing deteriorating process. Similarly, where the results of other neuropsychological tests are compared with WAIS III IQ scores, it would seem advisable that all sub-tests are completed in order to ensure greater reliability.

Short-forms of the Wechsler Scales have been shown to have some validity for use with the general population (De Vinney et al., 1998), however, particular care may need to be taken when interpreting results from pro-rated assessments used with people with a learning disability. The present study would suggest an increased likelihood of error if the full assessment is not used.

Finally, the results of this study are based upon scores obtained from people referred to clinical psychology services and they may not, therefore, be generalisable to the wider population of people with a learning disability. However, as testing was carried out as a part of routine clinical work and did not relate to reason for referral, there is no clear reason to suggest that this group is not representative.

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