Scoring Neuropsychological Tests: What Corrections Need to be Considered?

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Dear Sir,

We read the findings of Burggraaff et al. [1] with great interest. Several factors seem to affect the participant's performance on a certain neuropsychological test, and hence their score. However, investigating the literature revealed a general paucity of studies accounting for patient demographics (apart from age) and anthropometric factors (e.g., handedness), which may affect the performance. For example, it is not known if a lateralised tremor in Parkinson's disease (PD) patients – regardless of cognitive status – adversely affects their performance on neuropsychological tests.

We take the Brief Visuospatial Memory Test-Revised (BVM-T-R) as an example. The BVM-T-R is intended to examine visual learning and visuospatial memory. The figures are arranged in a 2 × 3 grid on a sheet of paper. The test may be completed via verbal responses (i.e., recall/recognition trials) or written responses (i.e., copy trial). Scoring of the task largely depends on the accurate reproduction of a figure as well as correctly placing it in relation to other figures.

In PD, the BVM-T-R has primarily been used as a test of right hemispheric dys-

function, given the premise that BVM-T-R assesses visuospatial memory. Amick et al. [2] found that PD patients with left-sided symptoms (L-PD) performed significantly worse than PD patients with right-sided symptoms (R-PD). In another study, Foster et al. administered a battery of neuropsychological tests to a group of patients with R-PD and another with L-PD. Among the tests were the BVM-T-R immediate recall and the BVM-T-R delayed recall tasks. BVM-T-R's scores of patients with R-PD, but not L-PD, significantly improved between the immediate and delayed trials [3].

Whilst the written copy trial may potentially be negatively affected by conditions that result in motor dysfunction (e.g., PD and stroke), verbal recall/recognition trials may be affected by motor slowing in more subtle ways. For example, patients with schizophrenia have been shown to exhibit "inefficient" oculomotor behaviour on the Symbol-Digit Modalities Test leading to significantly lower scores compared with controls, independent of overt slowing in axial or appendicular musculature [4]. Therefore, excursions

may be warranted to accurately reflect the underlying neurocognitive impairment regardless of the patient's behavioural choices (e.g., smoking status; 5 or mechanical impairment).

Additional non-demographically-based corrective factors may be required for certain patient populations completing various neuropsychological assessments. Whether such corrections would result in better clinical characterisation of these patients, however, remains to be answered. A longitudinal study is being currently undertaken on the performance of PD patients on the BVM-T-R (Alamri et al., unpublished). Whilst such study focusses on PD patients, it would be imperative to take caution when applying "normative data" to particular patient groups, especially if specific corrections (e.g., sex, education level or motor impairment) need to be applied.

Disclosure Statement

The author has no conflict of interest to declare.

References

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