

Reporting Summary

Nature Portfolio 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 Portfolio policies, see our [Editorial Policies](#) 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

- ☐ ☒ The exact sample size (n) for each experimental group/condition, given as a discrete number and unit of measurement
- ☐ ☒ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
- ☒ ☐ The statistical test(s) used AND whether they are one- or two-sided
Only common tests should be described solely by name; describe more complex techniques in the Methods section.
- ☐ ☒ A description of all covariates tested
- ☒ ☐ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
- ☐ ☒ 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)
- ☐ ☒ For null hypothesis testing, the test statistic (e.g. F , t , r) with confidence intervals, effect sizes, degrees of freedom and P value noted
Give P values as exact values whenever suitable.
- ☒ ☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
- ☐ ☒ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
- ☐ ☒ 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 We did not use any software to collect data for this project.

Data analysis We used four add-on packages for the statistical software R version 4.0.5: robumeta version 2.0 (Tanner-Smith et al., 2016; Tanner-Smith & Tipton, 2014), metafor version 3.9.9 (Viechtbauer, 2010), puniform version 0.2.5 (van Aert, 2022), and weightr version 2.0.2 (Coburn & Vevea, 2017) to assess publication/inclusion bias and analyze the mean effect sizes using robust variance estimation (RVE) methods (Fisher & Tipton, 2015; Hedges et al., 2010; Sidik & Jonkman, 2006). We also used JASP version 0.16.3 (JASP Team, 2022), an open-source statistics program, to conduct bias analyses with Bayesian methods. We also used Amelia version 1.8.0 1 and mice version 3.14.0 2 to impute the misinformation effect sizes, and the results were reported in the Supplementary Information.

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 and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [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 description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

The data that support the findings of this study are openly available in OSF at <https://osf.io/vkygw/>.

Human research participants

Policy information about [studies involving human research participants and Sex and Gender in Research](#).

Reporting on sex and gender

N/A

Population characteristics

N/A

Recruitment

N/A

Ethics oversight

N/A

Note that full information on the approval of the study protocol must also be provided in the manuscript.

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

For a reference copy of the document with all sections, see nature.com/documents/nr-reporting-summary-flat.pdf

Behavioural & social sciences study design

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

Study description

This study was a meta-analysis of a large body of experimental evidence comprising 61 published experiments, five working papers, two theses, and seven unpublished datasets (total number of reports = 75; k of effect sizes = 245). The data are quantitative.

Research sample

The reports were obtained from searches of online databases, e.g., PsycInfo. We included all the samples as reported in the included reports. The number of participants in the synthesis ranged from 7 to 3142 their mean age was 37 years old (SD = 10.49), and about 60 percent of them were female. Participants included university students, graduate students, and adults from the community recruited via online survey platforms, such as Amazon Mechanical Turk and Prolific.

Sampling strategy

The sample size was the total number of participants reported in the included reports. No additional sampling strategy was used.

Data collection

We used specific keywords with wildcards, performing a combined search of the following seven online databases: (a) PsycInfo, (b) Google Scholar, (c) MEDLINE, (d) PubMed, (e) ProQuest Dissertations and Theses Abstracts and Indexes: Social Sciences, (f) Communication Source, and (g) Social Sciences Citation Index. We paired a series of keywords (i.e., misinformation OR misbelief* OR false information OR belief perseverance OR continued influence) with two other series of keywords (i.e., [retract* OR correct*] and [label* OR tag* OR flag*]). We expanded the sample of relevant reports by examining the reference lists of a systematic collection of review articles, book chapters, and dissertations.

By culling the reference lists of the review papers obtained through the database searches, we were able to identify eight additional articles. We also identified ten studies after contacting a list of researchers who have researched in this area but have no awareness of the research questions and hypotheses. Additionally, we received materials from additional researchers after posting requests on online forums and e-mail list servers (e.g., Society for Personality and Social Psychology). Finally, we searched the Open Science Framework (OSF) using the same set of keywords in early 2021 to obtain 258 unpublished and in-press data sets.

Authors and coders were blinded to the experimental conditional and hypotheses of the included reports. They were not blinded to the meta-analysis's research questions as they were preregistered at OSF <https://osf.io/vkygw>

Timing

We did not set the start date of the literature search and the end date was on August 31 2022.

Data exclusions

We included (a) studies that assessed false claims concerning a scientific measurement procedure or scientific evidence. We used several eligibility criteria to select reports for inclusion in the meta-analysis, inspecting only studies from reports that were clearly or possibly experimental. Included studies (b) empirically measured participants' beliefs in or attitudes consistent with the misinformation addressed by the correction (see Table S3 for examples of excluded reports after evaluating the full text). However, studies that included outcome measures of misinformation sharing (intentions) (Arechar et al., 2022; Jahanbakhsh et al., 2021; Pennycook et al., 2020, 2021; Sirlin et al., 2021), the quality judgment of news sources (Pennycook & Rand, 2019a), self-efficacy, openness to the messages (Gesser-Edelsburg et al., 2018), and whether participants responded to/ignored the corrections were excluded (Mosleh et al., 2022). The included studies (c) had a control or baseline group exposed to either no message, a neutral message, or an unrelated message and (d) were eligible when the misinformation was initially asserted to be true or was known to participants prior to the study and was later corrected. All studies introduced a correction for the misinformation regardless of whether the misinformation was fictitious (e.g., Anderson et al., 1980) and known to be familiar to the public (e.g., Andrews, 2021; Yousuf et al., 2021). However, studies that described the initial information as hypothetical or uncertain (e.g., Koller, 1993) or as an accusation of scientific misconduct (e.g., Greitemeyer & Sagioglou, 2015) were excluded. The coding protocol and exclusion criteria were preregistered in mid-2022 at OSF <https://osf.io/vkygw>.

Non-participation

No participants were involved in this study

Randomization

Randomization was not applicable to this study as this is a meta-analysis.

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
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☒	☐ Animals and other organisms
☒	☐ Clinical data
☒	☐ Dual use research of concern

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging