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# Rasch analysis of the Psoriatic Arthritis Quality of Life and Dermatology Life Quality Index measures in psoriatic arthritis

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**Background:** Psoriatic Arthritis Quality of Life (PsAQoL) and Dermatology Life Quality Index (DLQI) measures cover different aspects of psoriatic arthritis (PsA) but the ability of each measure to capture health-related quality of life information about skin and joint disease simultaneously is unknown

**Objectives:** To assess cross-cultural validity of the PsAQoL and DLQI and to determine if each measure captures domains relevant to both skin and joints.

**Methods:** PsAQoL and DLQI data from people with PsA in 5 cultural regions (UK, N. America, S. America, Europe and Asia) were analysed using Rasch analysis to determine their construct validity, reliability, targeting and invariance to culture, gender, age and disease duration; disease type and extent of skin involvement (PASI score split at 10).

**Results:** The sample comprised 503 patients (286 were women) with mean (SD) age 50.8 (13.1), psoriasis duration 18.4 (13.7) and PSA duration 9.8 (9.9) years. The N. America PsAQoL and DLQI data satisfied the expectations of the Rasch model while the Europe and pooled data did not. See table 1 (Asia and S. America had limited sample sizes—not shown).

Within each cultural group, PsAQoL was invariant to all patient characteristics. For the DLQI, the N. America data displayed DIF by gender on items 8 & 9. The pooled data displayed DIF by culture on items 1 and 7 and DIF by gender on item 4.

Both PsAQoL and DLQI discriminated well between patients with oligo/polyarthritis. As expected, DLQI discriminated well between the patients with high versus low degree of skin involvement but the PsAQoL did not.

**Conclusions:** There is not enough evidence from this analysis to suggest the cross-cultural validity of the PsAQoL and DLQI or whether each measure captures domains relevant to both skin and joints.

**Table 1. Summary statistics and reliability of the PsAQoL and the DLQI**

Region	PsAQoL $\chi^2$ interaction statistic (P-value)	PsAQoL reliability (PSI)	DLQI $\chi^2$ interaction statistic (P-value)	DLQI reliability (PSI)
UK	38.481 (0.008)	0.870	14.227 (0.163)	0.819
N. America	25.385 (0.187)	0.887	15.638 (0.111)	0.781
Europe (excl UK)	56.882 (0.040)	0.826	24.221 (0.007)	0.825
Pooled data	202.392 (0.001)	0.851	167.741 (<0.001)	0.803

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