CROSS-VALIDATION OF A LEARNING TEST FOR USE WITH ELDERLY PSYCHIATRIC PATIENTS*

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ONE of the obvious requirements of a clinical test which purports to assess any aspect of the impairment of behaviour is that of cross-validation; it should be able to discriminate between different groups of patients similar to those on which it was first standardized. This paper reports such cross-validation of a paired-associate learning test which Inglis (1959) has shown to discriminate between groups of elderly psychiatric patients with and without memory disorder.

METHOD

Subjects. The memory-disordered group comprised 30 elderly patients (10 males and 20 females). The estimate of memory disorder was made on the basis of a complaint about the patient's memory made by the doctor in charge of the case, by the ward staff, or both. Another group of 30 elderly patients without memory disorder (11 males and 19 females) was also tested. The subjects were all psychiatric patients of the Ontario Hospital, Kingston.

The age range of the first group was 65 to 89 (mean age, 79·90; S.D. 18·76) and of the second 64 to 84 (mean age, 74·56; S.D. 16·18). The verbal intelligence of the first group as measured by the WAIS Verbal Scale (1955) ranged from 77 to 106 (mean I.Q. 92·16; S.D. 9·14) and of the second 75 to 112 (mean I.Q. 96·21; SD 8·98). The two groups were therefore not significantly different on either of these characteristics.

Procedure. The paired-associate learning test employs verbal presentation and the recall mode of reproduction. Two equivalent sets are available, as follows:

	Form A		Form B	
	Stimulus	Response	Stimulus	Response
(*a*)	Cabbage	Pen	Flower	Spark
(*b*)	Knife	Chimney	Table	River
(*c*)	Sponge	Trumpet	Bottle	Comb

The patient is given instructions much like those for the Paired-Associate item of the Wechsler Memory Scale (1945). He is told, "I am going to read you a list of words two at a time. Listen carefully because after I finish I shall expect

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you to remember the words that go together. For example, if the words were "East-West", "Gold-Silver", then when I said the word "East" I should expect you to answer "West", and when I said the word "Gold" you would, of course, answer (pause) . . . "Silver". Do you understand? Now listen carefully to the list as I read it."

The examiner allows an interval of about 5 seconds between the pairs of words when reading the list. After the presentation of the list another 5-second interval is allowed. The stimulus words are then presented one by one in random order. Thus, the examiner asks, "What went with 'Flower'?" The patient is then allowed about 10 seconds to reply and if his answer is correct the examiner says "That's right". If the reply is wrong he says "No", and supplies the correct association. If no reply is given by the patient within about 10 seconds the correct response is again supplied by the examiner.

The material is presented in this way until the patient gets 3 consecutive correct responses for each stimulus word or until each stimulus word has been presented 30 times, whichever is sooner. The examiner stops presenting each stimulus as its criterion is reached. Supposing that one pair is learned to the criterion before the other two, then the appropriate stimulus word is dropped out and the remaining pair are simply alternated.

The score on this test is the sum of the number of times the stimulus words are presented before the criterion is reached. The minimum (or "best") score is 3, the maximum (or "worst") is 93.

Results and Discussion

The groups are very significantly different on their scores on the learning test ($p < \cdot 001$). The mean score of the memory disordered group is 83·63; S.D. 11·89, whereas the mean score of the other group is 17·80; S.D. 12·57. In effect, the learning scores of the two groups do not even overlap, as can be seen from Table I.

Table I

Distribution of Learning Test Scores for the Two Criterion Groups

	Frequency	
Score	Non-Memory disordered	Memory disordered
3–10	9	
11–20	11	
21–30	6	
31–40	2	
41–50	1	
51–60	1	
61–70		5
71–80		4
81–90		1
90+		20
Totals	30	30

These results are very closely comparable to the original validation study, (Inglis, 1959). Since the latter study was carried out on a British psychiatric population and the present one on Canadian patients the results provide not only a cross-validation but a cross-cultural validation of the usefulness of this test with English-speaking patients.

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