Are Dermatology Systematic Reviews Spinning Out of Control?

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Spin – the misrepresentation of study results – has been around for a long time. My epiphany on spin in dermatology started around 25 years ago after reading a brochure from a drug representative about why their new vitamin D analogue should be prescribed. The brochure was based on a randomised controlled trial (RCT) and was riddled with classical spin – selective reporting of results, downplaying adverse results, referring to opaque “data on file,” and generalising beyond the study population. As an educational exercise, I asked our trainees to rewrite the abstract in a way that spun the results in the opposite direction. Their efforts were totally convincing, highlighting secondary rather than primary outcomes and post hoc subgroup analyses, and using cleverly crafted language that conveyed positivity. The exercise confirmed how scientific results can be manipulated by clever language and emphasis.

In this month’s issue of *Dermatology*, Lin et al. [1] report on spin in abstracts of systematic reviews of interventions for atopic dermatitis. The focus on abstracts is justifiable since most doctors only have time to read an abstract [2], and they are key to attracting a reader’s attention [3]. The authors found serious spin in 74.3% of included systematic review abstracts. The most common spin was selective reporting of or overemphasis favouring the safety or efficacy of the experimental intervention. Other types of spin included claiming safety based on im-

precise results, claiming benefit for the experimental treatment despite a high risk of bias in primary studies, and claiming efficacy for one specific intervention despite the review covering several interventions. Unsurprisingly, all of the industry-funded systematic reviews contained spin, but publicly funded reviews were also susceptible. Interestingly, spin did not appear to be related to the methodological quality of the systematic review, so it cannot be attributed to a few bad apples.

Little has been written about spin in the dermatological literature. Ingram et al. [4] reviewed RCTs of acne treatments in 2009 and spotted abundant spin, including emphasising within-group comparisons, selective outcome reporting, and other unscientific practices such as duplicate and salami publications – findings echoed in a subsequent review of acne studies [5]. In 2019, Motosko et al. [6] found strong evidence of spin in RCTs of topical treatments for photoaged skin, including the use of multiple primary outcomes (95%), inappropriate extrapolation of results from specific outcomes to global improvements (95%), focus on within-group comparisons (75%), and emphasis of interim analyses to give more weight to non-significant findings (65%). The study by Lin et al. [1] takes the analysis of serious spin in dermatology a step further into the realms of systematic reviews.

Perhaps of more serious concern is that Lin et al. [1] also found that 45% of systematic reviews were critically

Table 1. Hywel's top seven sins of dermatology systematic reviews

Systematic review sin type	Explanation	Solution
Superficial	Narrow minor topics of questionable clinical value that are often done as student projects	Senior authors to show more responsibility and undertake some form of prioritisation exercises with patients and clinicians
Salami	Chopping up a topic into several smaller pieces in order to obtain as many publications as possible	Editors to spot and decline potential salami topics and encourage broader reviews
Selective	Failing to register the protocol for a systematic review and only reporting the outcomes that look interesting	Funders and journals to make prospective registration on PROSPERO mandatory
Sloppy	Poorly reported reviews that fail to comply with basic PRISMA reporting guidance	Journal editors to require authors to complete PRISMA checklist and to check those responses
Seen before	Covert duplication of existing reviews	Readers to expose and journals to investigate and retract if response inadequate
Specious	Reviews that give an air of spurious precision by presenting lots of numbers and statistical methods yet fail to engage with content expertise to make any sense of the topic	Review teams to include content experts Journals to employ an associate editor with systematic review expertise
Seriously wrong	Sausage factory reviews that get past journal editors but which contain serious errors such as including the same study more than once in a meta-analysis	All systematic reviews with meta-analysis should be sent for statistical and content expertise review

low in terms of quality. The results are disappointing but not surprising. Despite being one of the first to introduce systematic reviews into dermatology and forming the Cochrane Skin Group [7], publication of systematic reviews in dermatology has spun completely out of control. The field has become a “sausage machine” industry that undermines the value of systematic reviews in providing a summary of the best evidence to inform patient care [8]. A recent review of 140 dermatology systematic reviews found that around 90% were low quality [9], suggesting that almost anyone can get a publication these days with the words “systematic review” in the title. In his article entitled “The Mass Production of Redundant, Misleading, and Conflicted Systematic Reviews and Meta-analyses,” Ioannidis [10] comments that: “Instead of promoting evidence-based medicine and health care, these instruments often serve mostly as easily produced publishable units or marketing tools.” Sadly, the same has happened to systematic reviews in dermatology, and the sin of spin can be appended to the seven top sins of dermatology systematic reviews that now haunt me (Table 1).

The solutions are clear and reside with readers, funders, and journal editors to ensure that systematic reviews are registered prospectively, reported according to PRISMA guidelines [11], and checked for spin, especially in the abstracts. It is not enough to simply list these requirements in author guidelines – compliance has to be checked, ideally by associate editors with expertise in systematic reviews. Fewer systematic reviews are needed in dermatology – but better ones.

Key Message

The explosion of poor-quality systematic reviews in dermatology needs addressing.

Conflict of Interest Statement

Hywel Williams founded the Cochrane Skin Group in 1997 and served as co-ordinating editor from 1997 until 2018.

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