

Estimation of premorbid intellectual status in depression

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The validity of the NART and Vocabulary subtest of the WAIS as measures of premorbid IQ in depression was assessed by comparing a group of depressed patients ($n = 39$) with matched controls. The Vocabulary performance of the depressed group was significantly poorer than controls but there was no significant difference in NART performance.

Whether for research or clinical purposes attempts to quantify cognitive impairment require a means of estimating premorbid IQ since previous psychometric test results are rarely available. Lezak (1983) has noted that the most commonly used instrument for this purpose has been the Vocabulary subtest of the WAIS. An alternative possibility is to use word reading ability. The National Adult Reading Test (Nelson, 1982) consists of 50 words which subjects have to read and pronounce. The stimulus words are predominantly short and of irregular pronunciation (e.g. 'deny') so that, it has been argued, successful performance rests more on previous familiarity than current cognitive capacity. Nelson & O'Connell (1978) compared the WAIS and NART performance of a group of patients with EMI scan evidence of cortical atrophy with a control group. The cortical atrophy group obtained significantly lower Verbal, Performance and Full Scale WAIS IQs but did not differ significantly from controls on the NART. As the NART is highly correlated with WAIS IQ in normal subjects, this result suggests that the NART has validity as a measure of premorbid intellectual level in such cases.

Since publication of this finding the NART has become increasingly used in clinical practice and research to provide a measure of premorbid IQ in a wide variety of clinical conditions. However, this use of the NART may be premature since few attempts have been made to evaluate its validity in discrete clinical conditions. Where the requisite studies have been conducted, as in the case of Dementia Alzheimer Type, conflicting results have been obtained (Nebes *et al*, 1984; Hart *et al*, 1986).

As suggested by Nelson (1982), the purpose of the present study was to examine the validity of the NART as a measure of premorbid IQ in depression. It has become increasingly recognized that depression can give rise to cognitive impairment (Miller, 1975) particularly amongst the elderly (Wells, 1983). Should the NART 'hold' in depressed subjects it would allow the clinician or researcher to gain an accurate estimate of patient's premorbid intellectual resources and, when used in combination with tests sensitive to impairment, allow an assessment of the effects of the disorder on current level of functioning. The validity of the Vocabulary subtest of the WAIS as a measure of premorbid IQ was also examined.

Depressed subjects ($n = 39$). Subjects were recruited from consecutive in-patient admissions to a large psychiatric hospital. All cases with a diagnosis of depression were considered for the study. Potential subjects were excluded if they had sensory deficits or if there was a history of neurological disease, head injury requiring hospitalization, or alcohol abuse. Any cases who had received ECT in the three months preceding their availability for testing were also excluded. Examination of case notes, carried out a minimum of six months after testing, revealed that none of the subjects had subsequently developed evidence of organic disease. The mean age of the group was 53.1 years ($SD = 16.7$) and the age range 23-84 years. Mean number of years of education was 11.2 years. Reflecting the sex bias in admissions, 60 per cent of the sample were female.

Control group ($n = 39$). Each depressed subject was sex-, age- (± 3 years) and education- ($+ 1$ year) matched with a normal volunteer free of psychiatric, neurological or sensory disability.

Tests and procedure. The NART and the Vocabulary subtest of the WAIS were administered and scored according to standardized procedures by two psychology technicians who were blind to the purpose of the investigation. NART error scores were converted to estimated Full Scale IQ. Vocabulary age-graded scaled scores were converted to estimated Full Scale IQ using the regression equation provided by Nelson & McKenna (1975).

Results. The NART provided a higher estimated IQ than Vocabulary in 79 per cent of depressed subjects. Mean NART-estimated IQ was 107.4 (SD = 10.2) and Vocabulary 102.3 (SD = 13.2). A repeated measures *t* test revealed that this difference was significant ($t = 4.0, P < 0.001$). A significant difference remained when subjects were divided into those less than 60 years of age ($n = 23, t = 2.9, P = 0.008$) and those 60 years of age or older ($n = 16, t = 2.97, P = 0.009$). Mean NART-estimated IQ (109.6, SD = 7.0) and Vocabulary-estimated IQ (109.7, SD = 6.2) did not differ significantly in the control group ($t = 0.1, P = 0.92$). Independent samples *t* tests revealed that the performance of the depressed group on Vocabulary was significantly poorer than controls ($t = 3.16, P = 0.003$), but there was no significant difference in NART performance ($t = 1.12, P = 0.27$).

Discussion. As the NART performance of the depressed group did not differ significantly from matched controls, the present study indicates that the NART 'holds' in depression. Since NART and WAIS IQ are highly correlated in a normal population this suggests that the NART can be used to provide a valid estimate of a depressed patient's premorbid intellectual level. Although the Vocabulary subtest of the WAIS has commonly been used for this purpose the present study suggests that it is not insensitive to the effects of depression and may therefore underestimate premorbid IQ.

The superior performance of depressed subjects on the NART may be the result of a difference in the degree of cognitive effort necessary for successful performance on the two tests. In contrast to Vocabulary, successful performance on the NART is liable to be mediated by largely automatic cognitive processes. This interpretation is consistent with Weingartner's (1984) conceptualization of the impairments in depression as being due to a 'failure of effortful cognitive operations' (p. 208).

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