Editorial

PAIN

Publishing the best basic and applied pain science: open science and *PAIN*

Francis J. Keefe, Jane Ballantyne, Fiona Blyth, Robert C. Coghill, Anthony Dickenson, Clermont E. Dionne, Christopher Eccleston, Nanna Brix Finnerup, Rohini Kuner, David A. Seminowicz, Kathleen Sluka

The mission of *PAIN* has long been to publish the best basic and applied research in the field of pain. Consistent with this mission, this editorial highlights several recent steps that *PAIN* is taking to ensure that it continues to attract and publish the highest quality research.

There is growing interest in ensuring the transparency of scientific research. There is also heightened recognition that journals, such as *PAIN*, can play an important role in fostering high-quality research that is conducted in ways that are open and reproducible.

1. Preregistration for clinical studies

The movement to adopt open science principles is gathering momentum. Central to open science is the importance of preregistration of all studies as a way to control for bias in analysis and reporting. *PAIN* has required preregistration of studies of clinical trials and systematic reviews for some time. The definition of a clinical trial, however, is evolving (see eg, the US National Institutes of Health [NIH]: https://grants.nih.gov/policy/clinical-trials/definition.htm). Studies that might not have been considered a clinical trial in the past, but now are. For example, basic science studies in which human participants are randomly assigned to an intervention (eg, drug, stimulation, or behavioral intervention) or a control condition to gain insight into mechanisms (eg, pain, physiological measures, self-reports of mood, or brain activation) have not always been considered clinical trials. Recent guidelines and case studies (see US NIH case studies: https://grants.nih.gov/policy/clinical-trials/case-studies.htm) make it clear that such studies, in fact, can meet with criteria for a clinical trial because they: (1) prospectively assign participants (through randomization) to an intervention, and (2) have the goal of modifying a biomedical, behavioral outcome, or other health outcome. *PAIN* supports the move towards registration of all studies. Currently, we are requiring that all clinical trials (broadly understood) are preregistered with an accessible protocol that is available to the editor and the peer reviewers. To provide authors with ongoing mechanistic studies time to accommodate these changing definitions, this requirement will be applied to all human studies initiated after July 1, 2018.

2. Improving the description of clinical interventions

Research reports of intervention studies are often hampered by word and space limitations of formatting guidelines leading to incomplete or highly abbreviated description of the intervention(s). Evaluating and replicating the results of intervention studies in the absence of important details such as the timing, dose, and ongoing quality control methods is difficult and sometimes impossible. Recognizing this problem, *PAIN* has decided to adopt a template for intervention description and replication (TIDieR; http://www.equator-network.org/reporting-guidelines/tidier/). The TIDieR template builds on and extends the CONSORT checklist currently required by *PAIN*. This template includes 12 items that specify: the intervention name, rationale, materials used, procedures used, who provided it, modes of delivery, where it was delivered, intervention schedule and doses, tailoring/personalization, modifications made over the study, and strategies to enhance treatment fidelity and adherence. *PAIN* will require all authors submitting clinical trials to complete the TIDieR checklist as part of the submission process and to include a link to the completed checklist in their article. Usage of other, field-specific reporting standards (such as COBIDAS for neuroimaging studies [http://www.humanbrainmapping.org/files/2016/COBIDASreport.pdf]) is strongly encouraged.

3. Data sharing

Data sharing is one of the most important ways of assessing and promoting reproducibility of scientific findings. There is growing interest in data sharing among both clinical and basic scientists and *PAIN* encourages authors to share both data and data-related code. For clinical trials, *PAIN* now requires as a condition of publication that all submissions include a data sharing statement. This is in line with the recommendations of the International Committee of Medical Journal Editors (Taichman et al. *Ann Intern Med* 2017;167:63–5. doi: 10.7326/M17-1028), which includes examples of data sharing statements and data sharing options. Applied pain researchers also should be aware that the International Committee of Medical Journal Editors (of which *PAIN* is a member) requires that all clinical trials that start enrolling participants as of January 2019 will need to include a data sharing plan in their trial registration. Although *PAIN* does not currently require a statement of data sharing for basic science studies, it strongly encourages basic scientists to engage in data sharing and sharing of data-related code.

4. Standards for basic science studies

PAIN has recently adopted a number of general guidelines to ensure the reliability and validity of data collected in basic science studies. The specific standards are outlined in the Information for Authors sections of our website (http://edmgr.ovid.com/pain/

Sponsorships or competing interests that may be relevant to content are disclosed at the end of this article.

PAIN 159 (2018) 405–406

http://dx.doi.org/10.1097/j.pain.0000000000001166

accounts/ifauth.htm). In brief, these standards require that all studies involving animals are approved by a local Animal Care Committee and are conducted in accordance with the guidelines of the corresponding country. If guidelines are not available in the country in which the research is conducted, it is recommended that authors follow the guidelines described by the US National Institutes of Health. Authors are encouraged to consult the Information to Authors section for more detailed guidelines regarding the following: (1) immunohistochemistry data and the use of other antibody techniques, (2) pharmacological studies, (3) behavioral studies, (4) genetic studies or usage of gene delivery tools, (5) animals, (6) drug formulation, (7) studies involving molecular profiling data, that is, "Omics," and (8) statistics.

5. *PAIN* is compliant with open access requirements of funding agencies

Readers of *PAIN* should be aware that we have open access publishing options available to authors whose funding sources require open access publication. *PAIN* is compliant with EU funding mandates under the Horizon 2020 framework and funding mandates from the U.S. National Institutes of Health, Research Councils United Kingdom, Howard Hughes Medical Institute, Horizon 2020, the Canadian Institutes of Health Research and the Wellcome Trust, as well as many others. *PAIN* has 2 open access options: (1) Hybrid/Gold Open Access—available to authors who choose to pay the article processing fee (article becomes freely available immediately on publication), and (2) Green Open Access—available at no charge to authors (allows the author to deposit the final accepted, peer-reviewed manuscript to a repository of the author's choosing after the 6-month embargo period, ie, 6 months after the publication date). Before self-depositing, the author is responsible for reviewing the acceptable repositories per his/her funder's guidelines. If the author needs the final accepted peer-reviewed version for depositing, it can be requested from the Editorial Office at painj@iasp-pain.org.

Taken together, the steps outlined above underscore *PAIN*'s commitment to the transparency and reproducibility of pain research. As the field of open science evolves we anticipate that we will continue to take steps to ensure that *PAIN* remains at the forefront of efforts to improve the quality of pain research.

Conflict of interest statement

The authors have no conflict of interest to declare.

Supplemental video content

Video content associated with this editorial is available at http://links.lww.com/PAIN/A538.