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Psychometric Characteristics of a Spanish Translation of the Manchester Foot Pain and Disability Index: Validation and Rasch Analysis

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Background: The Manchester Foot Pain and Disability Index (MFPDI) is a self-assessment questionnaire developed in the UK to measure foot pain and disability in the general population.[1] It has been translated and validated in several languages.[2,3]

Objectives: The aim of this study was to conduct cross-cultural adaptation and validation of the MFPDI into Spanish

Methods: The cross-cultural adaptation process was undertaken using International Society for Pharmacoeconomics and Outcomes Research (ISPOR)[4] recommendations. This involved 8 stages: i) Forward translation, ii) Reconciliation, iii) Back translation, iv) Back translation review, v) Harmonisation, vi) Pilot, vii) Pilot review, and viii) Proofreading. In the validation phase, the MFPDI datasets from the UK (original) and Spain (adapted) were pooled and subjected to Rasch analysis. Fit to the Rasch model, unidimensionality, reliability and cross-cultural invariance is reported

Results: The pooled dataset comprised 1015 patients (Spain n=333 and UK n=682) with characteristics summarised in Table 1. Rasch analysis confirmed three subscales for both the Spanish and UK datasets and fit to the Rasch model X^2(df) = 15.945 (12), p = 0.194 and 31.024 (21), p = 0.073, for Spain and UK. The reliability (Person Separation Index - PSI) was .85 and .82 for Spain and UK respectively. Significant cross-cultural non-invariance was present on the Functional and Personal appearance subscales. Adjustment for the bias was achieved by 'splitting' the affected subscales and

creation of cultural-specific subscales for each country and cultural-general subscale. Fit to the Rasch model was satisfied following cross-cultural adjustment. See Table 1. The MFPDI was calibrated into interval-level scales for Spain and UK to enable future data pooling or comparisons.

Table 1

	Sample size	Gender	Age	Item Fit Residual		Person Fit Residual		Chi Square Interaction		PSI
Analysis	N	Female (%)	Mean (SD)	Mean	SD	Mean	SD	Value (df)	p	
Spain	333	248 (74.4)	51.6 (15.2)	-0.164	3.07	-0.364	0.93	15.95 (12)	0.19	0.85
UK	682	416 (61.0)	55.2 (16.7)	-0.366	2.80	-0.429	0.99	31.02 (21)	0.07	0.82
Pooled	1015	663 (65.4)	52.8 (15.8)	-0.766	4.40	-0.441	1.06	49.17 (27)	0.01	0.84
DIF-Adjusted				-0.420	2.98	-0.415	0.98	57.94 (45)	0.09	0.84

SD = Standard deviation, DF = Degrees of freedom, P = X^2 interaction probability, (non-significant P = Fit to the model), PSI = Person Separation Index (reliability)

Conclusions: A gold standard translation process (ISPOR) has been used to develop a Spanish (for Spain) version of the MFPDI, a widely used foot-specific patient-reported outcome measure. Rasch analysis has confirmed that the MFPDI is a robust 3-subscale measure of foot pain, function and appearance in both its English and Spanish versions. Future work can make cross-cultural comparisons using the calibrated scales

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