

# ‘Publish or perish’ culture blamed for reproducibility crisis

Survey of more than 1,600 biomedical researchers also flagged small sample sizes and cherry-picking of data as leading causes of reproducibility problems.

By [Laurie Udesky](#)



Credit: Getty

Nearly three-quarters of biomedical researchers think there is a reproducibility crisis in science, according to a survey published in November. The leading cause cited for that crisis was “pressure to publish”.

The study, reported in *PLoS Biology*<sup>1</sup>, surveyed the authors of articles that were published in the year from 1 October 2020 in any of 400 randomly selected biomedical journals. The 1,630 respondents represented more than 80 countries. The majority were male (59%) and were faculty members or primary investigators (72%), and 42% worked in the United States, Canada or the United Kingdom.

Sixty-two per cent of respondents said that pressure to publish “always” or “very often” contributes to irreproducibility, the survey found.

That “really speaks to the fact that it’s about the culture in the research ecosystem that’s proliferating this problem” – a problem of valuing quantity over quality, says Kelly Cobey, a social psychologist at the University of Ottawa Heart Institute and lead author of the study.

## A documented problem

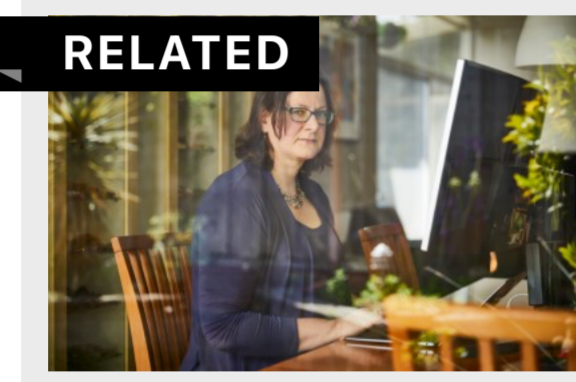
The problem of irreproducibility in science has been documented in other fields and has been well known for decades, says Cobey. The study’s aim, she adds, was to build on a [2016 Nature survey](#) in which more than 70% of 1,576 respondents said they had trouble reproducing other scientists’ research.

### RELATED

#### 1,500 scientists lift the lid on reproducibility

Other perceived causes of research irreproducibility that were flagged in the current study as “always” or “very often” contributing included small sample size (55% of respondents), studies being completed but not reported (54%), flawed statistical analyses (50%) and cherry-picking of results (47%).

“I think this is spot on with what many of us have been talking about or suspecting in the last 20 years – this rise in all kinds of errors,” says Elisabeth Bik, a microbiologist and science sleuth based in the San Francisco Bay Area, California, whose doggedness has led to more than 1,300 retractions so far. “Some of it might be sloppy, and some of it looks like it was misconduct.” Bik, who began her science-integrity work after discovering that one of her own papers had been plagiarized, agrees that the pressure to publish is the main culprit.



### RELATED

#### Meet this super-spotter of duplicated images in science papers

Ivan Oransky, co-founder of the Retraction Watch website, says that since the site began tracking retractions in 2018, he and his colleagues have logged some 54,000 in their database. Two-thirds of these were attributed to misconduct – that is, falsification, fabrication and plagiarism.

To fix the problem, he says, upstream changes will be needed in the culture that assesses value according to the number of citations. “Until we acknowledge that publish or perish is the natural consequence of the rankings obsession, we’re not going

to fix anything.”

Systemic changes will also be required, says Marcus Munafò, a biological psychologist at the University of Bristol, UK, and the co-founder of the UK Reproducibility Network.

One of the network’s major focuses is training researchers in open research practices – “sharing their data, sharing their codes, sharing their study materials”, Munafò explains. “Collaborating in that way just reduces friction in the system to everyone’s benefit.”

But changing the system more widely will necessitate an expansion of the model currently used by reproducibility networks, Munafò says – including broader outreach to researchers, funders, publishers and academic institutions – so that “policies that are being scoped out by funders, for example, can be informed by those grass-roots communities”.

Cobey agrees. Initiatives such as the UK Reproducibility Network have been good at raising awareness and developing training and tools, she says. “But the reality is that the systematic retraining and re-incentivizing around things that will support reproducible research hasn’t happened and it won’t happen until there’s more coordinated action amongst different stakeholders in the research ecosystem.”

“The consequence of not doing this is public harm,” she adds.

doi: <https://doi.org/10.1038/d41586-024-04253-w>

## References

1. Cobey, K. D. *et al.* *PLoS Biol.* **22**, e3002870 (2024).

[Article](#) [PubMed](#) [Google Scholar](#)

[Download references](#) ↓

## Latest on:

[Careers](#) [Scientific community](#) [Publishing](#)



### How leading a postdoc network boosted my career prospects

CAREER COLUMN |  
20 FEB 25



### Why these scientists devote time to editing and updating Wikipedia

CAREER FEATURE |  
19 FEB 25



### Here's how to bag a hefty research prize to turbocharge innovation

CAREER FEATURE |  
17 FEB 25

## nature careers

### Jobs >

#### Faculty Positions in Nonhuman Primate Research, School of Life Sciences, Westlake University



SLS invites applications for multiple tenure-track/tenured faculty positions at all academic ranks.

Hangzhou, Zhejiang, China

School of Life Sciences, Westlake University

#### Director of Editorial Operations



The director of editorial operations (DEO) is responsible for optimizing APS’s editorial and publishing operations.

Homeworking

American Physical Society

#### Appointment of Vice-President and Dean of the Faculty of Science & Engineering



The University of Manchester is seeking candidates for the Appointment of Vice-President and Dean of the Faculty of Science & Engineering

Manchester, Greater Manchester (GB)

University of Manchester

#### Inviting distinguished candidates for academic positions at all levels



Seeking Full Professors, Associate Professors, Assistant Professors, Postdoctoral Associate.

Beijing, China

State Key Laboratory of Optoelectronic Materials and Devices at the Institute of Semiconductors, CAS

#### Faculty Positions - Associate Professor, Professor



J. Craig Venter Institute is conducting a faculty search for Associate Professors position in Rockville, MD and San Diego, CA campuses.

Rockville, Maryland or San Diego, California

J. Craig Venter Institute

Nature (*Nature*) ISSN 1476-4687 (online) ISSN 0028-0836 (print)

#### About Nature Portfolio

[About us](#)  
[Press releases](#)  
[Press office](#)  
[Contact us](#)

#### Discover content

[Journals A-Z](#)  
[Articles by subject](#)  
[protocols.io](#)  
[Nature Index](#)

#### Publishing policies

[Nature portfolio policies](#)  
[Open access](#)

#### Author & Researcher services

[Reprints & permissions](#)  
[Research data](#)  
[Language editing](#)  
[Scientific editing](#)  
[Nature Masterclasses](#)  
[Research Solutions](#)

#### Libraries & institutions

[Librarian service & tools](#)  
[Librarian portal](#)  
[Open research](#)  
[Recommend to library](#)

#### Advertising & partnerships

[Advertising](#)  
[Partnerships & Services](#)  
[Media kits](#)  
[Branded content](#)

#### Professional development

[Nature Careers](#)  
[Nature Conferences](#)

#### Regional websites

[Nature Africa](#)  
[Nature China](#)  
[Nature India](#)  
[Nature Italy](#)  
[Nature Japan](#)  
[Nature Middle East](#)

## nature briefing

Sign up for the *Nature Briefing* newsletter – what matters in science, free to your inbox daily.

Email address

Sign up

I agree my information will be processed in accordance with the *Nature* and Springer Nature Limited [Privacy Policy](#).

## Sign up to Nature Briefing



An essential round-up of science news, opinion and analysis, delivered to your inbox every weekday.

### Email address

Yes! Sign me up to receive the daily *Nature Briefing* email. I agree my information will be processed in accordance with the *Nature* and Springer Nature Limited [Privacy Policy](#).

Sign up



## Sign up to Nature Briefing

An essential round-up of science news, opinion and analysis, delivered to your inbox every weekday.

Email address

Yes! Sign me up to receive the daily *Nature Briefing* email. I agree my information will be processed in accordance with the *Nature* and Springer Nature Limited [Privacy Policy](#).

Sign up

