Valuing Preprints Must be Part of Responsible Research Assessment

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Comments on papers by Schönbrodt et al. (2022) and Gärtner et al. (2022) proposing reforms to the research assessment process. Given the prominent role of preprints in contemporary scientific practice, they must be an accepted and central component of research assessment.

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Our methods for assessing research quality in the context of hiring and promotion are clearly outdated and ill-informed. The pair of papers by Schönbrodt et al. (2022) and Gärtner et al. (2022) provide a major service by sketching out how an alternative approach might look. Although their focus is on psychology, their general perspective and specific recommendations are relevant to any scientific discipline.

The authors are admirably clear that they are not intending to advance a rigid system, but rather are sketching a general approach and providing a flexible, modifiable template for how to put it into practice. Previously, I have raised concerns about assessment practices that can adversely impact those who work with marginalized populations (Syed, 2017, see also Klimstra, 2022; Zárate et al., 2017) or primarily engage in qualitative and/or descriptive research (McLean and Syed, 2022, see also Adler, 2022; Dunlop, 2022). Those concerns still stand with the current proposals, but I am not here to rehash old qualms.

Rather, this commentary focuses on the authors' rejection of preprints as admissible products in the research assessment process. From Appendix B (p. 20) of Gärtner et al. (2022):

> Please select the three best of your own empirical, first-authored papers published within the last five years, and rate these papers according to the quality criteria listed in the table. Articles in press may be listed, but preprints or articles that have not yet been peer-reviewed may not.

Preprints are a category of research product that can take at least three forms (Moshontz et al., 2021): working papers that are either under review at a journal or have not yet been submitted, archival papers that will likely never appear in a journal, and green open access versions of published journal articles or book chapters (most accurately referred to as post-prints). One of the most remarkable changes in science communication and dissemination over the past 10 years has been the increased reliance on preprints, which became highly visible during the COVID-19 pandemic (Abdill & Blekhman, 2019; Fraser & Kramer, 2020, Figure 1).

Publication outlets such as eLife, Peer Community In, and Meta-Psychology all rely on preprints as the mode of submission and review. Although the growth has been most dramatic in biological and medical sciences, psychology has seen a steady rise, and we are starting to get to the point of developing a strong "preprint culture" within the discipline (Moshontz et al., 2021). There is no reason or evidence to suggest that this trend will do anything but continue. Preprints are now firmly part of our disciplinary practice, and any reforms to our assessment process that do not build in a role for preprints will be outdated at the time of implementation.
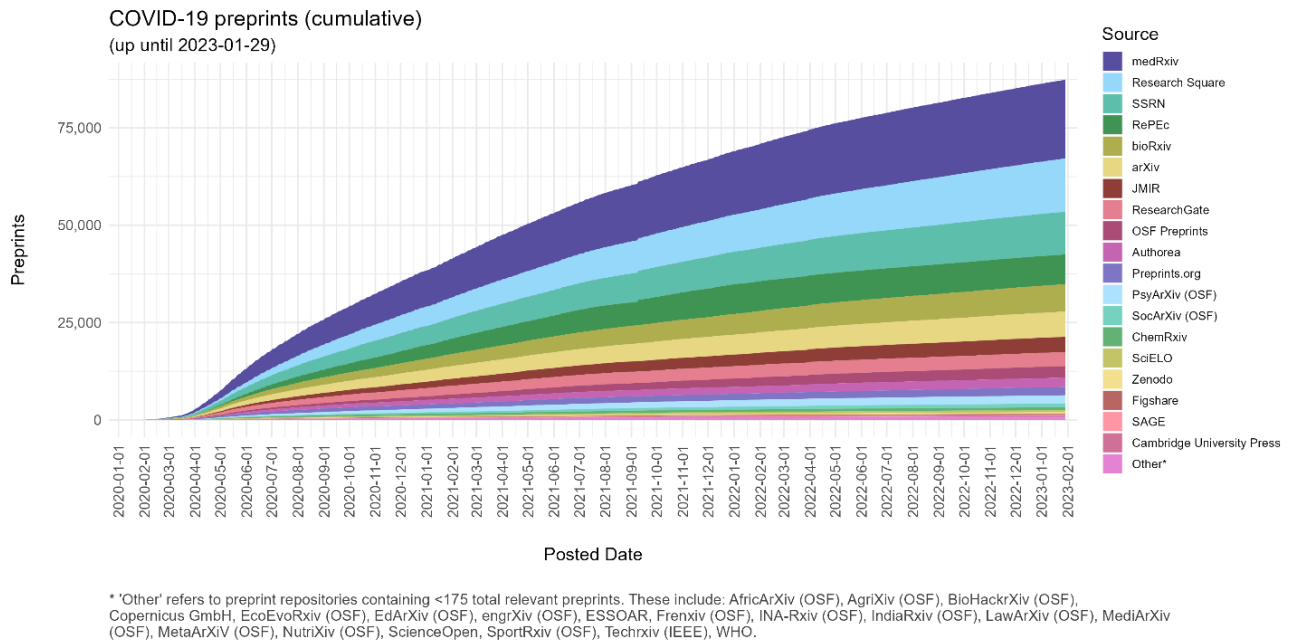
Arguments Against Using Preprints for Research Assessment

The fact that I have created an entire section header for arguments against using preprints suggests that there are many, when in fact there is only one: that the paper has not been published in a journal. Preprints are complete[1] written reports of empirical findings, theoretical arguments, methodological developments, commentaries, and so on. The only difference between preprints and articles published in journals is that the latter have been evaluated and approved by a minimum of one other person to appear in the pages of a publica-

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[1]How "complete" posted preprints are might vary across different preprint servers. Some servers are heavily moderated, some are lightly moderated, and for some, nearly any document can be posted.

Figure 1

Cumulative preprints related to COVID-19 across numerous servers. Reprinted from Fraser and Kramer (2020).

* 'Other' refers to preprint repositories containing <175 total relevant preprints. These include: AfricArXiv (OSF), AgriXiv (OSF), BioHackrXiv (OSF), Copernicus GmbH, EcoEvoRxiv (OSF), EdArXiv (OSF), engrXiv (OSF), ESSOAR, Frenxiv (OSF), INA-Rxiv (OSF), IndiaRxiv (OSF), LawArXiv (OSF), MediArXiv (OSF), MetaArXiV (OSF), NutriXiv (OSF), ScienceOpen, SportRxiv (OSF), Techrxiv (IEEE), WHO.

tion[2]. The rejection of preprints as legitimate scholarly products is an implicit endorsement of the peer review process as a quality-control gatekeeping function. This confidence is clearly misplaced, given the high levels of dreck that we know appears in the published literature (Rohrer et al., 2021; Scheel, 2022). Moreover, with more and more journals including detailed review histories alongside published articles, we can now see that some papers get an incredibly light touch from reviewers, whereas others are subject to extensive comments. Because preprints are openly available for anyone to comment on, it is entirely plausible that a given preprint has been subject to a broader audience and more substantive feedback than a journal article.

There is also the question of just how much peer review adds to the publication process. Having dealt with thousands of papers as an author, reviewer, and editor, there is no question that the published papers are almost always an improvement over the submitted version. It has been incredibly rare, however, for the peer review process to have caught major errors or to have totally invalidated the findings. A formal analysis bears this out: a comparison of preprints to their eventually published versions indicated very low levels of substantive changes in the core conclusions of the studies (Brierley et al., 2022). It seems that peer review often leads to an aesthetic improvement of an article,

but seldom affects the science itself.

This section was intended to focus on arguments against using preprints for research assessment, but has taken a turn in the opposite direction. This is for the simple fact that there is no well-justified reason to be against considering preprints. Some may point to the utility of the journal impact factor for research assessment, but this is a deeply flawed metric that should be dispensed without delay (Syed, 2023). This sole dissenting argument crumbles rapidly upon close examination. Any objections reveal misplaced confidence in the peer review process or further expose the limits of said system.

Additional Arguments in Support of Using Preprints for Research Assessment

There are additional reasons why preprints should be considered as part of the research assessment process that go beyond peer review as a questionable arbiter of quality. There is a good deal of chatter about the "crisis of peer review," with journals struggling to find reviewers for submissions, thereby leaving authors waiting for

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[2]At some journals, submitted commentaries are reviewed only by the editor and are not sent for peer review, yet they still enjoy "published" status as though they had been peer reviewed.

months on end (Dance, 2023). This has long been a problem that seems to have only become worse. Given the severe lags in the publication process, preprints are an efficient way to disseminate research. In the context of hiring and promotion, evaluators should have access to the most recent work to get a firm sense of the candidate's trajectory. Better integrating preprints into the hiring and promotion process also helps address the perennial question of whether to list papers that are "under review" and "in preparation" on one's CV. If there is a preprint available, include it, with a clear label of its status and a link for access. If candidates are skittish about making the preprint public, they can always upload it to an OSF project and then include a "view-only" link so that only those with the link can access the paper.

The artificial scarcity maintained by major journals in the field are another reason to support preprints. The review process at these journals may determine that there is nothing technically wrong with a paper, but it is nevertheless rejected because it does not meet some vague notion of making a "significant theoretical contribution" or because the journal has "limited available space." Unbelievably, some journals maintain the "limited space" position even as they are published only electronically. Similarly, in the context of publication bias, it can be difficult to publish work that runs against prevailing views, even if the paper is technically sound. Both are examples of papers that could be posted to a preprint server, with details on the review history—they were, after all, peer-reviewed but only denied publication because of a dysfunctional prestige-based journal system.

More generally, developing a strong preprint culture encourages authors to disseminate all of their research findings, not only those that either they or a journal perceives to be publishable. Such a change is needed to combat publication bias and develop a more realistic understanding of the evidence base. This would seem a position that Schönbrodt et al. (2022) and Gärtner et al. (2022) would support, given the strong open science orientation to their research assessment criteria.

Conclusion

If we are going to revise our system of research evaluation—and we absolutely need to—then we must do so with full consideration of the present and future practice of our science. This includes valuing preprints as part of the evaluation process. Doing so requires a culture change, which is slowly coming about in psychology. This change could be hastened through behaviors from both candidates and evaluators. Candidates should routinely include links to preprint versions of any articles that are listed as "under review" or "in preparation" on their CVs, or could do away with those categories completely and have a single "preprints" category. Evaluators should make clear in job ads and evaluation materials that preprints will be given full consideration. The practice of our science has changed, and it is well past time our assessment process changes along with it.

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Open Science Practices

This article is a commentary and not eligible for any Open Science badges. The entire editorial process, including the open reviews, is published in the online supplement.

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