THE USE OF IRT MODELING TO ACCOUNT FOR DIFFERENTIAL ITEM FUNCTIONING IN THE PROQOL-HIV QUESTIONNAIRE

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OBJECTIVES.
This study aims to provide sample-free estimates of uniform DIF on a newly developed HRQL questionnaire, PROQOL-HIV, based on IRT. Patient characteristics considered here were gender, country of residence, and ethnicity, given the high prevalence of HIV in migrant populations.

METHODS.
We use a two-step ordinal logistic regression to test for the significance of person covariates, on two constructs extracted from factor analysis: Physical Health and Symptoms (PHS, 14 items), and Emotional distress and Health Concerns (EDHC, 10 items). A subset of N=505 patients (71% males, median age 43 yrs.) from 5 countries (Australia, USA, France, Brazil, Thailand) was used. Person parameters were estimated using a Graded Response Model. Missing responses (<1%) were imputed using half-rule.

RESULTS.
The EDHC dimension was more prone to exhibit item biases compared to PHS items, especially when referring to ethnicity. Country-related effects were equally distributed on the two scales. In both cases, however, no DIF effects were found for gender. We reached similar conclusions when comparing the results to those obtained when using sum or rest scores as conditioning ability levels. Correlations between raw scores computed with or without flagged items were above 0.5. Restricting analyses to Western countries, however, yielded smaller hits. Altogether, these results suggest that DIF effects should be of limited impact when reporting scores for these two HRQL dimensions of the PROQOL-HIV questionnaire. Results are discussed in light of other latent variable models proposed to assess DIF, the MIMIC and logistic mixed effects model.

CONCLUSIONS.
Using IRT instead of summated scale scores allows the incorporation of person covariates and the study of DIF effects in a probabilistic framework. The presence of DIF effects on bio-psychological constructs raises important cross-cultural validity considerations for multi-country multi-ethnic studies, although assessment of DIF impact needs further investigations.