

VIEWPOINT

# Call to update standards for publishing autism research

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In both basic and clinical research on autism, we must embrace new practices for releasing and communicating our data. Journals can lead the way by adopting standards that promote the open discussion of scientific results in three stages: before publication, during the publication process and after a paper comes out.

Releasing drafts of studies before they are published, or ‘preprints,’ is one method of ensuring that research gets adequate scrutiny from the community. Posting preprints is an excellent way to stimulate discussion about a study’s findings and sharpen papers prior to formal submission.

Physicists have a long history of posting preprints via the **repository called arXiv** and sending each other feedback via email before the manuscript is formally submitted to a journal. In 2013, Cold Spring Harbor Press in New York opened an equivalent site for biosciences, called **bioRxiv**. (I served on the executive group charged with its founding.) As of this week, however, fewer than 20 of the 2,500 **papers submitted to date come up in a search for ‘autism,’** and the vast majority of these focus on genetics.

Other specialized biology preprint sites exist, and many journal publishers now allow them. For about five years, Nature Publishing Group even experimented with their own repository, called **Nature Precedings**. To encourage scientists to publicly post manuscripts in progress, journal editors or publishers who refuse to publish papers **that have been posted as preprints** need to update their policies.

## Detailed disclosure:

Autism journals should also adopt the data-reporting standards that are widely accepted for clinical research. For example, as autism researcher **Michelle Dawson pointed out on Twitter**, almost 600 journals have endorsed the **Consolidated Standards of Reporting Trials (CONSORT)**

**Statement**, which is designed to promote the accurate and detailed reporting of clinical trial results. However, there are as yet no autism journals **on the list of endorsers**.

Some journals, such as the *Journal of Autism and Developmental Disorders*, make no mention of clinical trial reporting standards in their author instructions. Others, such as *Autism*, encourage researchers to use CONSORT guidelines. Not enough go as far as *JAMA Psychiatry*, which requires researchers to complete the CONSORT flowchart and checklist.

High-quality, evidence-based reports are crucial for combating pseudoscience in the field of autism. Requiring researchers to follow CONSORT guidelines when reporting clinical trial results is one way journals can contribute to higher standards. This move will also allow researchers to more accurately compare studies published in different journals.

Even after publication, journals should encourage continued discussions about the published work. Much of this currently unfolds on social media and other online forums. But some journals are experimenting here, too. For instance, *Molecular Systems Biology* offers **“Transparent Process,”** an extra feature that it applied to the 2015 paper, “Integrated systems analysis reveals a molecular network underlying autism spectrum disorders.”

## Review window:

Posted along with the paper is a **‘process file’** [pdf] containing all of the correspondence between editors, authors and reviewers. EMBO Press **says that 95 percent of EMBO Journal authors ask** to have this correspondence file published along with their paper, allowing everyone to see the timeline of correspondence and decisions. The process file is a valuable window into the review process, and autism journals could use it to combat pseudoscience.

In the case of the *Molecular Systems Biology* article, another debate unfolded in the comments on *Spectrum*, which published **a news piece on the study**, surrounding the availability of the software used. Authors should know that post-publication review can also happen in media coverage.

The National Institutes of Health have joined the online discussion movement, introducing their own post-publication peer review in the form of **PubMed Commons**. Anyone who has published in PubMed and then registered with the National Center for Biotechnology Information is now allowed to comment on papers posted in PubMed.

At last check, 91 papers that contain the term ‘autism’ have comments on them. Some of those comments **are from people with an apparent agenda**, others challenge questionable science, and all of them allow further discussion for those interested in the work.

One message we heard **loudly at the International Meeting for Autism Research in both 2014 and 2015** was that individuals with autism and their families want to be **partners in research**, not

'subjects' in studies. By adopting practices that promote scientific openness, communication and accountability, researchers and journal editors can strengthen this partnership.

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