The Value of Peer Review

PERCEPTIONS FROM THE HEMATOLOGY COMMUNITY

A Report Commissioned by the
American Society of Hematology

Prepared by Clarke & Esposito

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Introduction

Community perceptions of peer review have significant stakes for publishers of medical and scientific journals. The value delivered by peer review in the eyes of the community is directly tied to the value of a society's journal portfolio. Given its critical role in the research ecosystem, we must consider the future of peer review as well—whether it is delivering on its promise, how it might evolve, and what implications this may have for journal publishers, authors, and readers.

The pressures for publishers to reexamine the traditional structure of peer review come from many directions. Reports of reviewer fatigue are common. "Sound science" peer review (peer review without consideration of novelty or significance of the work) is becoming more prominent, especially among open access publications. Preprint deposit is growing in popularity in the life sciences, and preprints are increasingly accepted for grant applications. Research funders are developing publishing platforms, some with minimal review processes. Open peer review is moving from experiment to accepted practice, at least in some communities. Numerous peer review initiatives are percolating.

It is in this environment that the American Society of Hematology (ASH) commissioned Clarke & Esposito (C&E) to explore perceptions related to the value of peer review in medical and scientific publishing, in particular within the hematology community. Although this research focused on one specific field, readers of this report will recognize many elements that are generalizable to other medical specialties, as well as to science publishing more generally. The results shared here are intended to further the conversation about what it means for peer review to deliver value, and to give other societies a template to follow in their own examination of this important question.

Overview and Project Methodology

In designing and conducting this research, ASH and C&E sought to measure perceptions of the value of peer review among various stakeholders in research communication—authors, reviewers, editors, members, and readers. Top-of-mind questions to guide the effort included:

- Is peer review worth the additional time in the research cycle that it requires?
- What is the perception of value of different models of peer review—such as single-blind and double-blind review, open identities review, collaborative review, and community review?

- How might the growth of preprints affect perceptions and practices around peer review?
- Does identification of potential impact or novelty matter in peer review and can it be determined in advance of publication? Or is so-called "sound science" review sufficient?
- Do reviewer requests that lead to additional experiments add value to the science? Does the community believe they are worth the additional time and effort?
- Are there best practices with regard to editorial moderation of reviewers, in particular with regard to unreasonable requests?
- How does journal brand as a signal of impact and curation (via peer review) factor into perceptions of the value of peer review?
- And finally, the overarching question: does the community value peer review and perceive it as adding value to science?

We examined these questions from various perspectives via two research methodologies:

- Focused **interviews** with authors, reviewers, and editors (selected from ASH's flagship journal *Blood* and its open access journal *Blood Advances*) to get a qualitative grounding in perceptions of peer review among those with direct experience with the ASH journals. These interviews were particularly helpful in crafting effective, relevant, and clear questions for the community survey (see below).
- An **online survey of the hematology community** to add a quantitative measure to findings related to perceptions of the value of peer review. More detail about the survey, which was conducted with support from research firm Readex, is included in the section below.

In this report we synthesize the most important insights that developed from both the interviews and the community survey. A few comments from respondents are included to illustrate perceptions and bring real-life perspectives to the forefront.

Community Survey Details and Demographics

ASH and C&E worked with Readex (www.readexresearch.com), a nationally recognized, independent research company specializing in conducting high-quality survey research, to build and deploy the survey instrument and analyze survey responses. The following information on survey composition and responses was extracted and adapted from Readex reporting in support of the project.

SAMPLE COMPOSITION

The sample for the survey was defined by four lists provided by ASH: ASH current members, ASH Annual Meeting nonmember attendees, *Blood* authors and reviewers (January 2017 – July 2018), and *Blood Advances* authors and reviewers (January 2017 – July 2018).

Readex used a variety of matching techniques to identify duplicate individuals between lists, ultimately creating a sampling frame of 86,829 unique individuals. Of these, 84,162 records had deliverable email addresses associated with them. An invitation sample of 25,646 was drawn randomly from that frame, stratified by list membership. Results were weighted in tabulation to restore correct proportionality among the list membership segments.

DATA COLLECTION

The survey questions were designed collaboratively by ASH publications staff and C&E, with suggestions from Readex. Development and hosting of the survey website and broadcast of email invitations were handled by Readex.

On 11 September 2018, Readex sent initial email requests (in the name of ASH's president) to the 25,646 sample members, inviting them to participate in the survey. Two reminder emails were sent to sample members who had not yet responded. The survey was closed for tabulation on 25 September 2018, with a total of 1,944 usable responses—an 8% response rate.

Because a large fraction of those invited to participate chose not to do so, the possible effects of nonresponse bias on these results should be considered. That said, the stated purpose of the survey conveyed in the invitation to participate was focused on peer review, and many within the sample (in particular within the ASH membership and Annual Meeting attendees) probably do not engage in publishing activities on a regular basis and thus chose not to participate. Under the assumption that nonresponse did not affect the randomness of the sample, percentages based on all 1,944 responses may be considered subject to a margin of error of ±2.2 percentage points at the 95% confidence level. Most results reported on in this report focus on the 1,776 respondents who indicated they had been published in a peer-reviewed journal within the last 5 years (see Figure 1); that margin of error is ±2.3.

The response was tabulated and reported by Readex Research in accordance with accepted research standards and practices.

DEMOGRAPHICS

Publishing History

Because the research objectives called for measuring *informed* opinion about peer review, the survey's initial question asked how many papers the respondent had published in the last 5 years that underwent at least one round of peer review. Of total respondents, 77% reported publishing at least one peer-reviewed paper during that time, while 23% reported none (Figure 1). The balance of the reporting for this project focused on the 77% who were "recently published respondents." The demographics that follow Figure 1 are for only this subset of recently published respondents.

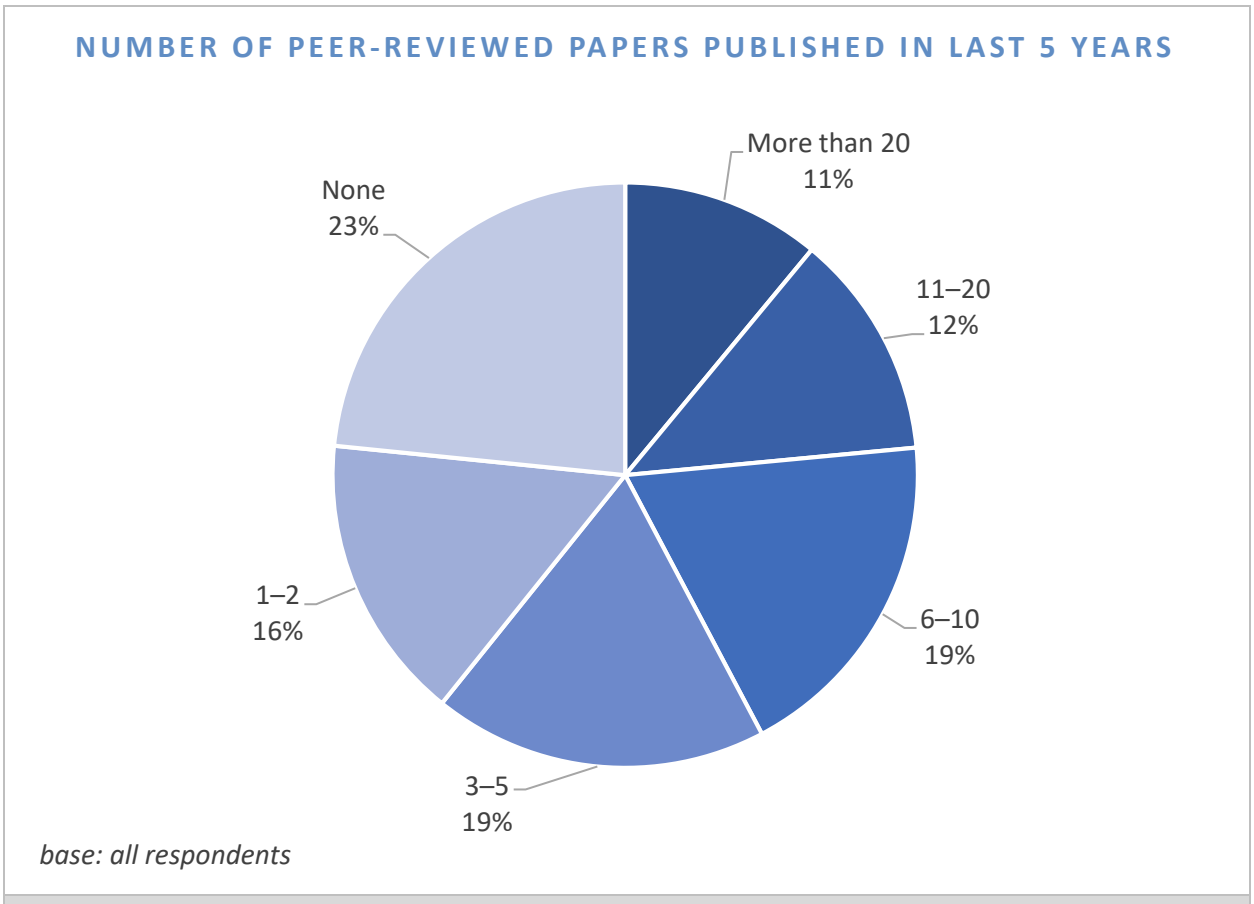

FIGURE 1. Community survey responses to the question *"In the last 5 years, how many papers have you had published that have gone through at least one full round of peer review? Please consider any papers submitted to any journal on which you were listed as an author."*

Looking at only those recently published, 30% had published more than 10 peer-reviewed papers in the last 5 years. About a fifth (21%) reported only 1–2 peer-reviewed papers published in the last 5 years. The typical (median) recently published respondent published 7 papers.

Age

The typical (median) recently published respondent was 46 years old, with 30% 55 or older, and 18% younger than 35 (Figure 2).

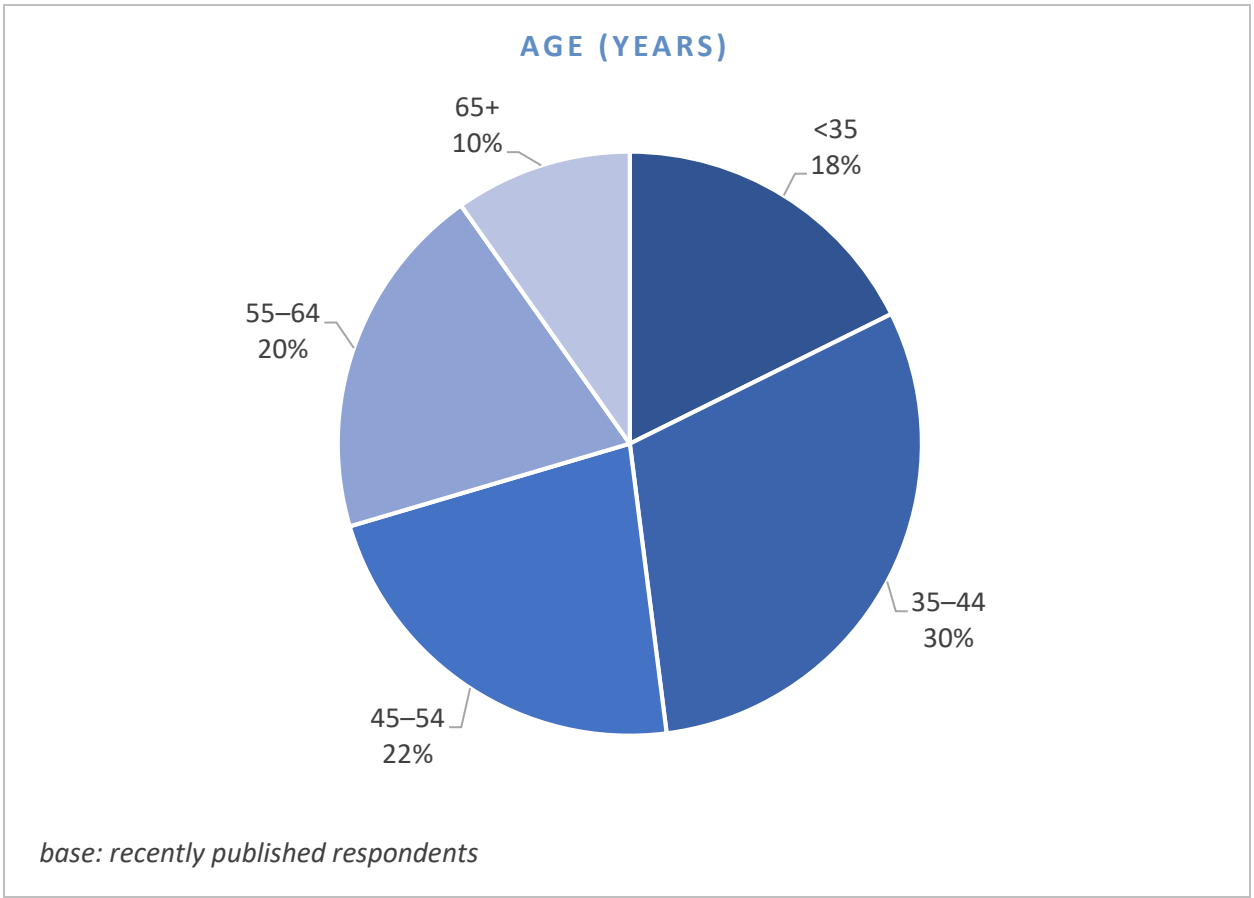

FIGURE 2. Age (years) breakdown for recently published community survey respondents.

Region of World

Nearly half (46%) of recently published respondents resided in the United States, and 33% in Europe; 2% of those recently published were from China. The balance came primarily from Asia, Oceania, and South America (Figure 3).

It is notable that among respondents recently published, around 80% were from the US and Europe, suggesting that non-US, non-European responses are likely underrepresented in the survey. Perceptions from researchers in China may be of particular interest to readers of this report, given the increase in research investment (and research output) from this region of the world. Unfortunately, the sample size of researchers from China was very small (only 35 tabulated responses, with a margin of error of ±16 points), so no valid conclusions can be drawn about China from the survey results.

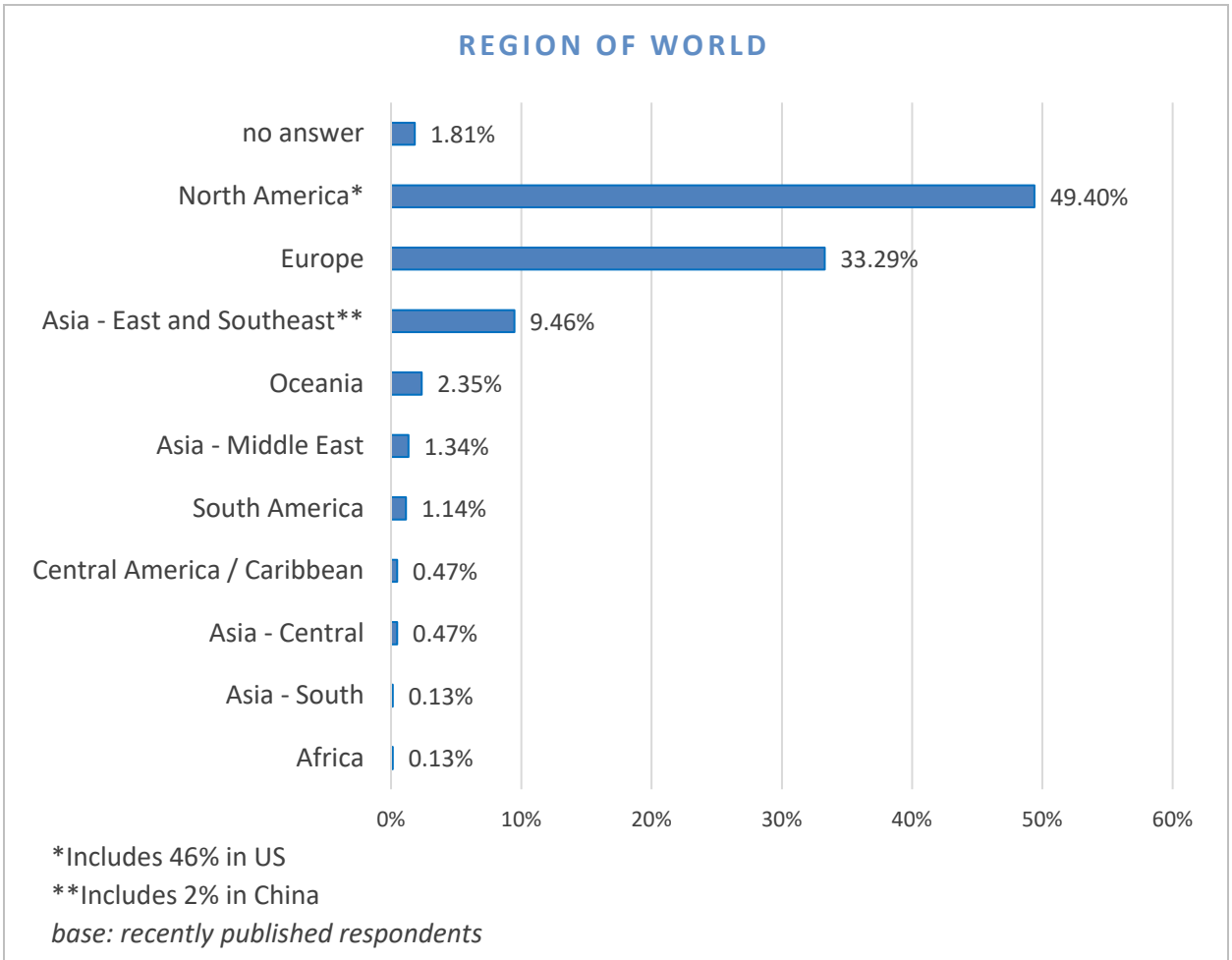

FIGURE 3. Region of world breakdown for recently published community survey respondents.

Key Research Questions and Findings

DOES THE COMMUNITY BELIEVE THAT PEER REVIEW ADDS VALUE AND IMPROVES SCIENCE?

We start with the key question that drove this project: *Does the community value peer review and perceive it as adding value to science?* The responses we received throughout the research formed a resounding yes: **community stakeholders do believe peer review provides value to scientific communication.**

In survey results, 80% of recently published respondents agreed that peer review helps science. The interviews supported this sentiment as well, with most interviewees unwilling to consider a scientific communication system that does not include peer review. Other sentiments surfaced in the survey support the idea that the community values peer review, including (Figure 4):

- "Without peer review there is no control in scientific communication"—85% agree, 5% disagree
- "Researchers and clinicians can have confidence in the scientific rigor of published papers because of peer review"—67% agree, 14% disagree
- "Scientific communication is greatly helped by peer review"—80% agree, 6% disagree
- "Peer review is unnecessary"—88% disagree, 5% agree

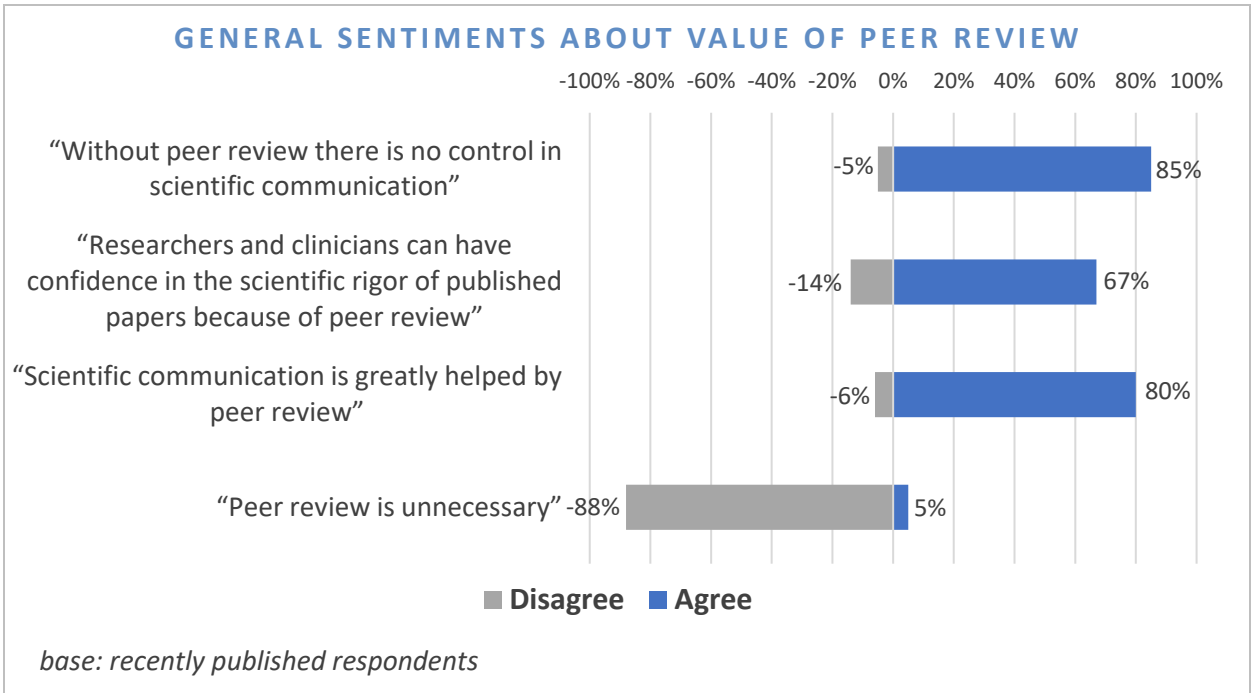

FIGURE 4. Community survey responses to question related to general sentiments about the value of peer review.

When asked "*How often do you feel the science of papers in your field is improved through peer review?*," 58% of recently published respondents agreed that peer review improves the science of papers "always" or "very often" (Figure 5).

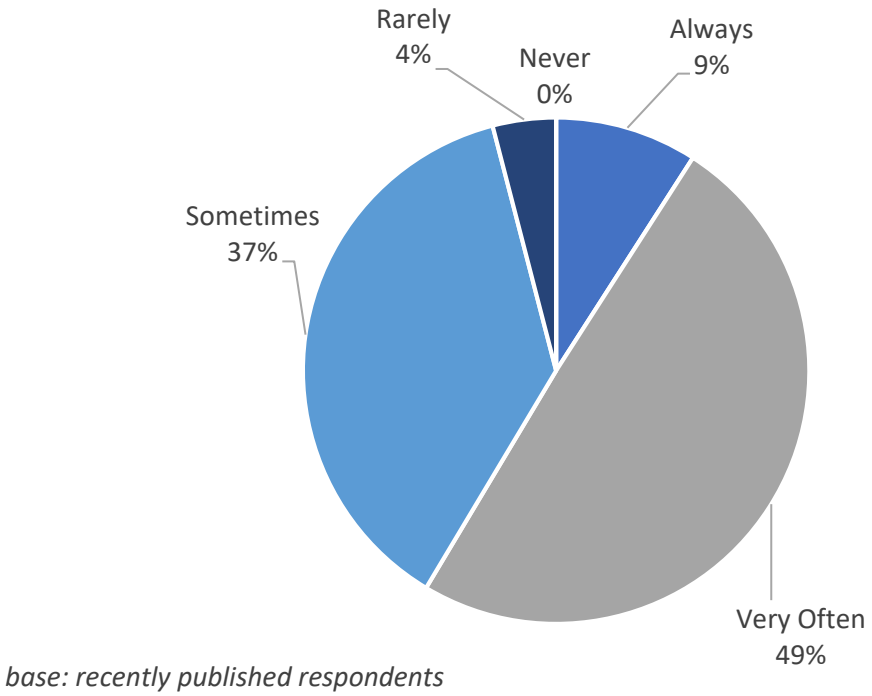

FIGURE 5. Community survey responses to the question "*How often do you feel the science of papers in your field is improved through peer review?*"

We also asked in what ways people believe that peer review improves science. A primary theme we heard from interviewees was that peer review is ideal when the review helps make the story better and stronger. Additionally, more than 50% of recently published survey respondents believed that peer review improves science in the following ways (Figure 6):

> *"If you can't communicate the science with crystal clear clarity—efficiently—you are not furthering science"*

- Clarifying major points
- Improving data presentation

- Correcting overstatement
- Identifying scientific errors
- Providing better support for conclusions through additional data
- Improving readability

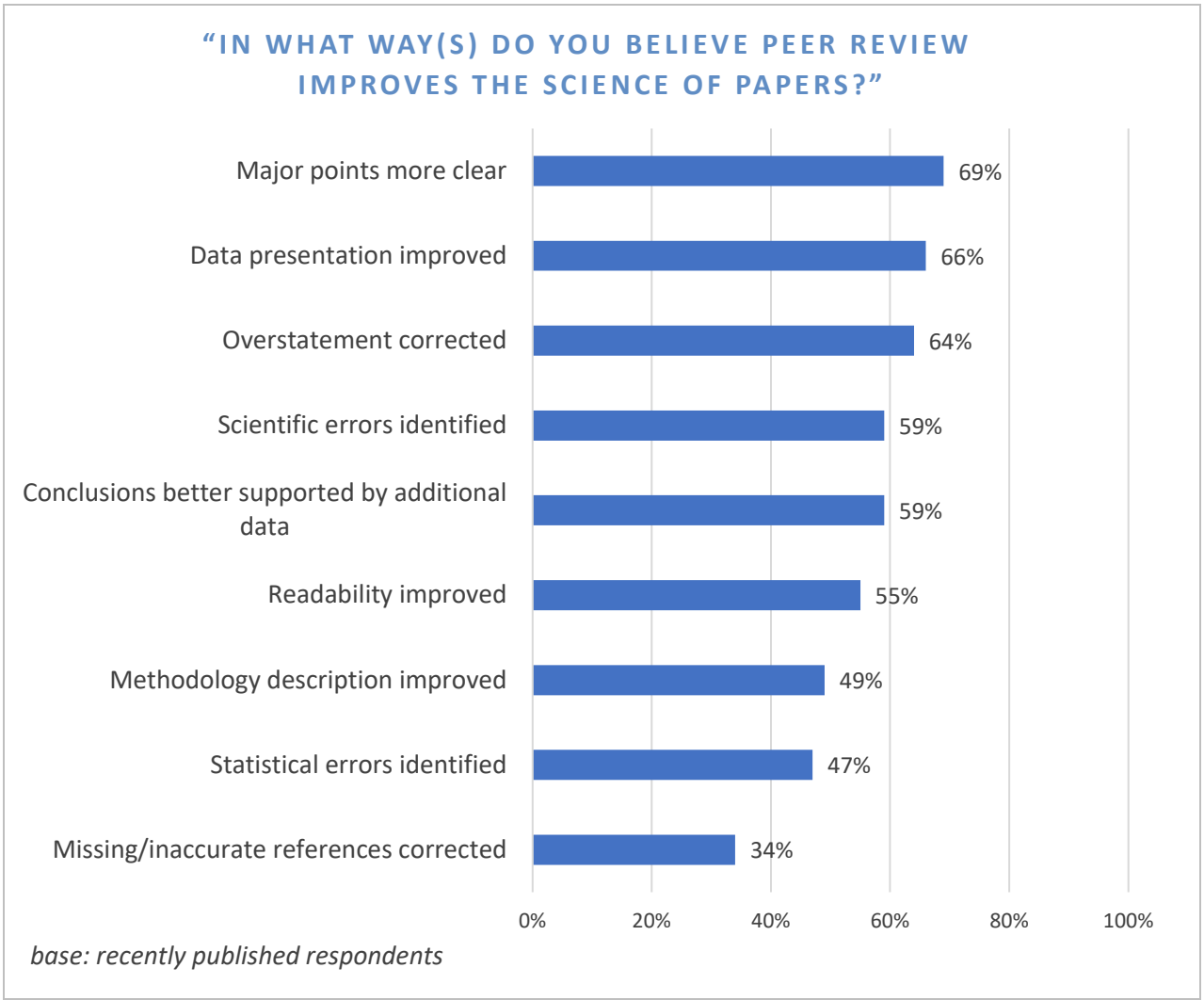

FIGURE 6. Community survey responses to the question "*In what way(s) do you believe peer review improves the science of papers?*"

The survey also explored level of satisfaction with peer review. In response to the question *"How satisfied are you with the peer review process used by scholarly journals in your field?,"* nearly 2 in 3 (65%) recently published respondents are "satisfied" or "very satisfied" with the peer review process of scholarly journals in their field (Figure 7).

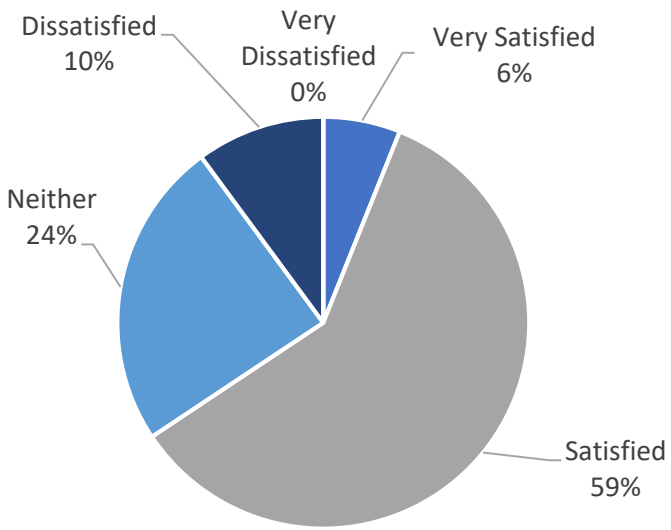

FIGURE 7. Community survey responses to the question "*How satisfied are you with the peer review process used by scholarly journals in your field?"*

In short, despite the ongoing debate about particular methods and details, we can say qualitatively and quantitatively that peer review continues to serve a critical function within the hematology ecosystem. And while there are opportunities to improve the specific implementation of peer review—as we discuss throughout the rest of the report—there is little question that this community believes that peer review contributes to healthy scientific discourse and the overall quality of research.

> *"I think there are many things to be improved or fixed in the peer review process, but I also think that a good, efficient, unbiased, transparent peer review process is essential."*

Around 10% of our survey respondents identified themselves as dissatisfied with peer review. The survey data showed some correlation among this group with recent experiences of rejection: 73% of the dissatisfied minority had had a recent rejection, compared to only 53% of the satisfied majority.

It is important to recognize that even though peer review is perceived as adding great value and people are generally satisfied with its service to the field overall, there is evidence of support for improvement of the peer review system: 33% of respondents in the survey agreed with the statement *"peer review in journals needs a complete overhaul"* (27% disagreed)—suggesting that many in the community see room for improvement.

IS PEER REVIEW WORTH THE ADDITIONAL TIME IN THE RESEARCH CYCLE THAT IT REQUIRES?

Value is never an absolute—rather, it is a balance of gains and costs. We therefore considered whether the time and effort spent on peer review are worth the perceived benefit it delivers.

We asked respondents, first, about their authorship experience and whether they felt peer review improves their own papers. We then asked whether peer review improves other papers in their field. We found that respondents more commonly felt that papers *in their field* were improved, much more often than they felt the same about their own work. What would lead a researcher to say, "Peer review improves everyone else's papers, but not mine"? We suspect the data reflect the two different viewpoints arising from being an author (and having others critiquing your work) versus a reviewer or editor (where you are suggesting improvements to an article and seeing those occur). We therefore must consider peer review's value from multiple points of view.

Author Perspectives

Looking at the question from the authors' perspective, about 40% of our survey respondents reported that the last review of their submitted paper had taken "too long." This complaint largely held for those whose papers had been accepted—timing was lower down the list of concerns for those whose papers had received rejections. (Respondents with rejected papers were more likely to worry about bias in the review process.)

Interestingly, perceptions about whether a review took too long tracked closely to general perceptions about peer review. Overly long review processes were reported in much higher proportions and were the biggest complaint among those who were dissatisfied with peer review. There was in fact a genuine difference in the experiences of the dissatisfied group—

while the average reported review time across all recently published respondents was 3.6 months, the average review period for the dissatisfied group lasted 4.7 months.

We also noted that younger respondents tended to feel peer review took too long, despite no differences in the reported length of their last review. It is unclear whether this difference is simply due to less experience with the peer review process or other factors. What does seem clear is that faster review turnaround might serve to decrease dissatisfaction levels among authors, both in the present and over the long term.

We should however note that review speed is not the only consideration with regard to perceptions of quality of peer review. A little over 60% of survey respondents did agree that it is OK for peer review to take an extra month, as long as the feedback is thoughtful and useful. This suggests that even if an editorial team were to focus on speeding up its review process, there should be equal or greater focus on the quality of review guidance to maintain author satisfaction.

Reviewer Perspectives

Peer review requires a growing pool of willing and available volunteers, making recruitment a key challenge for many journals. Previous studies suggested that those who decline an invitation to review are typically not doing so because of other peer review commitments—rather they are typically too busy generally.[1,2,3] That is, the problem may not be one of reviewer fatigue, but rather *researcher* fatigue.

In the responses we received to questions about the review process, our interview and survey participants did not appear to begrudge the time they spent on peer review. We heard in interviews that peer review is a positive use of time, serving as an educational opportunity for the reviewer—a way to stay current with what is happening in the field. Some reviewers also mentioned the community service aspect of peer review; time one spends reviewing others' papers is returned by the community in reviewing one's own papers.

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[1] Ware M, Monkman M (2008). Peer review in scholarly journals: an international study into the perspective of the scholarly community. Publishing Research Consortium. (http://publishingresearchconsortium.com/index.php/142-peer-review-in-scholarly-journals-perspective-of-the-scholarly-community-an-international-study)

[2] Ware M (2016). PRC Peer Review Survey 2015. Publishing Research Consortium. (http://publishingresearchconsortium.com/index.php/prc-documents/prc-research-projects/57-prc-peer-review-survey-2015)

[3] Mulligan A, Hall L, Raphael E (2013). Peer review in a changing world: an international study measuring the attitudes of researchers. Journal of the Association for Information Science and Technology 64:132–161. (https://onlinelibrary.wiley.com/doi/abs/10.1002/asi.22798)

However, the community survey did hint at a need for journals to treat this volunteered time as a valuable asset in itself. The survey received 19 open-ended comments asking for reviewers to be compensated in some way (financial payment, continuing education credit, publication fee credits, etc.) for the time they spend on peer review. While these results were merely anecdotal and not further quantified in our research, this suggests a fruitful question for further study.

> *"A careful review is important and the time and effort this takes should be supported or reimbursed in some way."*

WHAT IS THE PERCEPTION OF EMERGING MODELS OF PEER REVIEW?

As we interviewed authors, reviewers, and editors from the hematology community, spanning all career stages, we found little experience with emerging models of peer review (such as open identities review, community review, or post-publication peer review). Interviewees were more likely to prefer traditional blinded review—but it is important to note that this preference was without having the context from actually experiencing these other forms of review. This may not be that unusual: a September 2018 report released by Publons found that fewer than 3% of journals in the Publons system use any "new" peer review models, such as the review being made public (open peer review), the reviewer's identity being public (signed), or any combination of the two.[4] While the data set is not totally complete—the peer review methodology was not known for about a third of the journals in the Publons sample—it helps to explain why many of our own interviewees were not familiar with new models of peer review when we asked.

That made it even more important for the survey to provide a quantitative look at whether those in the hematology community were open to new methods of peer review. Here's what we found:

- **Double-blind review.** Preference for double-blind peer review (76%) was more than double that of single-blind or open identities review (Figure 8). (*Open identities review* was defined in the survey as authors' and reviewers' names being known to each other.) In fact, respondents were almost evenly split between agreement and disagreement in the efficacy of peer review in a single-blind system, which is the system in use at most

> *"Peer review needs to remain anonymous, too many enemies can be made. If a journal were going to release my name, even to other reviewers, I would refuse to review for that journal."*

[4] Publons 2018 Global State of Peer Review (https://doi.org/10.14322/publons.GSPR2018)

journals today. In open-ended survey responses, comments that supported double-blind review were tied closely to its perceived ability to alleviate concerns about reviewer bias.

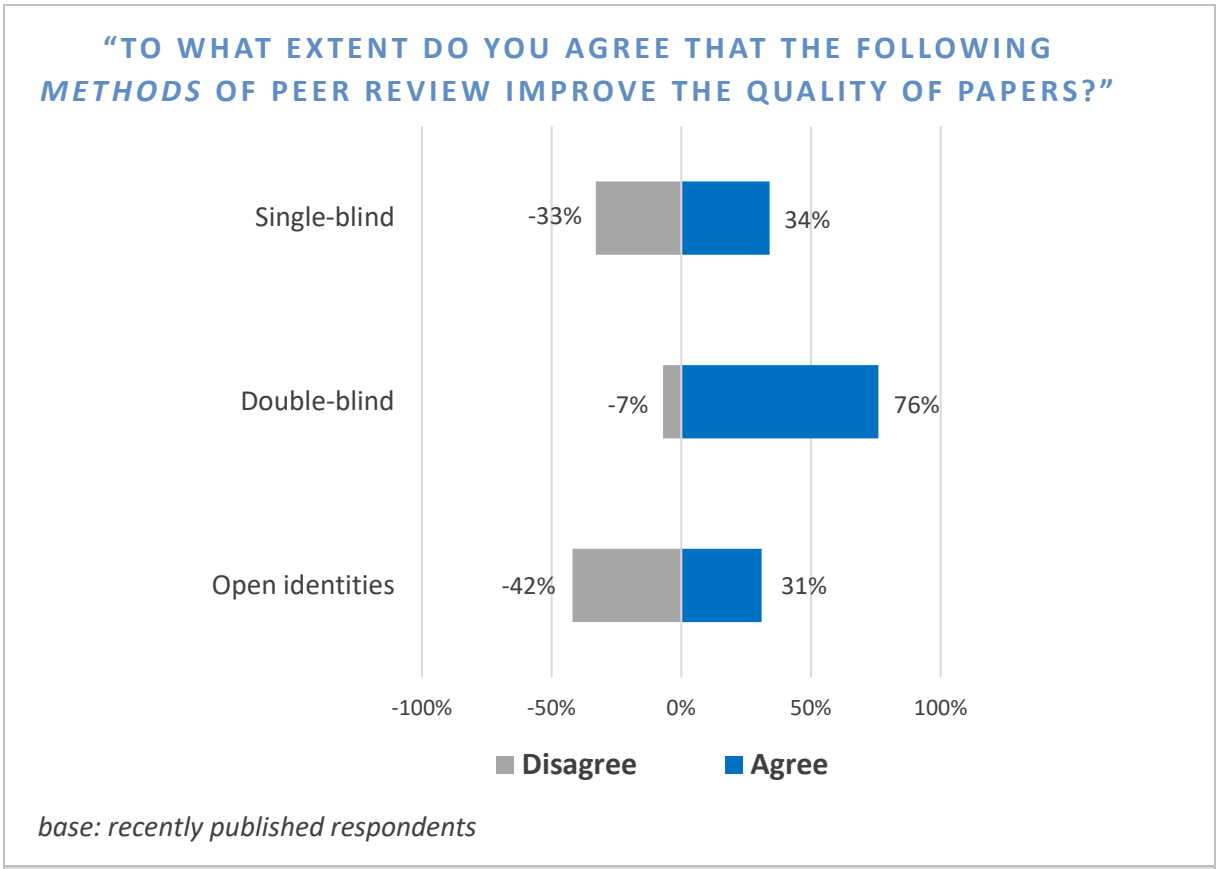


FIGURE 8. Community survey responses to the question *"For research papers published in your field, to what extent do you agree that the following **methods** of peer review improve the quality of papers?"*

- **Collaborative review.** Cautiousness about revealing one's own identity tends to recede if the reviewers are known only to each other (not to the author), and if there is the expectation of editorial oversight. Collaborative review, where reviewers and editor discuss and come to some degree of consensus before sharing reviews with the author, was thought by 75% of survey respondents to improve the quality of papers (Figure 9). This is consistent with themes running throughout survey responses, where respondents wished editors would take a firmer hand in guiding authors when reviewer requests seem to be overly detailed or to request additional work deemed inappropriate, as well as in dealing with bias in reviews.

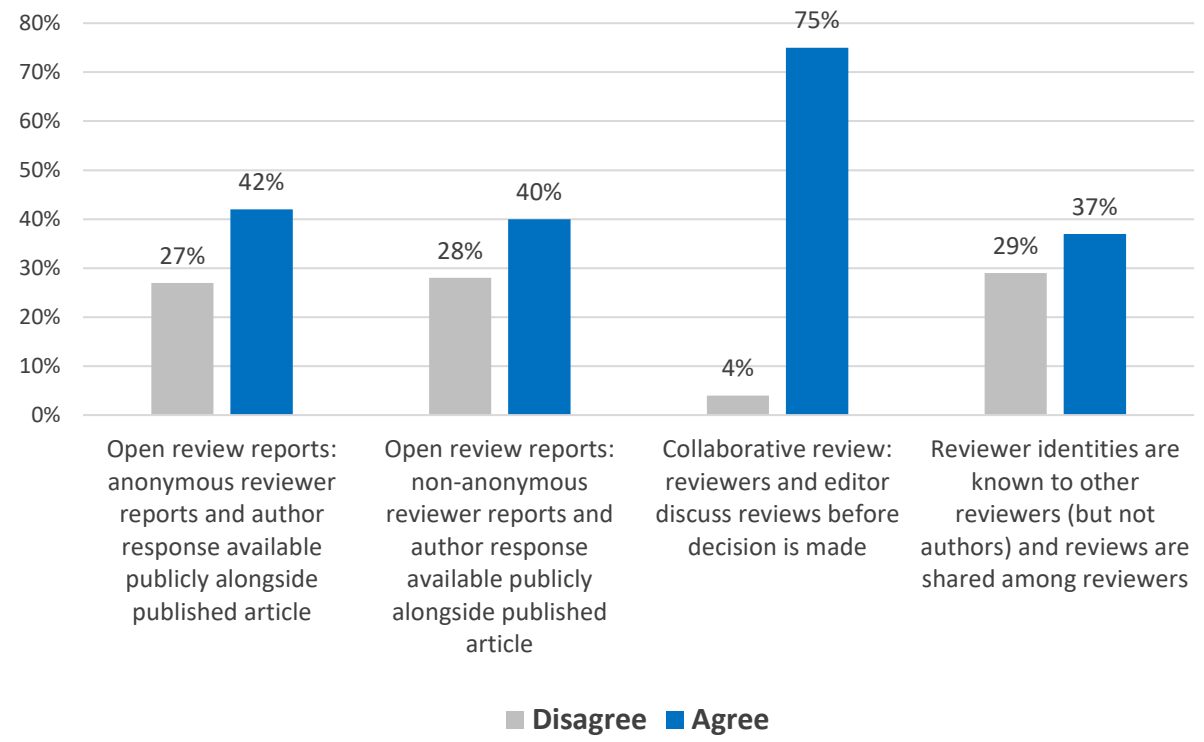


FIGURE 9. Community survey responses to the question *"For research papers published in your field, to what extent do you agree that each of these approaches to **sharing** reviews improves the quality of papers?"*

- **Published reviews.** Opinions were mixed on this approach, with strongly worded open-ended comments on both sides. The survey data show that those reporting themselves as dissatisfied with peer review were more likely to support making reviews public for the broader scientific community to see and judge—results that are once again consistent with a desire to mitigate perceived reviewer incompetence or bias.

Our interviews as well as open-ended survey comments made clear that any concerns about making reviewer identities known to the author centered mainly around interpersonal challenges: the fear that a negative review would harm professional relationships within small research communities, or would result in retribution from peers or those with power within the community.

Interestingly, introducing new forms of peer review might change the calculus about whether peer review is "worth the time" from the perspective of the reviewer. One concern we heard in research interviews and survey comments was how much extra time it would take to perform a review using one of these new methods. Reviewers seemed to think that they would have to spend far more time preparing (and perhaps moderating?) their review if their identity, or even the review itself, were to be made public.

HOW MIGHT THE GROWTH OF PREPRINTS AFFECT PERCEPTIONS AND PRACTICES AROUND PEER REVIEW?

A *preprint* is defined as an early version of a paper posted publicly for commenting, before that paper is submitted to a journal. Preprints are often associated with new forms of peer review, best exemplified by arXiv, the preprint service commonly used in mathematics and physics. In these disciplines, it is common practice for an author to place an early version of an article on the arXiv server and invite comment before it is submitted to a journal for formal peer review. This has had downstream effects on the policies of mathematics and physics journals: these journals have articulated policies affirming that articles may already have been seen by others in the community in their preprint stage, and authors in these fields are demonstrably more comfortable with citing papers before they have made their way to a journal.

arXiv is a discipline-specific repository, however, and we can draw limited conclusions about how practices in mathematics and physics will translate to those in medicine. In the life sciences, a biology-specific archive (bioRxiv), founded and managed by Cold Spring Harbor Laboratory, has shown rapid growth since its creation in 2013. Journal behaviors and expectations in life sciences may not change along the same course as they did in physics as a result of arXiv. A 2016 survey of life sciences researchers found that they were fairly unlikely to cite a preprint that had not yet been accepted by a journal.[5] In our interviews with members of the hematology community, there was uneven awareness of preprints, and no one we spoke to had direct experience posting, reading, or commenting on preprints. Comments we heard from these interviewees pointed out several concerns unique to medicine—patient confidentiality and safety, for example, but also the more competitive nature of medical research.

Looking at perceptions of preprints more quantitively, according to our community survey, comments on preprints were felt to improve paper quality by 42% of respondents (Figure 10). This is not nothing, particularly when viewed in light of the growing prevalence of preprints in

[5] Tenopir C, Levine K, Allard S, et al (2016). Trustworthiness and authority of scholarly information in a digital age: results of an international questionnaire. Journal of the Association for Information Science and Technology 67:2344–2361. (https://onlinelibrary.wiley.com/doi/abs/10.1002/asi.23598)

the life sciences. Yet this practice had a much lower level of consensus in comparison to journal peer review, which 82% of respondents felt improves paper quality. Though it is worth watching if this perception will change over time as the life sciences preprints space continues to evolve, we did not see evidence that preprints can entirely replicate the perceived value of peer review of medical research for the time being.

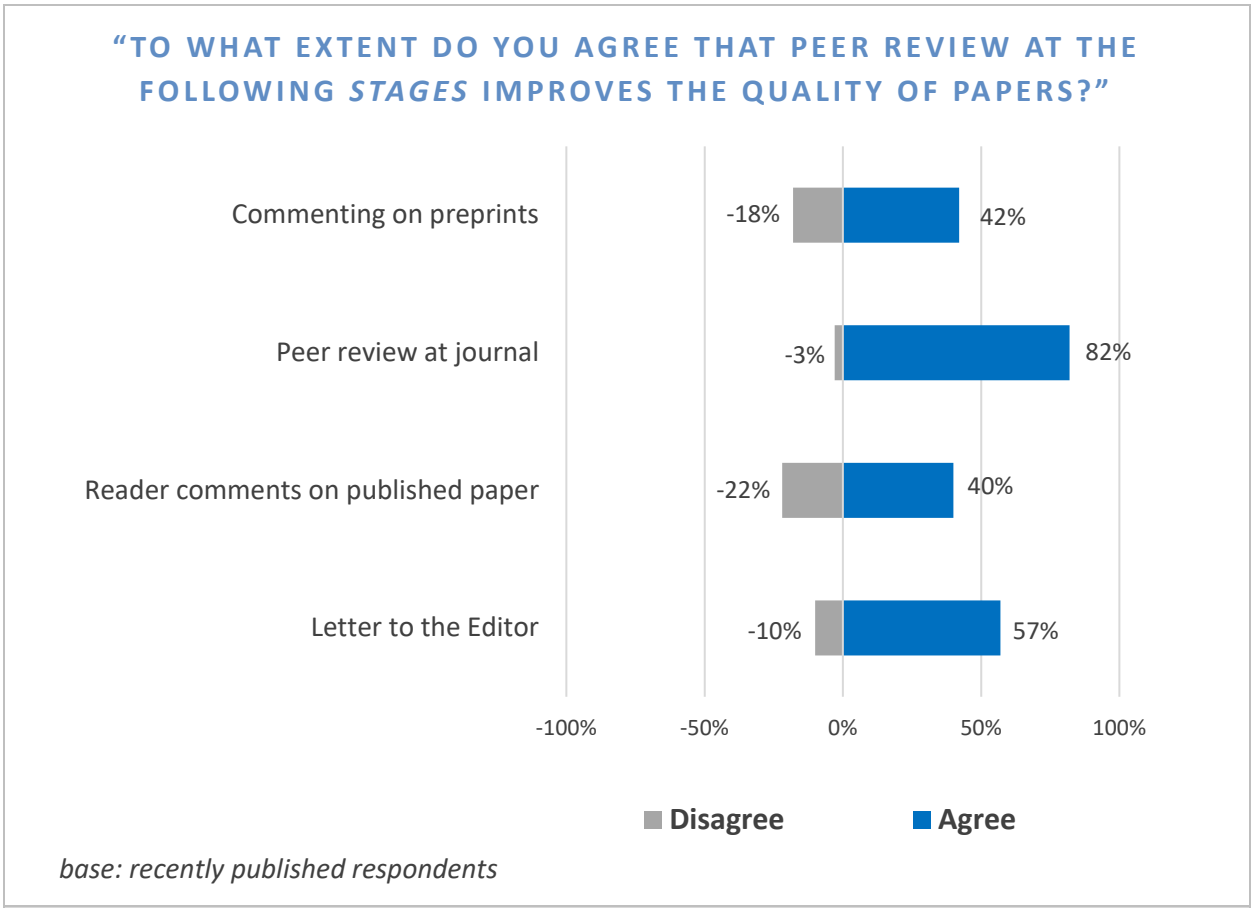


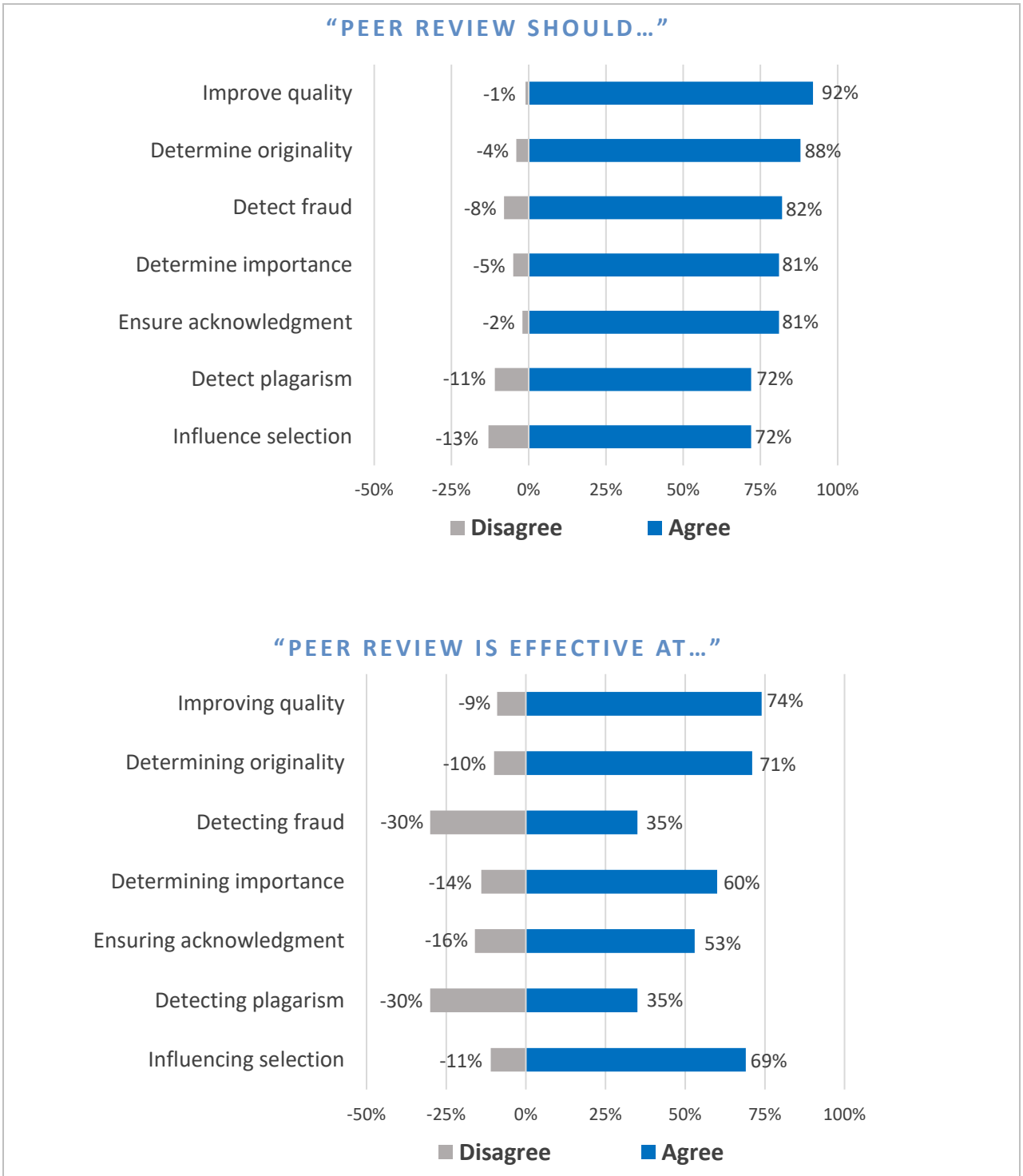
FIGURE 10. Community survey responses to the question *"For research papers published in your field, to what extent do you agree that peer review at the following **stages** improves the quality of papers?"*

DOES IDENTIFYING IMPORTANCE OR NOVELTY MATTER IN PEER REVIEW?

On the question of whether identifying importance or novelty matters in peer review, the survey results are clear—between 72% and 88% of respondents thought that peer review *should* influence the selection of papers that best fit the journal and its audience, determine originality, and determine importance (Figure 11).

There was no fundamental objection among most of the community in using peer review as a filter or curation mechanism, despite the co-existence of "sound science" peer review methods. Rather, the data suggest that respondents agreed this is among peer review's top functions. One interviewee drove the point home by telling us, "I don't want to be the reviewer for every paper I read."

We did note a difference in sentiment about whether peer review *should* perform these curation functions, and whether it is *effective at* those functions (Figure 11). The agreement about peer review's *effectiveness* is lower than agreement about how peer review *should* be performed. This provides further evidence of a gap between the general positivity about peer review and perceptions of its day-to-day execution. Journal publishers may need to ask themselves, "our peer review *should* be doing this … but is it?"



base: recently published respondents

FIGURE 11. Comparison of community survey responses to the questions *"Indicate the extent to which you agree that peer review should meet the following objectives"* vs *"Indicate the extent to which you agree that peer review is effective at meeting the following objectives."*

DO REVIEWER REQUESTS THAT LEAD TO ADDITIONAL EXPERIMENTS ADD VALUE TO THE SCIENCE?

According to our community survey, a majority (59%) of recently published respondents did think that peer review improves the science of papers by supporting conclusions through additional data. This is only slightly less than the agreement among researchers that science improves through better communication (e.g., major points are clearer, data presentation is improved, and papers receive correction for overstatement or exaggeration—see Figure 6 for data points).

However, in interviews, we heard major complaints about reviewers requesting additional experiments that are impractical to perform (especially in clinical research) or that the author felt would be out of scope. And a number of respondents to the survey provided open-ended feedback expressing dissatisfaction with inappropriate requests for additional experiments. What can we conclude from this mismatch? First, it is not a problem on its own for a reviewer to request better support for a scientific finding through additional data. Again, this is one way that respondents thought peer review might improve a paper. However, researchers receiving requests for additional data (via new experiments) reacted sharply when they suspected foul play—that the request was due to bias, or an unskilled reviewer, or an attempt to "scoop." The open-ended comments were rife with such concerns. Though anecdotal, and therefore taken with the proverbial grain of salt, this category of request often appeared to be linked in respondents' minds to other issues of research integrity.

> *My biggest concern / criticism is when we get asked to do a whole raft of additional experiments, the outcomes of which do not change the take home message of the paper. This can take a tremendous amount of time and money and jeopardize momentum / unity of the group and chances of getting future funding. Very dangerous for reviewers to do this."*

This suggests a strong role for editorial oversight of any requests for more experiments, to minimize actual or perception of bias and ensure reviewers are performing their role with competence and fairness.

ARE THERE BEST PRACTICES WITH REGARD TO EDITORIAL MODERATION OF REVIEWERS?

Despite the general positivity around peer review we found in the survey, we continue to return to certain opportunities to improve its day-to-day implementation. Feedback from this

community confirms that peer review is valued, but not perfect. We think back to the question of whether peer review needs an overhaul, the response to which was surprisingly mixed.

Many of the opportunities we found trace back to the same root: editorial management. Among the community we surveyed, key pain points were (Figure 12):

- Reviews that take too long (40% experienced this "always" or "very often")
- Micro-reviews that focus on unimportant details (31% experienced this "always" or "very often")
- Overly harsh reviews that do not improve the quality of the paper (28% experienced this "always" or "very often")

"HOW OFTEN HAVE YOU EXPERIENCED THE FOLLOWING IN PEER REVIEW?"

	always + very often	rarely + never
Overly harsh review that does not improve the paper	28%	26%
Reviewer bias related to me personally or the research area in which I focus	21%	43%
Constructive feedback that improves the paper significantly	50%	8%
Review that takes too long	40%	14%
"Micro-review" that focuses on unimportant details in my paper	31%	23%
One or two reviewers on a given paper adding value, even if other reviewers do not	56%	5%

base: recently published respondents

FIGURE 12. Community survey responses to the question *"How often have you experienced the following in peer review?"*

Survey respondents also provided direction about what they considered the best mitigation strategies for these pain points. For example, they displayed strong general agreement with statements such as:

- Peer review should focus on improving a paper, not finding every fault (72% agreed)
- Editors should be explicit about which reviewer comments to address (80% agreed)
- It is worth waiting an extra month or so for a relevant and thorough review (62% agreed)

Many respondents were compelled to include open-ended comments about bias in its myriad forms, from gender based, to institution based, to interpersonal. Though only 21% of survey respondents felt that editorial bias was a problem, the fact that so many felt compelled to comment about bias unprompted suggests a strength of opinion that might deserve more attention than its frequency in the survey suggests

"Some peer reviews are more biased than others, as is human nature. I would like to see editors be more direct in what aspects of a review should be followed or not, and be prepared to overrule a reviewer."

One strategy to address all of the above issues might be for editors to wield greater oversight and enforce good behavior from individual reviewers. In the open-ended survey responses, respondents asked for editors to "take a more proactive role" and to "be more direct in what aspects of a review should be followed or not, and [to] be prepared to overrule a reviewer." Given the strong agreement among respondents about these best practices, they may be worth incorporating into the performance expectations for both reviewers and editorial teams.

HOW DOES JOURNAL BRAND AS A SIGNAL OF IMPACT AND CURATION FACTOR INTO PERCEPTIONS OF THE VALUE OF PEER REVIEW?

Previous studies have quantified a certain amount of trust in journals that perform peer review. Studies have shown that researchers consider it important to know whether a publication is peer-reviewed, and they tend to agree that peer-reviewed journals are the most trustworthy information source.[6]

[6] Trust and Authority in Scholarly Communications in the Light of the Digital Transition: Final Report. University of Tennessee and CIBER Research Ltd. December 2013. (http://ciber-research.eu/download/20140115-Trust_Final_Report.pdf). Articles resulting from this research include:

- Watkinson A, Nicholas D, Thornley C, et al (2016). Changes in the digital scholarly environment and issues of trust: an exploratory, qualitative analysis. Information Processing & Management 52:446–458. (https://www.sciencedirect.com/science/article/abs/pii/S0306457315001223)
- Nicholas D, Watkinson A, Jamali HR, et al (2015). Peer review: still king in the digital age. Learned Publishing 28:15–21. (https://onlinelibrary.wiley.com/doi/epdf/10.1087/20150104)
- Tenopir C, Levine K, Allard S, et al (2016). Trustworthiness and authority of scholarly information in a digital age: results of an international questionnaire. Journal of the Association for Information Science and Technology 67:2344–2361. (https://onlinelibrary.wiley.com/doi/abs/10.1002/asi.23598)
- Jamali HR, Nicholas D, Watkinson A, et al (2014). How scholars implement trust in their reading, citing and publishing activities: geographical differences. Library & Information Science Research 36:192–202. (https://www.sciencedirect.com/science/article/abs/pii/S0740818814000528)

Interviewees we spoke to suggested that higher-impact journals are more closely tied to a perception of trust in the research they publish—the assumption among this group was that such journals have high standards of review, and reviewers for such journals have high levels of expertise. In the words of one interviewee: "Better journals have better science." There was less trust in papers published in lower-impact journals. Several people also told us they have little trust in papers published in journals with "sound science" type review, in particular large open access journals. Among community survey respondents, 67% agreed that they can have confidence about the scientific rigor of published papers because of peer review (see Figure 4).

Future Directions

The results of this research into the value of peer review show that peer review serves a critical function for the hematology community, but suggest opportunities to better serve that community and by extrapolation other scientific and medical communities. A few potential actions based on the research findings follow.

- **Improve review turnaround.** A primary complaint about peer review is when reviews take too long. Journals would be prudent to benchmark review speed metrics against competitors, and take necessary steps to ensure timely review turnarounds. Publishers might also explore ways to recognize reviewers for high-quality, timely reviews.
- **Consider the importance of anonymity.** Given the support for the additional anonymity of double-blind peer review, it may be worth exploring this option with authors and reviewers. This step, of course, has to be weighed against the added complexity it creates, particularly for the Editorial Office. A small pilot might be the way to explore this approach and study its effects before committing further. There is also evidence that innovations that remove anonymity from the process should be approached with care (especially those that reveal the reviewer identity to the author).
- **Increase editorial oversight.** Editors should be encouraged to highlight which reviewer comments should be addressed in revising the paper versus which are not crucial. An editor might, for example, provide a note to the author providing guidance in navigating reviewer comments. The data also suggest an increased role for editors to "peer review" reviews and tone down harsh language. Greater oversight from editors also discourages biased treatment and other bad behavior that damages the journal's reputation.
- **Remove bias.** All journals should take steps to reduce both actual and perceived bias among editors and peer reviewers. One mitigation strategy against systemic bias could

be careful and transparent selection of editorial boards and reviewers to ensure no one group inappropriately dominates the field.

- **Consider collaboration in review.** Collaborative review (where reviewers and editor collaborate on the review before it goes to the author) showed strong support in our survey. This methodology would help to address many of the concerns about peer review including bias, harsh language, and excessive focus on minor details. It would also help to highlight which review comments should be taken seriously by the author. Researchers have experience with such collaborative review in the grant approval process, where it is used to help achieve consensus. Collaborative review is not without concern, however. Careful management is needed to make sure that it would not add to total time in review. Some respondents also voiced concern that more senior (or just "louder") voices have potential to overshadow the other reviewers, leading to less balance in the review delivered to the author.
- **Educate about the review process.** Journals might consider using the results of this research to communicate to their own communities about 1) the value of peer review and why the process sometimes takes so long, and 2) how to write an effective review that is not overly harsh or focused on minutiae and yet contains valuable critique. Various communications vehicles could carry these messages, such as published editorials, video or audio messages from the editor-in-chief, and bulletins to reviewers. There are now numerous resources that provide training around effective peer review techniques, which may help to increase the overall quality of reviews.
- **Survey the community.** Journals might consider creating an automated survey released to authors 2–3 days after they receive an initial decision on their article (or at some point soon after acceptance or rejection), asking them to rate the review process. The results of this author survey could be visible to the Editorial Office and the editor-in-chief, who can then quickly target the situations that generate the most frustration. This is also a way to gauge whether any new peer review initiatives are having the intended effect.

About the American Society of Hematology

The American Society of Hematology (www.hematology.org) is the world's largest professional society serving both clinicians and scientists around the world who are working to conquer blood diseases. The Society's mission is to further the understanding, diagnosis, treatment, and prevention of disorders affecting the blood, bone marrow, and the immunologic, hemostatic and vascular systems, by promoting research, clinical care, education, training, and advocacy in hematology.

ASH publishes *Blood,* the most-cited peer-reviewed publication in the field, and *Blood Advances,* a peer-reviewed, online-only, open access journal.

About Clarke & Esposito

Founded in 2018 from the merger of Clarke & Company and Processed Media, Clarke & Esposito (www.ce-strategy.com) is a management consulting firm concentrating on strategic consulting services related to professional and academic publishing and information services. Clients turn to Clarke & Esposito for assistance with the development of new information products and services, the development of business strategies to increase growth, review and assessment of existing operations, evaluation of strategic partners, and to gain a better understanding of and engagement with their customers and other stakeholders. The firm works with professional associations and societies, universities and university presses, libraries, software companies, and other organizations that create, curate, or disseminate professional and scholarly information.

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Readex Research (www.readexresearch.com) is a nationally recognized independent research company. Its roots are in survey research for the magazine publishing industry, but specialization in conducting high-quality survey research (by mail and/or the Internet) has brought clients from many other markets, including associations, corporate marketers and communicators, and government agencies. Since its founding in 1947, Readex has completed thousands of surveys for a lengthy and diverse list of clients. As a full-service survey research supplier, Readex provides in-house processing of all phases of each project (traditional mailing, broadcast emailing, and data processing) to ensure complete control over project quality and schedule. Analytical capabilities include a range of multivariate statistics and modeling techniques, in addition to the more traditional stub-and-banner tabulations.