Sign in

Fund independent journalism with \$5 per month

Support us \rightarrow

News Opinion Sport Culture Lifestyle

There's far more scientific fraud than anyone wants to admit

Ivan Oransky and Adam Marcus

Despite recent scandals of research misconduct and error, the academic world still seems determined to look the other way

Wed 9 Aug 2023 06.07 EDT



Marc Tessier-Lavigne, the president of Stanford, announced in July that he would resign, after an independent review cleared him of research misconduct but found flaws in other papers authored by his lab. Photograph: Patrick Tehan/AP

cientific misconduct has enjoyed some limelight lately. The president of Stanford, Marc Tessier-Lavigne, resigned last month after a series of investigations exposed serious problems in his research; an independent review of Tessier-Lavigne's work found no evidence that he falsified data himself but concluded that his research failed standards "of scientific rigor and process" and that he failed to correct the record on multiple occasions

And in June it was revealed that a scholar at Harvard Business School, Francesca Gino, was accused of having falsified research about - wait for it honesty.

Of course, scientific misconduct does not happen only at Stanford and Harvard. Of the nearly 5,500 retractions we catalogued in 2022, and the thousands of cases we have reported on since launching our watchdog website Retraction Watch in 2010, the vast majority involve researchers at institutions without anywhere near Stanford and Harvard's pedigrees.

The number of retractions each year reflects about a tenth of a percent of the papers published in a given year - in other words, one in 1,000. Yet the figure has grown significantly from about 40 retractions in 2000, far outpacing growth in the annual volume of papers published.

Retractions have risen sharply in recent years for two main reasons: first, sleuthing, largely by volunteers who comb academic literature for anomalies, and, second, major publishers' (belated) recognition that their business models have made them susceptible to paper mills - scientific chop shops that sell everything from authorships to entire manuscripts to researchers who need to publish lest they perish.

■ Paper mills - scientific chop shops - sell everything from authorships to entire manuscripts

These researchers are required - sometimes in stark terms - to publish papers in order to earn and keep jobs or to be promoted. The governments of some countries have even offered cash bonuses for publishing in certain journals. Any surprise, then, that some scientists cheat?

And these are not merely academic matters. Particularly when it comes to medical research, fakery hurts real people. Take the example of Joachim Boldt - the German anesthesiologist who, with 186 retractions, now sits atop the Retraction Watch leader board of scientists with the most pulled papers.

A specialist in critical care medicine, Boldt studied a blood substitute that was used in hospitals across Europe. His results, which were published between around 1990 and 2009 and widely cited, suggested that the product - used to help keep blood pressure and the delivery of oxygen to cells adequate - was saving lives. After his fraud came to light and researchers reanalyzed all of the available data while leaving Boldt's results out, it turned out the opposite was true: the substitute was "associated with a significant increased risk of mortality and acute kidney injury

The truth, however, is that the number of retractions in 2022 - 5,500 - is almost definitely a vast undercount of how much misconduct and fraud exists. We estimate that at least 100,000 retractions should occur every year; some scientists and science journalists think the number should be even higher. (To be sure, not every retraction is the result of misconduct; about one in five involve cases of honest error.)

The lengths to which scientists go to fight allegations of fraud is part of the reason the rate of retraction is lower than it should be. They punish whistleblowing underlings, sometimes by blaming them for their misdeeds. They sue critics. Although they rarely prevail in court, the threat of such suits, and the cost of defending against them, exerts a chilling effect on those who would come forward. In one particularly grisly and tragic case in 2006, a Bangladeshi academic had a whistleblower murdered. The academic was hanged 17 years later.

Journals and publishers find ways to ignore criticism of what they have published, leaving fatally flawed work unflagged

Journals and publishers also fail to do their part, finding ways to ignore criticism of what they have published, leaving fatally flawed work unflagged. They let foxes guard the henhouse, by limiting critics to brief letters to the editor that must be approved by the authors of the work being criticized. Other times, they delay corrections and retractions for years, or never get to them at all.

Some of Boldt's papers were only retracted this year - more than a decade after his fraud was incontrovertible. Journals are invariably more interested in protecting their reputations and the reputations of their authors than in correcting the record. Following evidence and testimony by Retraction Watch, the British House of Commons's science, innovation and technology select committee was concerned enough that it said in a report earlier this year that corrections and retractions should take no longer than two months.

Universities hardly have an incentive to air their dirty laundry, but in the vast majority of cases they are left to investigate their own. Indeed, that is the law of the land in the United States, where scientists and universities have done their best to steadily erode the power of the US government's Office of Research Integrity, which oversees - but does not perform - investigations into allegations of misconduct in federally funded research. University lawyers tell those in the know to say nothing, a form of academic omertà that lets fraudsters slip through many cracks.

The Stanford case - as Theo Baker, the student journalist who broke it open, has described - epitomizes all of these factors. Despite having been flagged on a site called PubPeer starting in 2014, the problems in Tessier-Lavigne's papers would have remained virtually unknown, and might have never been corrected at all, were it not for Baker's investigation. (Ivan Oransky, the coauthor of this op-ed, is a volunteer member of the PubPeer Foundation's board of directors.)

One of the main reasons scientists feel pressure to cut corners or fudge data is because funding rates are so low. The US National Institutes of Health last year approved about 20% of applications for new grants. And that's a marked increase from recent years.

Funding to detect and sanction fraud should be a reasonable fraction of the dollars being spent - instead of mere millions in a sea of tens of billions. Until publishing papers is decoupled from earning funding and employment, however, it's difficult to imagine how much will change.

Ivan Oransky is co-founder of Retraction Watch, editor-in-chief of Spectrum and journalist in residence at NYU's Arthur L Carter Journalism Institute

Adam Marcus is co-founder of Retraction Watch and editorial director for primary care at Medscape

I hope you appreciated this article. Before you move on, I was hoping you would consider taking the step of supporting the Guardian's journalism.

From Elon Musk to Rupert Murdoch, a small number of billionaire owners have a powerful hold on so much of the information that reaches the public about what's happening in the world. The Guardian is different. We have no billionaire owner or shareholders to consider. Our journalism is produced to serve the public interest - not profit motives.

And we avoid the trap that befalls much US media - the tendency, born of a desire to please all sides, to engage in false equivalence in the name of neutrality. While fairness guides everything we do, we know there is a right and a wrong position in the fight against racism and for reproductive justice. When we report on issues like the climate crisis, we're not afraid to name who is responsible. And as a global news organization, we're able to provide a fresh, outsider perspective on US politics - one so often missing from the insular American media bubble.

Around the world, readers can access the Guardian's paywall-free journalism because of our unique reader-supported model. That's because of people like you. Our readers keep us independent, beholden to no outside influence and accessible to everyone - whether they can afford to pay for news, or not.

If you can, please consider supporting us just once from \$1, or better yet, support us every month with a little more. Thank you.

Betsy Reed Editor, Guardian US



Single	Monthly	Annual
\$5 per month	\$7 per month	Other
Continue $ ightarrow$ Remin	d me in September VISA	STEERINGS POYPOI

Opinion





