

# How Cover Selection Boosts Article Reach

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## ABSTRACT

In the competitive world of academic publishing, an article's visibility can significantly influence its impact. While citations and journal rankings often dominate discussions about scientific influence, another factor—cover image selection—may play a crucial role in shaping an article's reach. To explore this, we analyzed data on papers from Nature Medicine, Nature Physics and Nature Materials, examining how cover-featured articles perform compared to the articles that were not selected to be on the cover. Using metrics such as access counts, Altmetric scores, and social media engagement, our study reveals that being showcased on the cover correlates with significantly higher visibility and engagement, based on the citations, accesses and exposure in social media. These findings highlight the power of visual storytelling in science communication and raise important questions about how editorial decisions influence the dissemination of research. This effect is not entirely surprising. In an era where information overload makes it challenging for even groundbreaking research to stand out, visual representation serves as a powerful tool for grabbing attention. Cover images are carefully curated by journal editors to reflect high-impact, visually compelling research, making these studies more likely to be noticed not only by fellow researchers but also by journalists, policymakers, and the public. Our findings suggest that the visual framing of science plays an important role in determining how widely research is accessed, discussed, and ultimately, cited.

**Keywords:** Altmetric score, Article visibility, Cover image selection, Scientific communication, Social media engagement.

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## INTRODUCTION

There is growing empirical evidence that social media engagement can positively influence the impact of academic research and promote collaboration (Hunter, 2020). The uncertainties in the world and the challenges in scientific research also push scientists toward decentralized communication platforms, such as social media, rather than centralized governmental systems (Caferra *et al.*, 2025).

Several recent studies have explored how interactions on platforms like YouTube and Twitter correlate with increased visibility and citation counts for scholarly work. These studies suggest that strategic use of social media platforms can enhance the dissemination and impact of academic research. Engaging with audiences through platforms like YouTube and Twitter not only broadens the reach of scholarly work but also fosters greater academic recognition (Yue, 2024; Zagovora *et al.*, 2024). Social media posts can also supposedly improve communication

between scientists and citizens and promote this form of research through communication (Oliver *et al.*, 2023).

## METHODOLOGY

To investigate the impact of cover selection on article visibility, we collected publication data:

- From Nature Medicine (starting from year 2010) - 6660 articles without cover image and 179 articles with cover image.
- From Nature Materials (starting from year 2017) - 1560 articles without cover image and 128 articles with cover image.
- From Nature Physics (starting from January 2020) 1945 articles without cover image and 90 articles with cover image.

We focused on key engagement metrics such as the number of accesses, Altmetric scores, and social media interactions. Using Altmetric data, we quantified the extent of public engagement, including mentions on platforms like Twitter, news articles, and policy documents. We then analyzed trends over time, comparing how these statistics evolved across different publication years. To assess the effect of cover selection, we identified articles



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featured on the journal's cover and compared their performance to non-cover articles using statistical analyses. Our approach allowed us to examine both the overall dynamics of article engagement in recent years and the specific influence of visual prominence in high-impact scientific publishing.

## RESULTS

### Articles with covers have more views and reposts on social media

We compared statistically the articles selected for cover image and not selected. We found significant differences for several metrics in these two categories. As in all three magazines there were many more articles without cover images, we tried to avoid imbalance by using bootstrap and also nonparametric criteria. The summarized result for all three magazines together is presented in the Table.

The statistical analysis of data from all three journals highlights key metrics that show significant differences between articles selected for the cover and those not selected. Article accesses and citations exhibit the most significant difference ( $p < 0.0001$ ), suggesting that higher readership strongly correlates with cover selection. Similarly, altmetric score, blogs, Mendeley saves, and tweets show statistically significant differences, reinforcing the

role of academic engagement and online discussions in increasing an article's likelihood of being featured. Wikipedia page mentions show marginal significance, indicating a potential but weaker relationship with cover selection.

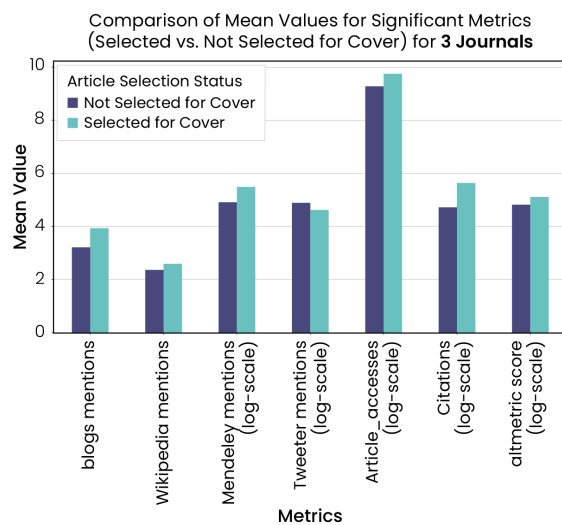
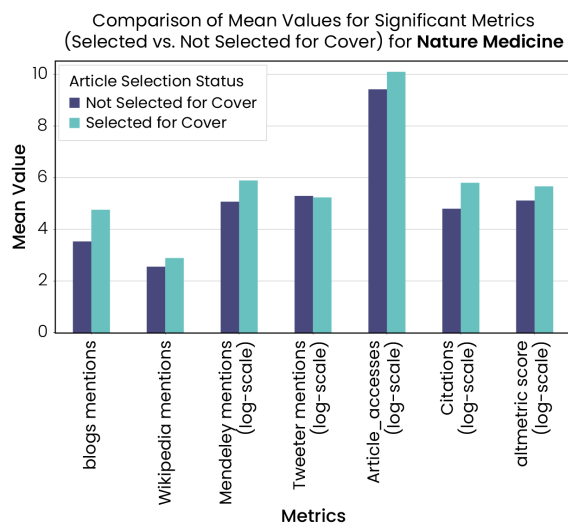
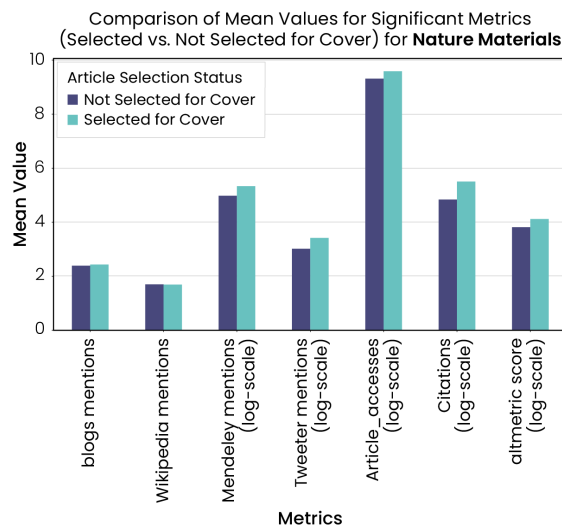
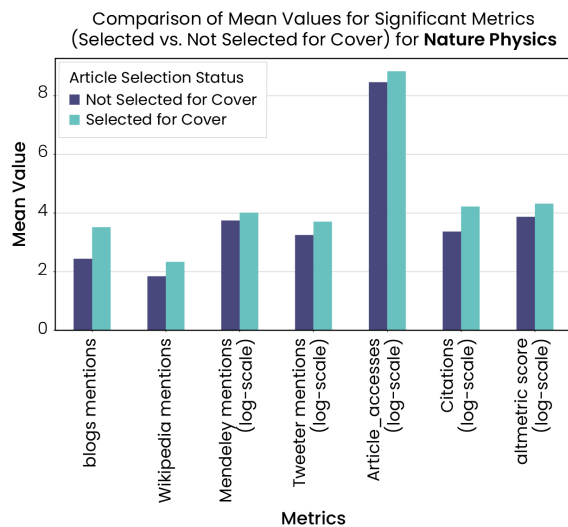
On the other hand, several metrics, including Connotea, Citeulike, F1000, news outlets, video uploaders, and Redditors, do not show a significant difference ( $p > 0.05$ ). This suggests that these platforms may not play a decisive role in determining whether an article gets selected for the cover. Facebook pages show weak significance, meaning they might have some influence but are not a primary driver. User interactions exhibit mixed results, suggesting that while some user activity may correlate with selection, it is not consistently significant.

Overall, these results indicate that a combination of scholarly impact (Mendeley saves, article accesses) and social media attention (blogs, tweets, Wikipedia mentions) plays a key role in determining which articles are selected for the cover. Platforms that primarily serve niche audiences (Connotea, Citeulike) or general social engagement (Facebook, Reddit, news outlets) appear to have a lesser impact.

We also plotted the significantly different metrics for more visual comparison:

### Statistical significance

Metric	T-test p-value	Mann-Whitney p-value	Conclusion
Article accesses	2.03e-05	3.02e-14	Highly significant ✓
Citations	1.67e-03	2.38e-04	Significant ✓
Altmetric Attention Score	1.48e-02	2.98e-08	Significant ✓
Blog mentions	3.14e-03	3.43e-03	Significant ✓
Mendeley mentions	7.06e-10	1.85e-18	Very significant ✓
X/Twitter mentions	6.20e-03	5.70e-04	Significant ✓
Wikipedia mentions	4.93e-03	8.92e-03	Marginally significant ✓
Connotea	2.70e-01	2.08e-01	No significant difference ✗
CiteULike	9.38e-01	7.75e-02	No significant difference ✗
F1000 recommendations	7.82e-01	1.08e-01	No significant difference ✗
Facebook page mentions	4.65e-02	7.57e-02	Weak significance ✗
News outlet mentions	2.66e-01	7.36e-01	No significant difference ✗
Video mentions	9.70e-01	2.07e-01	No significant difference ✗
Users/accounts	5.76e-02	9.65e-14	Mixed results ✗
Reddit mentions	1.74e-01	2.12e-01	No significant difference ✗



The log-scaled comparison of mean values for significant metrics between articles selected and not selected for cover across Nature Materials, Nature Medicine, and Nature Physics reveals both shared patterns and striking disciplinary differences, offering insight into the interplay between editorial decisions and the communication dynamics of each scientific field.

### Cover articles have overall higher statistics

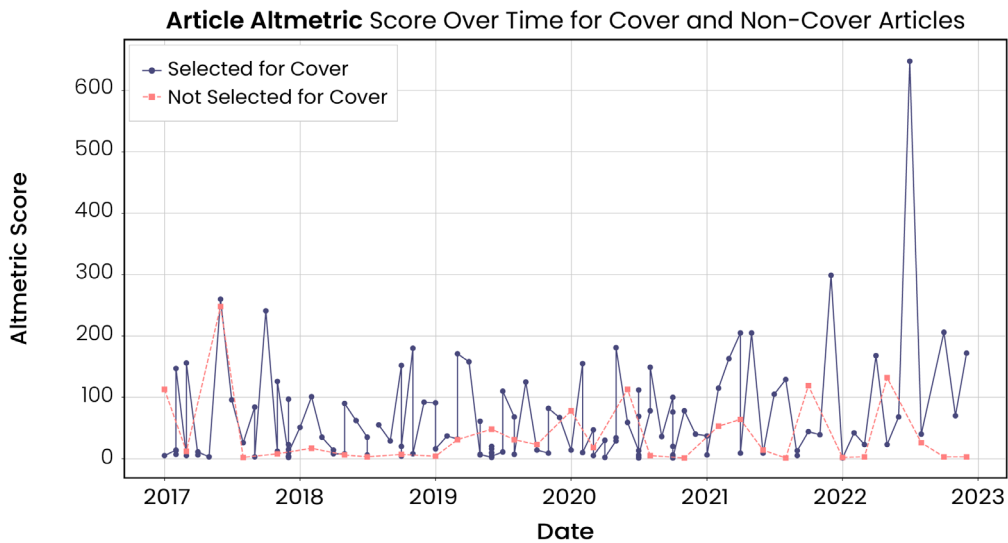
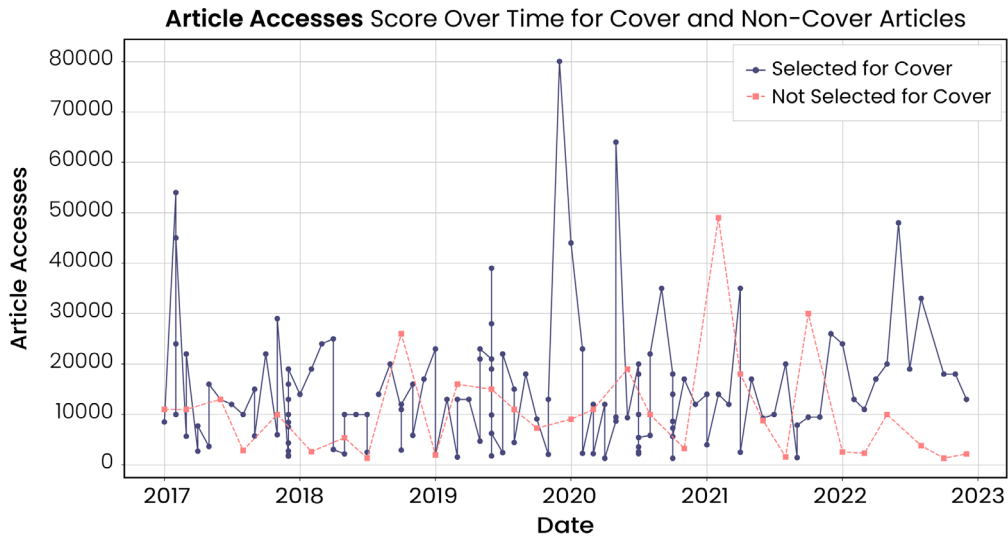
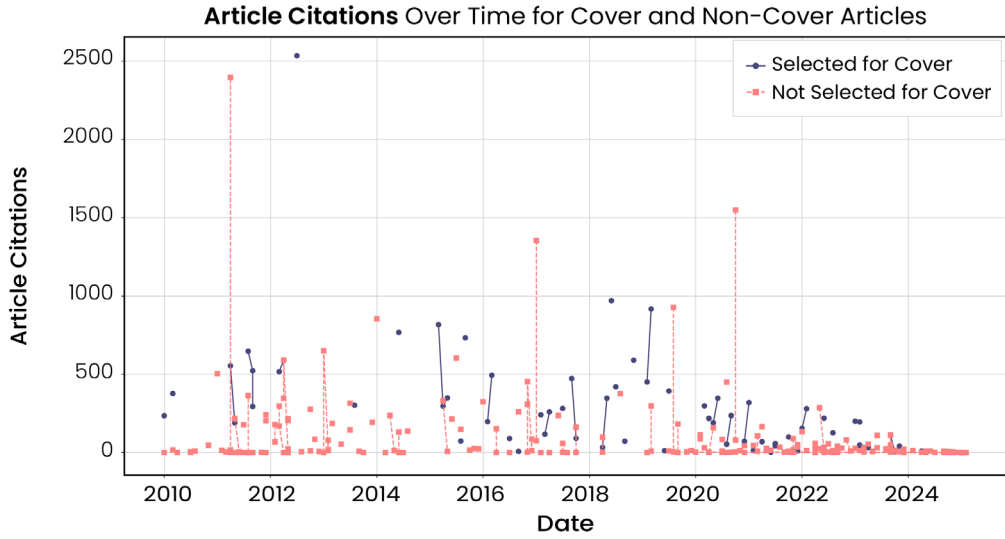
Our analysis of Nature Medicine, Nature Physics, Nature Materials articles over time reveals a clear trend: articles selected for the journal's cover tend to receive significantly higher access counts compared to non-cover articles. While both groups exhibit variability, cover-featured articles show distinct peaks in engagement, particularly in recent years. This suggests that being highlighted on the cover is associated with higher readership and online attention.

A key observation is the increasing divergence between cover and non-cover articles over time. Earlier in the dataset (2010-2016), both categories exhibited relatively similar access patterns,

though cover articles occasionally spiked. However, from 2018 onward, the impact of cover selection became more pronounced, with cover articles frequently surpassing 100,000 accesses, while non-cover articles remained largely within lower access ranges. This shift may be influenced by evolving digital dissemination strategies, where visually striking research on the cover is more likely to be shared through social media, news outlets, and academic discussions.

Interestingly, while some non-cover articles achieve high access counts, they appear as exceptions rather than the norm. These outliers suggest that factors beyond cover selection—such as groundbreaking findings, press coverage, or high-profile authors—can still drive engagement. Nonetheless, the overall trend supports the idea that cover selection amplifies an article's reach, reinforcing the role of editorial curation in shaping scientific impact.

To explore how the impact of cover selection evolves over time, we analyzed trends in three key metrics, such as article accesses,



Altmetric scores, and citation counts across cover and non-cover articles.

For article accesses, we observed that while both cover and non-cover articles typically maintain low to moderate access counts over the years, cover articles frequently exhibit sharp spikes, particularly after 2014. Although general readership has increased over time for both groups, the most extreme outliers are predominantly cover articles, underscoring the amplifying role of cover features on audience reach.

Altmetric scores, which reflect online attention and media coverage, show rarer but occasionally dramatic surges. Interestingly, the largest Altmetric spike (~16,000) originates from a non-cover article around 2016, indicating that exceptional media-driven attention can sometimes arise independently of editorial promotion. Nonetheless, cover articles consistently demonstrate modestly higher Altmetric scores across the years, with many small- to medium-sized peaks not mirrored by non-cover articles. This pattern suggests that cover selection provides a steady but not exclusive boost to online engagement, whereas singular viral moments may emerge unpredictably.

In contrast, citation trends reveal that scholarly impact accumulates more gradually over time, with no systematic increase in citation rates across years. Both cover and non-cover articles occasionally achieve high citation counts, with some non-cover articles approaching 3,000 citations. However, cover articles generally exhibit stronger average citation performance. These sporadic citation spikes likely reflect the influence of specific high-impact papers or disciplinary trends, rather than consistent temporal patterns.

Overall, our analysis indicates that cover selection enhances article performance across both immediate (accesses, Altmetric scores) and long-term (citations) metrics. However, external events, media dynamics, and the intrinsic scientific importance of individual papers also play critical roles in shaping when and how these metrics peak.

## DISCUSSION

This study explores the relationship between scholarly visibility, specifically being featured as a journal cover article, and subsequent academic impact and public attention. Our findings across *Nature Medicine*, *Nature Physics*, and *Nature Materials* show that articles selected for the cover outperform non-selected articles in core academic metrics, particularly citations, Altmetric scores, and Mendeley mentions. These findings suggest that, regardless of discipline, cover selection is associated with higher scientific impact and broader academic engagement, and may play a role in amplifying the visibility of research within and beyond the scientific community.

These findings align with earlier work on scholarly visibility, which argues that a paper's influence is intrinsically linked

to its "findability" and that visibility can be actively managed through strategic dissemination (Ebrahim *et al.*, 2014). This is further supported by prior work showing that the internet has transformed scientific communication and that ignoring this development risks leaving recognition to serendipity (Hardman *et al.*, 2020).

Notable differences emerge when examining the relative magnitudes of public attention metrics across fields. In *Nature Medicine*, selected articles show markedly stronger gains in altmetric scores, blog mentions, and Twitter mentions compared to the physical science journals. This likely reflects the inherently higher public interest in medical research that touches on health and human well-being, which naturally attracts broader societal attention. This variation is consistent with the view that alternative metrics provide a unique lens into "societal impact" that traditional citations miss, capturing engagement shortly after publication (Bornmann, 2014).

In contrast, *Nature Physics* and *Nature Materials* show a more moderate uplift concentrated in citations and Mendeley readership. This suggests that in the physical and materials sciences, cover-worthy research is more tightly linked to scientific novelty rather than general public discourse. As observed in recent studies of specialized journals, while social attention can be heavily influenced by visual prominence, academic readership is driven primarily by the substantive content and utility of the research to scholarly communities.

Our study builds upon and provides a necessary contrast to earlier work analyzing cover effects in the multidisciplinary journal *Nature* (Battiston *et al.*, 2022). While both studies confirm a long-lasting citation advantage for cover articles, our research is significantly different in four key areas:

1. **Disciplinary Granularity:** While Battiston *et al.*, focused on a single elite title, our study examines specialized journals. This allows us to identify field-specific editorial intents, such as *Nature Medicine's* prioritization of research with dual scientific and public appeal, that are obscured in a general multidisciplinary dataset.
2. **Multi-dimensional Impact:** Battiston *et al.*, primarily utilized citation counts over 30 years. In contrast, we employ a multi-metric approach that integrates citations with Altmetric Attention Scores (AAS) and Mendeley readership to provide a more comprehensive view of how visibility acts as a bridge between science and society.
3. **Absence of "Crowding-Out":** A crucial finding of the Battiston study was a "crowding-out effect," where a cover article caused citations to its authors' previous articles to decline. Our findings highlight a simultaneous uplift across all core metrics for the featured work

itself, underscoring a synergistic benefit rather than a reputational trade-off.

- 4. Generalizability:** By examining journals with consistent yet not exceptionally high impact factors - similar to those examined previously (Chen *et al.*, 2025), we show that the "cover effect" persists in specialized disciplinary contexts beyond elite multidisciplinary titles.

The increasing importance of striking cover images is undeniable. While science identifies an event, the language of photography can frame its context in seconds, effectively "hijacking" attention in a saturated information environment (García-Roa, 2024). Furthermore, images help fix messages in a reader's memory more effectively than text alone, making photography a promising element for connecting science and society.

## CONCLUSION

These findings reinforce the argument that promotion is an ethical and professional obligation (Hardman *et al.*, 2020). Researchers should not view publication as the final step, but as the first step in sharing findings with the wider world. By following practical dissemination strategies, such as thinking visually and remixing traditional outputs, researchers can significantly increase the visibility of their research (Hardman *et al.*, 2020). Ultimately, while a cover enhances initial exposure, the enduring value of research remains anchored in its methodological rigor and utility.

For publishers, the data underscores the role of the journal cover as a representative image for social media advertising. Editorial teams should navigate distinct balances between academic recognition and societal relevance, as cover stories serve to amplify both the scientific and public profiles of research in ways that are unique to each discipline. Ultimately, while visibility provides the initial exposure, the enduring value of a scientific contribution remains anchored in its methodological rigor and utility.

## ACKNOWLEDGEMENT

None.

## ABBREVIATIONS

**AAS:** Altmetric Attention Score; **SM:** Social Media; **NP:** Nature Physics; **NM:** Nature Medicine; **NMat:** Nature Materials.

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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