

Research Ethics II

Ethical Properties

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Learning Outcomes

- To learn about Intellectual honesty and research integrity
- To conjecture about the possible Scientific misconducts
- To surmise the redundant publications
- To distinguish between 'Duplicate' and 'Overlapping publications'
- To know concerning Salami Slicing
- To infer selective reporting and misrepresentation of data
- To search for reasons, evidence and/or argument for warrant that might support one belief rather than another

Ethics

- Ethics refers to a set of values that discriminate between right and wrong way of doing a task.
- Adherence, to ethical code of conduct specified for research, safeguards the reputation and reliability of a researcher among scientist community.

Intellectual honesty and research integrity

- It matters in proposing, performing, and reporting research
- Means honesty with respect to the meaning of one's research.
- Researchers present proposals and data honestly and
- communicate their best understanding of the work in writing and verbally.

Objectives of Research Ethics

- To preserve scientific integrity, protect the core objective of research, i.e.; advancement of true knowledge.
- By avoiding disputes about authorship, copyrights, and other issues, these ideals foster cooperation, respect, and impartiality in the workplace.
- In a clinical context, these regulations ensure the safety and interests of human patients.
- These rules set accountability of researchers for the outcomes benefiting the society.

Ethical Principles

- Integrity & Honesty
- Objectivity (lack of biasness)
- Competence
- Carefulness
- Openness
- Legality
- Confidentiality
- Non-discrimination
- Respect for IPR
- Responsible Publication
- Responsible Mentoring
- Social Responsibility
- Animal Care
- Human Subjects Protection
- Avoid Plagiarism
- Data Management
- Autonomy

Research Integrity

Research Integrity includes:

- Use of honest and verifiable methods in proposing, performing, and evaluating research.
- Reporting research results with particular attention to adherence to rules, regulations, and guidelines.

How to maintain Research Integrity

- Disclose all interests (publication/ patent) to all the stakeholders and give proper credit.
- Monitor research and research results for transparency and integrity.
- Remove the person in question from important processes such as data interpretation or review process.

Ethics for using Human Subjects

- Protection of Human subjects.
- Therefore, clinical studies are highly scrutinized and regulated.
- Follow international guidelines / local / state regulations for protection and welfare of the human subjects.
- Submit statements that international guidelines and best practices were followed in these trials to the Journal.
- Submit statements of appropriate clearances from research ethics committees or institutional review boards.

Laboratory Animals

- Methods that avoid/ replace the use of animals
 - Models/ simulations/ virtual/ augmented
- Methods that minimize the number of animals per experiment
 - Appropriately designed experiments
- Methods that minimize animal suffering and improve welfare
 - Advanced/ in vivo technologies

Data Management

- **Data collection:** Consistent and quality-controlled collection of data
- **Data storage:** Protection of data from damage, loss, or theft.
- Data sharing
- Confidentiality
- **Data ownership:** Stakeholders include funders, research institutions, principal investigators, and even data sources.
- Provide **Data Management Plan (DMP)** to ethics committees for clinical studies/trials for approval. An effective data management plan can help you avoid ethical issues.

Types of Authorship issues

- Guest / Gift
- Ghost
- Inclusion or exclusion of authors
- Group authorship
- Attribution of credit

Authorship Validity

According to ICMJE, an author must satisfy these four criteria.

- Made substantial contributions to the design and conception of the study; data collection, analysis, and interpretation.
- Drafted or revised the intellectual content/output.
- Approved the final version of the manuscript for publication.
- **Agreed to be accountable for the research work**, ensuring that queries related to accuracy or integrity of the research are resolved.
- Moreover, the author should be able to identify which co-authors are responsible for which part of the work.

Publication Disputes

- **Simultaneous Submissions:** Submitting same manuscript in same or different language(s) to one or more than one journal at the same time.
- **Duplicate/ Redundant Publications:** Publishing a paper that is significantly similar to the paper published previously.

Publication Ethics

- Do not submit the same paper to different journals.
- Disclose publication in conference proceedings, submission to a pre-print repository etc.
- Check with the publisher about translating and publishing the work again.
- Avoid dividing your study into multiple publications (**Salami Slicing**).

Avoid Salami Slicing

- Properly reference the previously published article;
- Besides citing the original article, clearly declare that it is part of an already published study;
- Emphasize all new knowledge added in the second manuscript;
- Not repeat any of the data presented in the previous article;
- Give a detailed explanation to the journal's editor on all above mentioned points because transparency is crucial.

Primary & Secondary Publication

- Ensure Editors have access to the original/primary published work.
- The editors have agreed on the publication interval between the primary and secondary publication.
- The secondary publication refers (cite) to the data and interpretation of the primary publication.
- The secondary publication informs readers that primary publication has been published previously (whole or in parts) by citing it appropriately.
- The title should indicate that it is a secondary publication.

Research misconduct

- Fabrication, falsification, or plagiarism in proposing, performing, reviewing research, or in reporting research results.

(a) Fabrication is making up data or results and recording or reporting them.

(b) Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

(c) Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

Case Study: A Breach of Trust

- Jan Hendrik Schön, 1998, Bell Laboratory , USA (25 papers)
- described methods that could create carbon-based materials with long-sought properties, including superconductivity and molecular-level switching. However, when other materials scientists sought to reproduce or extend the results, they were unsuccessful.

Plagiarism

- Plagiarism is a serious misconduct and professional infraction.
- Using someone else's ideas, facts, concepts, words, procedures, photos, etc. without giving due credit and passing them off as one's own is known as plagiarism.
- It can not only have legal implications but also damage the credibility and reputation of the author.
- In academic publishing, plagiarism can lead to retraction of the published work and loss of academic positions or jobs.

Types of Plagiarism

- Complete plagiarism/ intellectual theft
- Source-based plagiarism: a misleading citation
- Verbatim plagiarism
- Self plagiarism (duplication/text recycling/translation)
- Paraphrasing plagiarism: minor changes in the sentences (using synonyms)
- Mosaic/patchwork plagiarism: Interlay someone else's phrases or text within own work.

How to avoid Plagiarism

- Quoting
- Summarizing
- Paraphrasing
- Common Knowledge

Image Manipulation

- Droplet, Adobe Bridge, Image J (Forensic Tools to detect image manipulation)
- **Manipulation of images**
- **Images may be manipulated for improved clarity only.**
- **No specific feature within an image may be enhanced, obscured, moved, removed, or introduced.**
- **Adjustments of brightness, contrast, or color balance are usually acceptable as long as they do not obscure or eliminate any information present in the original.**

Reproducibility of Research

- **Reproducibility** is defined as when a researcher is able to duplicate the same phenomenon even when experimental conditions are varied.
- **Replicability** is defined as when a researcher is able to obtain same results when the experiment is conducted under same experimental conditions.

Reproducibility of Research

- Write detailed experimental protocols that are easy to understand/implement.
- Share your research outputs in an open access repository to make them accessible.
- Perform experiments (with variations) in duplicates/triplicates to increase the robustness of your findings.
- Refrain from data fabrication or manipulation.

THANK YOU

Any Questions?