

Transparency and Openness Promotion (TOP) guidelines

The TOP guidelines establish a series of modular standards for transparency and reproducibility in published research. For background, authors are referred to the [TOP overview at the Center for Open Science](#) and the [TOP introductory article](#) published in *Science*. As a signatory to the TOP guidelines, *Cortex* is committed to regular review of its adherence to TOP. The journal currently adopts the following levels within each of the eight TOP standards, which can range from Level 0 to Level 3. Publication in the journal is contingent on authors adhering to these standards, where applicable.

These standards apply only to the following article types at *Cortex*: Research Reports (including standard submissions, Clinical Neuroanatomy submissions, and Behavioural Neurology submissions), Notes, Letters, Exploratory Reports, and Registered Reports. At the point of submission, authors are asked to complete a short checklist confirming adherence to the TOP guidelines (example viewable [here](#) for article types other than Registered Reports). For all article types except Registered Reports, this checklist need only be completed when submitting a *revised* manuscript. In addition to the policy below, authors are invited to inspect the [list of FAQs](#) concerning TOP guidelines at *Cortex*.

Citation Standards (Standard #1: Level 3)

All data, program code and other methods must be appropriately cited. Such materials are recognized as original intellectual contributions and afforded recognition through citation. Articles will not be published until the citations conform to these standards.

- a. All data sets and program code used in a publication must be cited in the text and listed in the reference section
- b. References for data sets and program code must include a persistent identifier, such as a Digital Object Identifier (DOI). Persistent identifiers ensure future access to unique published digital objects, such as a text or data set. Persistent identifiers are assigned to data sets by digital archives, such as institutional repositories and partners in the Data Preservation Alliance for the Social Sciences (Data-PASS).
- c. Data set citation example:
 - i. Campbell, A., and Kahn, R. L. (1999). American National Election Study, 1948. ICPSR07218-v3. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor].
<http://doi.org/10.3886/ICPSR07218.v3>

Data, Analytic Methods (Code), and Research Materials Transparency (Standards #2, #3, and #4: Level 2)

The policy of *Cortex* is to publish papers only if the data, methods used in the analysis, and materials used to conduct the research are clearly and precisely documented and are maximally available to any researcher for purposes of reproducing the results or replicating the procedure.

1. Authors reusing data available from public repositories must provide program code, scripts for statistical packages, and other documentation sufficient to allow an informed researcher to precisely reproduce all published results. Potential repositories that support open or embargoed archiving include (but are not limited to) [Zenodo](#), [Figshare](#),

[Harvard Dataverse](#), [Dryad](#) and the [Open Science Framework](#). For a comprehensive list of available data repositories, see <http://www.re3data.org/>

2. Authors using original data must
 - a. make appropriately anonymised data available within a trusted digital repository OR provide a statement in the manuscript and TOP submission checklist explaining why data are not publicly archived and how data can otherwise be accessed (Note: If all data required to reproduce the reported analyses appears in the article text, tables, and figures then it does not also need to be posted to a repository.)
 - b. include all variables, treatment conditions, and observations described in the manuscript.
 - c. provide a full account of the procedures used to collect, preprocess, clean, or generate the data.
 - d. where applicable, provide program code, scripts, codebooks, and other documentation sufficient to precisely reproduce all published results OR provide a statement in the TOP submission checklist explaining why code is not publicly archived and how any such code can otherwise be accessed.
 - e. provide research materials (e.g. stimuli) and description of procedures necessary to conduct an independent replication of the research OR provide a statement in the TOP submission checklist explaining why research materials are not publicly archived and how any such code can otherwise be accessed.
3. In some cases, some or all data, code or materials cannot be shared for legal or ethical reasons. For example, in some studies, patient data can be impossible to fully anonymise, or authors may lack ethical permission to archive even fully anonymised data. In other cases, experimental materials (such as stimuli, questionnaires) or analysis code might be proprietary and may therefore be unpublishable. The journal will grant exceptions to data, code and material access requirements provided authors:
 - a. as outlined above, explain the restrictions on the data, code or materials and how they preclude public access. Example text in the TOP submission checklist might include:
 - i. “The conditions of our ethics approval do not permit public archiving of anonymised study data. Readers seeking access to the data should contact the lead author X or the local ethics committee at the Department of Y, University of Z. Access can be granted only to named individuals in accordance with ethical procedures governing the reuse of sensitive clinical data.”
 - ii. “Legal copyright restrictions do not permit us to publicly archive the full set of stimuli used in this experiment. Readers seek access to the stimuli are advised to contact the lead author X.”
 - b. provide a public description of the steps others should follow to request access to the data, code or materials – e.g. through direct contact with authors, the relevant ethics committee or other external authority.
 - c. provide software and other documentation that will precisely reproduce all published results.
 - d. provide access to all data, code and materials for which the constraints do not apply.
4. Where shared publicly, any data, code, research materials, and other documentation of the research process should be made available through a trusted digital repository. Trusted repositories adhere to policies that make data discoverable, accessible, usable, and preserved for the long term. Trusted repositories also assign unique and persistent identifiers. Author maintained websites are not compliant with this requirement.

- a. Dissemination of these materials may be delayed until publication. Under exceptional circumstances, editors may grant an embargo of the public release of data for at most one year after publication.
 - b. Articles accepted for publication will not be assigned a publication date until the above conditions have been met. Authors are responsible for ensuring that their articles continue to meet these conditions. Failure to do so may lead to an editorial expression of concern or retraction of the article.
 - c. Archiving of data, code and materials at the point of publication will be certified by the journal through [Open Data and Open Materials badges](#) in the published article.
5. The above policy ensures that *Cortex* is fully compliant with the [Peer Reviewers' Openness \(PRO\) initiative](#).

Design and Analysis Transparency (Standard #5: Level 2)

The policy of *Cortex* is to publish papers where authors follow standards for disclosing key aspects of the research design and data analysis. Authors are encouraged to review the standards available for many research applications from <http://www.equator-network.org/> and use those that are relevant for the reported research applications. As part of the TOP submission checklist, authors are required to confirm the following text (based on the 21-word solution proposed by [Simmons et al, 2012](#)), with elaboration as appropriate in the main body of the manuscript: "We report how we determined our sample size, all data exclusions (if any), all data inclusion/exclusion criteria, whether inclusion/exclusion criteria were established prior to data analysis, all manipulations, and all measures in the study".

Preregistration of Studies and Analysis Plans (Standards #6 and #7: Level 2)

The policy of *Cortex* is to publish papers where authors indicate whether or not the conducted research was preregistered with an analysis plan in an independent, institutional registry (e.g., <http://clinicaltrials.gov/>, <http://socialscienceregistry.org/>, <http://openscienceframework.org/>, <http://egap.org/design-registration/>, <http://ridie.3ieimpact.org/>). Preregistration of studies involves registering the study design, variables, and treatment conditions prior to conducting the research. Including an analysis plan involves specification of sequence of analyses or the statistical model that will be reported. Where a study is preregistered, a link to the preregistration in an institutional registry must be made available to the journal prior to publication. The journal, or an entity acting on behalf of the journal, will verify that preregistration adheres to the necessary specifications and then provide [badge certification of the preregistration](#) in the article.

1. In the TOP guidelines checklist at submission, authors must indicate if they did or did not preregister the research with or without an analysis plan in an independent, institutional registry.
2. If an author did preregister the research, the author must:
 - a. Confirm that the study was registered prior to conducting the research with links to the time-stamped preregistration(s) at the institutional registry, and that the preregistration adheres to the disclosure requirements of the institutional registry OR those required for the [preregistered badge with analysis plans maintained by the Center for Open Science](#).

- b. Report all pre-registered analyses in the text, or, if there were changes in the analysis plan following preregistration, those changes must be disclosed with explanation for the changes.
- c. Clearly distinguish in text analyses that were preregistered from those that were not.

Replication (Standard #8: Level 3)

The policy of *Cortex* is to encourage submission of replication studies, particularly of research published in this journal. When possible, replication studies are reviewed in two stages following the [Registered Reports](#) format. Authors are reminded that Registered Reports are available both for replications and original studies.