

LETTER TO THE EDITOR

PSYCHOMETRIC PROPERTIES AND PRACTICAL ATTRIBUTES OF THE TRUNK CONTROL TEST IN STROKE PATIENTS

Sir,

A recent paper by Duarte et al. (1) analysed the relationship of the trunk control test (TCT) at admission with length of stay (LOS) and a series of functional measures at discharge in 28 stroke patients. The TCT correlated with walking speed, walking distance and balance, and predicted, together with admission FIM, a large percentage of variance in LOS and discharge FIM.

Their results confirm the construct validity of the TCT (convergence with balance and walking measures) and its role as a valid predictor of ability in activities of daily living (ADL) in stroke patients. However, further comments on their results and conclusions are warranted. The TCT showed a large ceiling effect: about 30% of the patients in Figure 3 had top scores on admission, and the score cluster at the top of the scale range would have strongly increased at discharge, as a mean FIM score of 109.5 (out of a maximum of 126) suggests. In such condition, it would be: (i) difficult to consider the TCT as a promising “outcome measure” (2); the ceiling effect denotes a reduced ability to discriminate between subjects, and adversely influences the responsiveness of an instrument (3); and (ii) of limited interest “to repeat TCT at discharge to provide further evidence of correlation with the other outcome variables”, due to the low variability in TCT scores that produces artificially low (and poorly interpretable) correlation coefficients (4).

For these reasons, we stress the conclusions of our previous paper studying stroke patients with higher disability level (i.e. that “the TCT probably works best around or below the floor of the motor FIM subscale ...”) (5), and maintain the usefulness of a combined evaluation of trunk control and functional independence in basic ADL only in stroke patients at an early stage (and with important disability), as a pivotal predictor of mid-term functional outcome (see also 6).

We appreciated the paper by Duarte et al. and think that their

comments on this issue could add further notions on the psychometric criteria and practical attributes that should be considered in the assessment of a measure. Moreover, a discussion of the strengths and weaknesses of the TCT in relation to the particular population under scrutiny and the research goals could help the reader to be more confident about the appropriate use of the TCT in clinical settings (and could also be lead to suggestions for selecting alternative instruments for specific contexts or goals).

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Reply to the Letter to the Editor by Franco Franchignoni

Concerning these valuable comments about psychometric properties of the TCT, we agree that it shows a large ceiling effect, probably due to the pre-selection of stroke patients in our rehabilitation unit: TCT scores range from 12 to 100. Certainly 10 patients (35.7%) had top scores. However, linear regression parameters do not seem to be influenced by this fact. First of all residuals tested by Kolmogorov-Smirnov test (Shapiro-Wilks

corrected) did not show significant departures from normality (the lowest *p*-value was 0.320). On the other hand non-parametric Spearman correlation was practically identical (Table I) and what is more: when patients with top scores were excluded, correlations were of equal sign, fairly close magnitude and statistical significance maintained in spite of the small sample size.