



CORRECTIONS AND RETRACTIONS

Guide for Journals





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Overview

Journals must have systems in place to correct, revise or retract articles if necessary, and to be transparent about these activities.

This is important so that the public record is correct, information accessed and used by researchers is accurate, and the good reputation of the journal and authors is maintained.

However, sometimes it can be confusing to know what kind of error warrants an erratum or corrigendum, and what are the grounds for a retraction. The specific steps to take in these situations can also be unclear.

Therefore, we have created this guide which brings together the industry standards and guidelines on academic and publishing best practices regarding corrections and retractions from global organisations such as [COPE](#), [ICMJE](#), [EASE](#) and [NLM](#).

Terminology

Although the use of terms related to corrections varies across journals and publishers, essentially an erratum (plural errata), corrigendum, and correction are all synonyms for the same thing – a notice of a correction(s) being made to an error(s) in an article. For the rest of this document, we will just use the term erratum.

Erratum

When is it not appropriate?

Corrections should only be published in an **erratum** when:

1. They do address mistakes that are major enough to affect the meaning or understanding of the article
2. They do address omissions of important information
3. They are not so major as to affect the article's conclusions or undermine the reliability of the article as a whole.

An erratum should **not** be used for minor amendments.

Examples of corrections that are inappropriate or too minor for an erratum (see Table I for further examples):

- A change in mailing address or author affiliation (particularly when the change is being made because the address/affiliation has changed post-publication)
- Tweaking of wording that might make the text a little clearer but does not change the meaning



- Changing the name of the type of study (when the description of the type of study is already accurate)
- Minor modifications of references
- Minor changes to formatting, spelling, grammar
- Results from further analyses that were performed after the paper was published. (In this case, a new article should be published explaining the new analyses and results).

It is important to ensure that errata are only published when appropriate.

When is it appropriate?

An erratum is appropriate and necessary when a correction would substantially affect the accuracy, clarity, meaning and/or reproducibility (without changing the fundamental interpretations and conclusions). This can include when:

- An error(s) is identified in the methods or results which, if corrected, would provide substantial new information that would affect the understanding of the methods and/or results. This can for example include:
 - Miscalculations
 - Inaccurate time period, reagent name, units, etc.
- It is identified that important information was mistakenly left out. This can for example include:
 - Author name, email address
 - The trial registration code, ethics committee code
 - A table column of data

See Table I for further examples.

However, if the error has considerably affected the article's results or conclusions, or it raises questions about the reliability or integrity of the article, then a retraction may be necessary – see below for more guidance on such cases.



Table I: Examples

Category	Error	Example(s)	Warrants an erratum?	Explanation
Title	Inconsistent formatting	Capitalisation or punctuation that does not conform to the style guide; an abbreviation included instead of the full term	No	Too minor – does not affect the understanding of the paper
Author name, email address, ORCID iD, postal address	Incorrect author name, email address, ORCID iD, postal address	Misspelling of an author’s name, email address or ORCID iD	Yes	This is important information that needs to be correct in order to find the article, attribute it appropriately, link across the literature, and be able to contact the authors
		Missing author name, email address or ORCID iD	Yes	
		Typo in postal address	No	
Author affiliation	Incorrect affiliation	Misspelling of an institutional affiliation	No	Too minor
		Missing institutional affiliation	Yes	This information is needed
		Updating the affiliation of an author after they moved institutions	No	This is not appropriate as the institution was correct at the time of publication
Author academic degree	Incorrect degree	Misspelling or missing degree	No	Too minor
Received and accepted dates	Inaccurate received and/or accepted dates	Incorrect or missing received and/or accepted dates	Yes	This information is needed
Methods	Minor missing information	Adding in the name of the type of study	No	Minor information that was mistakenly left out but that does not affect the understanding of the methods or results
	Awkward phrasing of steps taken	Rephrasing of a step to improve the clarity without changing the actual meaning; expanding the name of a	No	Minor improvement that does not affect the understanding of the methods or results



		model to its full name; providing added description for a term		
	Incorrect or missing dates or location of the study	Changing the months that are listed as the dates of the study (e.g., to June-September after it was originally mistakenly written as June-August)	Yes	This can affect the understanding of the results
	Trial registration code	Incorrect or missing trial registration code	Yes	This is important information that needs to be correct
	Ethics committee code	Incorrect or missing ethics committee code	Yes	This is important information that needs to be correct
	Error in the methods that affects the understanding or the ability to replicate	Missing step	Yes	This information is required for understanding the research and being able to replicate it
		Incorrect drug dose or concentration; typo in units; wrong chemical listed	Yes	This information is required for understanding the research and being able to replicate it
		Missing statistical test	Yes	This information is required for understanding the research and being able to replicate it
Tables and Figures	Inconsistent formatting or formatting that want to change for aesthetic purposes	Increasing the resolution of an image that is already readable	No	Too minor – does not affect the understanding of the paper
		Font, punctuation or spacing in a table which does not conform with the style guide	No	Too minor – does not affect the understanding of the paper
	Missing information in a table or figure that is needed for understanding	Missing title or caption information	Yes	This information is needed for understanding the findings and/or conclusions
		Missing column or row of data	Yes	This information is needed for understanding the findings and/or conclusions
		Missing table value(s)	Yes	This information is needed for understanding the findings and/or conclusions



		Mislabeled of a figure	Yes	This information is needed for understanding the findings and/or conclusions
	Substantial inaccurate information in a table	Inaccurate values in all rows of a table column	Maybe	This may suggest a major (unintentional) miscalculation or error. An explanation needs to be provided for why so many values were originally wrong. If this affects the interpretations or conclusions then this may warrant a retraction
Results	Outdated results	Updating the results after further analyses	No	A new article should be published explaining the new analyses and results
	Miscalculation or mistyped value	Sample size, p-value, mean, %, etc., where affects the reported data but not the interpretations	Yes	This information is needed for understanding the findings
	Miscalculation or mistyped value	Sample size, p-value, mean, %, etc., where affects the interpretations	Maybe	This may suggest a major (unintentional) miscalculation or error. If this affects the interpretations or conclusions then this may warrant a retraction
Discussion	New relevant information became available post-publication	New information has been found or published (by the article's author or others) which affects the understanding of this paper's findings or conclusions	No	An erratum is only to be used for errors within the article itself. In this case a new article should be written that incorporates the new information
Rephrasing	Minor rephrasing based on wording preferences	Changing 'randomized' to 'evaluated'	No	Too minor – does not affect the understanding of the paper
Formatting	Minor inconsistencies in formatting	Minor formatting errors in font or spacing	No	Too minor – does not affect the understanding of the paper
Typos	Minor typos	Minor typos in spelling or grammar	No	Too minor – does not affect the understanding of the paper



Conflict of interest	Conflict of interest information	Incorrect or missing conflict of interest information	Yes	This is important information that needs to be correct
Funding	Funding information	Incorrect or missing funding information	Yes	This is important information that needs to be correct
References	Minor reference error	Correcting a minor misspelling in a reference	No	Too minor
		Moving the in-text citation for aesthetic / formatting purposes, rather than because it is inaccurate	No	Too minor
	Considerable reference error	Wrong reference was given in the text or reference list	Yes	This is important information that needs to be correct
		Important information was missing such as author name	Yes	This is important information that needs to be correct



What are the downsides to publishing an unnecessary erratum?

Corrections and errata are published and given DOIs. This means they are citable documents. Therefore publishing an erratum increases a journal's annual citable documents and can affect the overall impact factor as calculated by leading indexes such as Scopus. For example, if a journal has an issue with 10 articles and 2 errata (= 12 citable docs) and 9 of the articles are cited 4 times each (36 citations) then the citations per document for that issue would be 3 per document. However, if there were only 10 articles and no errata in that issue (= 10 citable docs) then the 36 citations would be divided by a smaller number, and so the citations per document for that issue would be 3.6 per document.

It is therefore important to only publish an erratum when it conforms to one of the categories in Table I.

It is also important to ensure that the errata conform to industry standards – both with regards to the nature of the corrections included and the presentation of those corrections (and explanation for them). If an erratum does not conform with the industry standards and guidelines, it can affect the credibility of the journal and the erratum author.

What steps should be taken in publishing an erratum?

The erratum should be published as soon as possible in an upcoming issue. It should:

- Explain the nature of the error(s) and correction(s)
- If this includes a correction(s) to the results, include a short explanation (one or two sentences) about why the error(s) occurred and how the correction(s) affects the rest of the findings and conclusions
- Include the citation of the original article in the erratum title
- Contain a DOI and the same formatting and page numbering as the regular articles in the issue

Errata are citable documents and are submitted to indexes along with the other articles in the issue.

The following should also be added to the HTML of the original article:

- A prominent notice at the top of the article, stating that an erratum has been published to correct this article, with the DOI of the erratum and a link to it

Such practices are demonstrated in the below examples:

<https://doi.org/10.1371/journal.pone.0017843>

<https://doi.org/10.1136/bmj.b4471>

Note: it is crucial to include the notice about the correction(s) and the link to the erratum at the top of the HTML of the original article. It is not appropriate to simply upload an updated version of an already published article without such a notice. Doing so does not conform with academic and publishing best practices. If researchers have already cited this article, then substantially changing



the article and simply re-loading it onto the website would undermine their research output and the integrity of the scholarly process.

In extreme cases, the HTML and PDF documents can be updated with the corrections. If these documents are updated then a message must be included at the top of the HTML and within the PDF stating that corrections have been made on [_xxx_] date, and providing the DOI of the erratum, so readers can use this to identify what changes were made to the original document and to understand how these impact (or do not impact) the conclusions.

The aim is to provide accurate information while also being completely transparent about any post-publication changes.

Frequency of publishing errata

Publishing an erratum should be a rare event.

Errors should be picked up in the peer review, copyediting, and galley proof reviewing and correction stages, well before the issue is approved for publication. Of course, it is inevitable that the occasional error will sometimes make it through these stages, but this should not be a common occurrence, and if it is, can undermine the credibility of the journal.

If a journal finds it is needing to publish errata more frequently, then it should evaluate whether there are changes that can and should be taken to improve the pre-publication stages of manuscript checking to avoid the need for future errata. In particular, peer reviewers should be encouraged to identify fallacies in the argument and missing or incorrect datasets. It is also helpful to provide reviewers with the journal style guide so as to ensure that they can highlight major formatting inaccuracies during the review stage and include them in the requested revisions.

Retractions

Sometimes the error(s) in an article are so substantial that a retraction is necessary. Situations which warrant a retraction include:

- A major unintentional miscalculation or error which invalidates the findings or conclusions
- Falsification of data or other misconduct
- Substantial plagiarism or publication elsewhere, copyright infringement
- Unethical research practices were used in conducting the study
- A major competing interest is identified which was not disclosed and it is thought that it could have influenced the results or their interpretation

A retraction with republication can also be considered if the errors were unintentional and the rest of the paper holds up to ethical and editorial inspection (and a new peer review). If republished after retraction, an explanation must be included in the paper, and it is recommended that a detailed explanation of the corrections is also provided in an appendix or supplementary file.



Resources

For further information please refer to:

COPE's guidance on post-publication corrections: <https://publicationethics.org/postpublication>

COPE's guidance on retractions: <https://publicationethics.org/files/cope-retraction-guidelines-v2.pdf>

ICMJE guidance on corrections and retractions:
<http://www.icmje.org/recommendations/browse/publishing-and-editorial-issues/corrections-and-version-control.html>

Council of Science Editors guidance on correcting the literature:
<https://www.councilscienceeditors.org/resource-library/editorial-policies/white-paper-on-publication-ethics/3-5-correcting-the-literature/>



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