

## **Guidelines for authors**

Registered Reports are a new form of empirical article in which the methods and proposed analyses are pre-registered and reviewed prior to research being conducted. This format is designed to minimize bias in deductive science, while also allowing complete flexibility to conduct exploratory (unregistered) analyses and report serendipitous findings.

The cornerstone of the Registered Reports format is that a significant part of the manuscript will be assessed prior to data collection, with the highest quality submissions accepted in advance. Initial submissions will include a description of the key research question and background literature, hypotheses, experimental design and procedures, analysis pipeline, a statistical power analysis and full description of planned comparisons. Pilot data (where applicable) may also be included.

Initial submissions will receive preliminary review by an editorial team for fit within the scope of the journal, adherence to journal and article format and any other journal-specific pre-screening criteria. Those that pass triage will then be sent for in-depth peer review (Stage 1). Peer reviewers will consist of an associate editor, two subject area experts and, for select journals, a statistical editor. Following review, 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 to the peer-reviewed procedures. When the study is complete, the authors will submit their finalized manuscript for re-review (Stage 2) and may be asked to upload their raw data, digital study materials, and laboratory log to a publicly accessible file-sharing service, if required by the journal. Data deposited into a repository must be cited. Pending quality checks and a sensible interpretation of the findings, the manuscript will be published regardless of the results.

### **Stage 1: Initial manuscript submission and 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 handling editor will not agree to send manuscripts for in-depth review until a complete Stage 1 submission has been considered.

The cover letter should include:

- A brief scientific case for consideration. High-value replication studies are welcome in addition 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 generally considered only for studies that are able to commence immediately; however, authors with alternative plans are encouraged to contact the journal office for advice.
- An anticipated timeline for completing the study if the initial submission is accepted.
- A statement confirming that, following Stage 1 in principle acceptance, the authors agree to register their approved protocol on the Open Science Framework (<https://osf.io/>) or other recognized repository, either publicly or under private embargo until submission of the Stage 2 manuscript.

### **Manuscript preparation guidelines – Stage 1**

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 except stylistic edits (see below).
  
- Methods
  - Full description of proposed sample characteristics, including criteria for data inclusion and exclusion (e.g. outlier extraction). Procedures for objectively defining exclusion criteria due to technical errors or for any other reasons must be specified, including details of how and under what conditions data would be replaced.
  - A description of experimental procedures, including randomization and blinding procedures, in sufficient detail to allow another researcher to repeat the methodology exactly. These procedures must be adhered to in the subsequent experiments for the IPA to be implemented.
    - **Deviation from Stage 1 submissions:**
      1. In cases where the pre-registered protocol is altered after IPA due to minor changes, the authors may continue their research, but must make note of the changes and provide an explanation for the deviation upon submission of Stage 2 manuscript. Additional review may be necessary.
  - Proposed analysis pipeline, including all preprocessing steps, statistical power analyses, and a precise description of all planned analyses, including appropriate correction for multiple comparisons. Any covariates or regressors must be stated. Where analysis decisions are contingent on the outcome of prior analyses, these contingencies must be specified and adhered to. Pre-planned analyses must be reported in the main Results section of Stage 2 submissions. However, unplanned exploratory analyses will be admissible in a separate section of the Results (see below).
    - **NOTE:** Estimated effect sizes should be justified with reference to the existing literature. Since publication bias overinflates published estimates of effect size, power analysis must be based on the *lowest* available or meaningful estimate of the effect size based on an *a priori* power of 0.9 or higher. In the case of highly uncertain effect sizes, a variable sample size and interim data analysis is permissible but with inspection points stated in advance, [appropriate Type I error correction for 'peeking' employed](#), and a final stopping rule for data collection outlined.
    - **NOTE: Registered analyses must be undertaken, but additional unregistered analyses can also be included in a final manuscript.**
  - Full descriptions must be provided of any outcome-neutral criteria that must be met for successful testing of the stated hypotheses. Such quality checks might include the absence of floor or ceiling effects in data distributions, positive controls, or other quality checks that are orthogonal to the experimental hypotheses.
  - Timeline for completion of the study and proposed resubmission date if Stage 1 review is successful. Extensions to this deadline can be negotiated with the

- action editor.
- Any description of prospective methods or analysis plans should be written in future tense.
- **Pilot Data (Optional)**
  - Can be included to establish proof of concept, effect size estimations, or feasibility of proposed methods. Any pilot experiments will be published with the final version of the manuscript and will be clearly distinguished from data obtained for the pre-registered experiment(s).
- **Secondary Registrations**
  - The journals welcome submissions proposing secondary analyses of existing data sets, provided authors can supply sufficient evidence (e.g. letter from independent gatekeeper) to confirm that they have had no prior access to the data in question.

Stage 1 submissions that are judged by the handling editor (triage editor) to be of sufficient quality and scope will be sent for in-depth peer review to subject area experts. As developed by the Open Science Framework, reviewers will be asked to assess the following when considering papers at the registration stage:

- The logic, rationale, and plausibility of the proposed hypotheses.
- The soundness and feasibility of the methodology and analysis pipeline (including statistical power analysis where appropriate).
- Whether the clarity and degree of methodological detail is sufficient to exactly replicate the proposed experimental procedures and analysis pipeline.
- Whether the authors have pre-specified sufficient outcome-neutral tests for ensuring that the results obtained are able to test the stated hypotheses, including positive controls and quality checks.

Following Stage 1 peer review, manuscripts will be rejected outright ([see the most common reasons why Stage 1 manuscripts are rejected](#)), offered the opportunity to revise, or be accepted. Proposals that meet the evaluation criteria listed above will be issued an *in-principle acceptance* (IPA), indicating that the article will be published pending completion of the approved experiments and analytic procedures, passing of all pre-specified quality checks, and a defensible interpretation of the results.

Following IPA, journal editors will have two options:

- 1) Stage 1 protocols will be published following IPA. Stage 1 articles will be referenced into the final Stage 2 manuscript as a footnote, indicating the manuscript is a registered report and providing a link to the paper. In addition, the authors will be required to cite and appropriately reference the Stage 1 report in the final manuscript.

## **Stage 2: Full manuscript review**

Once the study is complete, authors prepare and resubmit their manuscript for full review, with the following additions:

- The manuscript must contain a link to the approved Stage 1 protocol on the Open Science Framework or other recognized repository. The Stage 2 cover letter should state the page number in the manuscript that lists the URL.
- Submission of raw data and laboratory log
  - The journals encourage raw data and any digital experimental materials be made freely available in a public repository. To increase research transparency, data files uploaded to a public repository should be appropriately time stamped to show that data was collected *after* IPA and not before. Other than pre- registered and approved pilot data, no data acquired *prior* to the date of IPA is admissible in the Stage 2 submission. Where raw data is presented, it must be accompanied by guidance notes to assist other scientists in reproducing the analysis pipeline. Authors should also upload any relevant analysis scripts and other experimental materials that would assist in reproducibility (e.g. stimuli & presentation code).
  - Any supplementary figures, tables, or other text (such as supplementary methods) can either be included as standard supplementary information that accompanies the paper, or they can be archived together with the data. Please note that the raw data itself should be archived (see above) rather than submitted to the journal as supplementary material.
  - The authors must collectively certify in the resubmission Cover Letter that all non- pilot data was collected after the date of IPA.
  - Authors are asked to deposit their data in any repository that renders it freely and publicly accessible and provides a digital object identifier (DOI) to ensure that the data remain persistent, unique and citable. Potential repositories include (but are not limited to) [Zenodo](#), [Figshare](#), [Harvard Dataverse](#), and [Dryad](#). For a comprehensive list of available data repositories, see <http://www.re3data.org/>. Please see [Wiley's data sharing policy](#) for more details.
- Background, Rationale and Methods
  - Apart from minor stylistic revisions, **the Introduction cannot be altered from the approved Stage 1 submission, and the stated hypotheses cannot be amended or appended.** At Stage 2, any description of the rationale or proposed methodology that was written in future tense within the Stage 1 manuscript should be changed to past tense. Any textual changes to the Introduction or Methods (e.g. correction of typographic errors) must be clearly marked in the Stage 2 submission. Any relevant literature that appeared following the date of IPA should be covered in the Discussion.
- Results & Discussion
  - 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. The analysis must still be mentioned in the Methods and include a description/warning of why it was wrong so that others do not cite it inappropriately. The analysis can be 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 Stage 2 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 “*Exploratory analyses*”. Authors should be careful not to base their conclusions entirely on the outcome of statistically significant *post hoc* analyses.

- Authors reporting null hypothesis significance tests are required to report exact *p* values and effect sizes for all inferential analyses.

The resubmission will most likely be considered by the same reviewers as in Stage 1, but could also be assessed by new reviewers. In considering submissions at Stage 2, reviewers will be asked to decide:

1. Whether the data are able to test the authors’ proposed hypotheses by satisfying the approved outcome-neutral conditions (such as quality checks, positive controls)
2. Whether the Introduction, rationale and stated hypotheses are the same as the approved Stage 1 submission
3. Whether the authors adhered precisely to the registered experimental procedures
4. Whether any unregistered *post hoc* analyses added by the authors are justified, methodologically sound, and informative
5. Whether the authors’ conclusions are justified given the data

**Reviewers are informed that editorial decisions will not be based on the perceived importance, novelty or conclusiveness nature of the findings (example negative findings) of the results.** Thus, while reviewers are free to enter such comments on the record, they will not influence editorial decisions. Reviewers at Stage 2 may suggest that authors report additional *post hoc* tests on their data; however, authors are not obliged to do so unless such tests are necessary to satisfy one or more of the Stage 2 review criteria.

#### Incremental Registrations

Authors may add experiments to approved submissions. In such cases the approved Stage 2 manuscript will be accepted for publication, and authors can propose additional experiments for Stage 1 consideration. If these experiments 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 editorial office.

#### Manuscript withdrawal and Withdrawn Registrations

It is possible that authors with IPA may wish to withdraw their manuscript following or during data collection. Possible reasons could include major technical error, an inability to complete the study due to other unforeseen circumstances, or the desire to submit the results to a different journal. In all such cases, manuscripts can of course be withdrawn at the authors’ discretion. Partial withdrawals are not possible; i.e. authors cannot publish part of a registered study by selectively withdrawing one of the planned experiments. Such cases must lead to withdrawal of the entire paper. Studies that are not completed by the agreed Stage 2 submission deadline (which can be extended in negotiation with the editorial office) will be considered withdrawn.