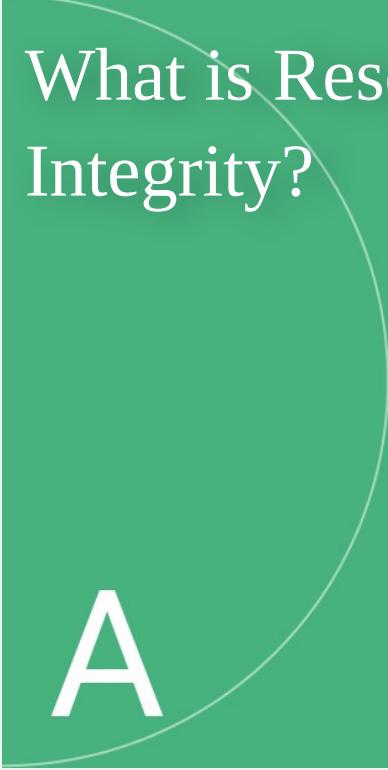




Principles & Practices of Open Research

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What is Research
Integrity?

A

Research Integrity

Guiding Principles
of Research
Integrity

Reliability	Ensuring quality of research, in all stages of the research process
Honesty	Developing, conducting, sharing and engaging with research in fair and transparent ways
Respect	For research participants, colleagues, society, culture and the environment
Accountability	For the research, its management, and its wider impacts

Adapted from the [European Code of Conduct for Research Integrity](#)

What is research integrity?

Research integrity involves making honest, responsible decisions at all stages of the research cycle







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Why is Research Integrity Important?

B

Why is research integrity important?



Why is research integrity important?

1

It reduces the likelihood of research misconduct

2

It ensures the validity of research results

3

It facilitates trust between researchers

4

It promotes trust in data and research expertise

Why is research integrity important for you?



The research practices that you learn will influence how you conduct and use research - now and in the future!

So as a research student, you should focus on building your skills



Skills like academic honesty, including learning to cite sources completely and accurately, so that you can give credit where credit is due

Or data interpretation. By learning best practices for data analysis and reporting in your discipline, you can be sure to report your findings accurately



Why is research integrity important for you?



Research integrity
can also help you
to minimise
research waste



By making
responsible decisions
about whether research
should be done, and how it
should be done, you can
minimise waste of time
and resources



Why is research integrity important for you?



Wasteful behaviours include conducting unnecessary research on topics that have already been addressed

Not properly designing your study or being careless in your research activities are wasteful behaviours

Conducting research without being transparent about what you did can also be wasteful





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What practices can
compromise research
integrity?

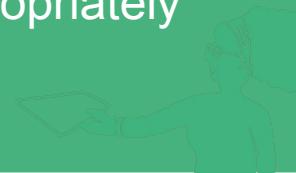
C

What practices can compromise research integrity?

Plagiarism
(including self-plagiarism)



Giving or taking credit for work inappropriately



Fabricating data



Misrepresenting data



Manipulation of images or other materials



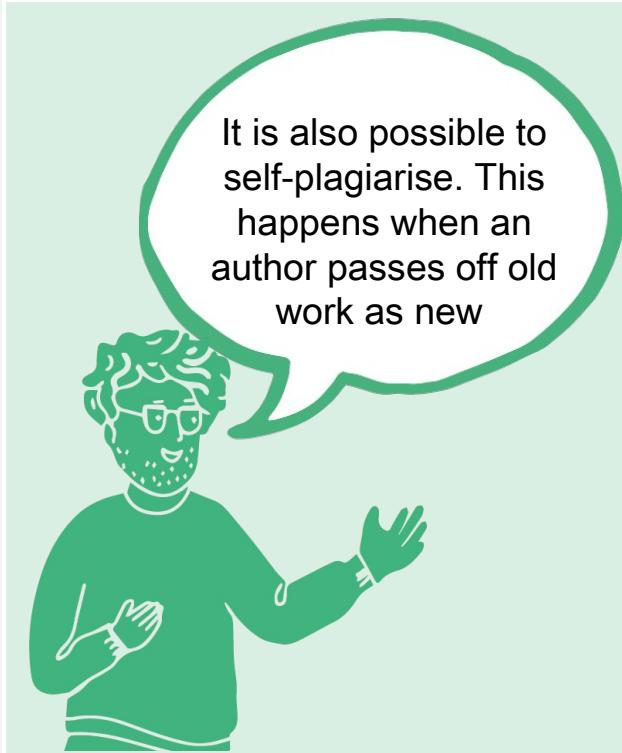
Undeclared conflicts of interest



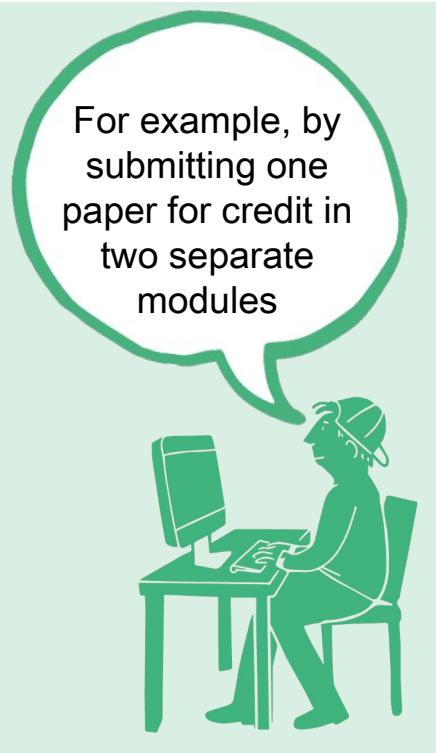
What is plagiarism?



Plagiarism is the practice of misrepresenting somebody else's words or ideas as your own



It is also possible to self-plagiarise. This happens when an author passes off old work as new



For example, by submitting one paper for credit in two separate modules

Avoiding Plagiarism



1

Always acknowledge the work and contributions of other people

2

When paraphrasing or summarising someone else's work, include a citation

3

If including text from someone else's work verbatim, use quotation marks and include a citation

4

Cite primary sources of information, rather than secondary or tertiary sources

Adapted from ori.hhs.gov/plagiarism-0

Avoiding Plagiarism



Your university will have resources to help you avoid plagiarism too.

In UCC, for example, a Citing, Referencing and Plagiarism course is available [here](#)

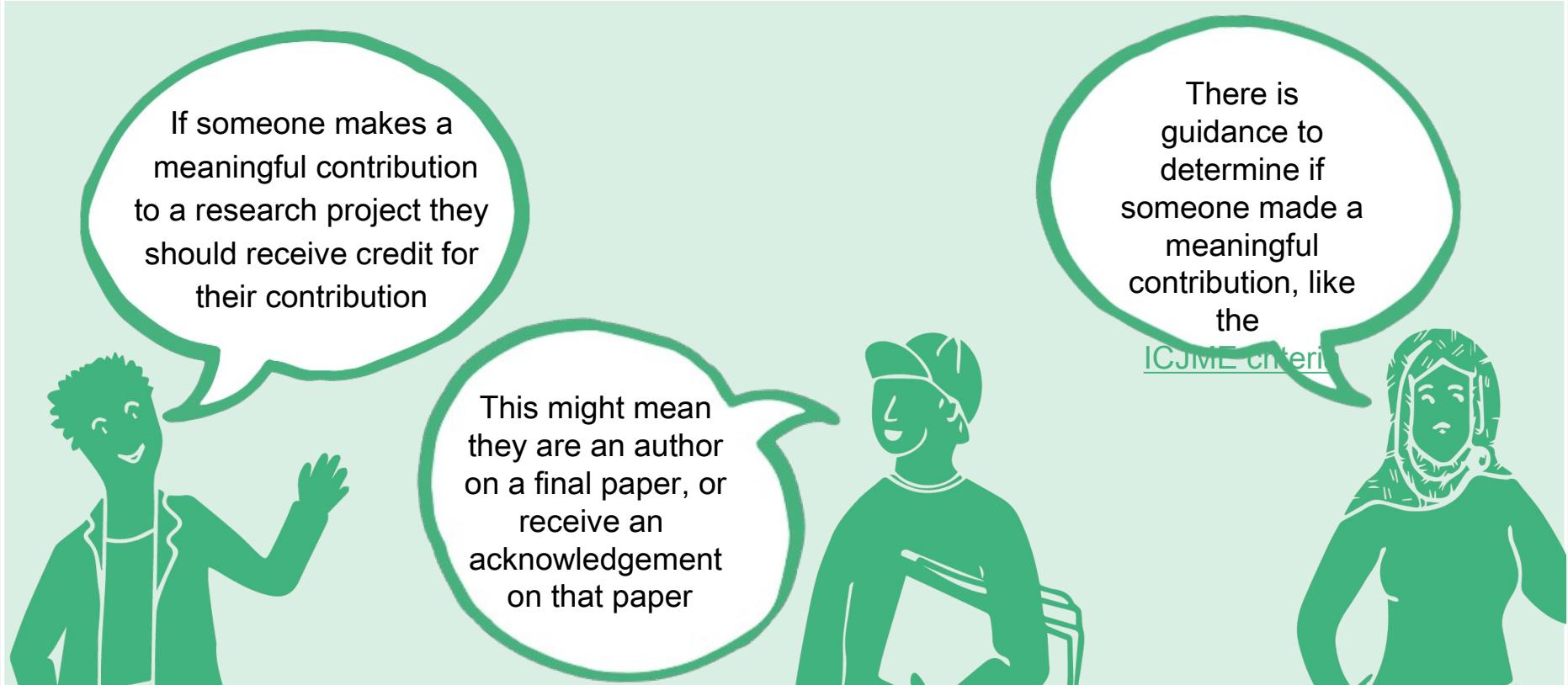


And check out this video on [how to cite sources](#)

And this one on [examples of plagiarism](#)

They are short but very useful!

Giving or Taking Credit for Work Inappropriately

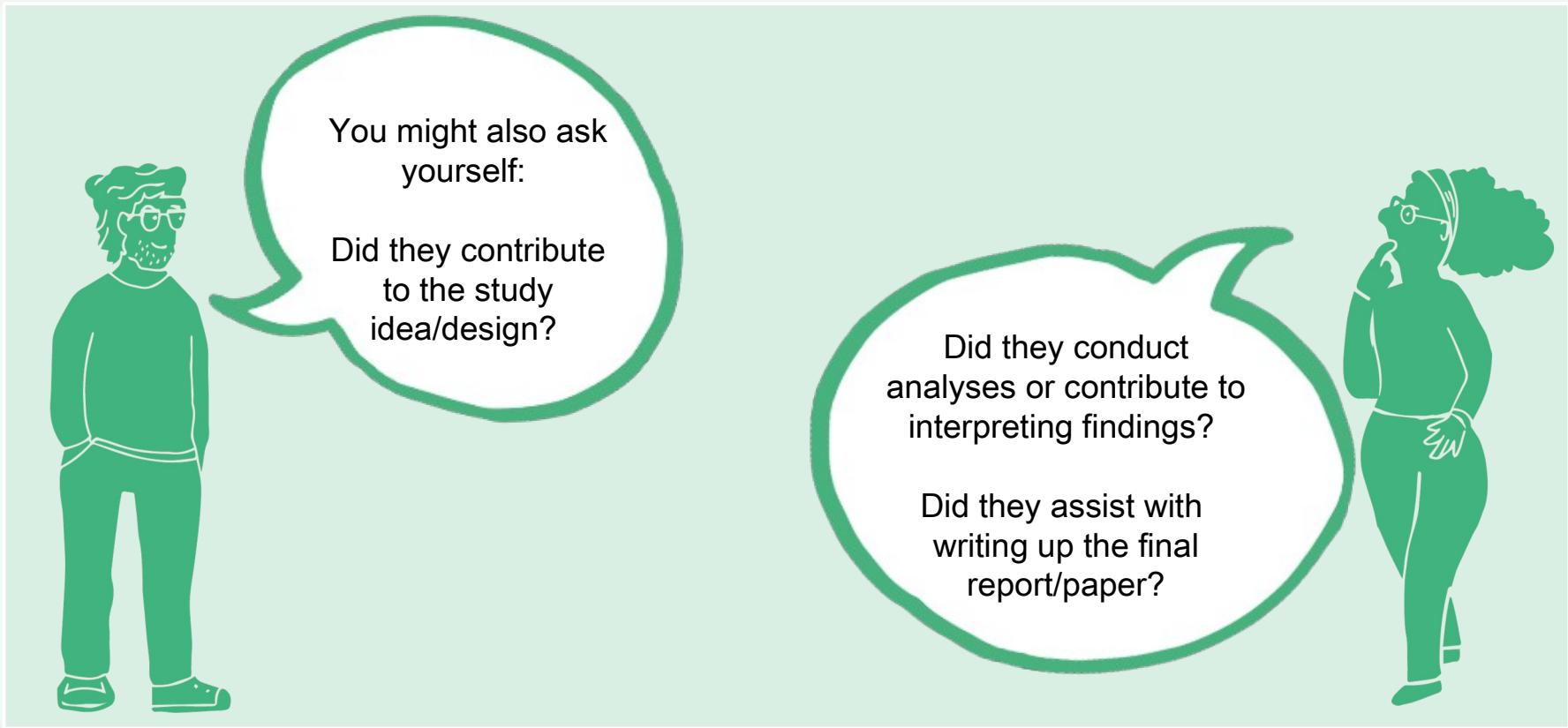


If someone makes a meaningful contribution to a research project they should receive credit for their contribution

This might mean they are an author on a final paper, or receive an acknowledgement on that paper

There is guidance to determine if someone made a meaningful contribution, like the [ICJME criteria](#)

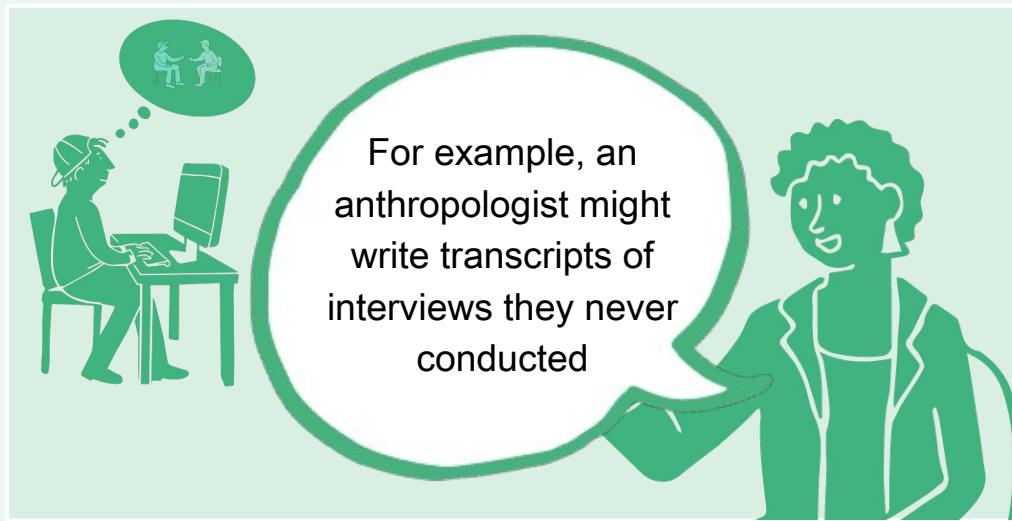
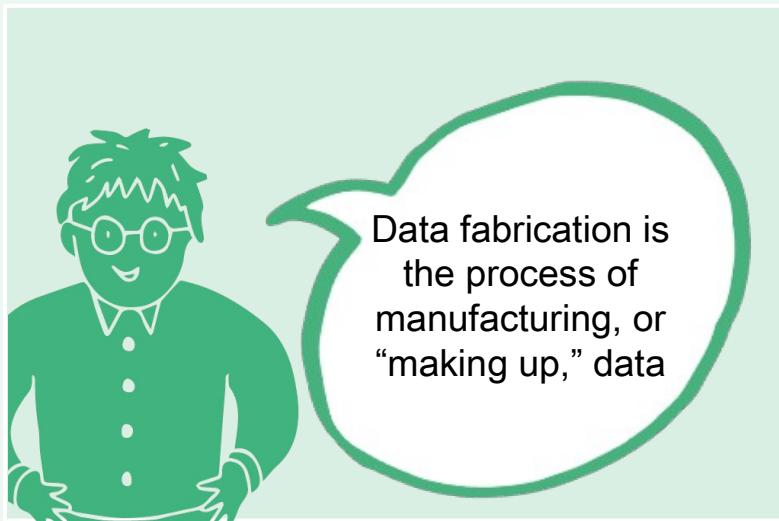
Giving or Taking Credit for Work Inappropriately



Giving or Taking Credit for Work Inappropriately



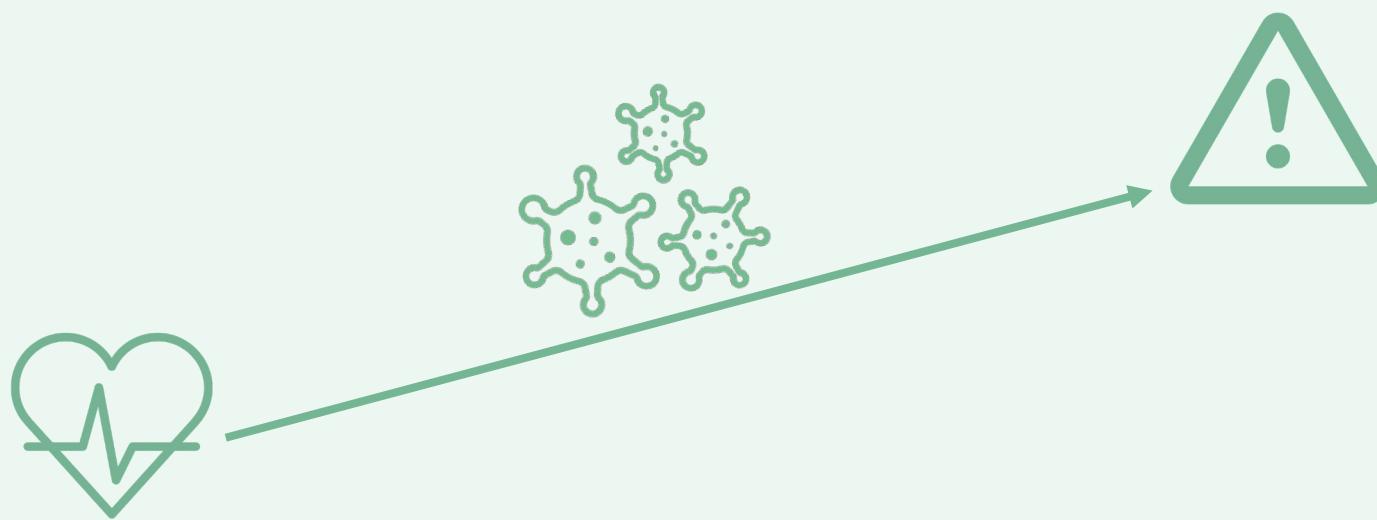
Data Fabrication



Data Fabrication

COVID-19 Example

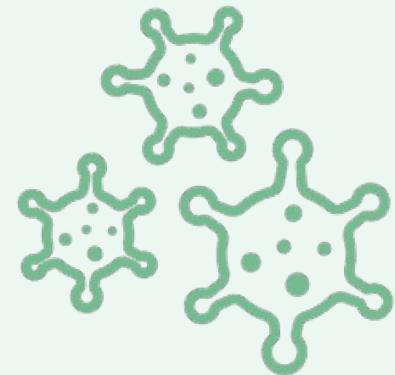
- A paper published in 2020 reported increased risk of death for people hospitalised with COVID-19 if they had underlying cardiovascular disease



Data Fabrication

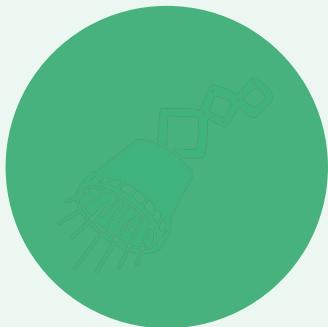
COVID-19 Example

- Findings were based on data supposedly collected by the company of one of the study authors
- It quickly became apparent that the data was fraudulent
- The paper was retracted but such questionable practices can undermine trust in research

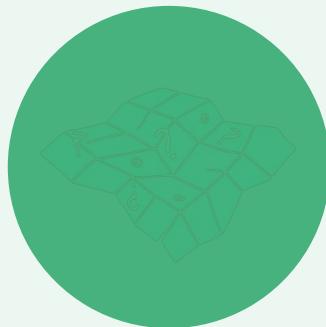


Data Misrepresentation

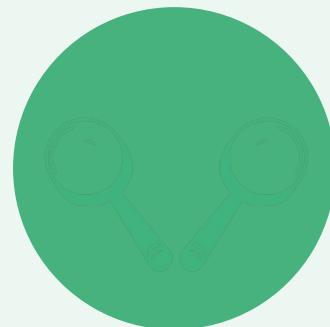
Data misrepresentation is the practice of presenting “real” data in a misleading way



Researchers might emphasise exciting or novel findings only



Researchers might also distort or duplicate images of their findings

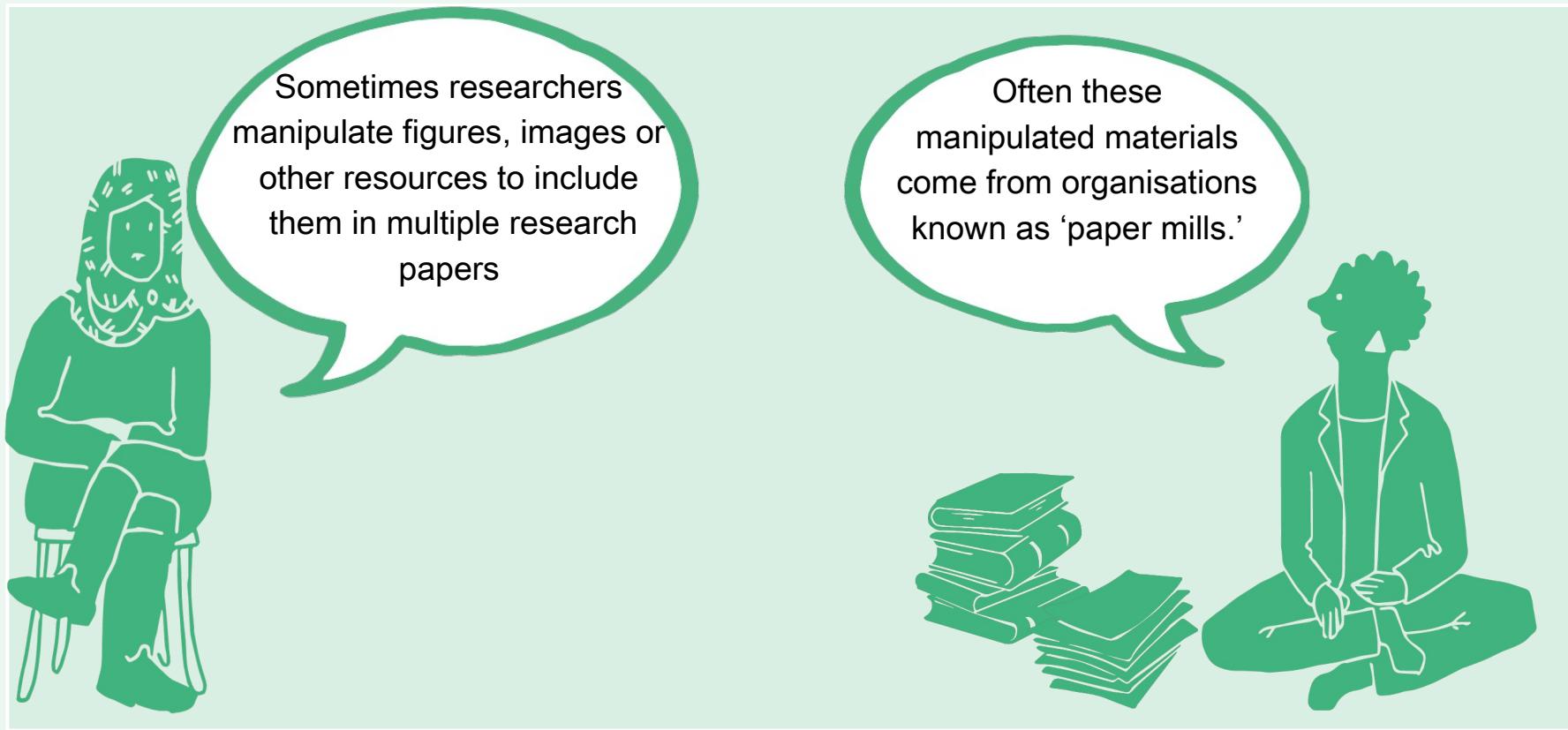


Some researchers even magnified or reversed their images to try and avoid detection!

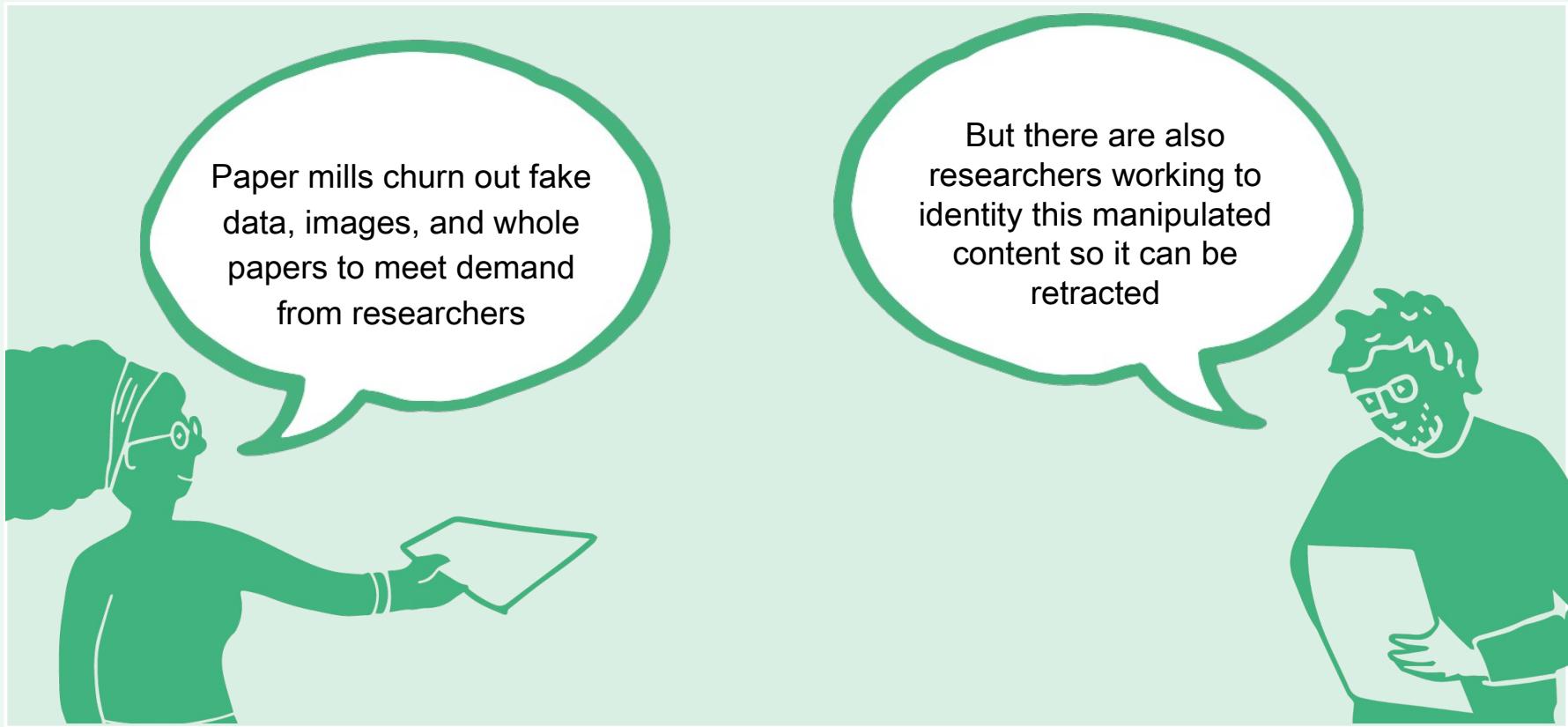
Data Misrepresentation

- Data misrepresentation gives an incomplete picture of the research findings
- Like other questionable research practices, it can result in unreliable data
- It can also waste research resources through attempted replications

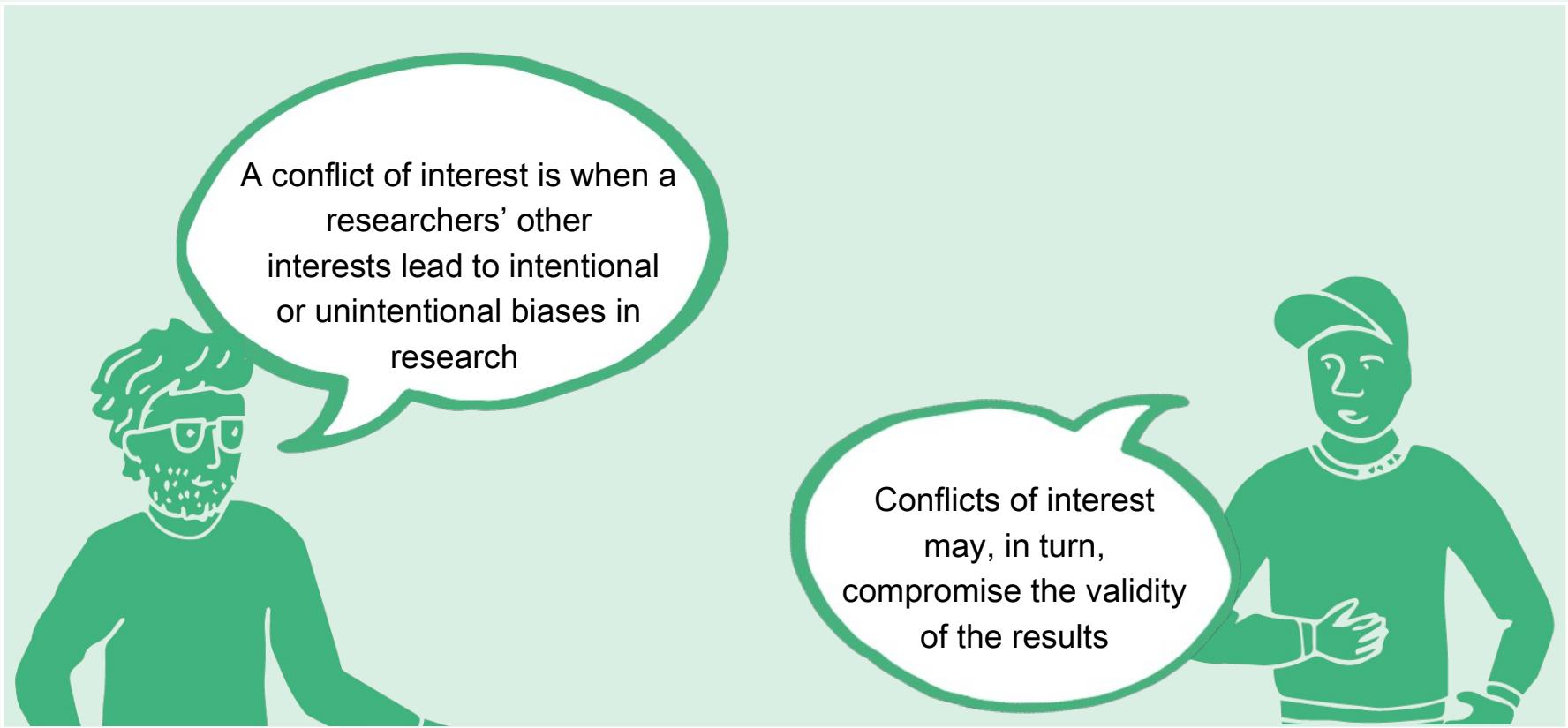
Piracy and Manipulation of Images/Other Materials



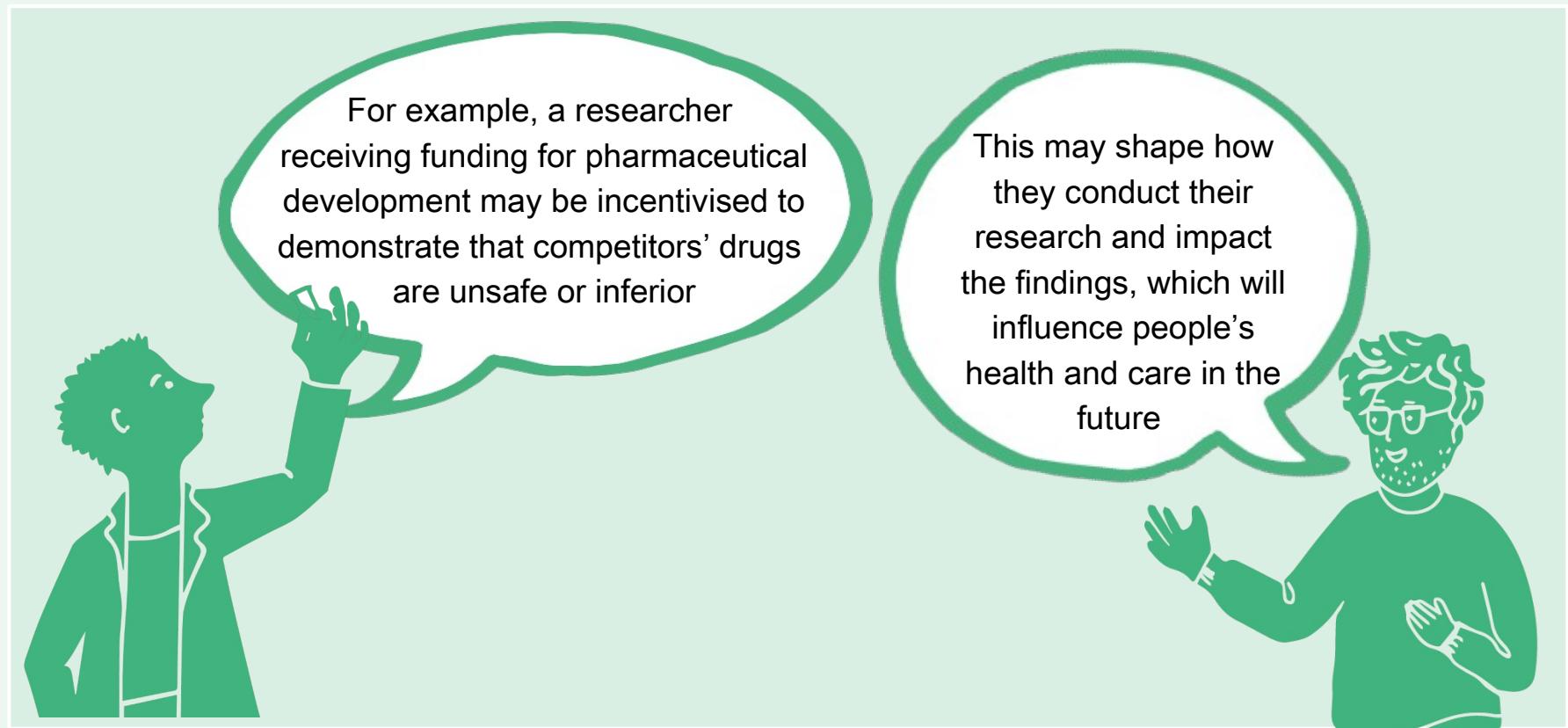
Piracy and Manipulation of Images/Other Materials



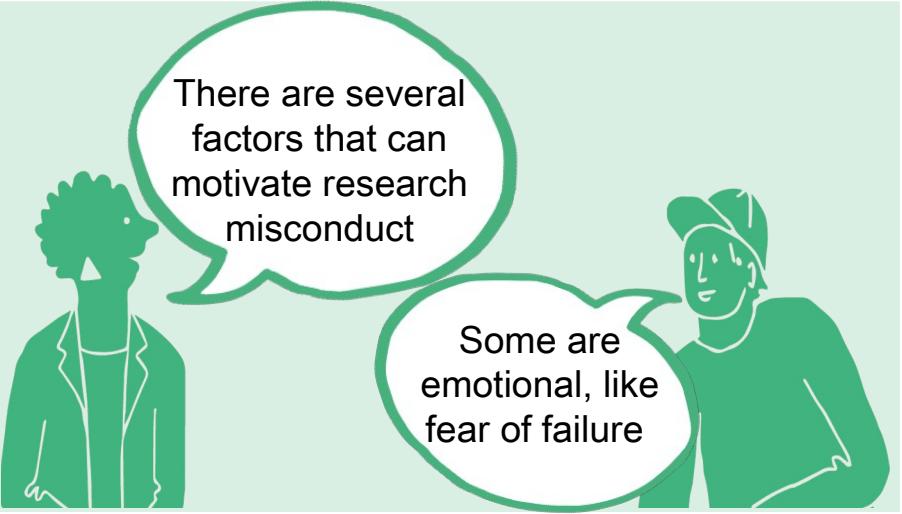
Undeclared Conflicts of Interest



Undeclared Conflicts of Interest



Why do people engage in research misconduct?

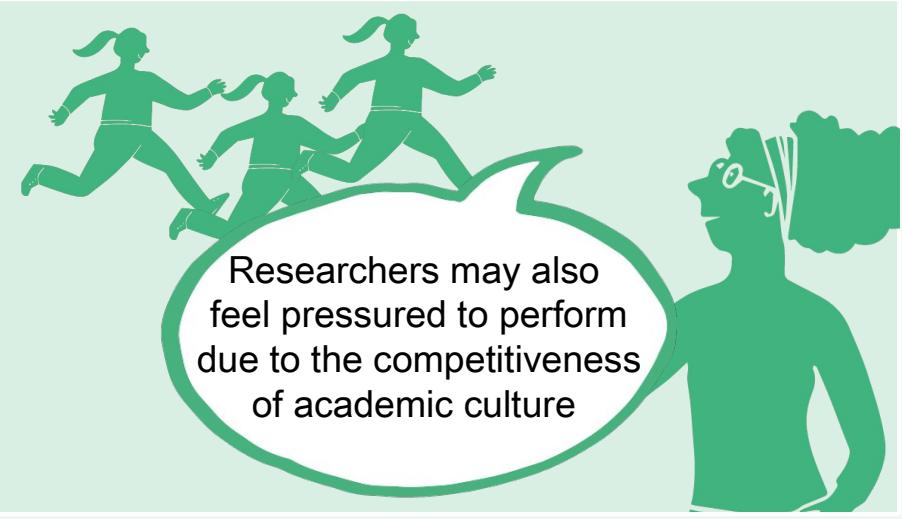


There are several factors that can motivate research misconduct

Some are emotional, like fear of failure



Misconduct may also be motivated by external pressures, like pressure from supervisors to achieve a certain result



Researchers may also feel pressured to perform due to the competitiveness of academic culture



Worries about personal circumstances like employment status might also motivate misconduct





Principles & Practices of Open Research

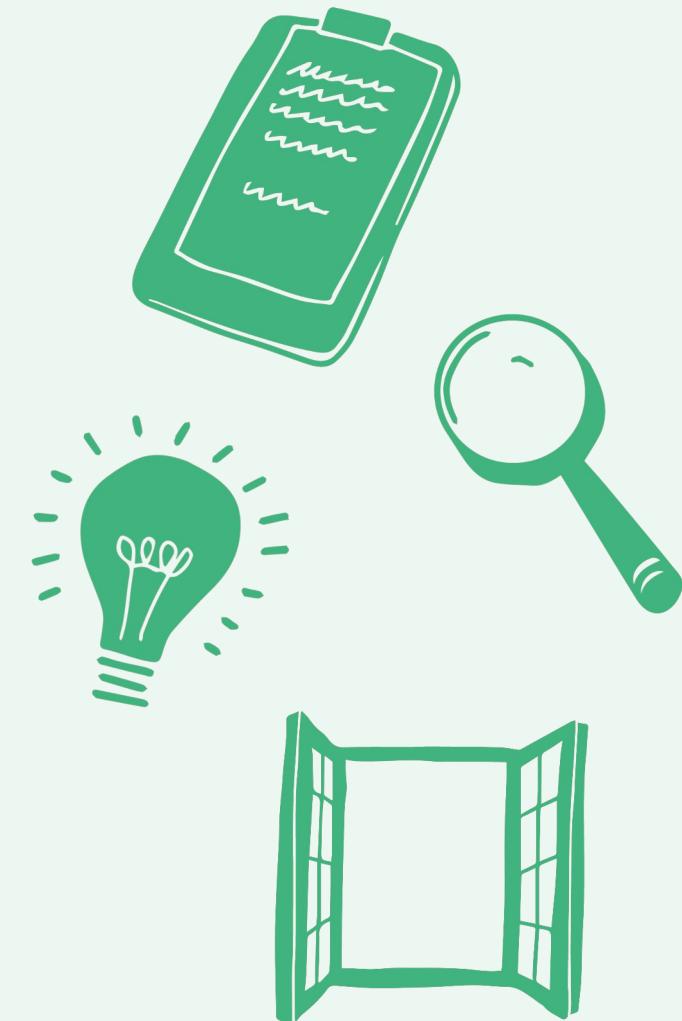
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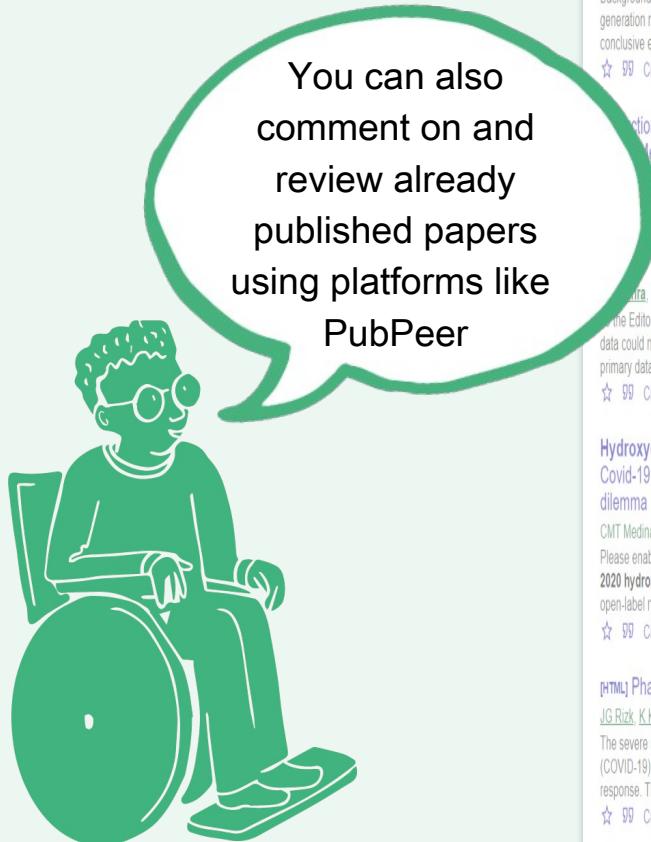
How can you maintain
high levels of research
integrity?

How can I help reduce the effects of research misconduct?

- 1 Follow best practices in research integrity and open research at all stages of the research process
- 2 Avoid plagiarism
- 3 Accurately and honestly represent your data
- 4 Give credit where it is due
- 5 Be transparent and responsible in all aspects of, and decisions about, your research



How can I help reduce the effects of research misconduct?



There are 2 articles on this page with PubPeer comments

Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis [HTML] thelancet.com

MR Mehra, SS Desai, F Ruschitzka, AN Patel - The Lancet, 2020 - Elsevier

Background Hydroxychloroquine or chloroquine, a second-generation macrolide, are being widely used to treat COVID-19. However, there is no conclusive evidence of their benefit. Although...

☆ 59 Cited by 431 Related articles All 3 versions

Section: Cardiovascular Disease
Med. DOI: 10.1056/NEJMoa2007621

This article has an expression of concern and there are 4 comments on PubPeer (by Astragalus Latifolius, Hypericum Henry, Chelolejeunea Norsiae, Elisabeth M Bik)

MLA Mehra, Mandeep R, et al. "Retraction: Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19." N Engl J Med. DOI: 10.1056/NEJMoa2007621." (2020).

APA Mehra, M. R., Desai, S. S., Kuy, S., Henry, T. D., & Patel, N. (2020). Retraction: Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19. N Engl J Med. DOI: 10.1056/NEJMoa2007621.

Chicago Mehra, Mandeep R., Sapan S. Desai, SreyRam Kuy, Timothy D. Henry, and Amit N. Patel. "Retraction: Cardiovascular Disease, Drug Therapy, and Mortality in Covid-19." N Engl J Med. DOI: 10.1056/NEJMoa2007621.

JG Rizk, K Kalantar-Zadeh, MR Mehra, CJ Lavori - jnugs.org, 2020 - Springer

The severe acute respiratory syndrome coronavirus 2 associated coronavirus disease 2019 (COVID-19) illness is a syndrome of viral replication in concert with a host inflammatory response. The cytokine storm and viral evasion of cellular immune responses may play an ...

☆ 59 Cited by 2 All 7 versions



How can I help reduce the effects of research misconduct?



PubPeer is an “online journal club” that exists as an app on the Chrome browser

It allows researchers to comment on published journal articles. This is called post-publication peer review



Researchers can highlight problems in analysis, interpretation and/or reporting of results



PubPeer has contributed to many corrections and retractions of published articles



How can I help reduce the effects of research misconduct?



How can I help reduce the effects of research misconduct?



How can I help reduce the effects of research misconduct?

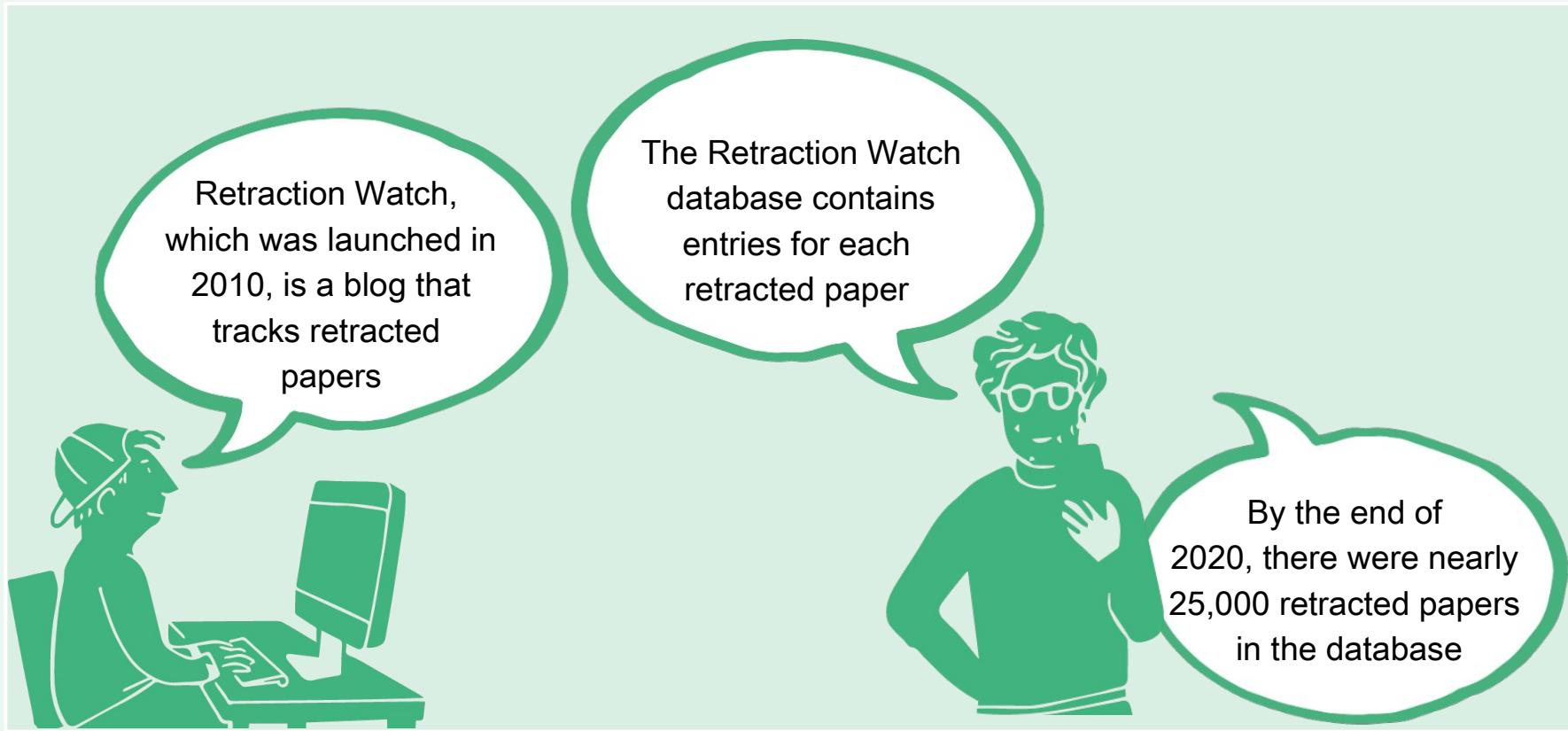
What happens then?

Processes are in place in your university to manage the outcomes of research integrity issues. Your research support office can guide you on this

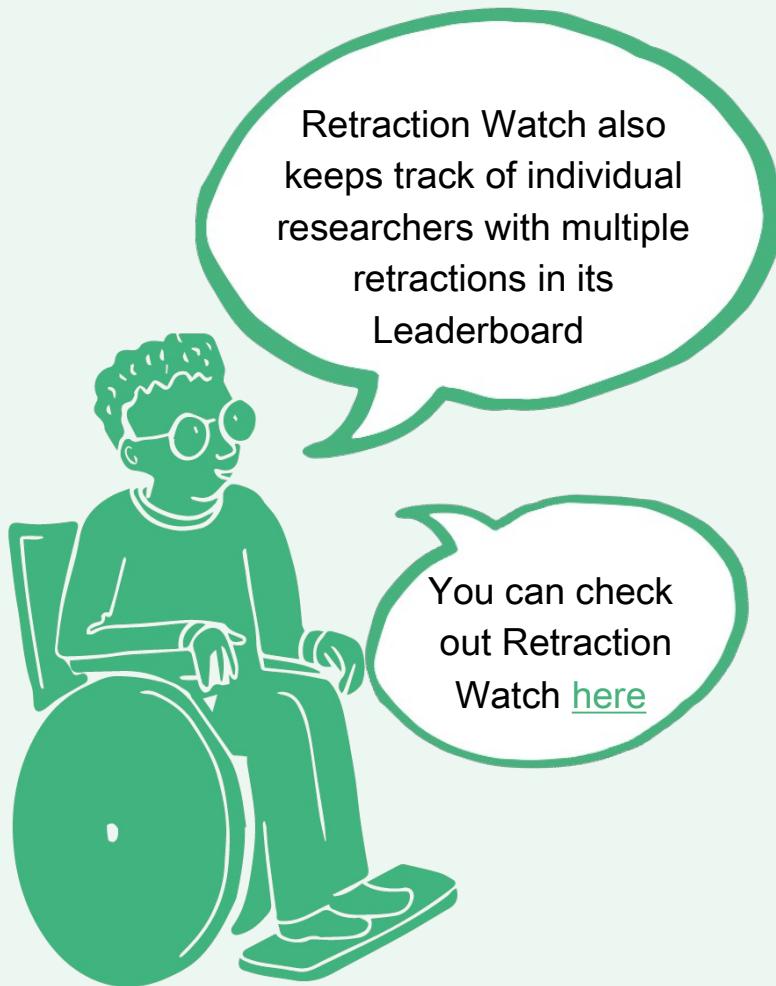
When research integrity issues or misconduct are identified in published research, these studies are retracted

The paper is withdrawn from the journal in which it was published. It may still be available online, but will include a notification that it has been retracted

How can I help reduce the effects of research misconduct?



How can I help reduce the effects of research misconduct?



The Retraction Watch Leaderboard

Who has the most retractions? Here's our unofficial list (see notes on methodology), which we'll update as more information comes to light:

1. Yoshitaka Fujii (total retractions: 183) See also: [Final report of investigating committee](#), [our reporting](#), [additional coverage](#)
2. Joachim Boldt (137) See also: [Editors-in-chief statement](#), [our coverage](#)
3. Yoshihiro Sato (102) See also: [our coverage](#)
4. Jun Iwamoto (78) See also: [our coverage](#)
5. Ali Nazari (62) See also: [our coverage](#)
6. Diederik Stapel (58) See also: [our coverage](#)
7. Yuhji Saitoh (53) See also: [our coverage](#)
8. Adrian Maxim (48) See also: [our coverage](#)
9. Chen-Yuan (Peter) Chen (43) See also: [SAGE](#), [our coverage](#)
10. Fazlul Sarkar (41) See also: [our coverage](#)

How can you demonstrate research integrity?

- Educate yourself about research integrity
- Follow institutional codes of conduct for research
 - University College Cork's Research Code of Conduct is available [here](#)







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What resources are
available to help us
maintain and promote
research integrity?

E

What resources are available to help us maintain and promote research integrity?

- Many universities have research integrity offices and/or faculty you can contact to discuss matters related to research integrity
- University College Cork Research Integrity support can be accessed [here](#)
- University College Cork Research Support Services can be accessed [here](#)



What resources are available to help us maintain and promote research integrity?

- Universities may also organise research integrity workshops and training
- In UCC, these include short workshops like
 - [Research Integrity, Ethics, & Open Science](#)
 - [Epigeum Online Course on Research Integrity](#)



What resources are available to help us maintain and promote research integrity?

- In addition to your own university, external organisations can also provide support and guidance
- For example,
 - [National Research Integrity Forum \(part of the Irish Universities Association\)](#)
 - [UK Research Integrity Office](#)
 - [US Office for Research Integrity](#)

Activity

Complete the activity on Canvas to reflect on what you could do to enhance research integrity in your research.





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Additional Resources

Want to know more about...

Research Integrity Guidance?

- Take a look at European Code of Conduct for Research Integrity

How to present data with integrity?

- See the Office of Research Integrity guidelines here

Current issues in research integrity?

- Read the Science Integrity Digest blog by Dr Elisabeth Bik

Want to know more about...

The state of research integrity and science and how to improve it?

- Titus, S., Wells, J. & Rhoades, L. Repairing research integrity (2008). Nature, 453, 980–982.

Whose responsibility is research integrity?

- Mitcham, C. Co-responsibility for research integrity (2003). Science and Engineering Ethics, 9, 273–290.

Want to know more about... .

Research integrity and public trust in data?

- [TEDTalk: Trust in research -- the ethics of knowledge production](#)
 - This is a clear 12-minute talk on research integrity
- [The Vaccine-Autism Myth Started 20 Years Ago. Here's Why It Still Endures Today](#)
 - This is a short article outlining a good example of the importance of trust in research

Want to know more about... .

Practices that undermine research integrity?

- Take a look at this video on threats to research integrity
- Read this newspaper article outlining a case of research misconduct

How common questionable research practices are?

- John, L. K., Loewenstein, G., & Prelec, D. (2012). Measuring the prevalence of questionable research practices with incentives for truth telling. Psychological Science, 23(5), 524-532.

