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**Editorial policy and formatting checklist for Articles, Resources and Registered Reports**

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| --- | --- | --- | --- |
| General | | | |
|  | **Yes** | **No** | **N/A** |
| Our manuscript is provided in .docx or .tex format | **X** |  |  |
| The manuscript file is organized in the following order:   1. Title page 2. Abstract 3. Introduction (no subheadings allowed) 4. Results (subheadings permitted) 5. Discussion (no subheadings allowed) 6. Methods (note that they come after the results and discussion! Subheadings permitted) 7. Protocol Registration (for Registered Reports only) 8. Data availability statement 9. Code availability statement (only if you have used custom code) 10. References 11. Acknowledgements 12. Author contributions 13. Competing interests 14. Figure legends (no Figures!) 15. Tables | **X** |  |  |
| All figures have been removed from the manuscript file and uploaded individually, one figure per file | **X** |  |  |
| Any supplementary text, figures, and/or tables (e.g., Supplementary Figures, Supplementary Tables, Supplementary Methods, Supplementary Results, etc.) is provided in a single pdf file titled ‘Supplementary Information’ | **X** |  |  |
| For supplementary data, software, video and audio files, we have provided an additional Word file called SIGuide.docx, which contains the following information for each file:  *Title*  *Short legend* (no more than 100 words and without reference citations)  *Format type*  *File size* |  |  | **X** |

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| --- | --- | --- | --- |
| Title page | | | |
|  | **Yes** | **No** | **N/A** |
| The title of our manuscript is no longer than 100 characters (including spaces) and does not contain any punctuation (except commas in lists)  *NOTE: The “title:subtitle” format is not permitted.* | X |  |  |
| The title does NOT make a novelty/priority claim (except in cases of genetic discovery) and does NOT claim causality when the data are correlational/cross-sectional. | X |  |  |
| The title does NOT interpret absence of evidence as evidence of absence (in the case of null results).  *NOTE: There is no statistical test that can demonstrate absence of an effect. Titles such as ‘There is no difference between x and y.’ or ‘X has no effect on Y.’ must be revised to read ‘[No/Little] credible evidence of a difference between x and y.’ or ‘[No/Little] credible evidence that X affects Y.’* | X |  |  |
| Author names are provided in full (with initials for middle names only) | X |  |  |
| Affiliations include department/unit, institution/organization, city, and country information | X |  |  |
| An asterisk is used to indicate the corresponding author(s) | X |  |  |
| An email address is provided for each corresponding author | X |  |  |
| All corresponding authors have an ORCID, which they have linked to their account on the *Nature Human Behaviour* manuscript tracking system  *NOTE: Please follow the steps below to link your account on our manuscript tracking system (MTS) with your ORCID. Per legal policy, this must be done in the manuscript system by the owner of the ORCID. If you don’t have an ORCID yet, you will be able to create one in minutes.*  *1. From the home page of the MTS* [*https://mts-nathumbehav.nature.com/cgi-bin/main.plex*](https://mts-nathumbehav.nature.com/cgi-bin/main.plex) *click on ‘Modify our Springer Nature account’ under ‘General tasks’.*  *2. In the ‘Personal profile’ tab, click on ‘ORCID Create/link an Open Researcher Contributor ID(ORCID)’. This will re-direct you to the ORCID website.*  *3a. If you already have an ORCID account, enter your ORCID email and password and click on ‘Authorize’ to link your ORCID with your account on the MTS.*  *3b. If you don’t yet have an ORCID, you can easily create one by providing the required information and then click on ‘Authorize’. This will link your newly created ORCID with your account on the MTS.* | X |  |  |

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| Abstract | | | |
|  | **Yes** | **No** | **N/A** |
| The abstract of our manuscript does not exceed 150 words | X |  |  |
| The abstract does not contain any references | X |  |  |
| It starts with a sentence that introduces the general topic and its significance for a broad audience. It then describes the specific question(s) our research addresses, what we did and what we found. It ends with a statement that encapsulates the significance of our findings for a broad audience. | X |  |  |
| The abstract does NOT contain any priority/novelty claims (except in the case of genetic discovery). Statements such as "This is the first demonstration..."; "We propose a novel model..." have been removed or reworded. | X |  |  |
| The abstract does NOT use causal language if the evidence is correlational/cross-sectional. | X |  |  |
| The abstract does NOT interpret absence of evidence as evidence of absence (in the case of null results).  *NOTE: There is no statistical test that can demonstrate absence of an effect. Statements such as ‘There is no difference between x and y.’ or ‘X does not affect Y.’ must be revised to read ‘We found [no/little] credible evidence of a difference between x and y.’ or ‘We found [no/little] credible evidence that X affects Y.’* | X |  |  |
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| Main Text: General | | | |
|  | **Yes** | **No** | **N/A** |
| Our manuscript does NOT contain any priority/novelty claims (except in the case of genetic discovery). | X |  |  |
| Our manuscript does NOT use causal language if the evidence is correlational/cross-sectional. | X |  |  |
| Our manuscript does NOT recycle text from our previous publications without proper acknowledgment and citation of the original work.  NOTE: text recycling from the authors’ own work is a form of plagiarism and must be avoided (see our policy here: <https://www.nature.com/authors/policies/plagiarism.html>).  When reusing text verbatim, you must clearly indicate this in your manuscript and identify the original source. If the portion of reused text exceeds 80 words, you must seek permission from the publisher of the original work to reproduce the text. | X |  |  |
| The main text (which includes the introduction, results and discussion) does not exceed 5,000 words.  *NOTE:* *There is no limit on the Methods section, although ideally it should not exceed 3,000 words.* |  |  | X |
| References appear as superscript Arabic numerals, in order of mention. If a reference is cited more than once, the same number is used throughout the text and the reference receives a single entry in the reference list. | X |  |  |
| Our manuscript does NOT include any footnotes/endnotes. (They have been incorporated in the text or otherwise eliminated.) | X |  |  |
| Our manuscript does NOT use boldface for any reason except titles/section headings. | X |  |  |
| Our manuscript does NOT use *italics* for any other function, except for Latin terms (e.g., *a priori*) or gene symbols/functionally defined locus symbols. | X |  |  |

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| Main Text: Results & Discussion | | | |
|  | **Yes** | **No** | **N/A** |
| Frequentist inferential statistics are reported in full wherever they occur (main text, Figure captions, Tables) as follows:  statistic(degrees of freedom) = value, p = value, effect size statistic = value, % Confidence Intervals = values | X |  |  |
| P values reported are exact. We do not report ‘ns’ – we give the exact value.  *NOTE: The smallest P value that should be reported is P <0.001, except in studies of genetic associations.* | X |  |  |
| All statements or interpretations of the results are supported by appropriate, fully reported statistics. This extends to comparisons of relationships between variables – for example, interpretations pertaining to difference of differences are also supported by appropriate statistics1.  1Gelman, A. & Stern, H. [The difference between “significant” and “not significant” is not itself statistically significant](http://www.stat.columbia.edu/~gelman/research/published/signif4.pdf). Am. Stat. 60, 328–331 (2006). | X |  |  |
| We do not discuss marginally significant results as theoretically informative for the hypotheses tested. | X |  |  |
| If my manuscript reports null results, it also provides statistical evidence that the study is sufficiently powered to detect the smallest theoretically or pragmatically meaningful effect. |  |  | X |
| We provide support for the null hypothesis over the alternative hypothesis by reporting Bayes Factors, equivalence tests or other appropriate statistics.  *NOTE: Support for the null hypothesis cannot be inferred through a null finding using NHST – if you wish to interpret theoretically the null finding, you must use appropriate statistical tests (e.g., Bayes Factors or equivalence tests).* |  |  | X |
| Our manuscript does not interpret absence of evidence as evidence of absence (in the case of null results).  *NOTE: There is no statistical test that can demonstrate absence of an effect. Statements such as ‘There is no difference between x and y.’ or ‘X does not affect Y.’ must be revised to read ‘We found [no/little] credible evidence of a difference between x and y.’ or ‘We found [no/little] credible evidence that X affects Y.’* | X |  |  |
| We indicate whether the data met the assumptions of the statistical tests used, including whether normality and equal variances were formally tested. If not, we show data distribution (individual data points) and include the following statement: "Data distribution was assumed to be normal but this was not formally tested.” | X |  |  |
| We specify whether tests were one- or two-tailed, and justify the use of one-tailed tests. | X |  |  |
| Our discussion includes a transparent discussion of limitations. | X |  |  |
| Methods | | | |
| |  |  |  |  | | --- | --- | --- | --- | |  | No | Yes | N/A | | **Yes** | **No** | **N/A** |
| If our manuscript reports the results of research with human participants, the Methods section starts with a statement confirming that our research complies with all relevant ethical regulations; naming the board and institution that approved the study protocol; and confirming that informed consent was obtained from all human participants. Information on participant compensation is also included. | X |  |  |
| If our manuscript reports the results of research with non-human animals, the Methods section starts with a statement confirming that our research complies with all relevant ethical regulations; naming the board and institution that approved the study protocol; and confirming that the ARRIVE guidelines were used to report the research. |  |  | X |
| If our manuscript reports the results of a clinical trial, the Methods section includes the trial registration number from ClinicalTrials.gov or an equivalent agency. |  |  | X |
| If our manuscript reports the results of a Phase 2 or 3 randomized controlled trial, we are also attaching the CONSORT checklist with our submission. |  |  | X |
| The Methods include a statement indicating how the sample sizes were chosen.  *NOTE: If a power analysis was used, provide the details of this analysis. If you did not use a power analysis, the following is sufficient: "No statistical methods were used to pre-determine sample sizes but our sample sizes are [similar to/larger than] those reported in previous publications (ref x,y,z)."* |  |  | X |
| The Methods include a statement on randomization. We indicate whether the data collection was randomized or appropriately blocked, how subjects/samples were assigned to the various experimental groups and whether there was any randomization in the organization of the experimental conditions or stimulus presentations. |  |  | X |
| The Methods include a statement indicating whether blinding was used.  *NOTE: If there was no blinding, this must be clearly stated in the manuscript, as follows: "Data collection and analysis were not performed blind to the conditions of the experiments.”* |  |  | X |
| We disclose whether any subjects or data points were excluded from the analyses for any reasons and note the rationale for the exclusions. | X |  |  |
| If any of our studies was pre-registered, we provide a link to the pre-registration in the Methods section and state the date of pre-registration. We disclose all deviations from the pre-registered protocol and explain the rationale for deviation (e.g., flaw, suboptimality, or reviewer/editorial request). In cases of deviation in our analysis plan, the originally planned analyses are reported in Supplementary Information. |  |  | X |
| The sex, number and age of participants is indicated. |  |  | X |

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| Protocol registration statement (Registered Reports only) | | | |
|  | **Yes** | **No** | **N/A** |
| We have provided a protocol registration statement for our Stage 1 in-principle accepted protocol, under the heading ‘Protocol registration’.  *NOTE: This statement must take the following form:*  The Stage 1 protocol for this Registered Report was accepted in principle on [DATE]. The protocol, as accepted by the journal, can be found at [URL]. |  |  | X |

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| Data availability statement | | | |
|  | **Yes** | **No** | **N/A** |
| We have provided a data availability statement as a separate section, under the heading ‘Data availability’.  *NOTE: This section should inform readers about the availability of the data used to support the conclusions of your study. This information includes accession codes to public repositories (data banks for protein, DNA or RNA sequences, microarray, proteomics data etc…), references to source data published alongside the paper, unique identifiers such as URLs to data repository entries, or data set DOIs, and any other statement about data availability. We strongly encourage authors to publicly share their data unless there are ethical or legal restrictions that prevent you from sharing. For Registered Reports, public sharing of data is mandatory. For all other manuscripts, at a minimum, you should include the following statement: “The data that support the findings of this study are available from the corresponding author upon request”, mentioning any restrictions on availability. If DOIs are provided, we also strongly encourage including these in the Reference list (authors, title, publisher (repository name), identifier, year). For more guidance on how to write this section please see:* [*http://www.nature.com/authors/policies/data/data-availability-statements-data-citations.pdf*](http://www.nature.com/authors/policies/data/data-availability-statements-data-citations.pdf) | X |  |  |

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| Code availability statement | | | |
|  | **Yes** | **No** | **N/A** |
| Right after the Data availability statement and before the References, we have provided a code availability statement as a separate section, under the heading ‘Code Availability’.  *NOTE: You only need to include a separate “Code availability” statement on the availability of your analysis routines/code if you developed any custom code. We strongly encourage you to provide this custom code as a separate SI file titled “Supplementary Software”, and include a call-out to it in your Methods section. If possible, please also provide a link (e.g. GitHub) to a live version of your code so that readers can track its updates. At a minimum, you should include the following statement: “Custom code that supports the findings of this study is available from the corresponding author upon request.”* | X |  |  |

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| References | | | |
|  | **Yes** | **No** | **N/A** |
| Only one publication is given for each number. | X |  |  |
| Only articles that have been published or accepted by a named publication or recognized preprint server are in the numbered list.  *NOTE: Published conference abstracts, numbered patents and research datasets that have been assigned a digital object identifier may be included in the reference list.* | X |  |  |
| Unpublished manuscripts, submitted manuscripts, and manuscripts under review/revision are not included in the numbered list.  *NOTE: If a manuscript is under consideration, not yet submitted or not yet accepted, it should be mentioned in the main text only in parentheses, as follows: (Up to five author names, et al., unpublished manuscript). No major claims can rely solely on unpublished manuscripts or data.* |  |  | X |
| References are provided in the following format:  Journal article:  Rosenzweig, C. et al. Attributing physical and biological impacts to anthropogenic climate change. Nature ****453,**** 353–357 (2008).  Book:  Jones, R. A. L. Soft Machines: Materials and Life (Oxford Univ. Press, 2004).  Research dataset:  Hao, Z., AghaKouchak, A., Nakhjiri, N. & Farahmand, A. Global Integrated Drought Monitoring and Prediction System (GIDMaPS) data sets. figshare <http://dx.doi.org/10.6084/m9.figshare.853801> (2014).  Preprint:  VanderWeele, T. J., Mathur, M. B. & Chen, Y. Outcome-wide longitudinal designs for causal inference: a new template for empirical studies. Preprint at arXiv <http://arxiv.org/abs/1810.10164> (2019). | X |  |  |
| All references are complete. | X |  |  |
| (For TeX/LaTeX) The references are included within the manuscript itself.  *NOTE: If you wish to use BibTeX, please copy the reference list from the .bbl file, paste it into the main manuscript .tex file, and delete the associated \bibliography and \bibliographystyle commands. Before submission, please ensure that the complete .tex file compiles successfully on your own system with no errors or warnings.* | X |  |  |

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| Acknowledgements | | | |
|  | **Yes** | **No** | **N/A** |
| We have indicated all sources of funding that supported our work.  *NOTE: If no specific funding supported the work, include the following statement: “The authors received no specific funding for this work.”* | X |  |  |
| We have indicated what role the funder(s) had in the conceptualization, design, data collection, analysis, decision to publish, or preparation of the manuscript.  *NOTE: If any of this information could be perceived as a competing interest, ensure that it is also included in your competing interests statement. If the funder(s) had no role, please include the following statement: “The funders had no role in study design, data collection and analysis, decision to publish or preparation of the manuscript.”* | X |  |  |
| The Acknowledgements do not include thanks to anonymous referees or editors, or effusive comments. | X |  |  |

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| --- | --- | --- | --- |
| Author contributions | | | |
|  | **Yes** | **No** | **N/A** |
| We have included an ‘Author contributions’ statement of individual author contributions to the paper (such as experimental work, project planning, data analysis, etc.)  *NOTE: The statement should be short, and refer to authors by their initials. For details please see the Authorship section of our joint Editorial policies at* [*http://www.nature.com/authors/editorial\_policies/authorship.html*](http://www.nature.com/authors/editorial_policies/authorship.html) | X |  |  |

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| --- | --- | --- | --- |
| Competing interests | | | |
|  | **Yes** | **No** | **N/A** |
| We have declared all financial or non-financial competing interests.  *NOTE: We ask authors to declare both financial and non-financial competing interests. See* [*https://www.nature.com/authors/policies/competing.html*](https://www.nature.com/authors/policies/competing.html) *for more details. If you have no financial or non-financial competing interests, please use the following standard statement: “The authors declare no competing interests.”* | X |  |  |

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| Figures & Tables | | | |
|  | **Yes** | **No** | **N/A** |
| We followed the guidelines detailed in the following document to prepare our figures: <https://www.nature.com/documents/NRJs-guide-to-preparing-final-artwork.pdf> | X |  |  |
| Our manuscript does not contain more than 8 display items (i.e., combination of Figures and Tables). | X |  |  |
| All figures have been removed from the main manuscript file and uploaded as individual files, one figure per file.  *NOTE: Figure captions should remain in the main manuscript file.* | X |  |  |
| Data are presented in a format that shows data distribution (dot-plots or box-and-whisker plots), with all box-plot elements (e.g. center line, median; box limits, upper and lower quartiles; whiskers, 1.5x interquartile range; points, outliers) defined. If bar graphs are used, the corresponding dot plots are overlaid. | X |  |  |
| Graph axes start at zero and have not be altered in scale to exaggerate effects.  *NOTE: A ‘discontinuity’ can be used for the y axis if absolutely necessary due to sizing constraints, but the break must be visually evident and should not impinge on any data points.* | X |  |  |
| All relevant figures have scale bars (rather than numerical descriptions of magnification). | X |  |  |
| All relevant figures have defined error bars. | X |  |  |
| All images comply with Nature Research image integrity policy (<https://www.nature.com/authors/policies/image.html>)  *NOTE: Unprocessed data must be provided upon request. Please double-check figure assembly to ensure that all panels are accurate (e.g. all labels are correct, no inadvertent duplications have occurred during preparation, etc.).* | X |  |  |
| For publication of identifiable images of research participants, we confirm that consent to publish was obtained and is noted in the Methods. |  |  | X |
| All text figures and tables, including supplementary figures and tables, are cited in the text in numerical order. | X |  |  |
| Figure legends are concise and no longer than 350 words. They begin with a brief title and then describe what is presented in the figure and detail all relevant statistical information (redundantly with the main text). The number of participants/observations in each figure (panel) is specified. | X |  |  |
| For Tables that report the results of statistical models, full statistical details are reported (including exact p values, effect sizes, and confidence intervals).  *NOTE: Do not use asterisks to denote different levels of statistical significance.* |  |  | X |

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| Supplementary Information | | | |
|  | **Yes** | **No** | **N/A** |
| Supplementary Information is submitted as a single document without a cover page | X |  |  |
| The Supplementary Information file is submitted in pdf format | X |  |  |
| The Supplementary Information file only makes use of the following sections:  Supplementary Figures  Supplementary Tables  Supplementary Notes  Supplementary Methods  Supplementary Results  Supplementary Discussion  Supplementary References  No other type of section is used, e.g. plain numbered sections or “Supplementary Section 1”.  *NOTE: Each of the above sections can include subsections with subheadings of your choice. However, you must only use the headings above to organize all of the supplementary information you provide.* | X |  |  |
| Supplementary items are listed as “Supplementary Figure 1”, “Supplementary Figure 2”, etc. (not “Figure S1”). | X |  |  |
| Supplementary Figure captions appear right underneath the figure. | X |  |  |
| Supplementary Table titles appear at the top of the table. |  |  | X |
| If your Supplementary Table reports the results of statistical models, full statistical details should be reported (including exact p values and confidence intervals). Do not use asterisks to denote different levels of statistical significance. Statistical tests/models must be reported in full, wherever they occur. |  |  | X |

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| If your manuscript has been accepted in principle,  you must also provide the following items | | | |
|  | **Yes** | **No** | **N/A** |
| Provide an updated version of the Reporting Summary with your final files. This reporting summary will be published along with your paper.  *NOTE: The Reporting Summary can be found here:* [*https://www.nature.com/documents/nr-reporting-summary.pdf*](https://www.nature.com/documents/nr-reporting-summary.pdf)*. Due to its advanced features, the file cannot be viewed in a browser – please download, save, and view in Adobe Reader or other suitable software.* |  |  |  |
| Please sign and upload with your final submission the [Licence to Publish form](http://www.nature.com/documents/snl-ltp.docx)  Or, if the corresponding author is either a Crown government employee (including Great Britain and Northern Ireland, Canada and Australia), or a US Government employee, please sign and return the [Licence to Publish form for Crown government employees](http://www.nature.com/documents/snl-ltp-crown.docx), or a [Licence to Publish form for US government employees](http://www.nature.com/documents/snl-ltp-govus.docx).  For more information on our licence policy, please consult <http://npg.nature.com/authors>.  *NOTE: The licence to publish form must be hand-signed.* |  |  |  |
| Should your manuscript contain any items (figures, tables, images, videos or text boxes) that are the same as (or are adaptations of) items that have previously been published elsewhere and/or are owned by a third party, please note that it is your responsibility to obtain the right to use such items and to give proper attribution to the copyright holder. This includes pictures taken by professional photographers and images downloaded from the internet. If you do not hold the copyright for any such item (in whole or part) that is included in your paper, please complete and return this [Third Party Rights Table](http://www.nature.com/documents/thirdpartyrights-origres.doc), and attach any grant of rights that you have collected. |  |  |  |
| A brief (maximum 250 characters, including spaces) summary of the main findings of the paper to be used on our website and in our E-Alerts. The summary should be written in the third person in language suitable for a broad audience. The summary may be edited by the editors prior to publication. Please provide this summary in your cover letter. |  |  |  |
| Twitter handles for authors (if desired).  *NOTE: In an effort to disseminate your work to the broadest possible audience, we suggest that you provide your twitter handle and the twitter handles of any co-authors in your cover letter, so that we can be sure to tag you when we tweet your paper from the journal’s account.* |  |  |  |
| Candidates for the cover image (300 dpi resolution at 8.5 by 11 inches), if desired. |  |  |  |
| A completed version of this checklist. |  |  |  |