

## Citations Do Not Equal Clicks: A Bibliometric–Altmetric Analysis of Web of Science Essential Science Indicators’ Highly Cited Dermatology Papers

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Citation counts and Altmetric Attention Scores (AAS) capture different dimensions of research impact, but their relationship among dermatology’s most influential papers is unclear. Web of Science Essential Science Indicators (ESI) Highly Cited dermatology papers (2016–2026; n=347) were linked to Altmetric Explorer records by digital object identifier. Of 347 papers, 323 (93%) had a tracked AAS (median 40, interquartile range [IQR] 16–123) against a median of 262 citations (IQR 136–362). Citations correlated only moderately with AAS (Spearman’s  $\rho=0.39$ ) but strongly with Mendeley readership ( $\rho=0.82$ ). Primary research articles attracted higher AAS than reviews (median 54 vs 29,  $p=0.002$ ) despite similar citation counts ( $p=0.74$ ). Mechanistic wound-healing and epidemiological reviews dominated citations but had negligible public attention, while pathogen-outbreak and drug-safety reports showed the reverse pattern. Conclusion: Among dermatology’s most-cited literature, scholarly and public impact diverge substantially; topical newsworthiness, rather than citation strength, drives social attention.

**Keywords:** Bibliometrics, altmetrics, Essential Science Indicators, citation analysis, social media, dermatology

### What is already known?

Altmetric Attention Scores correlate only weakly to moderately with citation counts across general dermatology journal samples.

### What does this study add?

Even among dermatology’s Web of Science ESI Highly Cited papers, citations correlate only moderately with public attention; mechanistic/epidemiological reviews are heavily cited but publicly invisible, while outbreak- and safety-related reports attract disproportionate attention relative to their citations.

### Introduction

Essential Science Indicators (ESI) of Web of Science identify the top 1% most-cited papers per field over a rolling window, offering a curated lens on a specialty’s most influential science.<sup>1</sup> Altmetrics, capturing mentions in news, social media, policy documents and other non-traditional sources, have been proposed as a complementary, near-real-time measure of societal reach.<sup>2</sup> Several dermatology-wide analyses have reported weak-to-moderate correlations between citation counts and Altmetric Attention Score (AAS) across general journal samples.<sup>3–5</sup> Whether this pattern holds among the specialty’s already highly-cited elite, and which paper archetypes drive any citation-attention mismatch, has not been examined. We analysed Web of Science ESI Highly Cited dermatology papers alongside their Altmetric profiles to characterise this relationship and to identify papers where scholarly and public recognition diverge most.

### Methods

We exported all dermatology-category ESI Highly Cited Papers from Web of Science (accessed 5 September 2026; publication years 2016–2026; n=347) together with the corresponding institutional Altmetric Explorer records. Records were linked by digital object identifier; 323/347

(93%) papers had a matching Altmetric record and formed the analytic sample. Extracted variables were Web of Science total citations, document type, journal, publication year, Altmetric Attention Score, Mendeley readers, and platform-specific mention counts (news, X/Twitter, policy documents, clinical guidelines). Associations were assessed using Spearman’s rank correlation and Mann-Whitney U tests; a discordance score (citation-count rank minus AAS rank) identified the papers with the greatest mismatch between the two metrics. Analyses used Python 3 (pandas, SciPy); significance was set at  $p<0.05$ . As the study used aggregate, publicly available bibliometric data, no ethical approval was required.

### Results

Of the 347 ESI Highly Cited dermatology papers (2016–2026; 204 articles, 139 reviews, 4 mixed types), the median citation count was 243 (IQR 113–357; range 3–1147). Among the 323 papers with Altmetric data, the median AAS was 40 (IQR 16–123; range 0–1730); four papers (1.2%) had an AAS of zero despite ranking among the specialty’s most-cited works.

Citation count correlated only moderately with AAS (Spearman’s  $\rho=0.39$ ,  $p<0.001$ ) – a relationship markedly weaker than that between citations and Mendeley readership

( $\rho=0.82$ ,  $p<0.001$ ), a proxy for scholarly rather than public engagement (Table 1).<sup>6</sup> Primary research articles attracted higher AAS than reviews (median 54 vs 29;  $p=0.002$ ) despite statistically similar citation counts (median 270 vs 234;  $p=0.74$ ). X (Twitter) generated more attention events (9585) than news outlets (5670), while formal policy-document and clinical-guideline mentions were comparatively rare (255 and 423, respectively) even though several guideline-of-care papers ranked among the most-cited works in the sample.

The discordance analysis (Table 2) revealed two recurrent archetypes. “Hidden gems” – the highest citations relative to attention – were dominated by mechanistic and epidemiological reviews, exemplified by a 30-year fragrance-sensitization testing review (1086 citations, AAS

1) and a reactive-oxygen-species/wound-healing review (1132 citations, AAS 16).<sup>7</sup> “Media darlings” – disproportionate attention relative to citations – were dominated by outbreak-, pathogen-, and drug-safety-related reports, including an emerging antifungal-resistant dermatophyte report (54 citations, AAS 886) and a dupilumab–cutaneous-lymphoma safety signal (69 citations, AAS 296); a nationwide COVID-19 cutaneous-manifestations classification study had the single highest AAS overall (852 citations, AAS 1730).<sup>8</sup> At journal level, clinically oriented titles (JAMA Dermatology, Journal of Cosmetic Dermatology) had markedly higher median AAS than mechanistic/basic-science titles publishing comparably cited work (Journal of Investigative Dermatology, Mycoses, Burns & Trauma).

**Table 1.** Citation counts and Altmetric Attention Scores among 323 linked ESI Highly Cited dermatology papers

| Category | n   | Median citations (IQR) | Median AAS (IQR) |
|----------|-----|------------------------|------------------|
| Overall  | 323 | 262 (136–362)          | 40 (16–123)      |
| Articles | 195 | 270 (122–362)          | 54 (18–144)      |
| Reviews  | 124 | 234 (144–344)          | 29 (14–70)       |

IQR: interquartile range. Article vs review AAS, Mann-Whitney  $p=0.002$ ; citations,  $p=0.74$ . Citations vs AAS, Spearman’s  $\rho=0.39$  ( $p<0.001$ ); citations vs Mendeley readers,  $\rho=0.82$  ( $p<0.001$ ).

**Table 2.** Papers with the greatest discordance between citation rank and Altmetric Attention Score rank

| Title (shortened)                                                                                   | Journal (Year)            | Cit. | AAS  |
|-----------------------------------------------------------------------------------------------------|---------------------------|------|------|
| <b>Hidden gems – highly cited, minimal public attention</b>                                         |                           |      |      |
| Fragrance skin sensitization evaluation and human testing: 30-year experience                       | Dermatitis (2021)         | 1086 | 1    |
| Reactive oxygen species and wound healing: functional role and emerging modulating technologies     | Int Wound J (2017)        | 1132 | 16   |
| Recent trends in burn epidemiology worldwide: a systematic review                                   | Burns (2017)              | 545  | 10   |
| Skin wound healing in humans and mice: challenges in translational research                         | J Dermatol Sci (2018)     | 452  | 3    |
| <b>Media darlings – disproportionate public attention relative to citations</b>                     |                           |      |      |
| Classification of cutaneous manifestations of COVID-19: nationwide consensus study, Spain           | Br J Dermatol (2020)      | 852  | 1730 |
| Clinical course, antifungal susceptibility and genomic sequencing of Trichophyton indotineae        | JAMA Dermatol (2024)      | 54   | 886  |
| Association of cutaneous immune-related adverse events with survival in anti-PD-1/PD-L1 therapy     | JAMA Dermatol (2022)      | 122  | 373  |
| Dupilumab therapy for atopic dermatitis and risk of cutaneous T-cell lymphoma: retrospective cohort | J Am Acad Dermatol (2024) | 69   | 296  |

AAS: Altmetric Attention Score. Discordance ranked by (citation-count rank – AAS rank) within the 323-paper linked sample.

Discussion

This is, to our knowledge, the first analysis to restrict bibliometric-altmetric comparison to dermatology’s ESI-defined citation elite. Consistent with broader dermatology-wide studies reporting weak-to-moderate citation-AAS correlations,<sup>3,4</sup> we found only a moderate association even among the field’s most-cited papers, indicating that AAS indexes a construct – immediate, non-specialist visibility – distinct from long-run scholarly influence rather than a proxy for it. The much stronger citation-Mendeley correlation supports this interpretation: readership within the scholarly community tracks citation strength closely, whereas social and media attention does not.<sup>6,9</sup>

The discordance analysis adds a paper-level dimension largely absent from prior dermatology altmetric studies. Mechanistic and epidemiological reviews, the backbone of the specialty’s citation record, are largely invisible in public discourse, plausibly because their content is technical rather than newsworthy. Conversely, papers describing emergent pathogens, pandemics, or drug-safety signals attract rapid, outsized public attention independent of their eventual citation trajectory.<sup>8</sup> The near-absence of formal policy and clinical-guideline mentions, even for guideline-of-care papers, suggests either a genuine lag in formal evidence uptake or a blind spot in current altmetric guideline-tracking; both merit further study.



Limitations include reliance on a single Altmetric snapshot, exclusion of 24 ESI papers lacking a linkable Altmetric record, and the cross-sectional, non-causal design. Editors, authors, and evaluators should treat the Altmetric Attention Score as a measure of dissemination reach rather than scientific merit when appraising dermatology's most influential literature.

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