Fabrication, Falsification and Plagiarism

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Fabrication, falsification, and plagiarism (FFP) are forms of research misconduct that compromise scientific integrity. Fabrication refers to making up data or results, including generating numbers without performing experiments or creating false images by duplicating and relabelling existing ones. Falsification involves the deliberate manipulation of methods, materials, equipment, data, or results so that the research is not accurately represented. This may involve altering data, tampering with images, or removing data points or test subjects that contradict the research hypothesis. Although both distort the evidence base, fabrication introduces entirely false information, whereas falsification alters genuine results in misleading ways. [1]

Plagiarism is the use of another person's ideas, methods, or words without giving due credit. Self-plagiarism involves reusing one's own previously published work without acknowledgement, which could create a false impression of originality. While plagiarism does not directly change data, it misrepresents intellectual contribution and authorship. [2]

Overall, FFP undermine the reliability of the scientific record. Fabrication and falsification generate results that cannot be reproduced, wasting resources, and eroding trust in research findings. Plagiarism and self-plagiarism weaken transparency and appropriate attribution, which are essential for the cumulative and self-correcting nature of science.

It is important to note that 'intent' is central to the definition of research misconduct. It excludes honest error and differences of opinion, and instead refers specifically to the 'deliberate' fabrication, falsification, or plagiarism of research. [3]

Why is it relevant?

The integrity, reliability, and legitimacy of scientific research depend on the proper conduct and reporting of research. Fabrication, falsification and plagiarism distort the knowledge base, misleading other researchers, skewing meta-analyses, and wasting time, funding, and resources as others build on unreliable results. In some cases, this

can have real-world consequences where decisions are made on the basis of flawed findings. Research misconduct also erodes trust in science. High-profile cases can damage the credibility of individual researchers, institutions, and entire disciplines, undermining confidence in the broader research enterprise.

Practical Steps

Avoid fabrication

1. Keep detailed, accurate, and contemporaneous records of all research activities including failed and inconclusive experiments. [4]
2. Replicate or independently verify important findings. [5]
3. Correct errors promptly if inaccuracies are discovered after publication or submission. [6]

Avoid falsification

1. Report findings accurately and completely even when these results do not support the original hypothesis, being careful to not selectively remove, alter, or omit data points without clear methodological justification. [7]
2. Acknowledge methodological limitations and uncertainty openly. [8]

Avoid plagiarism

1. Accurately acknowledge the contributions of others, including through appropriate use if quotation marks for direct quotations and giving credit when paraphrasing. [9]
2. When paraphrasing, you should use your own words and sentence structures to create a text of roughly equivalent lengths.
3. If paraphrasing scientific material, you must ensure you have a good understanding of the meaning of the terminology and the ideas being conveyed to not change the meaning.

Avoid self-plagiarism

1. Reference previous publications transparently.

Case Study

Former University of Queensland professor, Bruce Murdoch, falsified a breakthrough study on Parkinson's disease. The falsification was first discovered through a whistleblower report that alerted UQ to the fact that no such study had ever been conducted. Two research papers coming out of the study were retracted. Most notably, Murdoch was convicted and sentenced for 17 fraud-related offences following an investigation by the Crime and Corruption Commission. This was the first criminal prosecution for research fraud. [10]

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