

Reducing publication bias with Registered Reports



Nature Neuroscience now welcomes Registered Reports – a publishing format designed to prioritize methodological rigor.

Discovering that a research project yields negative results is a familiar experience to scientists. Typically, we move to the next experiment and discard null results as failures or uninteresting, leading to the ‘file drawer problem’¹. This pattern is driven by the prevailing dogma that only statistically significant results are worthy of publication – a notion that can be reinforced by scientists, publishers and funding bodies alike. This positive publication bias is detrimental to science, as it can skew our understanding of research areas and has the potential to influence the efficacy of clinical trials².

At *Nature Neuroscience*, we are committed to fostering robust, reproducible neuroscience. To this end, we now consider Registered Reports for original research across the neurosciences. This publishing format is designed to counteract positive publication bias and shift the focus from the results to the research question.

A Registered Report is a type of original research article that undergoes a two-stage peer review process. In Stage 1, authors submit their introduction, methods and proposed analyses for consideration before data

collection begins. This submission is considered by the handling editor, focusing on the hypothesis, the rationale of the research question(s) and the suitability of the methodology. If it is sent out for and passes rigorous peer review, the study will receive in-principle acceptance (IPA) status and is stored in a Springer Nature [online repository](#). At this stage, authors proceed with data collection and analysis with the assurance that their positive or negative results will be published, provided the approved protocol is followed. As this evaluation is blind to the research outcome, this means that a statistically significant result is not mandatory for publication (see refs. 3–5 for examples).

After completing the research, authors submit a Stage 2 manuscript that includes the pre-registered outcomes, discussion, and any post hoc exploratory findings (see refs. 6,7 for examples). This manuscript undergoes peer review by the same reviewers, who assess it on the basis of adherence to the approved protocol and whether the conclusions are justified.

The Registered Report format was first proposed in 2012 in the journals *Cortex* and *Perspectives on Psychological Science*, and has since been adopted by over 300 journals across a range of disciplines⁸, including several Nature Portfolio titles that consider neuroscience, such as *Nature*, *Nature Human Behaviour*, *Nature Methods* and *Nature Communications*. As researchers are provided with feedback on their methodology and

hypotheses before data collection begins, the study quality should be improved, and researchers can focus on meaningful questions rather than chasing statistical significance. The publication of Registered Reports is intended to contribute to the reduction of questionable research practices such as selective reporting, *P*-hacking, data dredging and HARKing (hypothesizing after results are known)⁹.

If you are in the early stages of planning a research study, we encourage you to look into this [submission option](#), which works best with hypothesis-driven research that can be pre-registered. We believe the inclusion of Registered Reports has the potential to elevate the quality and reliability of neuroscience research, ultimately improving clinical and health outcomes as well as our understanding of the brain.

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