

Materials and Methods

The genesis of this review followed the International Dermatology Outcome Measures' (IDEOM) ratification of a core domain set to be measured in all psoriasis clinical trials [8]. IDEOM aims to establish valid, standardized outcome measures in dermatology that satisfy the needs of all stakeholders and can be used in clinical research and practice [9–12]. Consequently, IDEOM seeks to identify high-performing PROMs for use in pediatric psoriasis.

This systematic review was performed in accordance to a registered PROSPERO protocol (CRD42017078186) and in compliance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines.

Search Strategy

Consecutive literature searches were performed in 2 stages. In stage 1, we searched MEDLINE (1996–2017) to identify all PROMs used in pediatric psoriasis (see online suppl. stage 1 literature search strategy). In stage 2, we searched MEDLINE (1996–2017) and EMBASE (1974–2017) to identify all studies evaluating the measurement properties of PROMs identified in stage 1 (see online suppl. stage 2 literature search strategy).

Study Selection

Studies were included if they: (1) evaluated the measurement properties of at least 1 PROM; (2) included greater than 5 pediatric psoriasis patients (≤ 18 years old), and (3) were published as full-text original articles in English or Spanish. For studies conducted in populations with multiple diagnoses, at least 50% had to have pediatric psoriasis, or a subgroup analysis must have been performed in the pediatric psoriasis population.

In stage 1, reviewers screened titles and abstracts of retrieved records and documented the names of all utilized PROMs. In stage 2, reviewers screened titles and abstracts of retrieved

records and performed full-text review of potential eligible records. Reference lists were searched for relevant citations. Discrepancies were resolved by discussion among reviewers.

COSMIN Ratings

Study quality was evaluated using the Consensus-based Standards for the selection of health Measurement INstruments (COSMIN) checklist [6, 13]. COSMIN is a critical appraisal tool for rating the methodology of studies on measurement properties of health measurement instruments [6]. It is comprised of 9 boxes, each corresponding to a measurement property [7]. Each box contains a checklist of methodological standards for evaluating a given measurement property. A rating of “excellent,” “good,” “fair,” or “poor” is assigned, denoting the extent to which these standards are met [13].

Reviewers applied the “worst score counts” to derive a final COSMIN rating for each assessed measurement property [13]. According to this algorithm, the lowest rating for any item in a checklist becomes the overall rating for that measurement property. Discrepancies were resolved through review team discussion.

Data Extraction and Best Evidence Synthesis

Study population characteristics, PROM characteristics, and measurement property results were extracted. Reviewers combined COSMIN results with two sets of criteria [14,15] to construct a best evidence synthesis: first, reviewers applied the quality criteria of Terwee et al. [14] to assign a “positive” (+), “negative” (–), “indeterminate” (?), or “no information” (0) rating to each study’s measurement property results (see online suppl. Table 1). Second, reviewers assigned a level of evidence rating of either “strong,” “moderate,” “limited,” “unknown,” or “conflicting” according to a modified version [15] of the Cochrane Back Review Group’s criteria (see online suppl. Table 2) [16].