

# A review on the diverse types of research misconduct

**Mohsen Rezaeian**

## Correspondence:

Professor Mohsen Rezaeian  
PhD, Epidemiologist  
Social Medicine Department  
Occupational Environmental Research Center  
Rafsanjan Medical School  
Rafsanjan University of Medical Sciences  
Rafsanjan-Iran  
Tel: 03915234003  
Fax: 03915225209  
**Email:** moeygmr2@yahoo.co.uk

## Introduction

Research misconduct encompasses a vast array of behaviors, from very serious research misbehavior such as data fabrication to the less serious aspects such as authorship disputes. It would be possible to categorize very serious misbehaviors as research fraud and less serious types as questionable research practices.

From one hand, evidence suggests that different research misconduct, either research fraud or questionable research practices might have substantial damaging impact on the advancement of human knowledge. On the other hand, some novice and young researchers might innocently commit such misconduct. Therefore, the aim of the present article is to overview diverse types of research misconduct.

## Abstract

Research misconduct encompasses a vast array of research misbehaviors, from very serious to less serious. We could name very serious misbehavior as research fraud and less serious types as questionable research practices. The aim of the present article is to overview the diverse types of research misconduct.

**Key words:** Research misconduct, Research fraud, Questionable research practice

## Data fabrication and data falsification

Data fabrication means inventing fake data whilst data falsification implies distorting existing data to obtain some specific results. Both of these research misbehaviors are among the most serious research misconduct i.e. research fraud.

## Plagiarism and self-plagiarism

Plagiarism implies stealing other people's ideas and self-plagiarism means stealing one's own idea both without providing proper attribution. Plagiarism and self-plagiarism could start from one sentence and might extend to one paragraph and even a full article. Plagiarism especially in larger text copying is categorized as research fraud.

## Duplicate publication, redundant publication and salami publication

Duplicate publication indicates publishing two identical articles whilst redundant publication involves publication of two rather similar articles. Salami publication also denotes publishing two or more articles from a single study. It should be noted that only large epidemiological studies might permit publication of more than one article. Whilst duplicate publication can be categorized as a serious research misconduct, redundant and salami publication might be considered as less serious forms.

## Failing to gain approval for the research proposal from an ethics committee for research

Failing to gain approval for the research proposal from an ethics committee for research could be regarded as a serious type of research misconduct.

This gets worse when the proposal deals with interventional design in human subjects such as in clinical trials. Therefore, it is highly suggested that any research proposal should receive approval from an ethics committee for research.

### **Conducting research in humans and/or animals without considering ethical issues**

Approval for the research proposal from an ethics committee for research is a necessary but not sufficient step for avoiding research misconduct. In addition, researchers should take into account any relevant ethical approved guidelines when dealing with humans and/or animals subjects. Failing to consider such ethical issues could be regarded as serious types of research misconduct.

### **Ignoring outliers, ignoring missing data, reporting post-hoc analyses without declaring them**

Any wrong doings in the process of data analyses such as ignoring outliers, ignoring missing data, reporting post-hoc analyses without declaring them, could have serious impacts on the results. Therefore, it is necessary that researchers admit and declare any outliers and/or missing data. Furthermore, carrying out any type of post-hoc analyses should be declared in advance by the researchers.

### **Authorship disputes**

Authorship disputes encompass any disagreements between researchers about the names and orders of the authors in a given paper. Unfortunately, evidence suggests that such questionable research practice is rather common in different countries around the world. Therefore, it is up to authors to consider the authorship criteria in order to name in the right order only true authors and avoiding guest or ghost authorships.

### **Failing to disclose a conflict of interest**

Conflict of interest implies that researchers, reviewers and editors have a relationship either financial and/or non-financial to a person, school of thought, organization; etc that might cause unwanted impacts on the process of scientific publication. The most important way to avoid any research misconduct regarding conflict of interest is to disclose any possible conflicts before publishing a paper.

### **Failure to carry out a thorough literature review before commencing new research**

Failure to carry out a thorough literature review before commencing new research is judged to be a questionable research practice. The reason for this is too obvious, since inadequate literature review might lead to flawed or repetitive research.

## **Conclusion**

Data fabrication, data falsification, plagiarism, self-plagiarism, duplicate publication, redundant publication, salami publication, failing to gain approval for the research proposal from an ethics committee for research, conducting research in humans and/or animals without considering ethical issues, ignoring outliers, ignoring missing data, reporting post-hoc analyses without declaring them, authorship disputes, failing to disclose a conflict of interest and failure to carry out a thorough literature review before commencing new research, are different types of research misconduct.

Researchers, especially novices, should try to avoid all types of research misconduct through recognition of these principles. We all should bear in mind that the advance of human civilisation has always been tied up with the advance in knowledge and technology and the global sharing of the same.

## **Further Reading**

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