## Upholding Integrity, Ensuring Accountability and Shaping Responsible Research

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## Introduction

Research is the foundation of scientific progress, but its credibility depends on **integrity and accountability**.

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Ethical research ensures that knowledge is **reliable**, **reproducible**, **and beneficial** to society.



Growing concerns over **fraudulent practices**, **unethical publishing**, **and data manipulation** threaten scientific trust.

## Current Framework for Defining Research Behaviours



## Current Framework for Defining Research Behaviours [Contd.]





- Ethical guidelines that promote honesty, accuracy, and transparency in research.
- Encourages peer review, data sharing, and ethical collaborations.

- Selective reporting of data
- Improper authorship (ghost or honorary authorship)
- Lack of data transparency
- Failure to disclose conflicts of interest

Fabrication: Making up data or results.

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- Falsification: Manipulating research processes or data to misrepresent findings.
- Plagiarism: Using another's ideas or words without proper attribution.



## **Research Ethics & Research Integrity**





#### The 'Publish or Perish' Culture & Papermills



#### The 'Publish or Perish' Pressure

- Researchers are evaluated based on the quantity of publications, not necessarily quality.
- Leads to rushed, low-quality, or even fraudulent studies.
- Encourages exaggeration and sensationalism over genuine scientific inquiry.





#### Papermills: The Rise of Fake Research Factories

- Papermills are organizations that produce fake scientific papers for researchers who pay for authorship.
- These papers often include falsified data, plagiarized content, or fake peer reviews.
- Weakens the credibility of scientific literature and misleads future research.

#### Tangible Consequences of Fraudulent Research in Developing Countries

Wasting Resources





Impact on Scientific Integrity



- Fraudulent research diverts the time and effort of editors, reviewers, and journal staff, delaying genuine scientific progress.
- Studies, such as Carlisle's analysis of Anaesthesia submissions, highlight the extensive labour required to identify and filter out fabricated data.
- Research misconduct erodes institutional credibility, making it difficult to secure funding.
- In developing countries, repeated cases of data falsification can lead to diminished trust in research outputs, discouraging both local and international investment.
- Fraudulent studies distort the scientific record, misleading future research and policy decisions.
- This is particularly damaging in developing countries striving to establish their research credibility, as it weakens public trust and hinders biomedical advancements.
- Beyond immediate resource loss, unethical research damages the reputation of entire institutions and research communities.
- This can create barriers to collaboration and innovation, forcing legitimate researchers from affected regions to face increased scrutiny and scepticism on the global stage.

## Case Studies of Research Misconduct



#### Case Study 1 – The Hwang Woo-suk Scandal

#### What Happened?

- Hwang Woo-suk, a South Korean scientist, falsified research on cloning human embryonic stem cells (2004-2005).
- Published in *Science*, leading to global acclaim before the fraud was exposed.

#### **Key Ethical Violations:**

- Fabricated data and manipulated results.
- Pressured junior researchers into donating eggs unethically.

#### **Consequences:**

- Papers were retracted, reputation destroyed, and funding cut off.
- Exposed flaws in peer review and oversight.



#### Case Study 2 – The Surgisphere COVID-19 Data Controversy

#### What Happened?

- Surgisphere, a data analytics firm, provided fraudulent data on COVID-19 treatment drugs (2020).
- Studies were published in *The Lancet* and *The New England Journal* of Medicine without proper verification.

#### **Key Ethical Violations:**

- Data sources were unverifiable; authors refused transparency.
- Studies influenced global health policies before being retracted.

#### **Consequences:**

- Papers were retracted, damaging trust in pandemic research.
- Raised concerns about peer review failures during emergencies.



Source: https://en.wikipedia.org/wiki/Surgisphere

#### **Case Study 3 – The Don Poldermans Case**

#### What Happened?

- Don Poldermans, a Dutch cardiovascular researcher, falsified patient data in clinical trials.
- His work influenced international guidelines for heart surgery patients.

#### **Key Ethical Violations:**

- Fabrication of data in studies supporting beta-blocker use.
- Endangered patients' lives by misleading medical guidelines.

#### **Consequences:**

- Research was retracted, but not before thousands of patients were affected.
- Exposed the dangers of relying on fraudulent research in clinical settings.



#### **Dos and Don'ts for Students**

**Keep Detailed Records:** Maintain lab notebooks, original data, and timestamps.

Ask Questions: If something seems ethically questionable, clarify it with your supervisor.

 $\checkmark$  Report Misconduct: If you notice falsified data, speak to an ethics committee or trusted faculty member.

Sollow Proper Citation and Attribution: Plagiarism, even unintentional, is unethical.

Stay True to Results: Report findings honestly, even if they don't align with expected outcomes.

 $\oslash$  Don't Falsify or Fabricate Data: The consequences of being caught can end careers.

O Don't Succumb to Pressure: No paper or thesis is worth violating ethical standards.

O Don't Assume 'Everyone is Doing It': Ethical research is about integrity, not competition.



#### Dos and Don'ts for Supervisors

Segularly review students' work and data.

✓ Lead by Example: Demonstrate ethical research practices in our own work.

✓ Create an Open Environment: Encourage students to voice ethical concerns.

 $\checkmark$  Educate Students: Train students in research integrity, citation practices, and avoiding data manipulation.

 $\checkmark$  Check for Bias and Pressure: Be aware of the pressure students may feel to produce "positive" results.

On't Ignore Ethical Violations: Supervisors who look the other way become complicit.
On't Encourage Data Manipulation: Pushing students for "faster results" leads to shortcuts.

On't Shift Blame to Students: Ethical failures in a lab are a shared responsibility.



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