edanz learning lab

Data Handling Mistakes to Avoid

Below are some data handing and presentation mistakes to avoid in your research. If you have any questions or require language or publishing support, please email global@edanzgroup.com.

Feature	Explanation/Example
Ethical data collection, handling, and presentation	• Don't collect animal/human data without prior ethics approval • Don't collect human data without informed consent (or permission from an ethics board to waive this requirement); don't present human data (images, genetic data, any other possibly identifying data) without written permission • Declare conflicts of interest; make sure all authors can access the data • Keep all data records confidential, anonymous, and securely stored • Retain data for inspection by your institution and target journal • Adhere to institutional, funding, and journal requirements on data accessibility and sharing • Cite all your data sources
Plagiarism or self-plagiarism, with or without copyright infringement	• Don't reuse results or illustrations from someone else's publication or your own previous publication, without (1) justifying why to the target journal during manuscript submission, (2) a citation and reference to the previous work, and, if needed, (3) copyright permission for reuse and a copyright credit line
Fabrication	• Don't make up any data • Don't reuse all or part of a digital image from another test/study with different labeling as a new image
Falsification	• Don't change or delete data • Don't change only part of a digital image or crop out parts • Don't piece together parts of a digital image from different sources without clear labeling and showing clear break-lines
Using misleading illustrations	• Don't use the wrong type of illustration for your data type • Don't use misleading axes (eg, graphs with unlabeled scales, *x* and *y* axes with transposed variables, *y* axis not starting at the origin) • Don't use 3D effects, which distort scales and lead to misreading values
Omitting important information	• Don't forget to provide the total N number for proportions • Don't omit the alpha (cutoff P-level for statistical significance) in the Methods; give a sample-size calculation; give confidence intervals
Using wrong tests	• Don't use inappropriate types of statistical test or analysis for your data type/s; plan analyses before the study
Cherry picking	• Don't select a sample, data, or analysis results just to support your point
P-hacking	• Don't use many statistical tests, collect more or exclude data/variables, or transform data just to find a positive result to report • Don't make multiple statistical comparisons of a dataset without correcting the cutoff P-level used
Fishing trip/ expedition, data dredging/fishing	• In hypothesis-testing studies, don't analyze large volumes of data just to find interesting results (especially without knowing the provenance of the dataset/s, collection methods, and any data transformations applied)
HARK	• Don't "hypothesize after the results are known": don't change or create your study hypothesis after the analyses show positive results