FAIRS report, Round 1

Dorothy Bishop

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## Summary of FAIRS Survey, round 1

This is a brief document to provide feedback to panelists from Round 1 of the FAIRS survey. For background to the survey, please see the protocol here: <https://osf.io/mzjsh/>.

66 panelists signed up to take part in the survey, and completed surveys were received from 66 of them. Those taking part were asked to self-identify into one of three groups, and the distribution of respondents was as follows:

| Var1 | Freq |
| --- | --- |
| 1\_S | 26 |
| 2\_R | 24 |
| 3\_O | 16 |

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The gender distribution was as follows:

| Var1 | Freq |
| --- | --- |
| Man | 45 |
| Woman | 21 |

The bulk of respondents were from Europe or N America:

| Var1 | Freq |
| --- | --- |
| Africa | 4 |
| Asia | 1 |
| Australasia | 1 |
| Europe | 47 |
| N. America | 11 |
| S. America | 2 |

For items coded quantitatively, we show the mean and (SD) for each subgroup, where subgroup 1 = S(leuths), 2 = R(esearch Integrity Officers) and 3 = O(ther).

## Priorities

### Item 1

Which of these should be a primary focus for discussion? (1 for low priority, 3 for high priority).

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| What constitutes serious research misconduct? | 1.85 (0.83) | 2.04 (0.88) | 2.31 (0.95) |
| How allegations of serious research misconduct are handled | 2.27 (0.87) | 1.92 (0.93) | 2.31 (0.7) |
| Sanctions for serious research misconduct | 2.19 (0.69) | 2 (0.72) | 1.88 (0.72) |

## Burdens of serious research misconduct

### Item 2

How common is the problem of serious research misconduct? (select one)

| optnames | 1\_S | 2\_R | 3\_O |
| --- | --- | --- | --- |
| Serious research misconduct is rare relative to the amount of published research literature | 11.5 | 29.2 | 50.0 |
| Serious research misconduct is becoming more prevalent and starting to pose a threat to the research literature | 3.8 | 45.8 | 18.8 |
| Serious research misconduct is already common enough to pose a major threat to the research literature | 84.6 | 25.0 | 31.2 |

### Item 3

How harmful are the impacts of serious research misconduct to different segments of society? Please code as 1 (low harm) to 5 (strong harm)

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| Consumers of research findings, e.g. patients whose treatment is informed by medical research or policy-makers who depend on research findings | 4.12 (1.28) | 4.33 (1.13) | 4.25 (1.18) |
| Other researchers who try to build on fraudulent findings | 4.12 (1.14) | 4.29 (0.95) | 4.25 (0.77) |
| Funders, whose funds are wasted | 4.08 (0.89) | 3.62 (1.01) | 3.88 (0.81) |
| Institutions whose resources are diverted to tackling misconduct | 2.5 (1.14) | 3.25 (1.33) | 2.81 (1.11) |
| Society when public trust in research is eroded | 3.65 (1.44) | 3.92 (1.35) | 4.12 (1.36) |

## Goals of those responding to serious research misconduct

### Item 4

In responding to serious research misconduct, several goals may be considered. Please rate how important each of these is, from 1 (unimportant) to 4 (very important)

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| To maintain academic integrity, including to correct the academic record | 3.31 (1.09) | 3.62 (0.88) | 3.5 (0.89) |
| To punish offenders | 2.46 (0.95) | 2.33 (0.92) | 2.31 (0.87) |
| To deter others from committing fraud | 3.12 (0.86) | 2.92 (0.93) | 3.19 (0.75) |
| To maintain trust and rigour in research | 3.19 (1.13) | 3.71 (0.75) | 3.75 (0.58) |

## Factors hindering academic institutions’ response to serious research misconduct

### Item 5

Various factors may hinder academic institutions’ response to serious research misconduct. Please rate the following from 1 (not much of a hindrance) to 5 (substantial hindrance)

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| Lack of co-ordination between relevant research actors, such as institutions, funders and publishers | 3.42 (1.53) | 3.43 (1.31) | 3.69 (1.14) |
| Conflict of interest for institutions investigating their own researchers | 4.5 (0.95) | 3.25 (1.51) | 3.88 (1.09) |
| Lack of resources | 2.88 (1.42) | 3.71 (1.4) | 2.94 (1.44) |
| Lack of expertise | 3.54 (1.21) | 3.21 (1.38) | 3.5 (1.21) |
| Concern about legal repercussions | 3.52 (1.19) | 3.12 (1.3) | 4 (1.21) |
| Large number of vexatious/trivial accusations of misconduct | 1.88 (0.99) | 2.57 (1.04) | 2.31 (1.08) |
| Bureaucratic delays or inefficiencies in the investigation process | 3.42 (1.24) | 3.29 (1.16) | 3.88 (1.15) |
| Complexity of cases | 2.96 (0.87) | 3.46 (1.25) | 3.5 (0.97) |
| Due process concerns to ensure fairness to all involved in the case | 2.88 (1.14) | 3.33 (1.05) | 2.88 (1.15) |

## Factors driving serious research misconduct

### Item 6

What is the impact of these factors in encouraging researchers to commit serious research misconduct? Please rate from 1 (little impact) to 5 (large impact)

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| Low probability of being detected and/or reported | 4.23 (0.99) | 3.17 (1.17) | 3.75 (1.18) |
| Low probability of being punished if detected and/or reported | 4 (0.94) | 2.88 (1.39) | 3.19 (1.38) |
| ‘Publish or perish’ culture and incentive structure in research (e.g. progression, promotion, recognition) | 4.23 (1.11) | 4.25 (1.07) | 4.44 (1.03) |
| Fear of losing one’s job if not sufficiently productive in publishing in prestigious journals | 3.42 (1.27) | 4.04 (0.95) | 3.94 (1.18) |

## Role of social media

### Item 7

On balance, the role of social media in detecting and reporting serious research misconduct has been:

| optnames | 1\_S | 2\_R | 3\_O |
| --- | --- | --- | --- |
| predominantly negative - it makes it too easy for vexatious individuals to raise unwarranted complaints, often under the guise of anonymity | 0.0 | 33.3 | 25.0 |
| neither positive nor negative on balance | 26.9 | 41.7 | 43.8 |
| positive - it provides a route for speedy commentary when concerns are discovered | 73.1 | 25.0 | 31.2 |

## Reporting serious research misconduct

### Item 8

Official channels for reporting misconduct are often slow and obstructive (select one option).

| optnames | 1\_S | 2\_R | 3\_O |
| --- | --- | --- | --- |
| Strongly agree | 76.9 | 16.7 | 25.0 |
| Moderately agree | 19.2 | 41.7 | 31.2 |
| Neither agree nor disagree | 3.8 | 25.0 | 43.8 |
| Moderately disagree | 0.0 | 12.5 | 0.0 |
| Strongly disagree | 0.0 | 4.2 | 0.0 |

## Models for addressing serious research misconduct

### Item 9

In an ideal world where resources are not an issue, which is the most suitable model/system for addressing serious research misconduct?

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| Self-regulation approach, where academic institutions are responsible for conducting investigations and determining sanctions when one of their staff is accused | 2.85 (1.26) | 3.12 (0.99) | 2.31 (1.14) |
| National governance approach, where government regulatory agency is set up for this purpose | 2.54 (1.07) | 2.46 (0.98) | 2.5 (1.03) |
| National guidelines approach; for example, UK's Committee for Research Integrity, which does not have a regulatory role, but aims to ensure all institutions work to a common framework | 2.5 (0.95) | 2.42 (1.14) | 2.62 (1.15) |
| Regulatory agency independent of Government | 2.31 (1.35) | 2.29 (1.16) | 2.88 (1.09) |

## Role of employers

### Item 10

Prospective employers should undertake rigorous due diligence and, as far as possible, check with previous employers to ask if there have been any investigations into serious research misconduct.

| optnames | 1\_S | 2\_R | 3\_O |
| --- | --- | --- | --- |
| Agree | 80.8 | 79.2 | 81.2 |
| Neutral | 11.5 | 12.5 | 12.5 |
| Disagree | 7.7 | 8.3 | 6.2 |

### Item 11

Employers, funders and publishers of research should be legally required to share information to support investigations of serious research misconduct.

| optnames | 1\_S | 2\_R | 3\_O |
| --- | --- | --- | --- |
| Agree | 80.8 | 79.2 | 87.5 |
| Neutral | 19.2 | 20.8 | 12.5 |

## Solutions to serious research misconduct

### Item 12

Given that we have finite resources, which solutions to serious research misconduct should be prioritised in funding? Rate the following options from 1 = most preferred, to 5 = least preferred

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| Changing criteria for hiring/promotion/funding away from publish/perish model, so that researchers won't be motivated to commit fraud | 2.96 (1.48) | 3.17 (1.69) | 2.75 (1.77) |
| Research ethics training for all researchers | 3.23 (1.61) | 2.62 (1.64) | 3.75 (1.44) |
| Funding/training of research integrity officers | 3 (1.3) | 2.88 (1.51) | 3.19 (0.98) |
| Infrastructure to collect and report on serious research misconduct nationally | 2.77 (1.21) | 3.12 (1.26) | 3.12 (1.02) |
| Support for individuals/organisations who have expertise in detection of serious research misconduct | 2.58 (1.42) | 3 (1.44) | 3.19 (1.22) |

## Role of publishers

### Item 13

It is not the responsibility of publishers or journal editors to determine whether serious research misconduct has occurred, but they are responsible for ensuring the literature is decontaminated from erroneous work promptly. Please rate the following statements in accordance with your views on how this should work, from 1 = strongly disagree to 5 = strongly agree.

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| Articles that contain serious errors that undermine confidence in the findings should be retracted promptly, without waiting for an institutional investigation | 4.5 (1.03) | 3.5 (1.41) | 4.44 (1.09) |
| Publishers and institutions should work together to facilitate sharing of key information when serious research misconduct is suspected | 4.52 (1) | 4.33 (1.2) | 4.53 (0.74) |
| If conditions for retraction are not met, an expression of concern may be added to an article while an institution conducts an investigation | 4.23 (0.86) | 3.83 (1.2) | 3.62 (1.15) |
| When an institutional investigation is completed, the institution should directly approach the publisher of articles affected by severe research misconduct and request retraction | 4.54 (1.1) | 4.58 (0.88) | 4.38 (0.89) |
| When a publisher finds the same author repeatedly flagged for erroneous material, they should communicate this to research integrity officer at the author's institution | 4.54 (0.95) | 4.38 (0.97) | 4.56 (0.89) |
| When a publisher or institution finds the same researcher repeatedly flagged for erroneous material, their name should be added to a database | 3.81 (1.23) | 3.46 (1.18) | 3.81 (1.28) |

## Whistleblowers and bystanders

### Item 14

Please rate your agreement with the following statements about whistleblowers from 1 = strongly disagree to 5 = strongly agree

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| There are disincentives for researchers to report serious research misconduct | 4.5 (0.76) | 3.96 (1.27) | 3.75 (1) |
| Usually there is insufficient protection for whistleblowers who report serious research misconduct | 4.04 (1.25) | 3.46 (1.14) | 3.5 (1.21) |
| It is important to be aware of and mitigate collateral damage that may be caused to other members of a research group if one member is found to have committed serious research misconduct | 3.92 (1.06) | 3.92 (1.02) | 4.38 (0.81) |
| Whistleblowers should have their identities protected, with confidential channels for reporting suspected serious research misconduct | 4.19 (0.94) | 4.08 (1.21) | 4.12 (1.2) |

## When serious research misconduct is confirmed

### Item 15

Which of these practices should be options for institutions when serious research misconduct is confirmed. Please give your rating from 1 = strongly disagree to 5 = strongly agree.\*

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| Educational retraining for researchers who have been found to commit serious research misconduct | 2.5 (1.33) | 3.62 (1.41) | 3.12 (1.26) |
| Restorative justice approaches; e.g. requirement to meet those affected by the misconduct to discuss its impact | 2.92 (1.57) | 3.38 (1.44) | 3.31 (1.2) |
| Sanctions such as demotion or dismissal | 4.62 (0.64) | 3.79 (1.32) | 3.94 (1.44) |
| Report on the investigation made public, with identities of those found to have committed serious research misconduct disclosed | 4.65 (0.69) | 3.58 (1.5) | 4.12 (1.31) |

## Unintended consequences/barriers to progress

### Item 16

Please rate your agreement with the following statements about unintended consequences/barriers to progress from 1 = strongly disagree to 5 = strongly agree

| Subitem | 1\_S (N = 26) | 2\_R (N = 24) | 3\_O (N = 16) |
| --- | --- | --- | --- |
| Fear of reputational harm makes institutions less likely to take action on serious research misconduct | 4.69 (0.47) | 3.21 (1.22) | 4.38 (1.02) |
| Investigations of serious research misconduct divert researchers and associated resources from more productive research work | 2.12 (1.24) | 2.17 (1.4) | 2.62 (1.31) |
| There is a danger that structures developed to investigate serious research misconduct could be weaponised by those with political agendas - e.g. on topics such as vaccination, climate change, sexual health. | 3.08 (1.38) | 3.17 (1.01) | 3.56 (1.03) |
| Failure to address serious research misconduct at the institutional/employer level could lead to more bureaucracy from external agencies | 3.5 (1.27) | 3.62 (1.28) | 3.81 (0.91) |

### Item 17

“One of the likely drivers of trust and distrust in research is the way research institutes, publishers, and funders respond to allegations of research misconduct” (Bouter, 2024)

| optnames | 1\_S | 2\_R | 3\_O |
| --- | --- | --- | --- |
| Agree | 69.2 | 70.8 | 75.0 |
| Neutral | 19.2 | 20.8 | 6.2 |
| Disagree | 11.5 | 8.3 | 18.8 |

## Free text comments

**Free text comments on item 1**

| mytext |
| --- |
| 1\_S) Restricting definitions of "serious research misconduct" to where researchers \*intended\* to commit fraud would put the burden of proof onto institutions to prove such an \*intention\*. That will be extremely difficult. |
| 1\_S) I believe that finding and punishing the guilty party is an outdated approach to quality control. We can learn from how errors are managed in other areas, such as the often-mentioned airlines as well as clinical medicine, and focus more on identifying structural issues. |
| 1\_S) Why do researchers violate scientific ethics? |
| 1\_S) "We know it when we see it" so less need for further discussion. A defined process for handling it is the most pressing need. |
| 1\_S) I think you may want to distinguish between misconduct by authors and misconduct elsewhere in the peer-review pipeline (rogue editors or reviewers, cohesive citation, citation cartels etc.) |
| 1\_S) Though it is of course important to have criteria for what constitutes serious research misconduct, my experience is that debates on semantics tend to detract from the concrete implementation of mechanisms to prevent harmful conduct. So searching for the "one true definition" seems less fruitful and useful to me. |
| 1\_S) My view is that there is less clarity and consistency on point 2 and little research to best inform it |
| 1\_S) If we first focus on 'what constitutes serious research misconduct,' we may never get to the other two. There need to be consequences for serious research misconduct. |
| 1\_S) I think all of these are important, so they are all on the 'high importance' spectrum of things.  Although the statement "what serious research misconduct constitutes" is important, it can also lead to endless discussions and different actors / teams / clubs / societies ending up with different definitions. I think we all know what serious research misconduct means and I think we need to act rather than discuss. |
| 1\_S) Feel like there are already pretty good definitions out there for what serious misconduct is. No need to reinvent the wheel by coming up with a new definition. |
| 1\_S) I think the "process" for identifying, investigating and determining sanctions, should be adversarial and clearly defined - similar to the way the criminal justice system is intended to work. That system is not perfect, but it provides guardrails that protect both the accused and the public at large. |
| 1\_S) We need agreement between publishers, institutions, funders and researchers on appropriate sanctions. Sanctions which would occur need to be visible to act as deterrents. |
| 1\_S) Sanctions impossible to enact; most institutions have no interest and never follow up on concerns |
| 1\_S) All three would deserve a high priority, but I have ordered them. |
| 1\_S) How are whistleblowers treated? |
| 1\_S) All 3 topics are important to discuss. But there are, at least, some very clear forms of serious research misconduct (e.g. falsification of data). The handling and sanctions are far more nebulous at the moment |
| 1\_S) I believe how allegations of serious misconduct are handled informs the other two. Due to how allegations have been handled, serious research misconduct can be dismissed, or inappropriate sanctions can be imposed. The how also includes the 'who', and also roads and rules for escalation when one party is not appearing to handle them correctly. There is no use of a law when there is no (good) judicial system implemented or room for corrupted interpretation. |
| 2\_R) Regarding sanctions for serious research misconduct - my University's Procedure does not include disciplinary action. If an allegation is upheld, the information is shared with Human Resources to take forward in accordance with the University's Disciplinary Procedure. However, the Pro-Vice Chancellor Research & Innovation may recommend informal remedial actions. |
| 2\_R) Awareness of potential issues, followed by awareness of consequences are the two most important things for me. Processes for handling allegations may vary between institutions/contexts for very acceptable reasons. |
| 2\_R) I interpreted the question as "should be a primary focus for the research integrity community", not "interests me personally most". |
| 2\_R) Sanctions may already be defined by institutions, societies, or other jurisdictions. Being prescriptive may not add value in these settings, but could be helpful in settings lacking defined policies. |
| 2\_R) How allegations are handled, but also awareness of when/how they should be raised, the culture of even making such allegations. |
| 2\_R) It seems to me that the biggest problem is detecting falsification or fabrication, particularly as the misconduct becomes more sophisticated and polished (including with AI support), and to detect this before a research report is published. General shortcomings in the peer-review process again mean that falsification/fabrication is usually detected serendipitiously and by looking back at publications from authors where misconduct somewhere has been demonstrated. My own view is that there are probably a lot publications which are built on findings that are not robust, but they have not been identified as such, either pre- or post publication. |
| 3\_O) Methods for identification of potential serious research misconduct (although this could be covered under statement 1 and 2) |
| 3\_O) How we can change the environment so that misconduct would be less likely to occur and to be caught earlier. |
| 3\_O) Identification of the "entrance portal" for an allegation to constitute serious misconduct would be beneficial. Sanctions are so variable across the sector and different nations that it is not really possible to have a coherent conversation with meaningful outcomes. |
| 3\_O) Not sure a focus on sanctions is a good idea - could be counter-productive (ie inducing risk aversion and defensiveness) |
| 3\_O) I've provided a priority list but there is interdependence and contingency e.g., to have sanctions and to determine how allegations are handled we need to define what constitutes serious research misconduct |
| 3\_O) My priority would be to handle allegations in such a way that both the whistleblower and the accused are protected against undesirable consequences. That protection of course has its limits: for the whistleblower it ends when the allegation turns out to be wrong and made by malicious intentions, for the accused when the allegation turns out to be justified. See: Bouter LM, Hendrix S. Both whistle blowers and the scientists they accuse are vulnerable and deserve protection. Accountability in Research 2017; 24: 359-66. |
| 3\_O) I ranked sanctions as "2" since there is only a limited number of potential sanctions which are also limited by what the employment and/or contractual law allows. |
| 3\_O) Investigative committees must be clear about what constitutes serious misconduct, i.e., misconduct likely to harm the research record, research participants, the environment, colleagues, etc. However, it is equally important that the committee agree on how to handle such allegations—ideally, through the development of clear policies and guidelines. The precise sanctions need to be aligned with the outcome of the investigation, the level of intent, damage, etc., so I don't think this should be a priority since it is so context-dependent. |

**Free text comments on item 2**

| mytext |
| --- |
| 1\_S) If you define "serious research misconduct" as only intentional, it is quite rare. |
| 1\_S) It is difficult to estimate the percentage of researchers who commit misconduct. However, I personally believe the ammount of researchers committing scientific misconduct could be anything between 10% and 50%. I ackowledge this range is quite a wide range, but we cannot pin down a precise number. In some research fields is higher than others |
| 1\_S) I think James Heathers' recent preprint is the best current overview |
| 1\_S) I don’t think false research findings are at the level where it poses a threat to the literature, but false research findings are widespread enough to skew the publishing landscape by incorrectly enhancing the rankings of weak journals (which may have the affect of boosting the CVs of weak researchers, who move up in academia) |
| 1\_S) This is discipline-specific. In health and medicine it seems pre-clinical has a larger problem than clinical but somne clin ical areas (e.g. prehnancy and childbirth seem more impacted than others and in those the third option would be most relevant. |
| 1\_S) Because science is cumulative, there is a risk that grave errors are copied over and over again. You might end up with 'fruit from the poisonous tree', which can lead to persistent problems in whole subfields of science. |
| 1\_S) It's rare, but only because the denominator in the fractional calculation is massive and continues growing exponentially. |
| 1\_S) This under-appreciated study seems the best evidence to me: https://srhe.ac.uk/wp-content/uploads/2020/03/WILLIAMSJoannaROBERTSDavid.pdf And that's before the rise of paper mills. |
| 1\_S) It is common enough that anyone who has every conducted a (systematic) literature review will have found examples of it in the literature. |
| 1\_S) Just scratching the surface finds so much serious academic misconduct, so there will be much more! |
| 1\_S) Serious research misconduct is common enough to stigmatise reporters of it as the problem across universities globally. Some research institutions/universities are built on faculty that have used, and are recognised for using, serious research misconduct to build their careers. Other research institutions/universities, and these are many globally, have little incentive to admit to senior faculty's serious research misconduct, as this tarnishes the university's reputation and funding. There appears to be little realisation that hiding serious research misconduct and/or dismissing it through corrupted processes is in itself misconduct and further compounds the issue. Also because there is no good system that holds universities accountable, let alone a system that supports a more balanced power and effort load between the individuals reporting vs the individuals reported who have the university on their side.  Those cases that come to light in the news are not rare, but the tip of the iceberg. |
| 2\_R) Although there is more media attention on the issue, I have not seen a rise in proven allegations. What I have witnessed is a rise in breakdowns in communications and working relationships since the pandemic, which has led to an increase in complaints which require some form of mediation. Also, the comments posted on post-publication platforms such as PubPeer suggest issues are rife, but are often the result of misunderstandings. |
| 2\_R) I don't think the research community has fully woken up to the problem of unreliable research driven by a perverse insentive structure. There is still a romantic view of the "detached scientist/researcher" driven by mostly altruistic/humanitarian motivations, which does not reflect reality. |
| 2\_R) All in all, serious misconduct (with the intention to mislead) is rather rare, I have the impression. But the challenge of fake papers submissions (AI generated) flooding journals, of which not all are well detected, is enormous. It is not misconduct by PhD-holding researchers, but by criminal organisations falling outside of accountability standards common to universities and research insititutes. Reference: Ioannidis, Transparency, bias, and reproducibility across science: a meta-research view, JCI, https://www.jci.org/articles/view/181923?s=09#B41 "Fraud may become more widespread with new AI tools. For example, Wiley recently revealed that when they used a new detection tool, 10%–13% of the 10,000 papers submitted per month in 270 journals were identified as products of paper mills (40). Apparently, fake papers have already massively invaded the scientific literature (41)." |
| 2\_R) The answer depends on what is considered as serious research misconduct. |
| 2\_R) Serious scientific misconduct is still rare relative to the overwheling bundge of published papers. However, just within the group of landmark papers/game changers it occurs too frequently. My impression based on retractions is that the peak was in the first 10 years in the 20's century but research misconduct leading at times to worse quality of care should not happen that frequently |
| 2\_R) the publicity around "research integrity sleuths" suggests the problem is far more prevalent than previoulsy acknowledged. |
| 2\_R) The related problem of paper mills/fake authorship is why I chose this more severe option. |
| 2\_R) I think it is rare in the UK. However, questionable practices are more prevalent and concerning. It is possible that questionable practices may be used as an alternative to serious research misconduct. What I mean is, being selective about data rather than fabricating it. |
| 2\_R) https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0005738  Even if only 2% of researchers engage in serious misconduct (which could perhaps be interpreted as relatively rare by some), this would be a concerning number. As the article suggests (cf. numbers on incidence of research misconduct when respondents are asked about the behavior of colleagues), the real number is likely higher. |
| 2\_R) The honest answer is: we don't actually know. Nobody knows. The entirety of scientific enterprise is built on trust: you're reviewing the data of strangers whom you are asked to trust explicitly and whose behaviour you are asked to trust explicitly. We may need an "Ed Sheeran" intervention whereby you record everything to avoid the accusation of misconduct. The survey requires an answer but, as a scientist, I don't have the evidence. So, it is forced choice and is not true. |
| 3\_O) In pain medicine there are a number of examples identifying increase in retractions and potential misconduct however it is unclear whether definite misconduct has been identified. The impact of such studies if not identified has been demonstrated to impact on results of meta-analyses conducted to evaluate pain interventions therefore I think it is already a serious problem  https://doi.org/10.1016/j.jpain.2023.07.003  10.1097/j.pain.0000000000002947 |
| 3\_O) Whilst (in my opinion) serious misconduct it is rare, I believe the potential damage it causes is substantial. |
| 3\_O) It is rare, yet still very important to address. |
| 3\_O) In some disciplines, I would judge that the threshold for the third category has been reached. But not across all disciplines. |
| 3\_O) I used to think it was rare but there have been too many high-profile revelations recently, and complacency can no longer be justified. |
| 3\_O) My concern is that we aren't able to accurately identify/measure scale of this and it's also hard to identify what will be a threat but arguably all misconduct is. A systematic review of retractions related to pain research identified 66 % of retracted studies were due to misconduct but "observed many instances where retraction notices for error or unreliable data were ambiguous or contained euphemisms for misconduct." 10.1097/j.pain.0000000000002947 |
| 3\_O) Rare is a bit vague here. It's likely in the range of 4-6% of published articles. That can rightly be considered as a a lot or quite rare, so let's get a bit more quatitative. See: Oransky I. Retractions are increasing but not enough. Nature 2022: 608: 9. https://www.nature.com/articles/d41586-022-02071-6 Bik EM, Casadevall A, Fang FC. The Prevalence of Inappropriate Image Duplication in Biomedical Research Publications. mBio 2016; 7: 10.1128/mbio.00809-16. https://doi.org/10.1128/mbio.00809-16 Van Noorden R. How big is science’s fake-paper problem? Nature News: 6 November 2023. https://www.nature.com/articles/d41586-023-03464-x  Gopalakrishna G, ter Riet G, Vink G, Stoop I, Wicherts J M, Bouter L. Prevalence of questionable research practices, research misconduct and their potential explanatory factors: a survey among academic researchers in The Netherlands. PLoS One 2022; 17: e0263023. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263023 Fanelli D. How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data. PLoS ONE 2009; 4(5): e5738. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0005738 Y. Xie, K. Wang, Y. Kong, Prevalence of research misconduct and questionable research practices: a systematic review and meta-analysis. Science and Engineering Ethics 2021; 27: 41. https://link.springer.com/article/10.1007/s11948-021-00314-9 |
| 3\_O) I feel this is a factual questions which can be best answered by carrying out a comprehensive analysis. However, I also know that this data would be difficult to obtain and with questionable quality (due to different definitions and procedures used in different institutions and/or countriesa). Also, there is still some uncertainties concerning the prevalence of misconduct and whether it is over- or underestimated by different methods. See: How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data Fanelli D (2009) How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data. PLOS ONE 4(5): e5738. https://doi.org/10.1371/journal.pone.0005738  Considering all the above, my honest answer would be that I don't know for certain how common it is. |
| 3\_O) The evidence regarding retractions, paper mills, hijacked journals, predatory practices etc. would suggest that there are significant problems are threatening the integrity of the research literature and that these are increasing. Examples of relevant papers:  Van Noorden. More than 10,000 research papers were retracted in 2023 — a new record. Nature News 12 December 2023. https://www.nature.com/articles/d41586-023-03974-8  Ivan Oransky. Retractions are increasing but not enough. Nature 2022: 608: 9 In 2021 772 of 3544 papers retracted originated in papermills – Candal-Pedreira C, Ross JS, Ruano-Ravina A, Egilman DS, Fernández E, Pérez-Ríos M. Retracted papers originating from paper mills: cross sectional study. BMJ. 2022 Nov 28;379:e071517. doi: 10.1136/bmj-2022-071517. PMID: 36442874; PMCID: PMC9703783. Papers and peer reviews written by ChatGPT in 2023: 24/04/2024 https://retractionwatch.com/  Van Noorden R. How big is science’s fake-paper problem? Nature News: 6 November 2023. https://www.nature.com/articles/d41586-023-03464-x   Nagarkar S. “Research paper mills”: A factory outlet for dubious research. Indian J Med Ethics. Published online first on April 26, 2024. DOI: 10.20529/IJME.2024.025.  Prillaman M. ‘ChatGPT detector’ catches AI-generated papers with unprecedented accuracy: tool based on machine learning uses features of writing style to distinguish between human and AI authors. Nature News: 6 November 2023. https://www.nature.com/articles/d41586-023-03479-4. Katharine Sanderson. Science’s fake-paper problem: high-profile effort will tackle paper mills. Nature News 19 January 2024. https://www.nature.com/articles/d41586-024-00159-9?utm\_medium=Social&utm\_campaign=nature&utm\_source=Twitter#Echobox=1705659987 |

**Free text comments on item 3**

| mytext |
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| 1\_S) "Institutions, whose resources are diverted to tackling misconduct" only applies if institutions lack clear and efficient processes |
| 1\_S) Public trust in science is remarkably high despite reproducibility problems etc |
| 1\_S) It depends on the discipline. In some areas misconduct is very harmful. I |
| 1\_S) Most legitimate research has hardly any impact on policy, application, or wider society, so fraudulent research is unlikely to have major impact either. |
| 1\_S) I think there is currently a low level of harm due to serious research misconduct on institutions, but only because institutions currently do not invest a large quantity of resources into investigating research misconduct (relative to the prevalence of misconduct, in my opinion). I \_wish\_ that serious research misconduct was currently more harmful to institutions, as this would compel them to take more serious action to address and prevent it. |
| 1\_S) I feel like "Consumers of research findings" and "Other researchers" should belong on a shared 4-rank, if I HAVE to make a choice, I'll choose this. |
| 1\_S) I have grade the harms to institutions as relatively low because, in my experience, in most cases institutions do not divert resources to tackling misconduct. They ignore and cover it up. I have grades the harms to public trust as relatively low because the public does not appreciate the full extent of serious research misconduct. |
| 1\_S) Institutions do not divert resources into tackling misconduct. On the contrary, they often divert resources into defending and encouraging misconduct. Researchers do not attempt to build on each others findings, they are very rarely harmed. The biggest harm is on taxpayers and charity donors who don't realise how their money is wasted. |
| 1\_S) I have classified the impact on institutions as lower than the others, as I believe tackling misconduct should be part of the standard resource and budget allocation at an institution. In an ideal world, these resources could be allocated elsewhere - to create an ideal world, these resources need to be allocated to support tackling misconduct. |
| 2\_R) While it is important that research funding is used appropriately, one could argue that by funding research results are not guaranteed and may not always be 'utilised' in the most effective way. Perhaps this is also contributing to the larger issue of research misconduct. |
| 2\_R) Misconduct will always occur, so both funders and research sponsors should have processes in place to identify and address it. When these systems fail it is the consumers of research, be they society, patients or other researchers, are the ones who suffer the consequences. |
| 2\_R) - By far, the worst impact is on consumers and other researchers (wasting their time). As work that turns out to have been time waste eventually, is less harmful than wrong medical treatments or inefficient policies, I ordered this way. - I have the impression that the impact on misconduct on public trust is overestimated. - Institutions should devote resources to quality assurance and tackling misconduct anyhow. Prevalence of misconduct can be a driver for developing institutional policies, guidance and capacity for research integrity. |
| 2\_R) High premium on quality information to the general public, in the information age. |
| 2\_R) Funders have a significant responsibility for causing the pressure that drives research misconduct and their processes waste more institutional resources than research misconduct cases do. |
| 2\_R) Unless the research affects consumers and policymakers in a more or less direct manner (e.g. because the research informs or develops treatments or other applications), the impact on them is probably rather low. However, if such effects occur, they are likely to be very harmful. Thus, I've opted for "strong harm" due to the potential enormous severity of these cases. |
| 3\_O) The impact on societal trust is the most concerning aspect. |
| 3\_O) Serious misconduct is harmful to everyone involved, but of course the most serious consequences are for those who are directly affected and society at large. |
| 3\_O) Trust is the key concept to me. See: de Ridder J. How to trust a scientist. Studies in the History and Philosophy of Science 2022; 93: 11-20. https://doi.org/10.1016/j.shpsa.2022.02.003 Peels R, Bouter L. Replication and trustworthiness. Accountability in Research 2021. https://doi.org/10.1080/08989621.2021.1963708 |
| 3\_O) Research misconduct and the impact it has on the public is the wrong question in my opinion. There is such a strong belief system in anti-science that an emphasis on how to encourage "good science" for the public misses the point that the public consumes pseudo-science and completely false claims in far outpaced ways than anything that even barely stands a test of integrity. This is more a question of how to conduct good science among scientists. Including the public in this discussion is an entirely different topic. |
| 3\_O) It is difficult to qualify harm, but I used "5" for potential lethal harms or atleast risks to persons' health. "4" refers to systemic harm that could impact whole groups of researchers for a longer period of time. "3" and "2" refer to single instances of harm, which are mostly monetary in nature and reflect the cost of doing something (e.g. one research project among hundreds, one administrative procedure in addition to hundreds). I assigned "2" for tackling misconduct since I understood narrowly as handling cases and allegations and sustaining necessary personnel for that. If it also includes training, prevention and awareness-raising, then it would be "3" at least.  I did not consider harm to the reputation of individual researchers and institutions, as these are also difficult to asses, since sometimes the reputation of having worked with someone who conducted fraud, is difficult to overcome. See: Kozlov (2022) How a scandal in spider biology upended researchers’ lives. Nature 608, 658-659 (2022). doi: https://doi.org/10.1038/d41586-022-02156-2 |
| 3\_O) The seriousness of the damage caused by serious misconduct must be put in context. Harm to humans, either in society (the public, policymakers) or those who depend on trustworthy research outcomes for their well-being (e.g., patients), is more damaging than financial harm to either funders or research-performing institutions. However, I believe that harm to the research record that damages future research is very serious since it may ultimately damage the consumers of research outputs, be they patients, the public, or policymakers. |

**Free text comments on item 4**

| mytext |
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| 1\_S) I think that the scientific record is the greatest tool available to mankind. Doing everything in our power to maintain it, should automatically lead to an increase in public trust and it would (hopefully) deter others from committing fraud (just like a clean environment will encourage people not to litter). |
| 1\_S) The old adage "fraudsters gonna fraud" applies. Responding to misconduct is not a deterrent - those who commit misconduct just do it, they're not following the publicity on how such cases are handled/resolved. |
| 1\_S) When there is research misconduct, it will often be necessary to prevent offenders committing the offences again. The primary aim is to prevent future misconduct by an individual who cannot be trusted. That may be seen as the individual being punished, but punishment should not be the primary aim. Nevertheless seeing the loss of an appointment or status by an offender acts as a deterrent for others. |
| 1\_S) Punish is a difficult item to consider. I do no not think it is important to punish scientific misconduct per se, but I think it is important that these researchers are not allowed to conduct research in the future. This is, of course, a punish in itself, but it is to protect the scientific record. |
| 1\_S) The academic record is a joke don't worry about fixing it. Even if we found and removed all the fake findings it wouldn't be a drop in the ocean compared to the "honestly" produced wrong findings. Neither should anyone trust research. Ever. So don't worry about that. Also, there is no palatable punishment great enough to act as a deterrent. The death penalty might work as a deterrent but it would not be acceptable. So the only thing worth doing is punishing offenders for the sake of justice. After all, don't we punish honest researchers enough already? |
| 1\_S) Part of the first, maintaining academic integrity, or really re-instituting it, including correcting the academic record - and in so ensuring that breaches of it remain indicated and by whom - is in a large way punishment of the offenders already. Similarly, punishment would likely be a strong deterrent to others. As such, I don't see the punishment of offenders as a goal, but more as an outcome to maintaining integrity and trust, and a means for deterring others. |
| 2\_R) As disciplinary actions are confidential, the outcomes of proceedings are often not well publicised. |
| 2\_R) Care needs to be taken to distinguish between mistakes/desperation driven by perverse insentives, and direct maliciousness. In most cases it is the system that drives misconduct in individuals who are bowing under personal pressure. Unfortunately the outcome is that everyone suffers as integrity and trust in research is subsequently compromised. |
| 2\_R) I do not understand the meaning of "to maintain academic integrity", so I answered only for "to correct the academic record". This is the most relevant. Punishing offenders additionally is least critical: as science is a reputation game, having an allegation of serious research misconduct proven against you (and it being known among colleagues and peers) is a very severe punishment after all. |
| 2\_R) It is difficult to beleive that researchers committed FFP because others are committing fraud. Honesty and rigour should be intrinsic values |
| 2\_R) In my experience, punishment is usually avoided |
| 2\_R) Responding to academic fraud will not deter serial offenders- why would they care? |
| 3\_O) Punishment must be , at least at this point, a major topic of discussion. If no meaningful action is taken against serial offenders there is no hope for stopping the crisis . |
| 3\_O) But, punishing offenders may have an impact on the other items listed. |
| 3\_O) Correcting the academic record is, in my opinion and experience, almost impossible. |
| 3\_O) All of this is important although to avoid top rankings everywhere I selected punishment as less important. Provided the offenders are removed from their positions and academia, I am less concerned about what happens to them afterwards. |
| 3\_O) Sanctioning culprits and retracting fraudulent, fatally flawed or ethically unacceptable research is of course important. It's the equivalent of surgery. But to me preventing research misconduct (and QRPs, which likely do more damage because these are so frequent) is much more important. The equivalent of that is public health. |
| 3\_O) While holding researchers accountable for their fraudulent actions is important, I believe that the priorities for responding to serious misconduct have an internal driver (correcting the research record) and an external driver (maintaining trust and rigour in research by other researchers and society.) I am not convinced that seeing offenders punished is a strong incentive to deter others from committing fraud. I cannot cite any particular evidence for this observation other than te continuing rise in case numbers, as identified in recent meta-analyis. Fanelli, D. (2009) How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. PLoS One, 4(5): e577388 Xia et al. (2021) Prevelance of research misconduct and questionable research practices. A systematic review and meta-analysis. Sci Eng Ethics, 27, 41 Kaiser et al. (2022) Questionable research practices and misconduct among Norwegian researchers. Sci Eng Ethics, 28(1): 22 Gopalakrishna et al. (2022) Prevalence of questionalbe research practices, research misconduct and their potential explanatory factors: A survey among academic researchers in the Netherlands. PLoS One, 17(2): e0263023 Phogat et al. (2023) Misconduct in Biomedical Research: A Meta-Analysis and Systematic Review. J. Int Soc Prev Community Dent. 13(3): 185-193 |

**Free text comments on item 5**

| mytext |
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| 1\_S) There are enough resources - but are they allocated to this problem? |
| 1\_S) There is conflict of interest also for publishers, who are earning money on the number of papers published. If they were retracting too much, authors will stop sending manuscripts to them. There is conflict of interest also among researchers from the same field, as it is good for everyone from any given research field that many papers are published in that field. |
| 1\_S) Some of the bureaucratic delays/inefficiencies are likely to exist by design in my opinion |
| 1\_S) By academic institutions, I assume you mean hiring organisation, like universities. But it should also include journals and publishers.  In my experience, lack of will was the biggest obstacle. Followed by the default deferral to journals and peer-review as arbiters of quality. |
| 1\_S) I think another problem is the shared responsibility accross all stakeholders (scientist, editors, publishers, institutes, funders, research societies). Everybody could do something about serious research misconduct, but it's easier and less time consuming to point to another party that should 'take the first step in the right direction'. |
| 1\_S) Respondents "lawyering up" is a big problem. |
| 1\_S) The main hindrance to institutions responding appropriately to research misconduct is the desire to cover up the misconduct. Concerns about legal repercussions and due process are minor - institutions have no concerns about legal repercussions or due process when silencing whistle-blowers. Institutions can always find individuals who can deal with the complexities provided they have the will. Other factors are concerns that the institution may have to repay grants awarded for the falsified research and concerns that if one looks at the allegation of research misconduct one might find that within the institution the problem is more widespread and involves bigger individuals. |
| 1\_S) Cowardice and incompetence pervades the system from root to branch. There is no obstacle too great that should prevent anyone in a decision making position from taking decisive action against fraud. Presumably the only reason they ascended to their position at universities/publishers/funders is precisely because of their hopeless and ineffective personality. Who in their right mind would become a university administrator? It's a selection tool for B level players. They signed up for catered lunches, the out of office email response, and work from home on Wednesdays. So I'm saying lack of expertise is most important but what I really mean is lack of competence. |
| 1\_S) Often the persons responsible for academic misconduct allegations change. |
| 1\_S) Item 2 could be expanded to include concerns about reputation. In an environment where universities are supposed to function like a commercial enterprise and rely on buy-in of prospective students and external funders, harm to reputation appears a main driver preventing the investigation and publicising of possible fraud cases. |
| 1\_S) The reason for rating 'due process concerns to ensure fairness' as not much of a hindrance, as in my experience the conflict of interest for institutions investigating their own (senior) researchers is so high that there has been no to little concern with fairness. Where there was a concern with 'fairness' this was based on error in process which was completely undeniable and which was only corrected under pressure from a complainant. Even so, a good number of errors in process were ignored. As such, though I can imagine these concerns can play a role at some institutions, at all institutions in my direct experience this has not been the case for both serious or less serious research integrity issues. |
| 2\_R) We know what needs to be done, and which systems work. The problem is that the academic community is not yet on board as it does not yet realise the scale, or harms, of the problem. As a consequence meagre resources are provided to relatively junior or inexperienced administrators who are given the run around by powerful and intelligent researchers who are often more concerned with protecting their own reputation/ego than the overall reputation of research/science. |
| 2\_R) From national experience, I know that many institutions face a lack of resources for research integrity governance (as well as for open science, ethics etc.) Large universities and rich research institutions may be less vulnerable to this, but smaller research institutions, university colleges, academic hospitals / medical centers ... have other priorities than research integrity, and their funding is geared towards these other challenges. The lack of resources is detrimental, as it determines the institutional attention for research integrity issues (and hence the expertise buildup, the overal capacity, including the the coordination capacity, the conflict-of-interest-management etc.) |
| 2\_R) Lack of coordination in particular in Asia |
| 2\_R) the review process is very time-consuming for a small number of people. |
| 2\_R) I believe that academic departments must do better in reviewing the 'quality' of their own work, and promoting good quality in research and ethical behavior, rather than focusing mostly on bibliometric results for publications as productivity and otherwise generally being conflict-averse. |
| 2\_R) I wonder if part of any difficulty might be the lack of a universal approach, by institutions, to investigating allegations or research misconduct. Perhaps we need a common framework that every (UK) institution applies (via the Concordat)- at the moment it's a boutique investigation. But, then, each institution has its own ethics committee framework/procedure, too- and those vary. |
| 3\_O) My review (Inside an Academic Scandal, MIT Press, fall, 2025) suggests that the American story is unique in the degree to which legal concerns drive how universities respond. |
| 3\_O) All the issues I rated with "2" seem to be mainly administrative and procedural issues which can be overcome with better planning and updating of procedures. Lack of resources could be detrimental, but often times it seems more of an accuse rather than an actual reason as the investigative bodies are not that big and serious cases are rather rare. I would instead add "lack of institutional/leadership support" or something similar as a potential factor that could hinder responses to misconduct. |
| 3\_O) My only evidence is my own experience of being the manager of a university research office, where we managed the research ethics committee for the universities and being involved in developing national procedures for misconduct investigation. The biggest hindrances for research institutions are lack of expertise and ability to manage complex cases, in particular where they rely on ad hoc committees; lack of resources to provide adequate support for standing ethics committees; accepting independent members in the belief that internal committee members do not have conflicts of interest, fear of the repercussions of cases in terms of reputational damage, and a level of secrecy around these that damages coordination with funders and journals. Where clear policies and processes are in place, these mitigate bureaucratic delays and lack of fairness. |

**Free text comments on item 6**

| mytext |
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| 1\_S) The literature on criminology (esp white collar crime) has a lot of useful insights into:  Low probability of being detected and/or reported Low probability of being punished if detected and/or reported |
| 1\_S) I ranked ‘publish or perish’ highly, but not because I took it literally. My experience with fraudsters was not that they needed to publish in order to progress their careers. Rather, they wanted to progress up the career ladder as fast as possible. |
| 1\_S) Also need to consider direct financial incentives to publish |
| 1\_S) Might wanna break out this question by career stage - incentives to commit misconduct likely very different for trainees vs. PI's. |
| 1\_S) All of the above, but in addition there are are institutions where there is a culture of misconduct. I have been involved in cases when individuals were encourage to commit research misconduct and told how to get away with it by more senior individuals. I have investigated cases where individuals agreed to be co-authors of publications they knew were false and professors claimed they supervised entirely fabricated reports. |
| 1\_S) Researchers are not at risk of "perishing" and the phrase should never be used. |
| 1\_S) low chance of discovery and high rewards = rational choice! |
| 1\_S) From observation, it is senior researchers with important positions who are most inclined to serious research integrity breaches - often to gain even more importance, to move to the most senior positions, to gain international rankings, or to support specific juniors in moving up into positions that support their own careers, as such using research integrity breaches for strategic positioning of (slightly) more junior staff members. As such, it is not a fear of job loss driving the serious breaches I have seen, but more about promotion and recognition of themselves, and bolstering the positions of strategic supporters. |
| 2\_R) As a non-academic, I would say that internal / external pressures have a negative impact on researchers and can potentially lead them to cut corners. |
| 2\_R) The grant funding, and problem in obtaining permanent contracts/positions, are two well know perverse insentives that drive misconduct. But increasingly the frankly criminal state of the publication/research dissemination system is driving more misconduct as publishers seek money over the integrity of the research record, and academics play along if it bolsters their CVs. |
| 2\_R) - This question is only concerned with researchers operating in an accountability environment (like a university). Paper mills generating fake papers cover a far more prevalent and intentional misconduct, operated by criminal gangs, not researchers. - The latter two options have the same meaning for me (the last one before tenured a position, the second last for tenured staff). However, the latter "losing one's job is not productive enough" may have a higher accumulated impact, as postdocs looking for a fixed position have less to lose. This is speculation and gut feeling, not evidenced by research. |
| 2\_R) - Systemic issues weigh particularly heavy in China - Not alluded to here are political agendas to destabilize the West through generating mistrust in core institutions/societal foundations - Also not alluded to are substantial business interests--e.g., by paper mills and predatory publishers (of course, "reputable" publishers have substantial business interests as well) |
| 2\_R) not just about publishing it is about getting the funding as well. |
| 3\_O) In my experience, the most serious cases of research misconduct are committed by established, renowned and highly published scientists. This is not about protecting their jobs, getting promoted or getting more publications, it is about gaining adulation and power. |
| 3\_O) This list reads like a list from an economist assuming rational action. Diederik Stapel's Outspouring (Derailed in English) tells a much more clinical story. I apologize for being self-serving, but I provide a chapter on "why they do it" in Inside an Academic Scandal - happy to provide a draft copy. |
| 3\_O) In addition to the above drivers, I think another main factors is simply pursuit of fame and power. This is not (just) about "publish or perish" but about TeD talks, TV shows, and other rewards for being a top scientist. |
| 3\_O) There is so little sound research on this. We really need more good research on research integrity to eventually reach the level of evidence-based policy. |
| 3\_O) Entirely publish or perish. And the prejudices that exist in how grant funding is doled out. And how to maintain a salary based on competitive granting without institutional backing, protection, and more support. |
| 3\_O) I rated the last two items lower since everyone needs to work in the same culture and under similar expectations but most of the researchers still do not commit miscondust. Therefore there must be some factors that are applicable only for those who commit misconduct and most likely is related to aspects of motivation or personality/character. In my very subjective oppinion the formula would be something like: incentive (something to gain) + motivation (willingness) + opportunity (lack of deterrence, lack of sanctions). The motivational dimension is missing from this list. |
| 3\_O) Haven and van Woudenberg (https://link.springer.com/article/10.1007/s10838-021-09555-5) demonstrate how hard it is to establish causes of misconduct, even where there are apparent correlations with different factors. However, there is much literature that links a 'publish or perish' culture with misconduct (e.g. https://www.degruyter.com/document/doi/10.1515/jom-2023-0211/html). This is linked to employment fears for lack of productivity, although such fears apply more to contract staff than permanent staff. For the latter, I think reputation among peers and fear of being judged if not publishing consistently in high impact journal may be a driver of misconduct. The Dutch Research Integrity Survey exposed fear of detection as a mitigating factor (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263023&fbclid=IwAR17MW5qz2wpZXQz6crAQVrsDbGsx0DKeE5ZIuvIywF137rYlf\_5hXz1Alw) |

**Free text comments on item 7**

| mytext |
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| 1\_S) Very strongly positive in my opinion. I rarely see vexatious claims, but I do see lots and lots of well-founded and competent sleuthing. Partly this is because I stopped following certain colleagues online. I might as well come out and say that I am thinking mainly of Jim Coyne (no longer with us) and Leonid Schneider. I think Schneider basically does good work but I find his style to be tiring. |
| 1\_S) I had a positive experience with posting online. And publishers do care about their image. |
| 1\_S) I think it is negative, but not for the reason given here. Social media distorts investigations of fraudulent research because it amplifies cases on socially hot-button topics. For example, a paper about gay cruising grounds get disproportionate attention (https://retractionwatch.com/2021/11/17/elsevier-makes-sand-sun-sea-and-sex-with-strangers-paper-disappear-following-criticism/), as did plagiarism accusations by Harvard’s then-president. Attention is taken from less sensational, but more widespread, cases of fraud. |
| 1\_S) Given that social media has somewhat effectively decentralised scientific communication, I think modern sleuthing is only possible because of it. There is more research misconduct now than ever, but there is also a greater frequency of detection of this misconduc (still low, of course). |
| 1\_S) Currently, social media has been mostly positive in bringing problems to light. However, this is starting to and will change as more people try to either become 'sleuths' without adequate training or will intentionally weaponise scientists. |
| 1\_S) I think it's great that sleuths like Elisabeth Bik, Cheshire, Dorothy Bishop and Mu Yang have had a strong social media presence, showing the world what's wrong.  But when you think about it, they are forced to use social media, because contacting funders, journals and institutes generally leads to nothing. If these parties would take their responsibilities and provided a clear system to report serious research misconduct, the battle wouldn't have to be fought in public.   The general public might think serious research misconduct happens more often than it actually does (due to the public nature of the allegations) and anti-science voices might use the social media posts of sleuths as proof that science untrustworthy and needs to be defunded. |
| 1\_S) If you're counting PubPeer as social media. w/o PubPeer, I don't think just talking about it on Xitter or whatever social media platform would be as effective. |
| 1\_S) Social media does encourage more colorful commentary than might be desired, however that fact seems to have encouraged investigations when entities involved encountered that commentary. |
| 1\_S) I have put "neither positive nor negative" but I think it is actual "both positive and negative". It does allow speedy commentary but also allows some vexatious complaints. In addition, it does allow propagation of false claims. |
| 1\_S) It's a drop in the bucket, often ignored |
| 1\_S) Unfortunately, I feel that without social media (or the fear of social media), a lot of cases would have never been recognized because of the complete lack of structure to handle and punish misconduct, and the clear reluctance of institutions to act. Without social media, a lot of investigators would simple have no way to attract attention to their suspicions and discoveries.  I honestly have never heard, at the moment, of unwarranted complaints leading to more than minor inconveniences or annoyance. It is true that it's important to remain very prudent as this very well may become a problem in the future, but for now, it mainly feels like an easy line of defense to deflect scrutiny. |
| 1\_S) I am going to guess that most complainants, especially those with a high level of integrity, will try to solve the issue internally. However, when this fails, or if a complainant does not feel safe to address things internally, I do believe social media could be a fair 'last resort' - at least it is a resort where all else fails. It may take up resources at the university, but again, these are resources that should be allocated, and if the university has a good standard of practice such reports should be able to be cleared up soon, whether they are unwarranted or not.  As such, I would almost say it is positive. However, I do not think social media provides the right platform for discourse, and is likely to harm both reporting and reported parties, as well as giving a platform for unpleasant and uncontrollable forms of escalation. Again, if an institution is not doing the right thing this could be one of the only and last means, but it is an unpleasant one. 'Normal' media with good research journalism would be better, but has less bandwidth and even then can misrepresent. At least social media gives power directly to all parties concerned. |
| 2\_R) As someone whose role it is to support the investigation of allegations of research misconduct, I always encourage individuals to report concerns using the University's formal procedures. Anonymous posts are not helpful - formal procedures exist for a reason. |
| 2\_R) It has worked well for increasing awareness among junior researchers in particular, although not really produced any solutions. |
| 2\_R) - Disclaimer: I have little knowledge on this topic. - If PubPeer is considered a social medium, then I think the balance is positive. I have no knowledge about unwarranted complaints by vexatious individuals. Every accusation or allegation should be well-informed and grounded in tangible evidence or at least indications. Accusations I have seen on PubPeer are mostly well-documented. |
| 2\_R) not the proper forum for dealing with misconduct. Evaluation of misconduct requires a high level of expertise and confidentiality, not to be found in social media |
| 2\_R) I'm sitting on the fence. Although I agree with the negative comment - social media has brought to the fore some really serious cases that institutions were sweeping under the carpet. |
| 2\_R) I would have leaned positive until recently because some sleuths have used social media in a very effective, skillful and responsible manner. As platforms (especially X) are becoming ever more spreaders of disinformation, I'm now leaning towards the neutral category and am worried that the impacts might become predominantly negative over time as there's a risk that voices of actors acting in bad faith will become much louder than the voices of the sleuths acting in good faith. |
| 2\_R) It's fair to say that the majority of -if not all- current fraud in my discipline I've read about and discovered via social media |
| 3\_O) Having seen social media discussions on specific articles, I do not think it an appropriate way to 'judge' and highlight. The current systems make it difficult to discern who is and is not an informed party and there is limited moderation |
| 3\_O) In my experience, the most serious cases are the least likely to hit social media as institutions and individuals try and protect themselves from poor publicity. What does hit the media is those working to uncover misconduct that institutions and individuals are trying to hide, so predominantly positive. |
| 3\_O) Social media, including PubPeer is the only major avenue for detectives to post their findings. While these are by default ignored by the relevant institutions , sufficient concerted activity can ultimately trigger an investigation. |
| 3\_O) I think that the net effect is positive. At the same time, my read of the 2023 social science story is that journalists are too quick to tell a cute story where they do not really understand what happened. |
| 3\_O) I am a great believer in the positive aspects of post-publication peer-group review on sites such as PubPeer and RetractionWatch |
| 3\_O) This is very difficult to answer. There are so many cases of Twitter mobs ganging up on good-faith researchers (e.g., during COVID) that the positives are overshadowed. So on balance social media are terrible for this sort of thing because hysterical outrage in most cases is entirely misplaced. There may be some cases of cogent allegations that turned out to be meritorious but I don't see social media as a good place to debate these issues. |
| 3\_O) There are some individuals that have worked tirelessly to raise these issues, bringing much needed attention to a problem that in some areas seems prolific. Those who have detected and reported serious research misconduct on social media have demonstrated integrity despite the risks to themselves. They are often very quick to present the issues in an open and transparent manner - acting far quicker than any institution/journal to 'correct' the record. How can, for example, institutions harness those positives? |
| 3\_O) I've seen instances of both. Trial by social media is unfair, especially when the allegations hold no ground. On the other hand overall probably social media attention have led to many retractions that otherwise would have occured much later or not at all. So for cleaning the published record I would pick the bottom option. |
| 3\_O) Or rather both positive and negative, because I would agree with both statements. I guess this is how social media functions, it amplifies negative as well as positive sides of fast exhange of information and ideas.  However, I would also point out a negative side: if discussions of potential misconduct take place in social media, it raises the issue who is setting the agenda and focus. Perhaps the ones responsible for handling misconduct also need to take a more active role in explaining the proper procedure (which is slow) and nuances or differences between serious and less serious (questionable) forms of misconduct. |
| 3\_O) While social media is certainly unregulated, and so can provide a platform for vexatious complaints, it can also quickly alert the research community to problems in publications. |

**Free text comments on item 8**

| mytext |
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| 1\_S)  https://www.transparimed.org/single-post/transparimed-files-ethics-complaint-over-unreported-cancer-trial-result |
| 1\_S) I have tried reporting misconduct anonymously only to have it swept under the rug. Then I talked to a journalist and suddenly there was a flurry of motion. |
| 1\_S) It depends on the publisher or institution but in general it is very slow. |
| 1\_S) It can go both ways. Willing editors can act very quickly and effectively if they are willing (example: the coordinated investigation of Jonathan Pruitt). But in other cases, editors, publishers, and COPE interlocutors can drag their feet for years without doing anything. |
| 1\_S) They are also confusing. Who knows who to contact? |
| 1\_S) Clear-cut cases of photoshopped images often remain in the literature without as much as an expression of concern. stakeholders often hide behind protocols and guidelines, such as the COPE guidelines. These protocols and guidelines have been often put in place by the parties themselves, which should make it very easy to change them if they feel they don't work as intended. |
| 1\_S) Just finding out who the RIO is at a given institution is nigh on impossible. |
| 1\_S) The lack of transparency makes this difficult to know for sure. When I report concerns, I only get a automatic "thank you for reporting..." response from a small minority of entities; most say nothing. After that, when nothing occurs for years, it isn't clear that anyone even looked into my concerns. |
| 1\_S) Based on experience with numerous publishers and editors, institutions and COPE. Just a few motivated individuals are different. |
| 1\_S) That is my overwhelming experience in a large number of cases I reported. |
| 1\_S) The silence and covering-up culture is still strongly present and there is very limited protection of the whistlerblowers while the retalliation is very common and the consequences on reporting could have enormous consequences on career and health. |
| 1\_S) I could write a book about this.... I have published papers on the topic but that would identify me. |
| 2\_R) Recruiting appropriate individuals to sit on panels can often slow down proceedings, and then managing availability. Some of the delays here are difficult to manage in advance. |
| 2\_R) Although I agree that formal processes can be long and drawn out, there are usually good reasons for this - such as the need to ensure fairness and the prevention of detriment. One case I was working on involved the submission of over 350 pieces of evidence, which took time to review and assess. Universities are also reliant on senior academic giving up their time to participate in investigations, which is difficult to fit in around other roles and responsibilities. Finding external panellists to participate is also challenging and time consuming. |
| 2\_R) Often the slowness and obstructiveness comes from researchers themselves who see processes as a direct attach on their egos. The two slowest research misconduct investigations I have contributed to were significantly impeded by researchers employing legal representatives at a very early stage - in both cases the legal help turned out not to be needed, but slowed the investigations down by six months to a year. |
| 2\_R) I agree that they are slow. I have witnessed procedures that took 3 and 4 years at the university, before coming to the second-advice national system, which added another half a year. But I wouldn't call them obstructive, as official investigation procedures are the only channel delivering a high authority report. |
| 2\_R) not sure what is meant by this question. There is a defined path for REPORTING misconduct. It is the evaluation process that is quite protracted, but not obstructive. |
| 2\_R) We have one channel for reporting and we deal with it straight away. |
| 2\_R) I chose the neither/or because I have no direct experience of reporting fraud to editors. In my University role, this was one of my responsibilities but it was not one that was tested. |
| 3\_O) I have not had personal experience in reporting. From seeing colleagues trying to do this, there is sometimes a fear associated with raising a concern without anonymity as they are concerned for the impact it may have on their career if raising concerns about more senior players in their own field |
| 3\_O) I find official channels slow but less obstructive than they used to be. Guidance is clearer, funders and journals are more open about what is and isn't problematic and how to deal with it, so the option for institutions to bury things (although still their first impulse) is reducing over time. |
| 3\_O) If by official channels you mean HHS\_ORI or equivalent, the channel is indeed slow and rarely leads fi meaningful action. |
| 3\_O) I think that they have good legal reasons for their slowness, but that does not morally excuse them for the harm that they create as a result of their slowness. |
| 3\_O) Very dependent upon the institution, the institutional culture and the institutional leadership. |
| 3\_O) Rcently the Netherlands Code of Conduct of Research Integrity was evaluated. One of the findings was that most standing committee struggle with the fact that most complains have nothing to do with research integrity, but concern academic disagreements, labor conflicts, power abuse, financial fraud, malicious intentions, sexual harrasment etc. See: https://storage.knaw.nl/2024-07/Adviesrapport-Evaluatie-Nederlandse-gedragscode-wetenschappelijke-integriteit-2024.pdf (Dutch with English summary). |
| 3\_O) I have limited experience with this, however the issue is not in the "channel", but rather the quality of the information and how much resources are available for dealing with the cases. However, I know at least one instance where the channel doesn't function (at least not as intended) due to redundant steps (a high level official needs to screen the reports).  In general, I think there should be a difference between the speed of the final procedure (which can be long) and how responsive the procedure is. I agree that sometimes the channels could seem slow and obstrusive, but perhaps it is due to lack of transparency and communication once the report has been handed in. |
| 3\_O) The answer to this question is dependent on the policies and processes in place in institutions. An example is the procedure for investigation of misconduct developed by the Irish National Research Integrity Forum, which is implemented by its signatory institutions in Ireland (all institutions) - https://www.iua.ie/wp-content/uploads/2019/08/Guidelines-for-RI-investigations-FINAL-17-08-16-1.pdf. This stipulates the timescale for investigations. The European Code of Conduct for Research Integrity Also extols that misconduct investigations should be fair, comprehensive, and conducted expediently, without compromising accuracy, objectivity, or thoroughness (https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/european-code-of-conduct-for-research-integrity\_horizon\_en.pdf). Where institutions have no clear guidelines and processes in place, there is always a danger of slowness, and indeed destructiveness in situations where the institution does not want to acknowledge the misconduct. |

**Free text comments on item 9**

| mytext |
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| 1\_S) As indicated before, I would in general prefer to move away from punishing the guilty to fostering systems that promote quality within research institutions. But the way things are now, I believe it is better if an external agency gets to investigate misconduct than for universities to do it internally, because of the inherent conflict of interest. |
| 1\_S) The publishers should take responsibility. Governments should regulate publishers - not researchers - if it can be proven that they knowingly ignored fraudulent research and failed to act in a transparent way to credible charges of fraud. This will be difficult because these are multinational companies, but regulation could come from the government where the publishers if headquartered (similar to regulations for media companies) |
| 1\_S) I do not think there is an ideal solution to this presently; a state-entity solution would mean potentially inconsistent enforcement across countries; an independent regulatory agency may find itself stretched too thin/bumping against international legal issues; self-regulation by universities has clearly to date failed. Ideally, I would like to see self-regulation by universities, and with meaningful consequences delivered to universities who fail in their duty to limit misconduct (e.g., financial restrictions from funding agencies). Ideally regulation would be similar to in industry: where corporations do in-house quality control while also being held accountable by state regulatory agencies. |
| 1\_S) Guidelines are nice, but reinforcement is needed. Governance on a national or institutional level can lead to a very heterogeneous approach with widely variable outcomes for similar issues. This does not help the scientific record.  Since science is an international endeavour, I feel that an international regulatory agency would be best, with stakeholders from different scientific backgrounds, different scientific roles and different continents. |
| 1\_S) I suspect most working in this field would prefer a government regulatory agency. I suspect that this agency will be ineffective, under resourced, and politicized. I would prefer a self-regulatory regime financed by research institutions, somewhat akin to the way Financial Industry Regulatory Authority (FINRA) works in the finance industry in the U.S. I think research institutions might consider some sort of audit system for each other. |
| 1\_S) I believe that a body similar to Health and Safety Executive is required, because the HSE can bring criminal prosecutions. I would want a national body that can bring criminal prosecutions for serious research misconduct. |
| 1\_S) DWP prosecutes benefit fraud, police go after credit card fraud. MHRA can prosecute for breaking regulations. Research fraud steals from people. It can't be left up to universities or weak quangos. |
| 1\_S) I believe all four are necessary - generally universities should be responsible for the first level of investigation and accountability, including according to their own and national guidelines (thank you for existing UK CORI/UK Universities). However, as observed there is a rather significant bias of universities towards protecting their researchers from being shown to have breached research integrity (whether due to reputational damage to the university or due to fear for legal repercussions from the researchers involved), and as such a preference for universities to breach their own integrity in favour of hiding senior researcher integrity breaches. Because of this, it should be possible for individuals to escalate cases to a separate regulatory agency. This agency could possibly also help universities in cases of legal escalation. Whether this agency is situated in a national governance approach or is independent I could not really judge the value of, but can imagine there is a higher chance of a conflict of interest in a government regulatory approach (different views welcome). |
| 2\_R) As universities are always accused of conflicts of interest in 'marking their own homework', I have suggested that an independent body could be useful in restoring trust. However, there would still be a resource implication for universities in liaising with investigation panels and providing information. |
| 2\_R) Institutions are too varied, and have too many conflicting interests, to do this properly as the current situations demonstrates. An independent ombudsman/adjudicator as in other countries would probably be fairest, and most efficient. |
| 2\_R) - As far as I see, these options are not exclusive. In Finland, Netherlands and Belgium, a genuine two-level system is in place, combining self-regulation by institutions with second advice possibility by a national-level system. National guidelines are consistent with self-regulation as well. - It is hard to discern regulatory agencies "of government" and "independent from government". They are anyhow publicly funded, even if they are established by the research community. The key difference is probably the level of legalization / juridisation, when these Boards are part of the state apparatus, to comply with all transparency standards, like in USA, China or Denmark. This is not advised, as it turns away the attention from the core (deviation from good science) to procedural matters, as noted in the Evaluation of the Dutch Code of Conduct for Research Integrity (June 2024, findable online) |
| 2\_R) National standards would be helpful. I expect most institutions have the internal expertise and knowledge to handle individual cases most efficiently. |
| 2\_R) In my opinion, approaches that rely primarily on self-regulation are inherently deficient because institutions inevitably face a conflict of interest that internal procedures hardly can address effectively. Some form of delegation, therefore, is - in my opinion - preferable. Which delegation model is best depends on institutional design. An independent agency presumably is best able to serve as neutral party, if it has a clear mandate as this model minimizes conflicts of interest. A national governance approach, by contrast, could make an agency vulnerable to political pressures. If a model could be devised that credibly insulates an agency from such pressures, a national governance approach could be highly effective, too (especially in countries where public trust in official institutions is high). |
| 2\_R) I think that academic institutions should educate and promote good reseach practice (and good ethical conduct), and be active in  assessing own activity, but they cannot formally investigate themselves in a reliable way. External assessors are needed to try to make that kind of process as objective as possible. |
| 2\_R) The question asks for preferential rating for each but I think this is more usefully explored by comparing each and choosing the best (which I have done here) |
| 3\_O) With a preference for a national guidelines approach there must however be a clear route to sanction that is overseen with an external body to prevent institutions from not acting in accordance with the guidance |
| 3\_O) This is a difficult one. In my experience, outside agencies are impartial but they also often fail to understand the situation and investigate it appropriately, whilst internal agencies start by assuming there is no misconduct and do everything they can to prove that. And both outside and internal agencies are obsessed with single step investigations (hear one side, hear the other side, make a decision) that they fail to recognise that this will lead to biased and (possibly) incorrect judgements. They fail to share documentation with each party, they fail to check inconsistencies and lies, and they therefore make their decisions based on partial information. This is why courts of law work the way they do (allowing each side to cross examine and allowing each side to see the evidence). Having said that, internal |
| 3\_O) Only an independent organization can monitor and implement measures that are meaningful. |
| 3\_O) In the American context, I think that this needs to be affected by the funding source. But, regardless of the answer, I think that Universities should take action based on misconduct by their faculty. |
| 3\_O) I work in a system that adopts the first. It does not work! |
| 3\_O) A lot of these investigations require local knowledge and so they are best handled by the institution involved. However, to ensure independence, the investigation should also include independent external participants (e.g., academics or experts from another institution). |
| 3\_O) I strongly believe in self-regulation, we really should do a better job. Once government, politicians and laws come in, handling allegations becomes a legalistic game with legal counselors on both sides. We should avoid that and use it only for massive financial fraud or issues that concern criminal law. Like in the medical field self-regulation keeps the focus on the content of the case (as apposed to procedural hair splitting) and maximizes the likelyhood that something is learned that helps to prevent future cases. |
| 3\_O) As long as there is not significantly increased administrative bloat, this would be preferred. But if reporting = +++form work, that is never fun. |
| 3\_O) Just a remark, but in this question the positive-negative axis is inversed: the most negative value is on the righ, 4 is least preferred. This could cause some confusion, unless it is intentional and fulfills some additional purpose.  I guess this is also a question of personal values and ideals about "good governance". In my personal view, high concentration of regulatory and sanctioning power always causes more problems in the long run and decentralised models are more resilient. Also, if we want to change the research culture, then we need to empower those who are at the institutions and in the position to do so. |
| 3\_O) An independent regulatory agency may be the most palatable for institutions, who generally resist government interference, and would be my preferred choice. Having national guidelines has also proven effective in many European countries and ensures consistency across institutions in the policies and processes they develop for handling misconduct. The least effective means of managing misconduct is self-regulation. This is rife with problems such as conflict of interest, obstruction to protect institutional reputation, and lack of opportunity for standing or ad hoc committees to develop the skills and expertise necessary for fair, comprehensive and trustworthy (credible) investigations. |

**Free text comments on item 10**

| mytext |
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| 1\_S) Asking about "investigations into serious research misconduct" would include allegations that were not proven. People are and should be innocent until proven guilty. |
| 1\_S) Rather they should check the quality of the work of the prospective employee and see if it appears to be robust |
| 1\_S) Easy to implement step, but the problem is that possible problematic employees could try different employers until they find one that isn't rigorous enough. Prospective employers should be able to warn others to prevent them from hiring bad actors. |
| 1\_S) In the US there needs to be a reporting requirement along the lines of Title IX (sexual misconduct), where institutions are required to report findings and they're available in a database. |
| 1\_S) Just like asking former employers in private industry about an employees past employment record, there are too many legal consequences for this to work well. |
| 1\_S) I would like there to be a database of individuals found to have committed research misconduct, which could be checked rather like a criminal records check. |
| 1\_S) I'm on the fence about this. Prospective employers should investigate, but they don't have to do it so rigorously, as the assumption is that most people are honest. But including a grain of salt when reading CVs is probably good advice. |
| 1\_S) Yes and no. Prospective employers should do this anyway, but there are a large number of comments on this:  - investigations can say something about the complainant, the respondent, and the investigators; so even if you know an investigation has taken place, whether this tells you anything is questionable. Even if the outcome is known.  - most behaviour goes unreported and uninvestigated. At the senior level there will be less knowledge on goings on than at the junior level.  If you check with anyone, check with previous juniors, though again, the answers and reality might not overlap - there is large variation in how juniors get treated, and those exposed to research integrity breaches are highly unlikely to report to an interviewer, whether they have reported it to the institution or not. Possibly find previous juniors who have now left academia... Though that would be a specific selection too. As such, sure, do the check. It would give some extra information, but be aware of how much this actually does/doesn't tell you. |
| 2\_R) This has been discussed informally by research support professionals in this area; one of the key concerns raised regarding this approach relates to data protection and the legality of doing so. |
| 2\_R) Agree - but we should also be mindful of the principle of the prevention of detriment where an allegation has been unproven, or the case has been dismissed as vexatious / malicious. |
| 2\_R) There should be a legal obligation on employers to ask for, and receive, a confidential statement from previous employers relating to historical research misconduct. |
| 2\_R) A standard statement could be developed by EUA, EARMA, ENRIO and other players, setting the bar. |
| 2\_R) I don't think we can rely on this, however. |
| 2\_R) This would indeed be important as researchers found guilty of research misconduct often can continue their career unimpeded in other countries without much consequences. A researcher found guilty of serious misconduct in the most prominent case in the country where I am based, continued his career without any serious consequences in a different country after being fired from the university where the misconduct had occurred. |
| 2\_R) There is a GDPR conflict here. There is also an unfairness bias- there may have been an examination but the outcome may have been negative. The stigma, I suggest, would be real and influential to an employer. |
| 3\_O) This should be a specific question requested of previous employers as part of a reference/application process |
| 3\_O) However, I have known of a case where the new employer was informed and they still decided to go ahead with the employment. They are balancing the negative against all the positives (internationally renowned academic with publications for the REF and funding). |
| 3\_O) This is critical, but as far as I have seen these investigations are kept secret. Offenders tend to jump from place to place, especially if they are “productive” and famous. |
| 3\_O) I think that there needs to be a basis for such intrusion. I also see multiple cases of innocent people being wrongly harmed by institution viewing anyone near a fraud story as contaminated. |
| 3\_O) I agree. In reality, GDPR aspects make this nigh-on impossible in reality. |
| 3\_O) What are the legalities of this? I agree it is important to establish a track record but is it legally permissible? |
| 3\_O) In addition the outcome of the investigation would be pertinent - should be made available by referees/ findable. |
| 3\_O) With proper checks and balances of course. Currently it's very easy to move on to another employer who is unaware of the research misconduct. |
| 3\_O) I tend to agree but see a lot of problems with this procedure. Firstly, there are legal/regulatory reasons why sharing such information could be challenging (confidential data, protection of privacy and good reputation). Secondly, it would create an unfair advantage to those candidates who come from universities where preventing research misconduct was not a priority as they would have a "clear" background, whereas honest researchers who have "marks" on their resume (for instance, investigation into questionable practices at the last employer) would instantly seem less preferable. Also, there have been cases where candidates to research positions have intentionally faked their CVs or obtained fraudulent academic credentials which could complicate such checks even further, especially where foreign institutions are in play. There have also been concerns about malign foreign interference in such cases.  If such check were introduces, these should check for all signs of fraudulent activity, not only wether misconduct investigations have been launched against the person. However, in that case these checks would be very time consuming and require a lot of resources. |
| 3\_O) The 2017 Science Europe Workshop Report on the implementation of research integrity policies recommends that  "When a person applies for a research position (including from another country), it is the responsibility of the hiring institution to satisfy itself that the candidate has not been found guilty of research misconduct, nor is the subject of an ongoing investigation –  for example by asking the candidate or their current employer. Research Integrity Offices might also be useful sources of information." https://scienceeurope.org/media/lfdme4ev/ws\_report\_integrity\_practices\_policies.pdf. That said, it can be difficult in practice to identify researchers who are 'institution-hopping', and declarations by candidates for hiring are not routinely used. |

**Free text comments on item 11**

| mytext |
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| 1\_S) Hard to enforce with foreign based actors |
| 1\_S) Transparency is essential to fight corruption in general and in this setting |
| 1\_S) This is tricky. While ideally this would be the case, I can see this being greatly misused for political purposes. |
| 1\_S) In line with my text in the previous text box. |
| 1\_S) Only gonna work if mandated at government level and tied to funding... "if you want this grant, here's what you have to do". |
| 1\_S) Just like asking former employers in private industry about an employees past employment record, there are too many legal consequences for this to work well. |
| 1\_S) Whilst appearing attractive, I fear that this would actually inhibit accusations/investigations; legislative enforcement has significant implications. I also doubt this would be enforced. |
| 1\_S) I would have criminal sanctions for individuals who covered up research misconduct and punitive fine for organisations (employers, funders and publishers). |
| 1\_S) Why stop there? They should be legally required to share information about research for any reason. |
| 1\_S) Yes. Absolutely. Even on a normal regulatory level some of this is missing - looking at publishers specifically, who have a very, very broad set of interpretations even if they (claim to) fall under/comply with COPE. |
| 2\_R) Universities do this already. |
| 2\_R) I agree, although lessons should be learned from the education/child protection sector relating to the damage that false allegations could cause if this sort of route is pursued. |
| 2\_R) They should share information to support investigations, that is clear. All instruments and guidance that may help them to do so, should be applauded. I'm not sure if a legal requirement would be very beneficial. It could contradict other legal requirements and put research integrity investigations further in the sphere of legality, which is to be avoided. |
| 2\_R) Medical researchers should undergo a similar degree of scrutiny as clinicians for the purpose of protection of the public |
| 2\_R) I would say that they should be regulatorily required rather than legally required. What matters is that the requirement is sufficiently binding. In countries where research is mostly governed by soft law, a legal requirement could be a poor fit to the overall governance system and thus be difficult to implement effectively. |
| 2\_R) 11a Not quite sure what this means. Again, there are correct and important GDPR protections. |
| 3\_O) Absolutely vehemently agree with this. I've seen journal articles refuse to retract papers that clearly contain serious misconduct because they are afraid of being sued. |
| 3\_O) This requires changes to national and international legislation. |
| 3\_O) See above. This requires a legal framework. |
| 3\_O) As long as this does not become means to create a new version of academic bullying. Public record is public, and sometimes the accusation is remembered more than the verdict. |
| 3\_O) I would say that institutions should cooperate and shouldn't impede investigations. However, such a legal obligation would also require that there exists a proper investigative body that is transparent in its dealings and well trusted in the academic community. Also this legal obligation should be tied to only this trusted investigative body, it cannot be a general obligation to help any institution who decides to investigate misconduct. If an "investigation" is launced at an institution in an unfriendly country (for political reasons) and they ask for certain information and documents about some researcher, then clearly there shouldn't be an obligation to provide any information to them.  If such an obligation were to be implemented, it should be minimal and well thought through. |
| 3\_O) As per the final sentence above, this would make it a lot easier to identify applicants who have not been honest about their research integrity history. |

**Free text comments on item 12**

| mytext |
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| 1\_S) The publishing model needs to be changed. Peer-review should start from the assumption that research is false, unless proven otherwise (reject, unless proven otherwise). At the moment, it is assumed that research is legitimate, unless given reasons to reject a paper (accept, unless proven otherwise).  I believe mistakenly publishing an incorrect paper is asymmetrically worse than mistakenly rejecting a good paper. This used to be the case when publishers got most of their revenue from subscription, but the move to OA has changed the incentives to where it is financially costly to reject good papers. |
| 1\_S) Research ethics training would not be worthwhile, I think. Those who commit serious misconduct know that it is unethical. Our focus should be on incentivising/reinforcing good research practices and disincentivising/punishing (in the behaviourist sense) misconduct. |
| 1\_S) Difficult one.   Changing criteria is definitely the way forward to make sure as few as possible NEW cases of misconduct come into the arena.  I also think that making sure that serious research misconduct is found and reported, will make it less appealing to potential problematic scientist to start (or continue) with the misconduct.  I research integrity officers can be important, but they cannot do much if nobody is reporting problems.  Basic ethics training programs need to stay in place but they probably don't yield results if the incentive it to produce as many papers as possible. You basically guilt-trip researchers by first saying there are clear rules in place for going good science, but then show them that it is impossible to climb to the top when they obey those same rules. |
| 1\_S) Item 1 (criteria) seems great on paper, but what do you replace it with? We have to measure <i>something</i> and there is a lack of alternative metrics. It's beyond the scope of an exercise such as this to design and deliver new research performance metrics. Whatever you end up choosing as a metric, it's a matter of time before people figure out how to "game" it (Goodhart's law). |
| 1\_S) Unfortunately, in any system where incentives are designed to drive behavior, some individuals will look for shortcuts to receive the incentives without the effort. Sanctions, better investigations, etc. will not stop misconduct, but might make it less a attractive option for some. Personally, I think this is a particularly difficult problem to fix since much of the funding for research is from the public and taxpayers don't directly see the costs of misconduct. |
| 1\_S) The key things are detection and punishment of offenders, plus sanctions on institutions where offenders worked. If institutions face large enough sanctions they will police themselves, but there needs to be the threat of external regulators with powers to compel cooperation. Collecting data is meaningless unless we have proper detection, because the data collected will be worthless. I believe all researchers should get training in research ethics but do not think it will affect prevalence much. |
| 1\_S) Other option: support for researcher training so that researchers can recognize possible signs of research misconduct in their fields and avoid relevant papers. |
| 1\_S) Collecting information and reporting is the only one I like. Can we name and shame those involved? |
| 1\_S) Again, this ranking is based on experience. Most people working as research integrity officers are university researchers and smart enough to understand research integrity regulations and be able to read through university/national/etc regulations to ensure proper compliance. Should they be unable to do this, not just their suitability as a RI officer but also as a researcher should be questioned - RI cases are after all much like investigative research. I do not advocate to not invest in this position, but state that with limited resources one should be able to assume that someone appointed to this position is capable of carrying it out in an adequate manner as part of their job tasking.  Similarly, I would be surprised if those breaching RI in a serious manner are not aware of it - there is a lot of information on it and being aware of these regulations is a researcher 101. However, it would be good to ensure that all researchers are aware of their duties, giving juniors in research the knowledge to protect, and stand up for, themselves and others. What is sorely missing are the two I ranked first.  Changing the criteria for hiring/promotion etc - great! Very important too, but how? Solving this question will take a while and the answer is very unclear, whereas creating infrastructure and supporting expertise in RI could be done right away. |
| 2\_R) I think the sector should consider the 'carrot' rather than the 'stick' as training is patchy across institutions. This should include information about how to avoid common pitfalls, because in my experience, it is very rare to come across someone who deliberately sets out to commit research misconduct. |
| 2\_R) The task really needs to be professionalised by individuals with the experience to do this properly, and who are paid accordingly. At the moment this is often an additional and unwanted task dumped on administrators or leaders who have other primary concerns. |
| 2\_R) These are all very valuable options! It is hard to rank them really, because (a) they are not equally expensive -- for example, changing evaluation criteria is in essence cost-neutral; and (b) they are not all in the same way "solutions to serious misconduct". Searchable national inventories of closed cases are very useful for systemic learning, but have at most an indirect effect on the prevention of future misconduct. The option "support for individuals/organisations who have expertise in detection of serious research misconduct" is really interesting. Sleuths are extremely beneficial for the scientific ecosystem and it is absurd that they don't receive the recognition they deserve. Charity-based funding for sleuths would be greatly advised. The deterring effect of their multiplied actions could be huge, perhaps. |
| 2\_R) I'm not sure where the funding is coming from in this question. HEIs should be already paying for ethics training and RIOs and consider these core to their work. Changing criteria for promotion etc would be great - again, that's with institutions to resolve. Or should there be a national standard? The matter of promotion is linked to the effects of short-termism; the way to resolve this would be with lobbying funders towards more long-term awards, which is what the Director of my institution advised me when I asked about scope for addressing the problems of short-termism. |
| 2\_R) By ethics training I assume you mean research integrity training? |
| 2\_R) Changing criteria for hiring, promotion and funding is by far most important because many of the problems we are currently witnessing have to do with perverse incentives. The other solutions mentioned above are, however, important (non is unimportant in my view), too, and should supplement incentive changes (especially training initiatives that are comparably cheap to implement). I have ranked support for individuals or organizations who have expertise in detection of serious research misconduct last because I am unsure what exactly is meant here and how it could look like in practice. |
| 2\_R) Re: option 1. The REF does not help and, in fact, promotes the current system with its perverse incentives. I'd support a move away from privileging studies published in specific journals (the "gold standard" which is nothing of the sort) and have never used this as a criterion when hiring. My view that good research is good research regardless of where it is published and there are enough cases of retracted/bad studies in these "high IF" journals to render the journals unimportant. I have used research output as an employment criterion. But what you would replace publications with (any) might lead to different problems and biases. I would also support a move to reward quality over quantity (of publications). I sometimes feel sorry for longitudinal researchers. |
| 3\_O) research ethics training should be part of anyone's education in research and not require specific funding. WRT serious research misconduct, it is likely that those conducting it understand best practice but choose to ignore it therefore educating them will not help it. Education around detection and raising concerns would be valuable |
| 3\_O) Sleuths are an invaluable resource, and mostly ignored by the relevant institutions.  There is no real lack of courses on ethics, but without deterrent these remain devoid of any impact. |
| 3\_O) I believe that we need to have universities better engage on the problem and create clear norms to their faculty. I also believe that we need to change the norms of co-authors - e.g., having a second co-author examine all aspects of data collection and analysis. |
| 3\_O) Item 2 is fairly well implemented already, both at the doctoral training and early career researcher stages. Option 4 has just been adopted in my country. |
| 3\_O) I am not sure the ethics training achieves much. Those who need it will not pay attention or will intentionally disregard it. I don't think any of the recently uncovered frauds were acting out of ignorance. |
| 3\_O) It's important not to be naive and have more quality control at all levels by all stakeholder (funders, research institutes and journals), but let's not overdo it and establish a culture of box ticking and mistrust. |
| 3\_O) While training in research integrity and ethics is vital, combined with appropriate infrastructures and supports institutionally, in the longer term we will only effect change in researcher behaviours (and the pressures that may contribute to poor practices) if we change the system and environment within which they work. COARA, Science Europe, and many others around Europe are working to achieve this, although it will require a paradigm shift in the current academic structures and systems. |

**Free text comments on item 13**

| mytext |
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| 1\_S) Database will not work in practice. |
| 1\_S) I disagree with the framing of the question. Who says that the journals have a responsibility to decontaminate the literature? While I am aware of COPE and of certain publishers and individuals within publishing organizations that are doing good work in this regard, I fail to see who appointed the publishers to have any responsibility at all except to their shareholders. I believe that the legacy model of scientific publishing is a structural barrier preventing progress on quality improvement and research integrity, and that the best we can do is stop pretending that journal publication is a marker of quality or integrity. |
| 1\_S) "Articles that contain serious errors that undermine confidence in the findings should be retracted promptly, without waiting for an institutional investigation" - it is possible to add an expression of concern, and then retract the paper after the institutional investigation |
| 1\_S) Publishers and journal editors ARE responsible for determining fraudulent research. They are domain experts and they license or own the copyright of the fake research. Unless they act appropriately in the face of evidence of fraud, they are complicit. |
| 1\_S) All of these are important. For the last statement: it needs to be 100% clear that all findings are on the same author. Sometimes it is hard to disambiguate. |
| 1\_S) Regarding the last point, I don't see existence of a database per se would be a problem - it's not "public" so it likely would not cross the bar for defamation - unless of course the contents were leaked, so it needs to be VERY secure! |
| 1\_S) When an institutional investigation is completed, the institution should directly approach the publisher of articles affected by severe research misconduct and request retraction- It should be the responsibility of the institution to ensure that articles ARE retracted, because it often doesn't happen nor promptly. Institutions need to update their databases too, e.g. PURE. |
| 1\_S) The above presumes that institutions and publishers can be trusted to conduct investigations. They cannot. Journals make money from publishing and would make much less money if readers realised how much in the journals are false or published because there are editorial conflicts in publishing certain research. That particularly applies to major medical journals publishing reports showing drugs or medical devices in a positive light: every such article can bring major journals (e.g. New England Journal, Lancet, JAMA) more than $500,000 in reprint sales. I would have a regulator with trained forensic investigators doing the investigation. |
| 1\_S) Databases are problematic. This should perhaps be discussed, but it is a bit of the "Scarlett Letter", and is there a way for people to reform and get off the database? |
| 1\_S) An observation here that a conflict of interest can exist, where those involved in RI breaches from an institutional side may be editors on the publication where a work that breaches RI is in review/published. Though not themselves a direct editor of their own publication, strong ties within editorial committees exist, which can usurp or complicate fair investigations that happen through RI breach reports to the publisher. |
| 2\_R) I am a bit wary about the final point - what if the comments are being regularly raised by someone with an axe to grind? |
| 2\_R) The problem is that there are so many publishers, and so many papers, that individual publishers are almost powerless. A national/international database run by an independent organisation would make far more sense. |
| 2\_R) These are good suggestions, the one more pressing than the other. The slowness of publishers' decisions about retractions (awaiting investigations and legal counsel) is at unease with the direct need for readers / consumers to know that there is (or might be) something wrong with a paper, that is for sure. Some of these suggestions aim to speed up the process, but a thorough investigation will need time anyhow. A very parallel suggestion might be to have publishers adopt "under investigation" or "(retraction) decision pending", as a fourth (non-final) status apart from published / retracted / concern expressed. It should be clear that being transparent that an investigation is ongoing, should not induce "trial by media". The journalistic code (also by retraction watch) should be so that no news item is published about articles in such a status. |
| 2\_R) Retractions without an investigation should only occur if there is no reasonable doubt that the findings are unreliable (i.e., if the investigation is not about assessing the reliability of findings, but about finding out who bears responsibility for the misconduct, why it happened etc.). In that case, the retraction note could state that an investigation is ongoing, and that the retraction note might be updated to include further information once the investigation has been concluded. If there is doubt about the (un-)reliability of findings, no retraction should be undertaken before an investigation has come to a clear conclusion. In that instance, an expression of concern should be the option to go for. |
| 2\_R) I would prefer the terminology peer-reviewed scientific journal rather than publishers. Almost all publishers have a commercial interest which is an inherent competing interest concerning the intersection of study findings and publisher income based on journal 'sales'. I think it is clearer to say journals as managers of this type of peer review leading to published scientific content. And the issue is trustworthiness of the content. This is complex when a journal is owned by a publisher. |
| 3\_O) A serious publisher should not accept sending manuscripts for review if these are coming from labs either a clear pattern of misconduct or negligence. The fact that they keep the doors open for serial offenders (while automatically rejecting less famous investigators) is outrageous. |
| 3\_O) Throughout the above text "should" is an ideal situation that is probably not achievable without legislative change. All of these impact on GDPR in some way or another. |
| 3\_O) I suspect the database idea is legally problematic. |
| 3\_O) I think that there needs to be more collaboration between institutions and journals such that flawed articles are promptly retracted. This will require a willingness by both parties, which does not currently exist in many instances, with journals being slow or unwilling to retract and institutions trying to protect their reputations and rankings.  I cannot see how a database of repeat offenders would work. It would need to be international and frequently verified and updated. Retraction Watch already has a very comprehensive database that institutions could use more effectively. |

**Free text comments on item 14**

| mytext |
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| 1\_S) Transparency International has good guidelines / principles on whistleblowing in other sectors |
| 1\_S) Not sure if there are insufficient ways to protect scientific whistleblowers, I think the problem has more to do with that some scientific communities are small and tight-knit, which makes it difficult to talk about the problems of what seemed to be a friend. It might also make it difficult to stay anonymous. |
| 1\_S) Anonymity is sacrosanct! |
| 1\_S) I have blown the whistle on misconduct and do not like the idea of anonymous allegations. In addition, it is always possible to work out who blew the whistle. The only collateral damage to others in the research group should arise if they knew of the misconduct and failed to report it or colluded in some way. |
| 1\_S) I put 2 for the last item because while it's clearly desirable, I think it's impossible. |
| 1\_S) Item 1 depends a lot on the relationship between whistleblowers and suspected perpetrators. |
| 1\_S) Researcher's careers depend on those above them, and seeing how unlikely it is that a university will find anything negative about their senior researchers, the reporting researcher is often sacrificed. Reporting of research misconduct is as such extremely low - I would say lower than in business.  Re. collateral damage - yes and no. In some (actually, many) cases the serious RI breach is known to all members of the research group/publication. It depends on the case and type of RI breach. Even so, where people could not have been aware of it, they should be protected. A bit of balance in power and responsibility also needs to be built into responses, accounting for often a lack of say from junior researchers. |
| 2\_R) I think the topic of whistleblowers is an interesting one. At my University, someone can raise a concern via our Whistleblowers Policy, but the matter would be deferred for investigation under the University's Research Misconduct Procedure and would be required to identify themselves to the lead investigator. Although all reasonable steps are taken to ensure confidentiality, full anonymity cannot always be guaranteed. |
| 2\_R) This is a difficult subject given how closely researchers work together, and how powerful PIs are compared to postdocs/students. Again it comes down to the career structure and perverse insentives. |
| 2\_R) Please don't use conjunctions/juxtapositions ("A and B") in statements. If you agree with A and disagree with B, you are lost. For whistleblower protection in research, please see ENRIO's Handbook on Whistleblower Protection in Research. |
| 2\_R) Re: insufficient protection. This is an unknown,. What is known is that a litigious fraudster might try to cripple a whistleblower financially. This is poor. I can understand the slighted reputation and the feeling of offence but the first response is to rebut, challenge and defend not go crying to a lawyer and try to close down criticism and discussion. Re: confidentiality. This is consistent with HR misconduct practices but there are pros and cons to this- prevents the establishment of vexatiousness/ulterior motives etc. Once a misconduct investigation starts, it's on your record regardless of outcome. |
| 3\_O) Whilst there is a potential for a significant negative impact on researchers I do not think these are really 'disincentives' as all researchers must uphold integrity as a primary aim therefore have a duty to report concerns |
| 3\_O) I believe that we have ignored the harm to innocent members of a research group affected by misconduct. |
| 3\_O) I actually think all of the above are 5. However, the reality is that anonymity cannot be maintained in legislative systems that require disclosure of the allegations to the impacted parties. Hence, "4". |
| 3\_O) The reference I alluded to earlier is relevant here as well: Bouter LM, Hendrix S. Both whistle blowers and the scientists they accuse are vulnerable and deserve protection. Accountability in Research 2017; 24: 359-66. |
| 3\_O) The first two points are complex issues and it likely depends on the context. It could be quite challenging in a smaller academic unit to protect the identity of the whistleblower which in itself is also an additional disincentive for reporting misconduct. |
| 3\_O) At present, whistleblowers are often the ones whose careers suffer because of their reporting of misconduct. They may be 'black-balled' by their research community, forced from their jobs, or fail to progress in their career. The ENRIO Handbook on Whistleblower Protection provides a checklist on ways to protect whistleblowers, which include confidentiality, the possibility of anonymity etc (in line with the above recommendations) and expands on each recommendation with examples and descriptions of best practices. https://zenodo.org/records/8192478 The ENRIO report also describe a Best Practice Whistleblower Management System (WMS) developed by the International Organization for Standardization (ISO) in 2021, the world’s first best practice guidance for establishing a WMS. While not commonly used to date, this could provide a consistent approach to whistleblower protection across organisations. |

**Free text comments on item 15**

| mytext |
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| 1\_S) Deliberate serious research misconduct should be a firing offense. No ifs and buts. |
| 1\_S) Some kind of restorative approach may be appropriate, but I don't think it would be in the form of meeting with those affected. I'm not sure what it would be instead but possibly some way for the researcher to show that they have changed their ways. |
| 1\_S) To me, the “serious” in serious research misconduct implies some form of intent. It is different from unintentional error or even negligence. Therefore, it should be treated as fraud in the workplace. |
| 1\_S) I feel very uncomfortable and unqualified to answer this question. |
| 1\_S) I think that direct consequences for those performing research misconduct is most appropriate. Especially when they have to (literally) face the consequences of their actions. I think it's important to share results of investigations publicly, but it is imperative this does not lead to a 'witch hunt' or automatic 'guilt-by-association'. It is nuanced and I think the general public is not ready to handle that. |
| 1\_S) Name and shame! |
| 1\_S) I think that all reports on research misconduct should be made public, but the sanction should depend on the degree of guilt and harm done. In medical research, how can you have restorative justice when a researcher such as Don Polderman is required to meet the relatives of thousands of relatives of patients killed by his research fraud and we do not know which of the deaths were the "excess deaths" due to the fraud and which were the deaths that would have occurred anyway? I chaired a research misconduct inquiry in a developing country. The head of department compelled 4 juniors to falsify data and all 4 said that they had been threatened with being killed and 2 professors at a major US university, who were co-authors, colluded in cover up. |
| 2\_R) In principle the idea of Restorative justice approaches are fantastic, but I think would be a huge administrative task to facilitate effectively. |
| 2\_R) Sanctions are important, but the contribution of the system itself does need to be acknowledged. If, for instance, a University places a member of staff under severe pressure, they shouldn't be blameless for the subsequent consequences. |
| 2\_R) All should be options. Whenever SERIOUS misconduct (with intention to mislead) is upheld, no follow-up measure should be excluded a priori. However, it might be advisable to reflect on the desirability of each of these in various situations. Not all of them might be well-suited for all misconducts. Restorative justice may be difficult for example when no people, but only "the reliability of the literature" is harmed. |
| 2\_R) The problem I would have with the last item- and it's the same problem I have with the disclosure of any investigation where a researcher is named- is whether the processes have been robust and fair and are \*consistent\* across all investigations (see my earlier point about needing a consistent process for this that all HE institutions follow). If the researcher admits the misconduct- fine, go ahead. But if the researcher challenges and disagrees -with good reason, then the publication of personal details would affect them negatively. |
| 3\_O) I think transparency to the public is vital to ensure confidence in academia. I am concerned that educational retraining is not necessarily the answer if misconduct has been conducted in an intentional manner but could be useful for examples where it has been conducted in error |
| 3\_O) Demotion and dismissal should be on the table , otherwise any measures are toothless. |
| 3\_O) Personally, I believe that option 4 (the nuclear option) is correct. However, it could not be implemented in any regime that I am aware of (outside the People's Republic of China). |
| 3\_O) Again, I doubt this is usually a matter of (lacking) education about ethics. If the misconduct is serious and established beyond doubt, then dismissal is the only feasible option. |
| 3\_O) The restorative justice approach could be difficult to implement in many cases. In other cases, those impacted would likely be the same research team the researcher is working with. Also, there should be some additional measures in place to avoid these meetings turning into public humiliation/shaming procedures. |
| 3\_O) The options available will be context-dependent and should consider the harm caused by the misconduct, e.g., flawed clinical trial versus flawed archaeological data, the level of intent to deceive, etc. Having strong sanctions in place and being transparent about the outcomes of serious misconduct cases sends a strong message to the research community that the institution takes such breaches very seriously and may act as a deterrent. However, where the misconduct is not egregious, the possibility of rehabilitation should be considered, combined, where appropriate, with restorative justice. |

**Free text comments on item 16**

| mytext |
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| 1\_S) "Investigations of serious research misconduct divert researchers and associated resources from more productive research work" - it is impossible to base a scientific work on previous fraudulent research. For example, fake papers delay and bias systematic reviews, meta-analysis, etc. |
| 1\_S) I do think that investigations of serious research misconduct divert researchers and associated resources away from potentially more \_fruitful\_ work (in the sense that undoing misconduct is not building towards scientific theory etc), but I think the act of sleuthing is "productive" is a different way (i.e., it saves resources in the long-run when there is a literature plagued with misconduct). |
| 1\_S) Investigating serious research misconduct = productive research work :) |
| 1\_S) Institutions are already failing to address serious research misconduct, so it's difficult to see how this could lead to more bureaucracy. |
| 1\_S) Almost all researchers would benefit from being diverted from their day to day tasks. Most would be better off with a colouring book. I'm not remotely concerned that it would be detrimental to have researchers spend time investigating each other. This would actually be a highly productive activity that they should do even in the absence of any evidence of fraud. |
| 1\_S) The whole point of developing structures to investigate serious research misconduct is to ensure that weaponisation by those with political agendas is much more difficult, as it ensures researchers involved in such topics don't make it 'weaponisable' by breaching research integrity, and institutions ensure that if they do they are held accountable - creating more transparency, trust and rigour around these topics. |
| 2\_R) The last point is an interesting one, as 'failure to address serious research misconduct' is a form of research misconduct in itself, but currently requires the institution to reflect on any procedural irregularities. At my university, we have addressed these types of claims via an Appeal Panel with at least one external member to ensure objectivity. However, in these situations it would be useful to have a fully independent body to assess the claim, otherwise the outcome may not be accepted by the Complainant. |
| 2\_R) I don't like the wording of the second item as it implies that detecting and dealing with research misconduct isn't productive. In actual fact correcting the scientific record could be seen as more productive that producing new data, on the premise that no data is better than bad data! Regarding weaponising research misconduct, I've experienced this a couple of times (relating to vaccines, and to research into single-sex spaces), but in both cases it was relatively straight forward to protect the researchers due to proof that they had followed ethics/governance processes. Infact my view is that if we have more robust processes in place, they will be able to identify and dismiss malicious claims fairly rapidly. |
| 2\_R) - It is not entirely clear whether the required "agree/disagree" should correspond with the desired state, or the actual reality. It would be good to disambiguate this in a future round. - Fear of reputational damage hinders institutions to be transparent about their cases (we see in our country). I'm not sure this hinders them to take appropriate action. It is not excluded that investigation commissions qualify serious misconduct too lightly (as it's about their own peers in their own institution). - This growing weaponisation is a documented tendency. (It's much more for personal conflicts than for political agendas, but also for political agendas indeed.) I can testify myself, as I have seen such "weaponisation" complaints for political reasons where there were none before. The Evaluation Report of the Dutch Code of Conduct for Research Integrity (2024) notices this, and hence advises to assess admissibility of complaints more strictly. The foreword of the 2021 Annual Report of the LOWI, Dutch organ for Research Integrity, makes an inventory of motives it sees for cases brought forward to it, which are much more diverse than only safeguarding the integrity of the research record. https://lowi.nl/wp-content/uploads/2022/09/Jaarverslag-adviescommissie-LOWI-2021.pdf - It is indeed well-known (and I heard this confirmed multiple times) that democratic governments are ready to themselves police the issues that are deficiently handled by the sector itself. This seems like a political law (from sugar industry over journalism, AI safety and social media algorithms to research integrity). Whenever a research fraud case happens in a country, political questions and discussions pop up in Parliaments (does our country have the right instruments in place? Have they failed? Should they be replaced by governmental control?). If the research sector wants to self-steer and self-govern, it should self-police its research integrity behaviours. If it fails, it will be delivered to the will of national politics. |
| 2\_R) diversion of investigators' time and effort is a necessary consequence of the process, but not a barrier |
| 2\_R) My view is that an institution with a member accused of serious scientific misconduct might want to investigate that swiftly and deal with it. I might be naive. But it seems a weakness and an insecurity to think otherwise. Re: diversion, HR depts are adequately equipped to deal with such investigations. I have been involved as an investigator so the resources are already there. I don't imagine the HR depts are different elsewhere. |
| 3\_O) One major element is fear of losing money. Many of the highly productive fraudsters are well funded individuals who boost rankings and bring a lot of overhead to their respective institutions. |
| 3\_O) Agree with every single one of these comments strongly. |
| 3\_O) On the first point, not investigating serious cases could also harm reputation and this fear could motivate them to take action. I know a few such cases where the case was also made public by the whistleblowe. In one case, the institution took very strong steps against the perpetrator. I guess institutional reputation can work both ways, if there is a risk of the case becoming public, it could motivate the institution to initiate an investigative procedure. |
| 3\_O) The argument that misconduct investigations divert resources from productive research work misses the point that flawed research diverts resources directly and indirectly from productive research work. |

**Free text comments on item 17**

| mytext |
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| 1\_S) Social trust in research was very high in the 1950s but there were probably no strong mechanisms then. |
| 1\_S) The public seems to trust us researchers despite widespread and well-known problems with transparency and reproducibility as well as research integrity. I wish Bouter were right but my hunch is that the public is too far removed and will not notice. |
| 1\_S) You can add authors to this list. Authors that admit error increase trust |
| 1\_S) It is also how research is communicated and how scholarly communication is navigated in the current world political environment. |
| 1\_S) If everybody would be open on what was happening, people could make an informed decision and make up their own mind on what was going on at the moment. |
| 1\_S) Not sure it's proven to be a "driver" of mistrust, but it may contribute in part. I think in the public eye the criticism probably does apply to research institutes (failure to address misconduct), and the funding agencies (inadequate sanctions for researchers such as funding bans). However, I'm not so sure the public really grasps the role of publishers in the research misconduct pipeline, or holds them "responsible" in the same way as institutions of funders. Most of the public just don't understand how scientific publishing works in the first place! |
| 1\_S) This statement could be true, however what's not specified in the quote is trust in research by whom (which/ all groups), ie the public, funders, researchers, etc. Different sectors of society are likely to have different levels of awareness around how institutes, publishers and/or funders handle allegations of research misconduct. |
| 2\_R) As previously stated, universities, publishers and funders are limited as to what information they can share with the wider public due to confidentiality. |
| 2\_R) I would say the problem is researchers in general, not only institutions, publishers and funders (although they do play a part, hence my neutral rating). |
| 2\_R) Publicly visible reactions by institutions, employers and funders (and the media coverage of them by journalist) may indeed influence trust and distrust, but I think overall, this impact is overrated. Let it be one of many drivers, yes. |
| 2\_R) Agree but could be biased towards agreeing with Lex Bouter. Trust of who? Researchers or general public? I'm not sure the public are very aware of how misconduct is handled at institutional level apart from general cynicism across all spheres of life because people rarely face real accountability. |
| 2\_R) From following the discovery and reporting of misconduct over the past 10 years, the common theme that emerges is the failing role of publishers and editors. And the commonest problem appears to be delay, followed by failure to address the concerns. |
| 3\_O) Most of the variance in trust/distrust is explained by political and ideological variables. |
| 3\_O) Unclear what the reference concerns, although I happen to recognize it :-) |
| 3\_O) Distrust in research is based on the superior marketing and promotion of non-research actors. If researchers spent 25% of the time as a social media influencer in learning how to effectively peddle their message to the public, trust and distrust in research would matter so much more. We are competing with a system of influence for which the entire conversation about ethics and policy and principles and training is a joke. |
| 3\_O) To some extent I agree with this in case of public's trust in research, but to a larger extent I think that people (members of the public) already hold their own beliefs about science and researchers and these beliefs won't change that easily.  Trust in science is most likely also impacted by other external factors not directly related to actors within the research field, like personal world view and values, political views or ideology which can also impact trust in other public and democratic isntitutions. Sometimes the driver of distrust could be an intentional disinformation campaign to discredit well-established institutions for political reasons (i.e. vaccination, climate change). Also, trust could be built in other ways like science-communication or by how researchers participate in the public life.   I tried to look some eurobarometer studies and also other studies on trust in science, but it seems that the countries with higher trust ratings (several Eastern European countries) don't seem to be the countries with most developed procedures for handling misconduct. All in all, it is difficult to measure the level of trust, but there doesn't seem to be a clear correlation with misconduct governance and trust in science. (I could be wrong though).  See here: https://www.cienciaviva.pt/en/eurobarometer Also see: https://www.researchgate.net/publication/377977956\_Trust\_in\_scientists\_and\_their\_role\_in\_society\_across\_67\_countries |

## Final thoughts

**Free text comments: final thoughts**

| mytext |
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| 1\_S) The whole framing of research conduct as only being "serious" if it was (verifiably) deliberate is problematic. It sets the bar for evidence very high.  Efforts to combat fraud will only be successful if relevant actors are \*incentivised\* to find and follow up on problems. Right now, everyone is incentivised not to find problems, so it's all blah-blah. |
| 1\_S) I would like to contextualise these questions about research integrity in a broader discussion about transparency, incentives, and how to build structures/workflow that allow errors to be caught, as well as how to build systems that allow data provenance, processing, and analysis to be tracked and certified. |
| 1\_S) Good luck! |
| 1\_S) What are the impediments to publishers rapidly flagging an article with an expression of concern, if data are known to be unreliable? Financial, reputational, legal, relevant expertise missing, and others? How can these impediments be addressed? |
| 1\_S) Both, sleuths and research integrity officers could be silenced by the leadership if a "golden boy" or "a member of the old boys network" is investigated. According to my experiences there is a big difference in handling the misconduct cases or outcome of the investigation taking into account the power relations of the researchers involved. The ones at the top seem strongly protected and the systems are not well resistant to the missuse of their power on the outcome of the investigations, I have witnessed a few cases that as retalliation for the whistlerblowers false accusaitions have been filled in. |
| 1\_S) I am also an editor of a journal and have to deal with these issues in that role, which partly overlaps with group 2. |
| 1\_S) Could you share any information links related to the questions etc. asked? E.g. Bouter 2024, but also others. It would be great to have a 'reading list'.  Generally, just a big thank you for doing this. Seems pretty comprehensive! |
| 2\_R) Are 'sleuths' aware of the potential impact of making allegations which are not backed up by evidence on the academic careers and mental health of researchers? I am particularly thinking about some of the comments made on PubPeer which are made anonymously. |
| 2\_R) I'm both a research integrity/ethics office AND a researcher so have a foot in both camps.  One topic of interest not addressed in this survey is use of terminology. More should/could be done to avoid confusions around terms like research culture, integrity, ethics, misconduct, governance, open research etc. etc. |
| 2\_R) In the first few ranking questions, my experience in filling surveys directed me to answer reversely: "1" as the top ranked (most important), "2" the second most important etc. This is contrary to the instruction in the question. I have read carefully and changed all my answers as they should be, but there might be other respondents who didn't notice this and filled reversely. Suggestion to ask expert statistical advice to detect possible reverse answers, or double-check consistency between comments and ranking. |
| 2\_R) I suggest using simpler words. For people who speak a second language, it can be hard to understand the questions. At least this was my experience. From what I’ve seen, it’s better to use easy words so everyone understands, as language levels can be different.  Also, the scales in the questions were not consistent. In one question, 1 meant the lowest, but in another, 1 meant the highest.  The survey was not anonymous. So this should be clearly stated as one separate sentence. |
| 2\_R) See previous comments |
| 2\_R) It's come up at various points, but the role of the law seems to be bubbling somewhere in the background: the suspicion that journals won't act for fear of being sued. If Datacolada with their dispassionate and thorough investigation of recent fraud can be hounded, I wonder if there is also a need for Universities to protect sleuths legally and financially. This is no help to unaffiliated sleuths, of course. |
| 2\_R) Is there a need to recruit research investigators/assessors/auditors? |
| 3\_O) Seems pretty thorough and comprehensive to me. |
| 3\_O) Thanks for the initiative. You asked good questions, although some were difficult to answer because situation in practice vary a lot. Lack of good empirical evidence also makes issues a matter of personal opinion that should be not. |
| 3\_O) I have belonged to both groups for a short while, but currently am neither. |
| 3\_O) Policy development in relation to research integrity |

Additional comment from sleuth: received by email:  
After I completed the FAIRS survey, it occurred to me that you might want to consider the fact that the international and collaborative nature of research and publishing are major obstacles to investigating research misconduct and punishing the guilty.

In 2024, I had 5 publications containing data in three different journals. One journal has an editor in New Zealand but is published in Australia. Two journals are edited and published in the UK, but the publisher of one of those is German. On each publication, I had between one and five co-authors, resulting in me having 18 different co-authors from 13 institutions. Eight institutions are in UK, two in New Zealand and three in three different Australian states.

Who would investigation possible misconduct in my publications and if individuals in different countries were involved, how would we make sure that sanctions are comparable?