E-Poster

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Exploratory and Confirmatory Factor Analysis of the Greek Modified Barthel Index Adaptation

Topic: Miscellaneous

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BACKGROUND

The Modified Barthel Index (MBI) (Shah version) is a widely used functional assessment measure in stroke, whereas incorporating wheelchair mobility assessment also allows its application on spinal cord injury (SCI) patients. The aim of this study was to conduct exploratory (EFA) and confirmatory factor analysis (CFA) of the conceptually adapted Greek MBI, during its validation on a neuro-rehabilitation population.

METHODS

The MBI, translated and adapted based on World Health Organization guidelines, was administered to 50 stroke and 50 SCI patients. EFA was conducted to determine the factor structure of the 10 items of the MBI, using maximum likelihood extraction method with Varimax rotation. The selection of factors was based on the following criteria: a) eigenvalues ≥ 1, b) items with factor loadings ≥ 0.4, c) items that did not load on more than one factor. The number of retained factors was confirmed using a Monte Carlo PCA. CFA was used in order to examine the factor structure of the original questionnaire as suggested by its creator and also to confirm the structure revealed from the EFA in case the original structure was rejected. The CFA was carried out using the Analysis of Moment Structure Version 21.0. The sample size required for the CFA was within COSMIN guidelines with a participants-to-variables ratio of 10:1.

RESULTS

A unifactorial model of the original MBI was conducted by CFA giving unacceptable global fit indices. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.841 indicating suitable data for factor analysis. Analysis of the 10 items identified two factors, with eigenvalue of over 1 and items factor loadings greater than or equal to 0 ≥ 40. Factor loadings ranged from 0.65 to 0.89 for Factor 1 (Transfers and Activities of Daily Living), from 0.844 to 0.961 for Factor 2 (Mobility). The scree test and Monte Carlo PCA for parallel analysis also indicated a two-factor structure. The resulting global fit indices from CFA analysis of two factors, $\chi 2 = 75.13$, chi-square df ratio = 1.82, RMSEA = 0.072, CFI = 0.915, NFI = 0.844, GFI = 0.900, AGFI = 0.879 showed that the two- factor solution should be adopted.

CONCLUSION

Based on EFA and CFA of the Greek MBI, the unidimensionality solution was rejected and a two-factor solution was adopted, with Factor 1 consisting of "Transfers and Activities of Daily Living" items and Factor 2 representing "Mobility".

Statement of Disclosures

None

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