

Modern standards in ethical research practice - a review

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Abstract—Research ethics and publication ethics form the foundation of responsible scientific inquiry and scholarly communication. Research ethics ensure that studies involving human participants, animals, or sensitive data are conducted with integrity, transparency, and respect for ethical principles such as autonomy, beneficence, non-maleficence, and justice. These principles guide researchers in obtaining informed consent, ensuring confidentiality, minimizing risks, and maintaining scientific honesty throughout the research process. Publication ethics, on the other hand, ensure that the dissemination of research findings adheres to standards of accuracy, fairness, and accountability. Key components include avoiding plagiarism, data fabrication and falsification, duplicate publication, inadequate authorship practices, and conflicts of interest. Ethical publication also requires rigorous peer review, responsible reporting, proper citation, and transparency in methodology and results. Together, research and publication ethics promote credibility, trust, and reproducibility in science, strengthening the integrity of the academic community. Adhering to these ethical standards not only protects participants and researchers but also enhances the overall quality and societal impact of scientific knowledge.

Index Terms—Informed Consent, Plagiarism, Publication Ethics, Research Ethics, Scientific Integrity

I. INTRODUCTION

Research ethics can be described as a set of moral principles that a researcher should follow to conduct research in a responsible manner. Research ethics guide researchers about right and wrong during their research. According to the World Health Organization (WHO), “research ethics govern the standards of conduct for researchers.” Further, ethical principles must be adhered to “in order to protect the dignity, rights and welfare of research participants”.⁹

9. World Health Organization, “Ensuring Ethical Standards and Procedures for Research with Human Beings”, available at <https://www.who.int/activities/ensuring-ethicalstandards-and-procedures-for-research-with-human-beings> (accessed on August 8, 2023).

II. PRINCIPLES OF PUBLICATION ETHICS

A. INTEGRITY

Research must be reported as it is—without manipulation, fabrication, or falsification. Integrity ensures that published work represents true scientific inquiry, not altered information to impress readers or earn credit.

Example:

Changing negative or insignificant results to positive ones is a violation of integrity.

B. RESPONSIBILITY

All stakeholders are accountable for their role:

- Authors → responsible for the accuracy of data and findings
- Editors → responsible for fair decisions
- Reviewers → responsible for unbiased evaluation
- Publishers → responsible for ethical dissemination

C. TRANSPARENCY

Clear communication regarding:

- Research methods
- Funding sources
- Conflicts of interest
- Author contributions
- Use of AI tools
- Ethical approval

Transparency enhances the credibility of the published work.

D. FAIRNESS

Every manuscript should be evaluated based on its scientific merit—not on:

- Author's gender
- Nationality
- Institutional affiliation
- Language
- Social reputation

Fairness ensures that publications promote equality and inclusiveness in academia.

III. ETHICAL RESPONSIBILITIES OF AUTHORS

Authors play the central role in publishing and must follow several ethical obligations.

A. ENSURING ORIGINALITY

The work must be original and unpublished. Plagiarism — copying someone's ideas, data, words, or results — is strictly prohibited.

Forms of plagiarism:

1. Direct plagiarism: copy-paste without citation
2. Self-plagiarism: reusing one's own previous work without disclosure
3. Mosaic plagiarism: mixing others' sentences with slight rewording
4. Idea plagiarism: using concepts without acknowledgement

All journals routinely use plagiarism detection software (turnitin, iThenticate).

B. AUTHORSHIP ETHICS

Who qualifies as an author?

According to ICMJE guidelines, an author must:

1. Contribute substantially to the research
2. Participate in drafting or revising the manuscript
3. Approve the final version
4. Take responsibility for the work

Unethical authorship practices:

- Gift authorship – adding someone who did not contribute
- Guest authorship – adding a famous person for prestige
- Ghost authorship – excluding someone who contributed
- Paid authorship – buying co-authorship

Authorship disputes can damage professional reputation.

C. AVOIDING DUPLICATE AND REDUNDANT PUBLICATION

Submitting the same research to multiple journals simultaneously is unethical and wastes editorial resources.

D. REDUNDANT PUBLICATION INCLUDES:

- Publishing the same data in multiple papers
- Rewriting the same results with minor changes ("salami slicing"). Citations and Acknowledgments

Authors must:

- Cite all sources accurately
- Credit tools, theories, or datasets used
- Acknowledge contributors (advisors, funders, data collectors)

Improper referencing is a major ethical violation.

E. DATA ACCURACY AND AVAILABILITY

Authors must not fabricate (invent) or falsify (manipulate) data.

EXAMPLES OF MISCONDUCT:

- Changing values to achieve statistical significance
- Photoshopping images
- Selective reporting of only favourable results

Researchers must retain original data for verification if requested by journals.

F. CONFLICT OF INTEREST DISCLOSURE

Any financial, personal, or institutional relationship that may bias the research must be disclosed.

Examples:

- Industry-funded studies
- Personal relationships with editors or reviewers
- Ownership shares in related companies

Declaring conflicts of interest supports transparency.

G. ETHICAL CLEARANCE

Studies involving humans or animals must follow all ethical guidelines.

For Human subjects:

- Informed consent
- Confidentiality
- Privacy safeguards

- Institutional Ethics Committee (IEC) approval

For animals:

- Humane treatment
- Ethical justification
- CPCSEA guidelines (India)

IV. ETHICAL RESPONSIBILITIES OF EDITORS

Editors manage manuscript handling and must uphold the highest ethical standards.

a. Manuscript Evaluation

Editors should evaluate papers based on quality, originality, and relevance—not on personal bias.

b. Confidentiality

Editors must protect the identity of authors and reviewers and ensure that unpublished data is not misused.

c. Handling Misconduct

Editors must investigate:

- Plagiarism
- Fabrication
- Fake data
- Unethical authorship
- Complaints against published work

Corrective actions include issuing corrections, retractions, or expressions of concern.

d. Conflict of Interest

Editors must not make decisions on papers authored by:

- Colleagues
- Friends
- Students
- Relatives
- Institutions they are associated with

V. ETHICAL RESPONSIBILITIES OF REVIEWERS

Peer review is the backbone of quality publications.

a. Objectivity

Reviewers must assess manuscripts without:

- Discrimination
- Personal judgement

- Competitiveness

- Bias

Their comments must be constructive, specific, and useful.

b. Confidentiality

Manuscripts received for review are confidential documents. Reviewers must not:

- Share them
- Discuss them
- Use them for personal advantage

c. Promptness

Reviewers must decline reviews if:

- They are unqualified
- They cannot complete the review on time

Delayed reviews can harm authors, especially students awaiting graduation.

d. Detecting Ethical Issues

Reviewers should identify:

- Incomplete ethics approval
- Suspected plagiarism
- Questionable statistical analysis
- Data inconsistencies
- Duplicate submission

VI. MAJOR TYPES OF PUBLICATION MISCONDUCT

a. Plagiarism

Using others' work without permission or citation.

b. Fabrication

Inventing non-existent data or results.

c. Falsification

Manipulating data, images, or methodology.

d. Salami Slicing

Breaking a large study into smaller parts to publish more papers.

e. Duplicate Publication

Submitting the same work to more than one journal.

f. Citation Manipulation

Adding unnecessary citations to increase impact factors.

g. Fake Peer Review

Authors suggesting false email addresses to review their own paper

VII. ETHICAL CONSIDERATIONS FOR DIGITAL AND OPEN-ACCESS PUBLISHING

A. PREDATORY JOURNALS

These are low-quality journals that:

- Charge high fees
- Lack peer review
- Publish any paper for money
- Fake indexing claims

Researchers must verify:

- Scopus / Web of Science indexing
- ISSN authenticity
- Peer review process
- Publishing timelines

B. DATA SHARING ETHICS

Researchers must share data responsibly.

ENSURE:

- Confidentiality
- De-identification of personal data
- FAIR principles (Findable, Accessible, Interoperable, Reusable)

C. USE OF ARTIFICIAL INTELLIGENCE

Ethical use of AI in manuscripts requires:

- Transparency
- Declaration of use
- Ensuring AI does not generate false or fabricated data

VIII. POST-PUBLICATION ETHICS

Even after publication, authors and editors have responsibilities.

a. Corrections and Retractions

When corrections are issued:

- Minor errors
- Typographical inaccuracies
- Missing references

A. WHEN RETRACTIONS OCCUR:

- Plagiarism
- Fake data
- Ethical violations
- Serious errors affecting reliability

Journals publish “Retraction Notices” to maintain transparency

B. RESPONDING TO CRITICISM

Researchers must respond respectfully to:

- Comments
- Letters to the editor
- Peer queries

Scholarly debate strengthens scientific progress.

IX. IMPORTANCE OF PUBLICATION ETHICS

A. ENHANCES THE CREDIBILITY OF RESEARCH

Ethical practices ensure that knowledge shared with the scientific community is accurate and trustworthy.

B. STRENGTHENS RESEARCH CULTURE

Encourages honest, responsible, and professional behaviour in academic environments.

C. PROTECTS HUMAN AND ANIMAL SUBJECTS

Ethical research safeguards the dignity, safety, and rights of participants.

D. PREVENTS MISUSE OF SCIENCE

Ensures that findings are not manipulated for personal or institutional gain.

E. HELPS MAINTAIN PUBLIC TRUST

Ethical publications reinforce public confidence in scientific findings.

X. CONCLUSION

Publication ethics is the backbone of credible scientific research. Upholding ethical guidelines ensures that knowledge is accurate, transparent, and reliable. Authors, editors, reviewers, and publishers must collectively follow ethical practices to maintain academic integrity. With the rapid expansion of digital publishing, awareness and adherence to ethical standards are more crucial than ever. Ethical

publication not only supports scientific progress but also protects the integrity of the global research community.

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