

## Reporting Summary

Nature Research wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Research policies, see [Authors & Referees](#) and the [Editorial Policy Checklist](#).

### Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

- |                                     |                                                                                                                                                                                                                                                                                                |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| n/a                                 | Confirmed                                                                                                                                                                                                                                                                                      |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> The exact sample size ( $n$ ) for each experimental group/condition, given as a discrete number and unit of measurement                                                                                                                                    |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly                                                                                                                                    |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> The statistical test(s) used AND whether they are one- or two-sided<br><i>Only common tests should be described solely by name; describe more complex techniques in the Methods section.</i>                                                               |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> A description of all covariates tested                                                                                                                                                                                                                     |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons                                                                                                                                        |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals) |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> For null hypothesis testing, the test statistic (e.g. $F$ , $t$ , $r$ ) with confidence intervals, effect sizes, degrees of freedom and $P$ value noted<br><i>Give <math>P</math> values as exact values whenever suitable.</i>                            |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings                                                                                                                                                                      |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes                                                                                                                                                |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Estimates of effect sizes (e.g. Cohen's $d$ , Pearson's $r$ ), indicating how they were calculated                                                                                                                                                                    |

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

### Software and code

Policy information about [availability of computer code](#)

Data collection Data for this study were collected from the Web of Science (webofknowledge.com).

Data analysis R version 3.6.0 was used for the analyses presented in this study. The packages used for analysis are as follows: bibliometrix, rvest, dplyr, parallel, pbmcapply, rjsonio, textclean, stringr, tidyverse, rjson, mgcv, ggplot2, patchwork, boot, data.table, and quantreg.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors/reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research [guidelines for submitting code & software](#) for further information.

### Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
- A description of any restrictions on data availability

Data that support the findings of this study have been deposited in an Open Science Framework repository and can be accessed at <https://osf.io/h79g8/>.

### Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

- ☐ Life sciences ☒ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

# Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Study description | This study is a quantitative and cross-sectional assessment of citation patterns in top neuroscience journals. Within the sample of articles (see "Research sample" below), we obtain probabilistic estimates of authors' gender, find connections between citing and cited papers, locate and remove self-citations, and study the links between authors' genders and their role as objects/agents of undercitation.                                                                                                                                                                                                      |
| Research sample   | The sample is research articles and review articles published between 1995 and 2018 within one of five neuroscience journals (Nature Neuroscience, Journal of Neuroscience, Neuron, Neurolmage, and Brain). These journals were pre-selected, as they represent the five journals with the highest Eigenvalue scores in the neuroscience category on Web of Science. Research articles and review articles were selected as they were seen by the authors as being the two primary outlets through which previous research is cited, discussed, and built upon, and their labels have consistent meanings across journals. |
| Sampling strategy | Data for all articles meeting the above inclusion criteria were directly obtained through Web of Science. Therefore, no sampling strategy was required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Data collection   | Data were collected through Web of Science queries of publicly available bibliometric information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Timing            | Data were collected between February 3, 2019 and February 11, 2019.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Data exclusions   | 7190 of 61416 articles (12%) were excluded due to pre-determined exclusion criteria. Namely a lack of ability to confidently adjudicate author gender. Sensitivity analysis were conducted on the full sample (including missing data) and are available in the Supplementary Information.                                                                                                                                                                                                                                                                                                                                 |
| Non-participation | N/A. There were no human participants in this study.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Randomization     | N/A. There was no randomization of participants in this study.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

# Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

## Materials & experimental systems

| n/a                                 | Involved in the study                                |
|-------------------------------------|------------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Antibodies                  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Eukaryotic cell lines       |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Palaeontology               |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Animals and other organisms |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Human research participants |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Clinical data               |

## Methods

| n/a                                 | Involved in the study                           |
|-------------------------------------|-------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> ChIP-seq               |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> Flow cytometry         |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> MRI-based neuroimaging |