Differences in Psychometric Properties of Clinician and Patient-reported Outcome Measures for Atopic Dermatitis By Race and Skin Tone: A Systematic Review

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Background

Psychometric validity and reliability of widely used atopic dermatitis (AD) outcome measures across different races, ethnicities, and skin tones is unclear.

Research Objectives

To examine reporting of race, ethnicity and skin tone and compare results across these groups from studies of psychometric properties for outcome measures in AD

Methods

A systematic review was performed of all published studies assessing psychometric properties of atopic dermatitis outcome instruments. Searches were conducted in the following databases: MEDLINE (Pubmed) and Embase (Figure 1).

Study title and abstract screening, full text screening and data extraction were conducted by at least two independent reviewers. Inclusion criteria were the following:

- Development of a new ClinROM or PROM for atopic dermatitis
- Analysis of psychometrics, reliability, or validity of the ClinROM or PROM for atopic dermatitis
- Investigated relationships between different domains of PROMs and ClinROMs for atopic dermatitis
- All available non-review studies identified in the 2013 and 2019 systematic reviews conducted by the HOME group
- Full-text available in English
- Published in peer-reviewed journal
- At least 50% patients with AD in mixed-sample studies
- Prospective, retrospective, cross-sectional, cohort studies and randomized controlled trials (RCT).

Results

- Only 16 studies (9.7%) assessed psychometric properties of AD instruments with respect to race, skin tone, or ethnicity
- Significant DIF was found between race subgroups for one or more items of PO-SCORAD, PIQ-Short Forms, POEM, DLQI, IGA, ItchyDol, SF-12, NRS-itch
- Correlations of POEM with IGA differed the most between SOT and light skin (Δrho=0.34)
- POEM correlated similarly with DLQI and EASI in whites and nonwhites
- Supplementing erythema component of EASI with greyness for darker skin did not significantly improve the reliability of EASI

Conclusions

- We identified significant reporting and knowledge gaps with respect to psychometric properties of outcome measures by race, ethnicity or skin tone in AD
- There is insufficient evidence to determine optimal PROM and ClinROMs for skin of color
- Most validation studies did not mention the distribution of race, ethnicity or skin tone in their studies. The few studies examining psychometrics by race, ethnicity or skin tone used disparate methodologies to assess race, ethnicity and skin tone
- Some studies of ClinROMs suffered from very small samples. Additionally, many studies that assessed psychometrics of outcome measures in non-white populations were performed in homogeneous patient populations in different countries

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