

SHORT FORM OF THE W.A.I.S. A PRELIMINARY SUB-TEST SELECTION

J. N. CASTANOS

Department of Psychology

Porirua Hospital

Six sub-tests of the W.A.I.S. were selected to reduce the testing time needed and to give some indication of strengths and weaknesses in five important factors of intellectual functioning. The sub-tests selected were Similarities, Digit Span, Vocabulary, Digit Symbol, Block Design and Object Assembly. The correlation between these sub-tests combined and the full scale was $r=+0.91$.

The sum of the scaled scores of the above subset, multiplied by $\frac{11}{6}$, was found to correlate highly with the total scaled scores of the original protocols. When converting the pro-rated sub-test scores to I.Q.s it was found that their sum also correlated highly ($r=+0.92$) with the I.Q.s obtained from the original protocols.

Before the appearance of the Wechsler Bellevue scale in 1939, followed by the W.A.I.S., clinicians faced the difficulty of evaluating the intellectual functioning of adults. Tests such as the Stanford-Binet were often standardised only upon children and their use with adults went beyond the groups with which they were standardised. They often assumed a constant mental age for adults.

The W.A.I.S. was explicitly designed to overcome these inadequacies by using adults as subjects for standardisation, in several age groups. Apart from the value of standardisation, the sub-tests were selected for their clinical meaningfulness as well as for their contribution to the total score. Both performance and verbal sub-tests were included in defining an individual's general intelligence level.

Wechsler (1958, p. 7) gives his conception of the nature of intelligence as "the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment". He points out that it is global in the sense of embracing the person's behaviour as a unit and yet it is an aggregate because the functions of which it is composed may be differentiated.

Luszke, Laywell, Schultz and Dawes (1970) state that an important purpose of the W.A.I.S. is to gain an understanding of the relative strengths and weaknesses of the various aspects of intellectual functioning. For a general test of intelligence a shortened form of the W.A.I.S. should be adequate.

The justifications for the use of a short form of the W.A.I.S. are that the time required to complete them is lessened and so reduces fatigue and boredom, and that the results obtained from the short forms correlate sufficiently highly with results obtained from the complete forms which use all eleven sub-tests.

However, short forms have been criticized for being both inaccurate and deficient in clinical material. Wechsler (1958, p. 112) does not recommend short forms for anything but screening purposes. Mum-power (1964) and Kramer and Francis (1965) have reported that short forms show errors in I.Q. ranging from 22 percent to 71 percent. Love (1969) found a 13-point I.Q. difference between the Doppelt short form of the W.A.I.S. and F.S.I.Q. for New Zealanders in a Psychiatric Hospital. The reason for the errors may be due to the generally low I.Q.s and greater inter-test scatter of scaled scores among these subjects.

The Doppelt form uses sub-tests of Arithmetic, Vocabulary, Block Design, and Picture Arrangement, is deficient in clinical material and only taps the factors of concentration, vocabulary and visual perception. It omits two very important factors of intellectual functioning, namely abstract and rational thinking and recent memory tested respectively by the sub-tests Similarities and Digit Span. These two sub-tests are important in detecting any organic involvement.

The purpose of this paper is to describe a short form of the W.A.I.S., which could reduce testing time and yet give sufficient clinical material to indicate any impairment or deterioration in important areas of intellectual functioning. The sub-tests selected for this short form were Similarities, Digit Span, Vocabulary, Digit Symbol, Block Design, and Object Assembly. The areas of intellectual functioning tapped by these sub-tests are rational thinking, recent memory, vocabulary, visual-motor integration, and speed of visual-motor co-ordination. The sub-tests rejected: Comprehension, Arithmetic, Picture Arrangement and Picture Completion, all correlate with vocabulary between +0.70 and +0.80 (Wechsler, 1958). This is also the case with Similarities, but because that sub-test measures the most basic ability, the logical character of the individual's thinking, its inclusion is justified. Poor performance in this sub-test seems to be related to loss in conceptual thinking, to rigidity or to distortion in the thought process.

METHOD

One hundred W.A.I.S. protocols (ages ranged from 17 to 67, with a mean of 31.1 years) were selected at random from a pool of seven hundred and fifty W.A.I.S. protocols of patients at a New Zealand Psychiatric Hospital. These had been administered by several Clinical Psychologists. The scores on the six sub-tests proposed by this short form, from each protocol, were summed and multiplied by $\frac{11}{6}$ to give a pro-rated score. The pro-rated scores of the 100 cases were added and the mean found. The mean of the 100 protocols containing the eleven sub-tests was found and the two means were correlated using product moment correlations r . The pro-rated scaled scores were each converted to I.Q.s and averaged. These were correlated with the mean of the full score I.Q.s of the original protocol.

RESULTS

The mean of the pro-rated scaled scores was 89.35 with a standard deviation of 22.60. The mean of the original scale score was 92.30 with a standard deviation of 26.50. The correlation between these scores was +0.91. The mean I.Q. from the pro-rated scores was 92.54 ± 16.45 . The correlation here was +0.92. The maximum difference in I.Q. between short and full forms was six points in the high and low scores, with a maximum difference of two points in the other scores.

DISCUSSION

The present analysis shows that by using six selected sub-tests of the W.A.I.S., clinically important aspects of intellectual functioning have been represented.

The Doppelt form selects only four sub-tests and does not include Digit Span which appears to be the first to deteriorate with age or cerebral dysfunction due to injury. The sub-tests selected in the Doppelt form show high inter-correlations and when pro-rating them and correlating with I.Q.s from the original protocols one would expect a high correlation. There is no doubt that the Doppelt form would serve as a time saver and give an adequate I.Q. rating but it would not show deterioration in recent memory, abstract and rational thinking, visual motor integration, or in the speed of visual motor co-ordination. The sub-tests selected in this study could give some indication of strength and weaknesses in five important factors of intellectual functioning as well as being a time-saving test.

Offprint requests to Dr J. Castanos, 338 Victoria Street, Kings Cross, N.S.W. 2011, Australia.

REFERENCES

- De Lucas, J. N. Predicting the full scale W.A.I.S. I.Q. of Army basic trainees. *Journal of Psychology*, 1968, 68, 83-86.
- Doppelt, J. E. Estimating the full scale score on the Wechsler Adult Intelligence Scale from scores on four sub-tests. *Journal of Consulting Psychology*, 1956, 20, 63-66.
- Kramer, E. and Francis, P.S. Errors in intelligence estimation with short forms of the W.A.I.S. *Journal of Consulting Psychology*, 1965, 29, 490.
- Love, H. G. Validity of the Doppelt Short Form of W.A.I.S. in a psychiatric population. *British Journal of Social and Clinical Psychology*, 1969, 8, 185-186.
- Luszke, M. B., Laywell, H. R. Schultz, W., and Dawes, R. M. Long search for a short W.A.I.S.: Stop looking. *Journal of Consulting and Clinical Psychology*, 1970, 34, 3, 425-431.
- Mumpower, D. L. The fallacy of the short form. *Journal of Clinical Psychology*, 1964, 20, 111-113.
- Wechsler, D. *The measurement and appraisal of Adult Intelligence*. Baltimore: Williams and Wilkins, 1958.