

Rapid Response

“Quantity does not make quality” – when is there a case for repeating a network meta-analysis?

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Guelimi *et al.* evaluated redundancy, methodological quality and discrepancies in 47 network meta-analyses (NMAs) on systemic treatments for psoriasis¹. We had planned a similar study, but in light of this new study we have abandoned our project in order to reduce research waste. We agree with the authors' findings, but suggest that the distinctions between duplication, replication, and updates of systematic reviews and NMAs that we had planned to explore, can add to the discussion.

Duplication means “needless, frequent, unwitting or unacknowledged repetition of reviews without a clearly defined purpose for the repetition”². Guelimi *et al.* observed that although most NMAs cited some previous NMAs (89%), they were not generally citing the full breadth of relevant NMAs (median=19%, IQR=7.8%-36.9%)¹.

Replication on the other hand is an important part of the scientific process since the decisions reviewers make can shape the review findings and conclusions². Tugwell *et al.* (2020) defined systematic review replication as:

- **Direct replication;** purposeful repetition to *verify* findings of the original research question; or
- **Conceptual replication:** purposeful broadening or narrowing of the research question in existing systematic reviews (e.g., across broader or more focused populations, intervention types, settings, outcomes, or study designs)³.

The need for replication is highlighted by Guelimi *et al.* detecting a trend for industry funded NMAs reporting favourable efficacy for the company's treatment¹. In light of this finding, policy makers may want to see an independent replication conducted by non-conflicted authors to verify NMA findings.

Tugwell *et al.* proposed a consensus-based checklist to help individuals identify whether replication is warranted when planning a new study³. We adapted this guidance to evaluate how often the reported rationale of published NMAs indicated purposeful replication (Table 1). Whilst we did not complete our assessment fully, our pilot data extraction and literature scoping suggested that most NMAs on systemic treatments for psoriasis do not cite replication as a clear rationale for their study.

Guelimi *et al.* identified four updates of previous NMAs¹. We view updates as distinct from replications. Updates add value when new treatments or studies are available that are likely to

change the overall findings and conclusions of a NMA². Comprehensive guidance on when to update reviews is available from Cochrane⁴.

Guelimi *et al.*'s overview paints a bleak picture of duplication and poor-quality NMAs meaning that “clinicians need to interpret NMAs with caution when looking for the most reliable and comprehensive evidence”¹. We whole-heartedly support their call to the dermatology community to stop such research waste, but suggest that planned, purposeful and prioritised replication and updating can sometimes add value.

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¹ Guelimi, R., Afach, S., Régnaux, J.P., Bettuzzi, T., Chaby, G., Sbidian, E., Naudet, F. and Le Cleach, L., 2021. Overlapping network meta-analyses on psoriasis systemic treatments: an overview, quantity does not make quality. *British Journal of Dermatology*.

² Page, M.J., Welch, V.A., Haddaway, N.R., Karunanathan, S., Maxwell, L.J. and Tugwell, P., 2020. “One more time”: why replicating some syntheses of evidence relevant to COVID-19 makes sense. *Journal of clinical epidemiology*, 125, p.179.

³ Tugwell, P., Welch, V.A., Karunanathan, S., Maxwell, L.J., Akl, E.A., Avey, M.T., Bhutta, Z.A., Brouwers, M.C., Clark, J.P., Cook, S. and Cuervo, L.G., 2020. When to replicate systematic reviews of interventions: consensus checklist. *bmj*, 370.

⁴ Cumpston M, Chandler J. Chapter IV: Updating a review. In: Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). *Cochrane Handbook for Systematic Reviews of Interventions* version 6.2 (updated February 2021). Cochrane, 2021

Table 1 Checklist by Tugwell et al. (2020) to support decisions on whether to replicate a systematic review with guidance on how to use the checklist retrospectively to assess published NMAs (could also apply to systematic reviews that are not NMAs).

Checklist items	Guidance notes for using checklist retrospectively
1. Has the priority for replication been assessed as high? For example, is it likely that a replication will remain relevant to policy and practice for a useful length of time? Is it likely for replication results to lead to implementation by practitioners and policy makers?	The assessment of this being a high priority NMA should be made explicitly in relation to the need for <i>replication of previously published NMA</i> . For example, if the NMA authors cite this being high priority research, but do not cite this in comparison to previously published NMA, they are not assessing priority in relation to the need for <i>replication</i> .
2. Is it likely that direct replication by repetition of conceptual replication by broadening or narrowing of the scope will address uncertainties, controversies, or the need for additional evidence related to:	The authors need to <i>justify their replication</i> in relation to <i>previously published NMA</i> . For example, if the authors provide a rationale, but do not cite/compare to <i>previously published NMA</i> in that rationale, they are not providing a rationale for the need for <i>replication</i> .
2.1. The framing of the question in previous reviews?	The authors need to <i>justify their replication</i> in relation to the framing of the question in <i>previously published NMA</i> .
2.2. The conduct and reporting of previous reviews?	The authors need to <i>justify their replication</i> in relation to conduct and reporting of <i>previously published NMA</i> .
2.3. Author influence or conflicts of interest in previous reviews?	The authors need to <i>justify their replication</i> in relation to author influence or conflicts of interest in <i>previously published NMA</i> .
2.4. Discordant findings in previous reviews?	The authors need to <i>justify their replication</i> in relation to discordant findings in <i>previously published NMA</i> .
3. Would the implementation of the findings of a replication be likely to have a potentially important sizeable individual benefit or harm or affect a sizeable population?	The authors need to report why <i>replication</i> may result in a sizeable benefit or harm. This should not be based on the results of the NMA itself.
4. Are resources (time, money) best spent on replication rather than on alternative systematic reviews (considering opportunity cost)?	The authors need to report why <i>replication</i> is the best use of resources.

Note. The following guidance applies for applying the checklist retrospectively:

- Each NMA should be assessed in relation to the NMAs that were published prior to its date of acceptance for publication.
- The items should be completed in reference to what is cited within the written article by the authors, rather than by your own judgement of whether the NMA was beneficial.
- An NMA should score 'yes' on at least one checklist item to be deemed a 'justified replication'.
- It is likely the information you are seeking will be within the introduction or discussion section of the article.
- If feasible, its use could be expanded to exploring justification of replication for other clusters of similar systematic reviews.