

Test Theory - CTT) aimed at creating scores with good psychometric properties. In particular, the content validity (the scale measures well the desired concept, with a good understanding of the issues by the patients), the construct validity (dimensionality of the scale), the criterion validity (good correlations with other variables), and the reliability of scores (precision of the score, reproducibility) are studied.

The CTT is an important step in the validation of scales and allows building correct scores for use in medical practice. In clinical research and in epidemiology, however, other qualities of scores can be sought in particular it could be interesting to obtain an interval measure (i.e., a measure which any difference is similarly interpreted at any level of the score: this property justifies the use of averages in groups of patients), and to obtain a measure independent of the items answered by patients (for an efficient handling of missing data, undeniable source of bias when patients respond only partially to the questionnaires). The Item Response Theory (IRT) [1] is a set of models to obtain an interval measure of a subjective concept. In addition, in this theory, the Rasch model [1] provides a measure independent of answered items.

The objective of this presentation is to present the IRT and particularly the Rasch model for validation of scale, and show its application in clinical practice on the basis of a scale-specific quality of life in patients with neuromuscular diseases (the QoINMD) validated through this model.

Reference

[1] Andrich A. Rating scale and Rasch measurement. *Expert Rev Pharmacoeconomics Outcomes Res* 2011;11(5):571–85.

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Activity and participation in stroke patients with aphasia: Proposition of an ICF-derived assessment tool



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Keywords: Aphasia; ICF; Activity; Participation

Aim.– The WHO International Classification of Functioning (ICF) seems to be a good theoretical framework to assess aphasic persons' difficulties in social adjustment and return to community. Our new ICF-derived questionnaire, the G-MAP [1], fits well with this approach, but aphasia impairs the use of verbal questionnaires. This study aimed at knowing which aphasic persons might be assessed with the G-MAP and, within these limits which activity limitation (AL) and participation restriction (PR) were related to aphasia.

Methods.– The G-MAP questionnaire includes 24 items related to 6 ICF categories. The items are rated on an ordinal scale during a semi-structured interview with the aphasic person. Thirty-one stroke patients with aphasia (17 men, 14 women, mean age 68.8 years) were assessed over one year after the stroke and compared to 30 matched healthy controls.

Results.– Seventeen patients suffered a non-fluent aphasia. No patient with total aphasia (Goodglass and Kaplan's severity score ASRS 0) was able to be assessed, and 3 others were assessed with difficulty (two ASRS score 1, and one ASRS 2). The assessment was possible with alternative utterances in 16 patients and easy in the 12 last. Significant differences were found between aphasic persons' scores and controls' scores in 5 ICF categories, namely PR for Dressing up, Outdoor moving, Shopping, Budget managing, Relationships with unknowns, Group leisure, Community life and Administrative acts. The G-MAP documented also the role of contextual factors. Among them, social support was said satisfying in 79.5% of situations. Others' attitudes were said 3 to 4 times more often facilitators than barriers. The ICF factor Systems and politics were said facilitator in Personal care, Housing, Community life, but barrier in Relationships and Leisure.

Discussion.– The G-MAP may be used in most of aphasic persons, but data from proxy will be of interest. The present study confirms that the ICF is useful to understand aphasic persons' difficulties and to help them in social adjustment and return to community.

Reference

[1] Belio C, Prouteau A, Koleck M, Saada Y, Merceron K, Destaillets JM, et al. Participation in patients with psychic and/or cognitive impairments. *Annals PRM* 2013 [in print].

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Validation of the posture and gait – Impairments and activities for stroke patients (PG-IASP) scale



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Keywords: Stroke; hemiplegia; Gait; Balance; Assessment; Scale; Spasticity
Objective.– Stroke often leads to posture and gait disturbances, whose evaluation generally separates impairments and activity limitations and do not address ecological aspects and patient's point of view.

Patients and methods.– The PG-IASP scale includes 30 items that assess the patient's (questionnaire, Q) and the examiner's (test, T) evaluation of main posture and gait disturbances in activities of daily living, evaluating both impairments and activity limitations. The aims of this pilot study were to begin the validation process (reliability, construct validity, internal consistency, predictive validity and feasibility) and to compare evaluations of patients and examiners.

Results.– Thirty-five stroke patients with wide functional levels were included (Barthel Index = 71.4 ± 19.7). Feasibility was good, mean time required was 25 ± 6 min for Q and T. Intrarater reliability ranged from good to excellent (ICC > 0.82), interrater reliability was more moderate (0.67 < ICC < 0.9). The scale showed excellent construct validity against neuromotor deficiencies (motor weakness and spasticity; $P < 10^{-3}$), postural capacities (PASS; $P < 10^{-4}$), severity of gait impairments (GAIT scale; $P < 10^{-3}$), gait capacities (NFAC, 10-meter walk test, RMI; $P < 0.01$) and functional level (BI; $P < 10^{-4}$). In addition, internal consistency (α -Cronbach > 0.84) and predictive validity were excellent. Finally, evaluations of patients and examiners were highly correlated ($P < 10^{-3}$).

Discussion.– The PG-IASP has good psychometric properties. It represents an innovative tool that could be of interest in integrative evaluation of posture and gait disturbances after stroke.

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Creation and validation of a communication test for awakening from coma



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Keywords: Communication; Awakening from coma; Rehabilitation; Stroke; Head trauma

Objectives.– The awakening from coma is a delicate phase of recovery after brain lesion. The presence of a minimal communication is a key sign of awakening. Many scales assess the severity of the vigilance disorder, which often include items related to communication. However, no one is specifically dedicated to this problem. Our aim was to create and validate one such scale.

Patients and methods.– The test had to successively evaluate (1) identified factors that may contribute to communication disorders (such as mobility impairments, cognitive or psychological difficulties), (2) the communication