



UNIVERSITY OF LEEDS

This is a repository copy of *Rasch analysis of the Health Assessment Questionnaire Disability Index in psoriatic arthritis*.

White Rose Research Online URL for this paper:
<http://eprints.whiterose.ac.uk/92796/>

Version: Accepted Version

Proceedings Paper:

Ndosi, M orcid.org/0000-0002-7764-3173, Hsu, M-A, Cappelleri, JC et al. (3 more authors) (2015) Rasch analysis of the Health Assessment Questionnaire Disability Index in psoriatic arthritis. In: Journal of Investigative Dermatology. 4th World Psoriasis & Psoriatic Arthritis Conference 2015, 08-11 Jul 2015, Stockholm, Sweden. Elsevier , S34-S34.

<https://doi.org/10.1038/jid.2015.247>

© 2015 The Society for Investigative Dermatology, Inc. Published by Elsevier Inc. This manuscript version is made available under the CC-BY-NC-ND 4.0 license <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

Reuse

This article is distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND) licence. This licence only allows you to download this work and share it with others as long as you credit the authors, but you can't change the article in any way or use it commercially. More information and the full terms of the licence here: <https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Rasch analysis of the Health Assessment Questionnaire Disability Index in psoriatic arthritis

Mwidiimi Ndosi^{1,2}, Ming-Ann Hsu³, Joseph C Cappelleri³, Heather Jones⁴, Amit Chhabra
Amit Chhabra⁵, Philip Helliwell²

¹School of Healthcare, ²Leeds Institute of Rheumatic and Musculoskeletal Medicine, University of Leeds, Leeds, United Kingdom, ³Pfizer Inc, Groton, CT, ⁴Pfizer Inc, Collegeville, PA, ⁵Pfizer Inc, New York, NY, United States

Background: The cross-cultural validity of the Health Assessment Questionnaire Disability Index (HAQ-DI) in psoriatic arthritis (PSA) has not been well studied.

Objectives: To assess the validity of the HAQ-DI in PSA and determine its invariance to different patient characteristics including culture.

Methods: We analysed HAQ-DI data from patients with PsA in 5 cultural regions (the UK, N. America, S. America, Europe and Asia) using Rasch analysis to determine the scale's construct validity, person separation index (PSI) reliability, unidimensionality, targeting and the invariance of the scale across patient characteristics (culture, age, gender, disease duration, disease type and extent of skin involvement).

Results: The dataset comprised 503 patients (286 women) from 15 countries. Their mean (SD) age was 50.8 (13.1), psoriasis duration, 18.4 (13.7) years and PSA duration, 9.8 (9.9) years.

Table 1 presents the summary statistics for the overall model fit (χ^2 interaction) and reliability (PSI). The fit statistics suggest adequate fit to the model and acceptable reliability in all individual cultural groups and except S. America and Asia where sample sizes were limited (not shown).

The HAQ-DI was unidimensional and invariant to all personal characteristics in the N. America dataset. In the pooled dataset, the HAQ-DI displayed differential item functioning (DIF) by type of arthritis, where those with oligoarthritis were more likely to have lower scores on the dressing & grooming item than those with polyarthritis. Floor effects were evident, especially in oligoarthritis. Using the DIF-free population (N. America), the HAQ-DI was shown to be well-targeted and discriminated well between the two types of arthritis (graph not shown).

Conclusions: In Europe and N America, HAQ-DI is a cross-culturally valid and reliable measure of disability in PsA and Rasch-transformed values can be used with confidence alongside other outcome measures in parametric analyses.

Table 1: Overall model fit statistics for HAQ-DI

| Region | χ^2 interaction statistic (P-value) | PSI Reliability |
|-----------------------|--|-----------------|
| UK | 8.5746 (0.379) | 0.885 |
| North America | 5.299 (0.725) | 0.860 |
| Europe (excluding UK) | 25.356 (0.064) | 0.855 |
| Pooled data | 76.310 (0.037) | 0.857 |

To cite this abstract: Ndosi M, Hsu MA, Cappelleri JC, Jones H, Chhabra A, Helliwell P. Rasch analysis of the Health Assessment Questionnaire Disability Index in psoriatic arthritis. In: *4th World Psoriasis & Psoriatic Arthritis Conference* July 8 - 11, 2015; Stockholm, Sweden. *Journal of Investigative Dermatology* (Nature Publishing Group); **135**(Suppl3) S34. <http://www.nature.com/jid/journal/v135/n3s/pdf/jid2015247a.pdf>