Evaluation of systematic reviews and meta-analyses of observational studies in the dermatology literature: A systematic review of reporting and methodological quality

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Background

In the dermatology literature, systematic reviews and meta-analyses addressing the same research question have produced conflicting results.[1] Variations in reporting and methodology quality may explain such discrepancies. Quality of systematic reviews in dermatology has been evaluated previously.[1-3] However, these evaluations have largely focused on systematic reviews of interventions, and checklists used to assess quality are also geared towards interventional studies.

Objective

The purpose of this study was to evaluate quality of reporting and methodology of systematic reviews for observational studies of association in three high-impact dermatology journals.

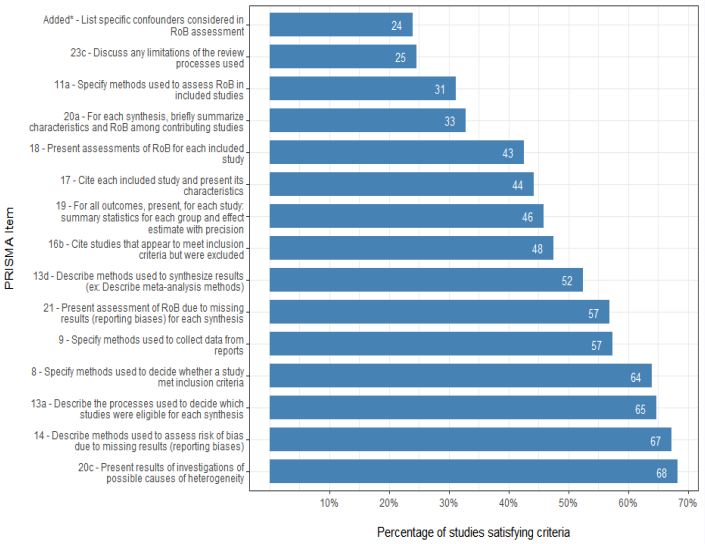
Methods

- **Study design:** Systematic review of observational, epidemiological studies in the dermatology literature.
- **Inclusion Criteria**: All systematic reviews of observational studies of association (e.g., comorbidity associations; association of exposures, demographics, constitutional, lifestyle, or environmental factors with diseases or health-related outcomes) published between August 2016 – May 2022 in Journal of the American Academy of Dermatology, Journal of the American Medical Association Dermatology, and British Journal of Dermatology.
- **Exclusion Criteria**: Other types of systematic or non-systematic reviews (e.g., of interventions, diagnostic accuracy).
- **Primary Outcome**: Percentage of items satisfied in reporting quality (RQ) and methodological quality (MQ) checklists.
- **Statistical Analysis:** The following metrics were calculated:
  - Proportion and median (IQR) proportion of RQ and MQ items satisfied for each article
  - Proportion of RQ items satisfied related to review methods, and review results separately
  - Percentage of studies that satisfied individual RQ and MQ items, excluding studies where the item was not applicable
  - Percentage of studies satisfying ≥80% of RQ and MQ items
  - Percentage of studies satisfying ≤50% of RQ and MQ items

DISCLOSURES: Dr. Koptyev, Ms. Midgette, and Mr. Strunk have nothing to disclose. Dr. Garg has received personal fees from AbbVie, Aclaris Therapeutics, Anaptys Bio, Aristea Therapeutics, Boehringer Ingelheim, Bristol Myers Squibb, Incyte, InflaRx, Insmed, Janssen, Novartis, Pfizer, Sonoma Biosciences, UCB, Union Therapeutics, and Viela Biosciences, and receives honoraria. Dr. Garg receives research grants from Abbvie, Pfizer, UCB, and National Psoriasis Foundation. He is co-copyright holder of the HS-IGA and HiSQOL instruments.

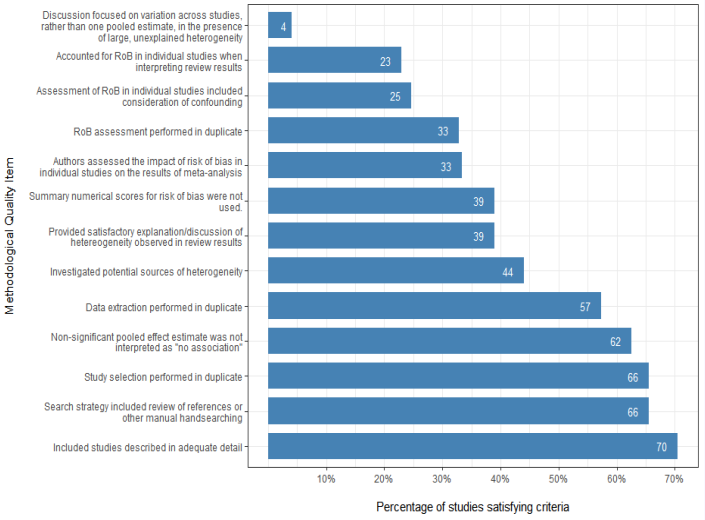
Results

Fig.1 Percentage of studies satisfying individual reporting quality items (PRISMA 2020)



Individual items which were satisfied in less than 75% of studies are shown.
Abbreviations: RoB, Risk of Bias.

Fig.2 Percentage of studies satisfying individual methodological quality items



Individual items which were satisfied in less than 75% of studies are shown.
Abbreviations: RoB, Risk of Bias.

Results

Table 2. Summary statistics for reporting quality across 61 systematic reviews

Outcome	Overall (n=61)
Reporting Quality	
Proportion of RQ items satisfied	
Median (IQR)	0.72 (0.65, 0.78)
Mean (SD)	0.70 (0.12)
RQ proportion ≥ .80[a], n (%)	12 (20)
RQ proportion ≤ .50[b], n (%)	4 (6.6)
Proportion of RQ Methods items satisfied	
Median (IQR)	0.75 (0.64, 0.85)
Proportion of RQ Results items satisfied	
Median (IQR)	0.56 (0.44, 0.78)
Methodological Quality	
Proportion of MQ items satisfied	
Median (IQR)	0.61 (0.47, 0.69)
Mean (SD)	0.59 (0.16)
MQ proportion ≥ .80[a], n (%)	4 (6.6)
MQ proportion ≤ .50[b], n (%)	19 (31)

Abbreviations: RQ, Reporting Quality; MQ, Methodological Quality
a – Number of studies which satisfied at least 80% of quality items
b – Number of studies which satisfied 50% or less quality items

Conclusions

- Majority of systematic reviews of association satisfied less than 80% of both the RQ and MQ items. This lack of adherence to methodological safeguards may explain conflicting results for reviews and meta-analyses of the same topic.[4]
- Careful attention to RQ and MQ recommendations will strengthen conclusions and improve the utility of published systematic reviews.

References

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