

Guidelines for reviewers

Registered Reports are a form of empirical article in which the methods and proposed analyses are pre-registered and reviewed prior to research being conducted. This format of article seeks to neutralize a variety of inappropriate research practices, including inadequate statistical power, selective reporting of results, undisclosed analytic flexibility, and publication bias (Chambers, 2013).

General reviewer guidelines can be found here:

<http://www.elsevier.com/reviewers/reviewer-guidelines>

The review process for *Registered Reports* is divided into two stages. In Stage 1, reviewers assess study proposals **before** data are collected. In Stage 2, reviewers consider the full study, including results and interpretation.

Stage 1 manuscripts will include only an Introduction, Methods (including proposed analyses), and Pilot Data (where applicable). In considering papers at Stage 1, reviewers will be asked to assess:

- The significance of the research question(s).
- The logic, rationale, and plausibility of the proposed hypotheses.
- The soundness and feasibility of the methodology and analysis plan (including statistical power analysis).
- Whether the clarity and degree of methodological detail would be sufficient to replicate exactly the proposed experimental procedures and analyses.
- Whether the authors provide a sufficiently clear and detailed description of the methods to prevent undisclosed flexibility in the experimental procedures or analysis plan.
- Whether the authors have considered sufficient outcome-neutral conditions (e.g., absence of floor or ceiling effects, positive controls) for ensuring that the results obtained are able to test the stated hypotheses.

Following Stage 1 peer review, authors will be offered the opportunity to revise and resubmit the report, the report will be accepted, or it will be rejected outright. Manuscripts that pass peer review will be issued an *in principle acceptance* (IPA), indicating that the article will be published pending successful completion of the study according to the exact methods and analytic procedures outlined, as well as a defensible and evidence-bound interpretation of the results. Following completion of the study, authors will complete the manuscript, including Results and Discussion sections. These Stage 2 manuscripts will more closely resemble a regular article format. The manuscript will then be returned to the reviewers, who will be asked to appraise:

- Whether the data are able to test the authors' proposed hypotheses by passing the approved outcome-neutral criteria (such as absence of floor and ceiling effects).
- Whether the introduction, rationale and stated hypotheses are the same as the

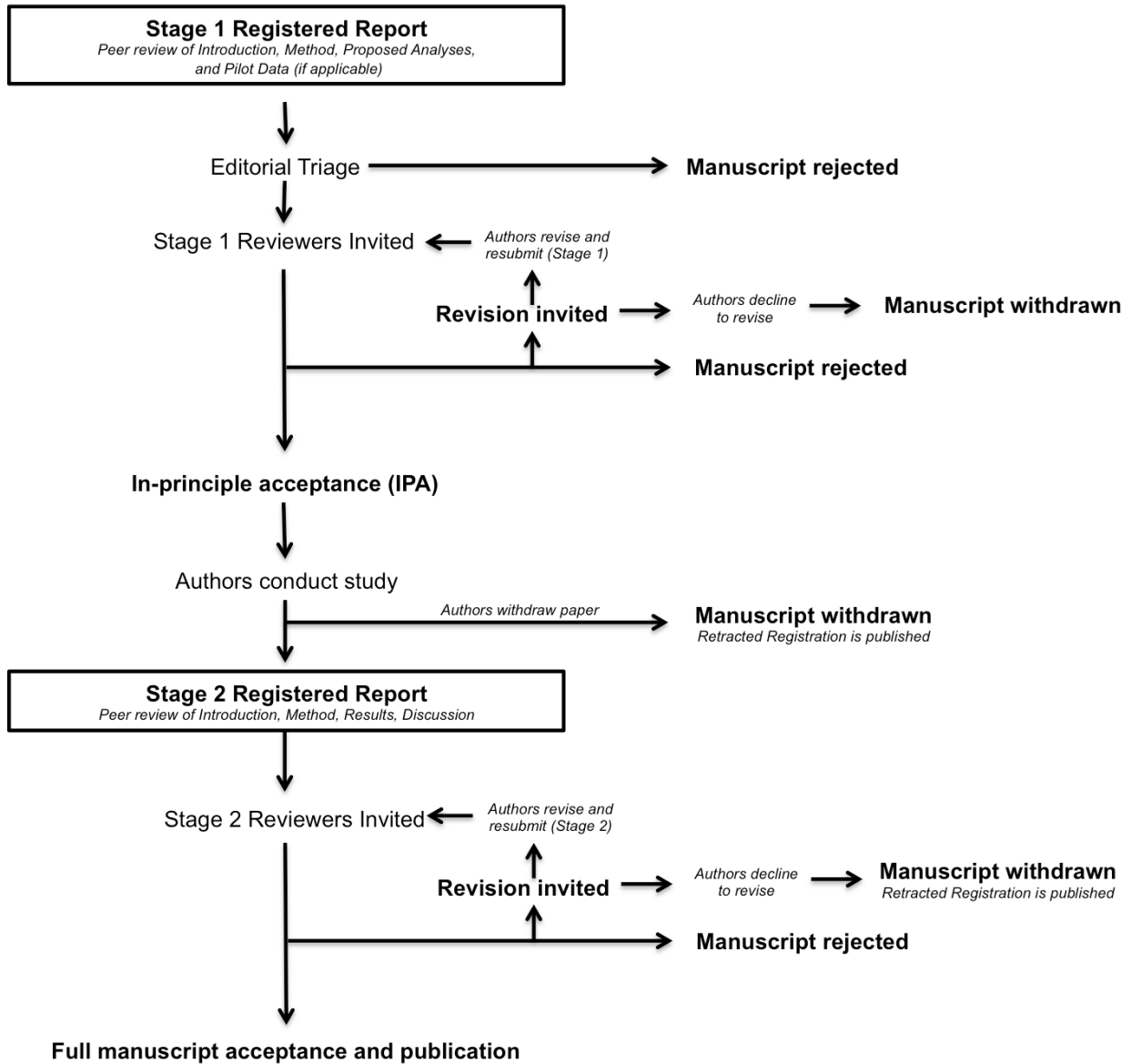
- approved Stage 1 submission (required).
- Whether the authors adhered precisely to the registered experimental procedures.
 - Whether any unregistered *post hoc* analyses added by the authors are justified, methodologically sound, and informative.
 - Whether the authors' conclusions are justified given the data. Please note that editorial decisions will *not* be based on the perceived importance, novelty, or clarity of the results.

Guidelines for authors

Registered Reports are a form of empirical article in which the methods and proposed analyses are pre-registered and reviewed prior to research being conducted. The cornerstone of this article format is that a significant part of the manuscript will be assessed prior to data collection. Initial submissions will include a description of the key research question and background literature, hypotheses, experimental procedures, analysis plan, a statistical power analysis (or Bayesian equivalent), and pilot data (where applicable).

Initial submissions will be triaged by an editorial team for scientific significance. Those that pass triage will then be sent for in-depth peer review (Stage 1). Following review (and possibly revision), the article will then be either rejected or accepted in principle for publication. Following *in principle acceptance* (IPA), the authors will then proceed to conduct the study, adhering exactly to the peer-reviewed procedures. When the study is complete the authors will submit their finalised manuscript for re-review (Stage 2). Pending quality checks and a sensible interpretation of the findings, the manuscript will be published regardless of the results.

The review process for *Registered Reports*



Stage 1: Initial manuscript submission and review

Due to the high volume of submissions, the editorial office will select only the most scientifically promising manuscripts for in-depth peer review. Stage 1 submissions should include the manuscript (details below) and a brief cover letter. Authors are welcome to submit presubmission enquires for advice on the likely suitability of a study as a *Registered Report*. However, please note that the Editor-in-Chief and Associate Editors will not agree to send a Stage 1 manuscript for peer review until a complete Stage 1 submission has been considered by the editorial office.

The cover letter should include:

- A brief scientific case for consideration. Authors are encouraged to refer to the likely *replication value* of the research (Nosek et al., 2012). High-value replication studies are welcome and will be treated with equal priority to novel studies.
- A statement confirming that all necessary support (e.g., funding, facilities) and approvals (e.g., ethics) are in place for the proposed research. Note that manuscripts will be considered only for studies that are able to commence immediately.
- An anticipated timeline for completing the study if the initial submission is accepted.
- A statement confirming that the authors agree to share the study's data for all published results (i.e., consistent with guidelines for data sharing plans such as the National Institutes of Health Resource Sharing Plans requirement, or the Medical Research Council Policy on Research Data-Sharing).
- A statement confirming that if the authors later retract their paper, they agree to the Journal publishing a short summary of the pre-registered study under a section *Retracted Registrations*.
- Recommended reviewers for the paper (including email addresses).

Manuscript preparation guidelines – Stage 1:

For general guidelines for manuscript preparation see:

<http://www.elsevier.com/journals/drug-and-alcohol-dependence/0376-8716/guide-for-authors>

Initial Stage 1 submissions should include the following sections:

Introduction

A review of the relevant literature that motivates the research question and a full description of the experimental aims and hypotheses. Please note that following IPA, the Introduction section cannot be altered (see below).

Methods

Full description of proposed sample characteristics, including criteria for subject inclusion and exclusion, and detailed description of procedures for defining outliers. Procedures for objectively defining exclusion criteria due to technical errors (e.g., defining what counts as 'excessive' head movement during fMRI) or for any other reasons must be documented, including details of how and under what conditions subjects would be replaced.

A description of experimental procedures in sufficient detail to allow another researcher to repeat the methodology exactly, without requiring further information. These procedures must be adhered to exactly in the subsequent experiments or any Stage 2 manuscript will be summarily rejected. Please note that reviewers at Stage 1 will be asked to specifically consider whether the stated experimental procedures contain sufficient detail to prevent undisclosed procedural flexibility.

Proposed analysis plan, including all preprocessing steps, and a precise description of all planned analyses, including appropriate correction for multiple comparisons. Any covariates or regressors must be stated. Consistent with the guidelines of Simmons et al. (2011), proposed analyses involving covariates must be reported with and without the covariate(s) included. Neuroimaging studies must document in advance, and in precise detail, the complete analysis plan from raw data onwards. Where analysis decisions are contingent on the outcome of prior analyses, these contingencies must be specified and adhered to. Only pre-planned analyses can be reported in the main Results section of Stage 2 submissions. However, unplanned *post hoc* analyses will be admissible in a separate section of the Results (see below).

Studies must include a statistical power analysis. Estimated effect sizes should be justified with reference to the existing literature. To account for existing publication bias, which leads to overestimation of true effect sizes (Hedges and Vevea, 1996; Lane and Dunlap, 1978), power analysis must be based on the *lowest* available or meaningful estimate of the effect size. The *a priori* power ($1 - \beta$) must be 0.9 or higher for all proposed statistical tests. In the case of highly uncertain effect sizes, a variable sample size and interim data analysis will be permissible but with inspection points stated in advance, appropriate Type I error correction for interim analysis employed (Stroob, 2006), and a final stopping rule for data collection outlined.

Full descriptions must be provided of any outcome-neutral criteria that are required for successful testing of the stated hypotheses. Such 'reality checks' might include the absence of floor or ceiling effects, or positive controls. Please note that reviewers will be asked to judge whether the manuscript includes sufficient specification of reality checks.

Timeline for completion of the study and proposed resubmission date if registration review is successful. Extensions to this deadline can be negotiated with the editorial office.

Pilot Data (optional)

Pilot data can be included to establish reality checks, effect size estimations, feasibility, or proof of principle. Any pilot experiments will be published with the final version of the manuscript and will be clearly distinguished from data obtained for the main experiment(s).

Stage 1 Decision

Stage 1 submissions that are judged by the Editor-in-Chief and Associate Editors to be of sufficient quality and scientific significance will be sent for peer review. In considering papers at the registration stage, reviewers will be asked to assess:

- The significance of the research question(s).
- The logic, rationale, and plausibility of the proposed hypotheses.
- The soundness and feasibility of the methodology and analysis pipeline (including statistical power analysis).
- Whether the clarity and degree of methodological detail would be sufficient to replicate exactly the proposed experimental procedures and analysis pipeline.
- Whether the authors provide a sufficiently clear and detailed description of the methods to prevent undisclosed flexibility in the experimental procedures or analysis pipeline.
- Whether the authors have considered sufficient outcome-neutral conditions (e.g., absence of floor or ceiling effects; positive controls) for ensuring that the results obtained are able to test the stated hypotheses.

Following Stage 1 peer review, manuscripts will be rejected outright, offered the opportunity to revise, or accepted. Manuscripts that pass peer review will be issued an *in principle acceptance* (IPA), indicating that the article will be published pending successful completion of the study according to the exact methods and analytic procedures outlined, as well as a defensible and evidence-bound interpretation of the results.

Please note that any deviation from the stated experimental procedures, regardless of how minor it may seem to the authors, will lead to summary rejection of the manuscript. If the authors wish to alter the experimental procedures following IPA but still wish to publish their article as a *Registered Report* then the manuscript must be withdrawn and resubmitted as a new Stage 1 submission.

Stage 2: Full manuscript submission and review

Once the study is complete, authors prepare and resubmit their manuscript for full review. The authors must collectively certify in the resubmission Cover Letter that all non-pilot data was collected after the date of IPA.

After completion of the study and final acceptance of the Registered Report, data must be made [freely available to others consistent with data sharing plan requirements, as noted above](#). A statement regarding these plans should be included in the cover letter

with the submission, and a description of the plan can be included in the manuscript (e.g., as Supplementary Material).

Manuscript preparation guidelines – Stage 2:

Background and Rationale

Please note that **the Introduction cannot be altered from the approved Stage 1 submission, and the stated hypotheses cannot be amended or appended.**

Depending on the timeframe of data collection, new relevant literature may have appeared between Stage 1 and Stage 2. Any such literature should be covered in the Discussion.

Results and Discussion

These will be similar to standard *Full Length Reports* but with added requirements. The outcome of all registered analyses must be reported in the manuscript, except in rare instances where a registered and approved analysis is subsequently shown to be logically flawed or unfounded. In such cases, the authors, reviewers, and editor must agree that a collective error of judgment was made and that the analysis is inappropriate. In such cases the analysis would still be mentioned in the Methods but omitted with justification from the Results.

It is reasonable that authors may wish to include additional analyses that were not included in the registered submission. For instance, a new analytic approach might become available between IPA and full review, or a particularly interesting and unexpected finding may emerge. Such analyses are admissible but must be clearly justified in the text, appropriately caveated, and reported in a separate section of the Results titled “*Post hoc analyses*”. Authors must be careful not to base their conclusions entirely on the outcome of statistically significant *post hoc* analyses.

Authors will be required to report exact p values and effect sizes for all inferential tests.

The resubmission will ideally be considered by the same reviewers as in the *registration* stage, but could also be assessed by fresh reviewers. In considering papers at Stage 2, reviewers will be asked to decide:

- Whether the data are able to test the authors’ proposed hypotheses by passing the approved outcome-neutral criteria (such as absence of floor and ceiling effects).
- Whether the Introduction, rationale and stated hypotheses are the same as the approved Stage 1 submission (required).
- Whether the authors adhered precisely to the registered experimental procedures.
- Whether any unregistered *post hoc* analyses added by the authors are justified, methodologically sound, and informative.
- Whether the authors’ conclusions are justified given the data. **Crucially, reviewers will be informed that editorial decisions will not be based on the perceived**

importance, novelty or clarity of the results. Thus while reviewers are free to enter such comments on the record, they will not influence editorial decisions.

- Manuscript withdrawal and *Retracted Registrations*. It is possible that authors with IPA may wish to withdraw their manuscripts following or during data collection. Possible reasons could include technical error or an inability to complete the study due to other unforeseen circumstances. In all such cases, manuscripts can of course be withdrawn. However, the journal will publicly record each case in a section called *Retracted Registrations*. This section will include the authors, proposed title, the abstract from the approved Stage 1 submission, and brief reason(s) for the failure to complete the study. Partial retractions are not possible. That is, authors cannot publish part of a registered study by selectively retracting one of the planned experiments. Such cases must lead to retraction of the entire paper.
- Incremental Registrations. Authors have the option to add experiments to approved submissions. In such cases the approved manuscript will be considered accepted for publication, and authors will be able to propose additional experiments for Stage 1 consideration. Where these experiments would extend the approved submission (as opposed to being part of new submissions), the editorial team will seek to fast-track the review process. This option may be particularly appropriate where an initial experiment reveals a major serendipitous finding that warrants follow-up within the same paper. In cases where an incremented submission is rejected (at either Stage 1 or 2), authors will retain the option of publishing the most recently approved version of the manuscript. For further advice on specific scenarios for incremental registration, authors are invited to contact the Editor-in-Chief and Associate Editors (DAD@jhmi.edu).

References

Chambers CD. Registered Reports: a new publishing initiative at Cortex. *Cortex*, 49(3): 609–610, 2013.

Dienes Z. Bayesian Versus Orthodox Statistics: Which Side Are You On? *Perspectives on Psychology Science*, 6(3): 274–290, 2011.

Hedges LV & Vevea, JL. Estimating effect size under publication bias: Small sample properties and robustness of a random effects selection model. *Journal of Educational and Behavioral Statistics*, 21(4): 299–332, 1996.

Lane DM & Dunlap WP. Estimating effect size: Bias resulting from the significance criterion in editorial decisions. *British Journal of Mathematical and Statistical Psychology*, 31(2): 107–112, 1978.

Nosek BA, Spies JR, & Motyl M. Scientific utopia: II. Restructuring incentives and practices to promote truth over publishability. *Perspectives on Psychological Science*, 7(6): 615–631, 2012.

Rouder J, Speckman PL, Sun D, Morey RD (2009). Bayesian t tests for accepting and rejecting the null hypothesis. *Psychonomic Bulletin & Review*, 16(2): 225–237, 2009.

Simmons JP, Nelson LD, and Simonsohn U. False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science*, 22(11): 1359–1366, 2011.

Strube MJ. SNOOP: A program for demonstrating the consequences of premature and repeated null hypothesis testing. *Behavior Research Methods*, 38(1): 24–27, 2006.
Software available from <http://www.artsci.wustl.edu/~socpsy/Snoop.7z>