

KEY TAKEAWAY: Systematically measuring reach, engagement, and impact informs publication strategy

QUESTIONS? PLEASE CONTACT US
ISMPPquestions@ipsen.com

Why did we do this research?

- The goal of medical publications is to improve patient care.
- Commonly used publication metrics focus on early reach (e.g. Altmetric Attention Score) or long-term impact (e.g. citations).
- To assess publication effectiveness more broadly, we developed a semi-automated tool to measure real-world reach, engagement, and impact.

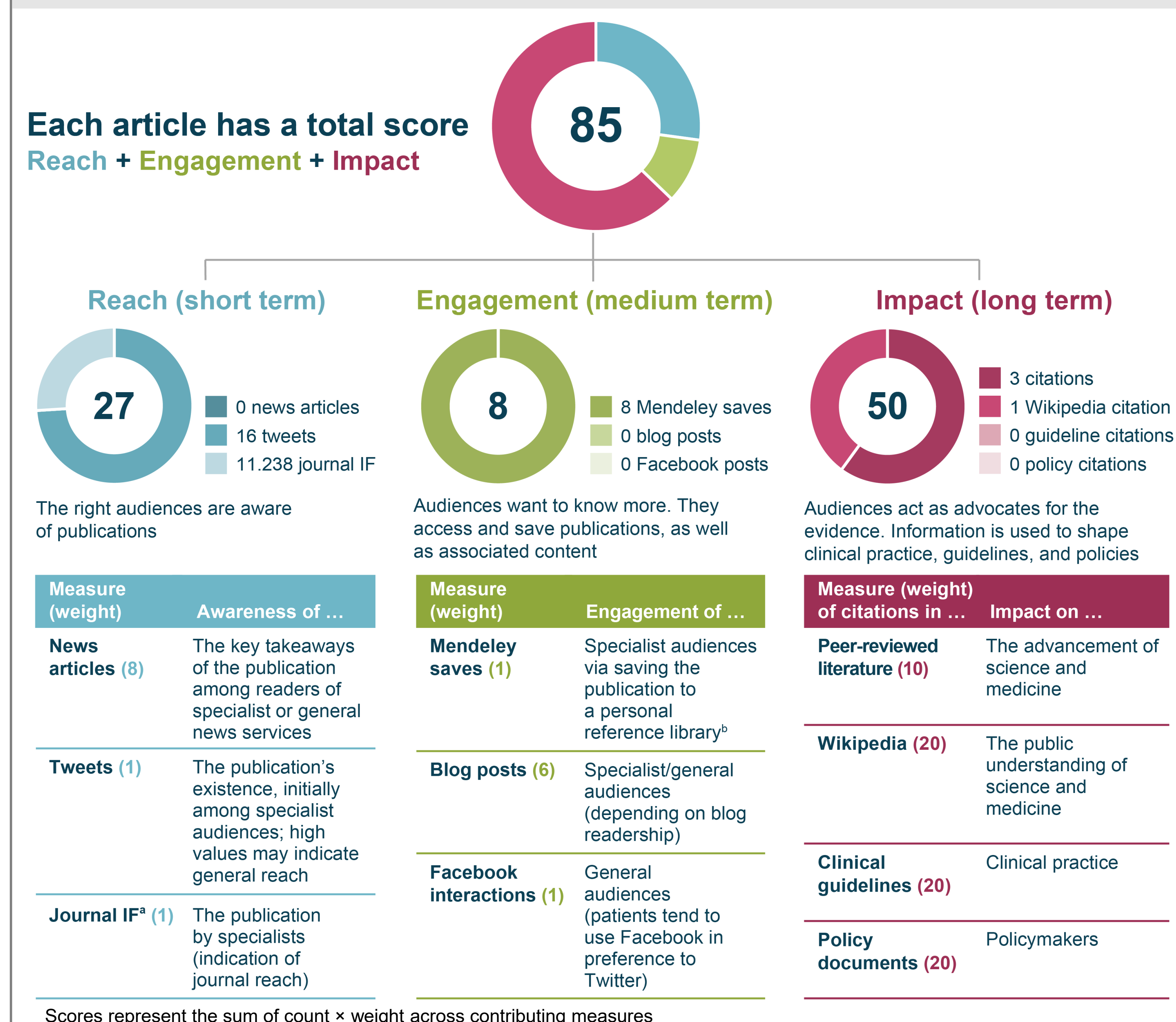
How did we do this research?

- We chose journal article metrics based on their comprehensiveness and comparability across all articles; those available only from some publishers or journals were not included (e.g. article download numbers).
- We grouped and weighted article metrics to provide indicators of early reach (traditional/social media), medium-term engagement (interaction), and long-term impact (citations).
- We based congress metrics on presentation number/type, congress size/type, and number of poster accesses.
- We obtained data from PlumX, Sylogent, and Google Analytics for the Ipsen poster platform.

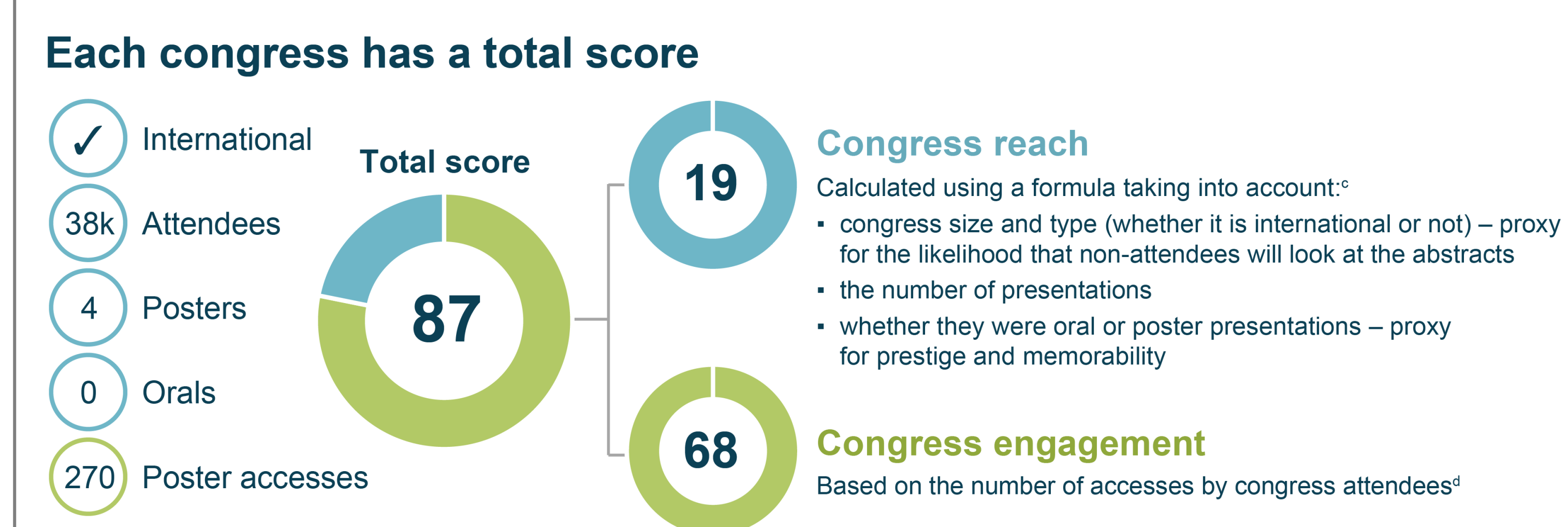
What did we find?

- The tool summarizes indicators and total scores for journal articles (**Panel 1**) and congresses (**Panel 2**).
- Scores for individual articles and congresses are aggregated by product and therapeutic area, and at the company level.
- We initially investigated performance in a sample of 112 articles for 11 company and competitor franchises, and 101 presentations from 16 congresses, all from 2018.
- We have now generated company-wide and competitor data for the past 3 years.
 - Illustrative metrics for a company-sponsored article are in **Panel 3**.
 - Information about validation of the tool is on **Page 2** of this poster.

Panel 1: Journal article metrics



Panel 2: Assessing congress impact

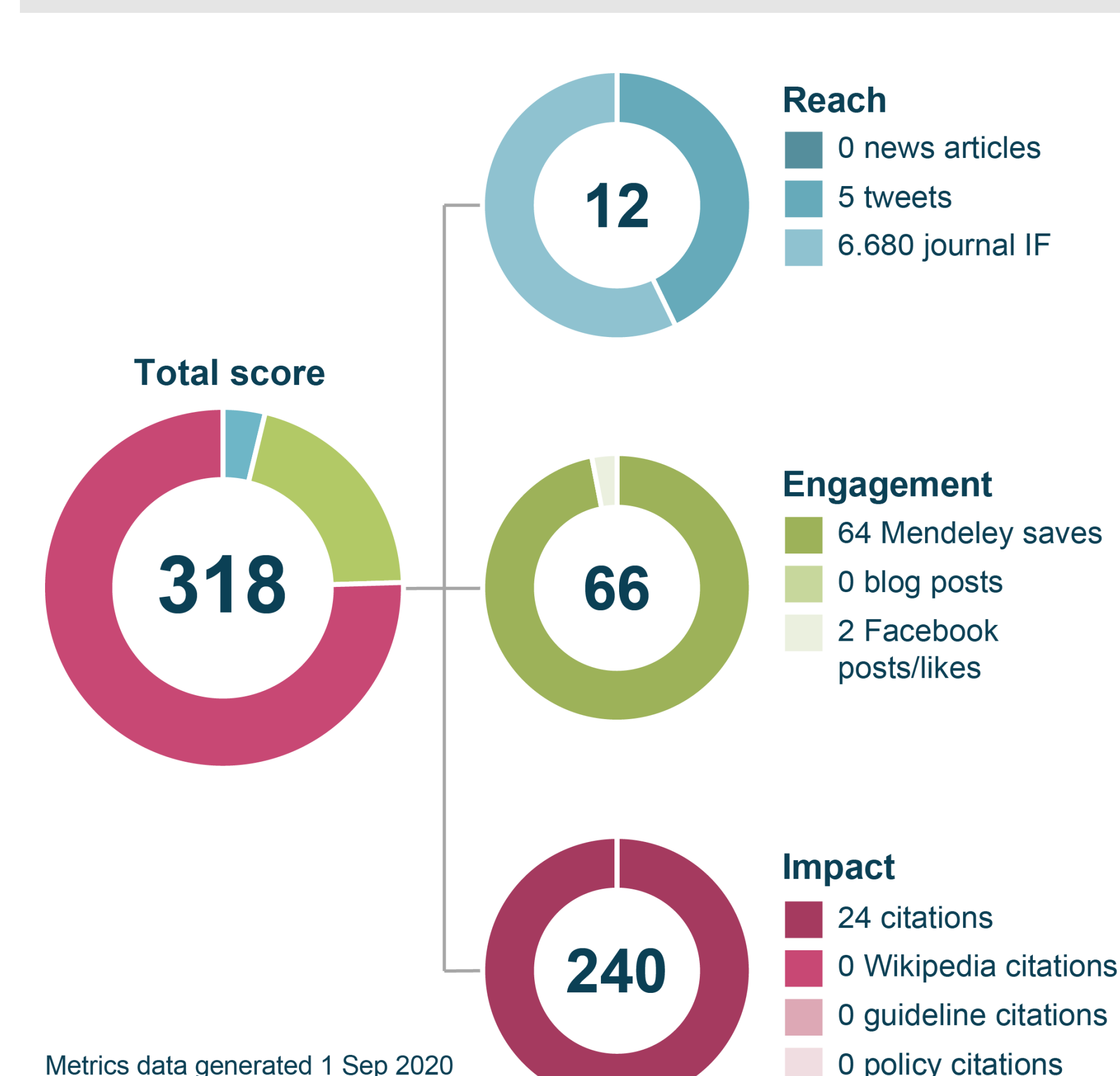


^aCitescore or Scimago 2-year cites/year may be substituted for journals that do not report an IF. ^bThe number of saves to Mendeley reference libraries predicts future citation numbers.¹

^cCongress reach = $([\text{no. posters}] + [\text{no. orals}] \times 2) \times \log_{10}(\text{attendees}) \times \text{congress type}$ (1 for international congresses; 0.7 for others), rounded up. ^dCongress engagement = $(\text{no. QR code/virtual accesses for all presentations}) \times 0.25$.

^eThese citations have not yet been classified as 'clinical practice guideline' by Medline's indexers, meaning that they do not currently appear in the metrics summary as such (but may in the future when Medline indexing is complete). IF, impact factor; RT, retweet.

Panel 3: Example metrics for a single journal article²



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Reach via tweets from:

- the publisher (1 RT)
- a clinician from the USA as part of a discussion of therapeutic options
- a Japanese clinician (1 RT, 6 likes)

Engagement identified through saves to 64 Mendeley reference libraries^b and two Facebook posts

Impact via 24 citations, including:

- clinical practice guidelines^e
- two well-cited review articles

HEAR US DISCUSSING OUR WORK



Audio file: 3m 37s

Our conclusions

- Systematically measuring reach, engagement, and impact can inform publication planning.
- Early reach is a weak predictor of later engagement, while engagement at 6 months is a reasonable predictor of future impact.
- This tool helps us to:
 - support and challenge publication strategy
 - assess techniques for improving impact
 - focus on developing publications that reach, engage, and can be understood by their intended audience.

References

- Thelwall M, Nevill T. *J Informetrics* 2018;12:237–48.
- Wang-Gillam A et al. *Eur J Cancer* 2019;108:78–87.

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KEY TAKEAWAY: Early reach weakly predicts later engagement, while engagement at 6 months predicts later impact

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What was known already?

- For someone to take action as a result of information (impact), they first have to hear about it (reach), then they have to engage with it.
- In some fields, early tweet numbers predict later citations,^{1,2} and in many others saves to Mendeley reference libraries predict later citations.³

What ideas did we validate?

- Metrics accrue in short-, medium- and longer-term 'waves' of reach, engagement, and impact.
 - At 6 months (mos) after publication, reach will have plateaued, some indication of engagement will be present, and early citations may already register in the impact score.
- 'Early wave' metrics should predict 'later wave' metrics to some degree.

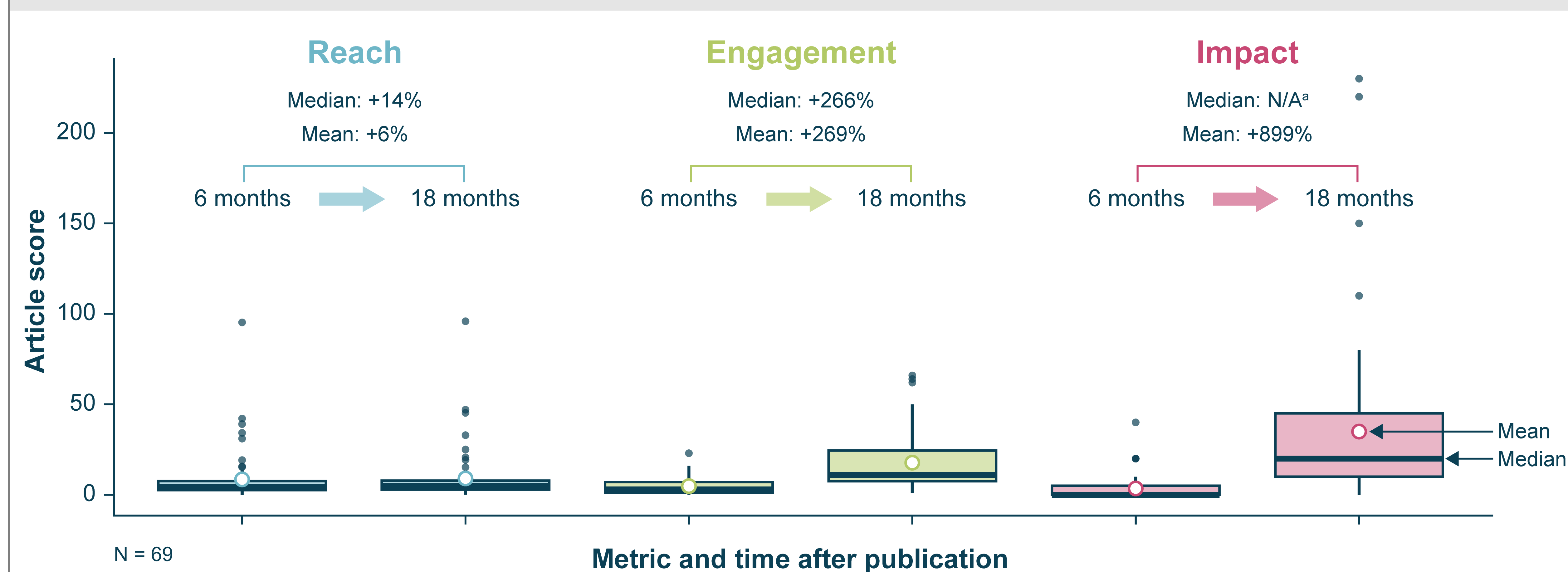
How did we do the validation?

- We included articles with data recorded at 6 and 18 mos after publication (N = 69).
 - Timepoints were 6 mos (± 1.5) after publication and 12 mos (± 1.5) further on again.
- We looked at:
 - Changes in reach, engagement and impact between 6 and 18 mos after publication.
 - Spearman rank correlations⁴ between:
 - reach at 6 mos and engagement at 18 mos.
 - engagement at 6 months and impact at 18 mos.
 - journal impact factor (IF), and engagement and impact at 18 mos.

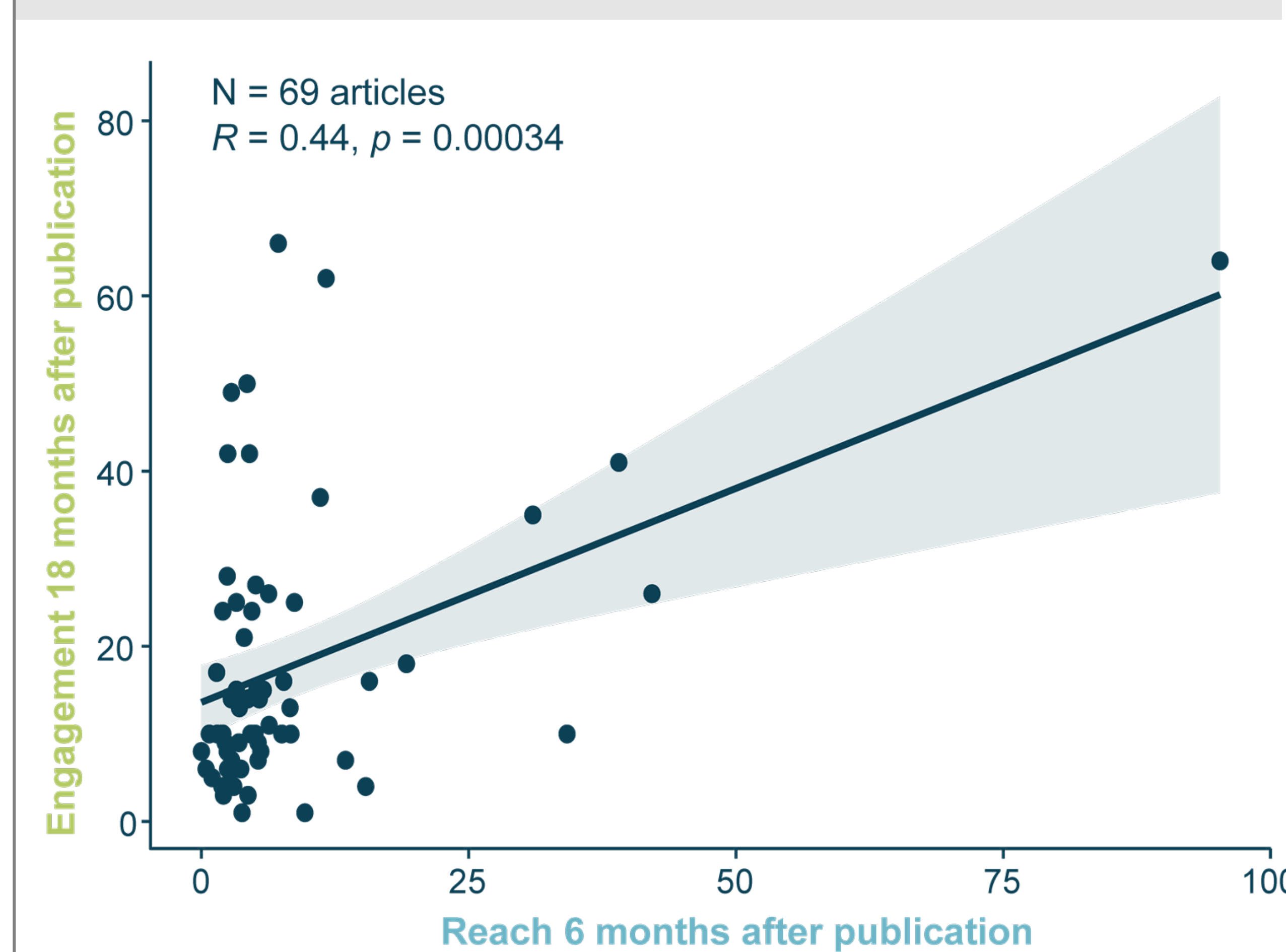
What did we find?

- Reach accumulates within 6 months of publication; engagement develops in the medium term, and impact in the long term (**Panel 1**).
- Reach at 6 months predicts engagement at 18 months (**Panel 2**) a little more strongly than journal IF alone ($R = 0.19$, $p = 0.16$; not shown)
- Engagement at 6 months predicts impact at 18 months (**Panel 3**) as strongly as does journal impact factor ($R = 0.58$, $p < 0.0001$; not shown)

Panel 1: Reach accumulates within 6 months; engagement develops in the medium term, and impact in the long term



Panel 2: Early reach weakly predicts later engagement^b



Panel 3: Engagement at 6 months predicts later impact



^aMedians of 0 and 20 at 6 and 18 months, respectively. ^bCorrelation with outlier removed, $R = 0.25$, $p = 0.053$.

References (validation)

- Finch T, O'Hanlon N, Dudley SP. *R Soc Open Sci* 2017;4:171371.
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