

Diversity in science prizes: why is progress so slow?

Many prize-givers still don't publish details of nominations – a key step towards ensuring that awards are fair and unbiased.

Prizers boost careers and create role models. But some of the most prestigious awards are also among those with the most secretive selection processes – and that fuels the under-representation of women and people from minority groups among winners.

At its annual general assembly in Vienna last month, the European Geosciences Union (EGU) did something unusual. The chair of its awards committee, Thomas Blunier, presented a breakdown, by gender, of prize nominees and nominators since 2014. The data were revealing. Although women make up 37% of the society's members, they made just 20% of nominations – suggesting that women are less likely to nominate than men. The data also showed that people tend to favour their own gender when making nominations – with men most likely to nominate other men.

This is clearly a problem, but awareness of the situation opens the door to fixing it. Although women are still under-represented in EGU nominations, their share of awards is now approaching their representation among EGU members, thanks to corrective measures taken by the organization's awards committee. Sadly, however, the EGU is among the outliers – most scientific societies do not make nomination data public. They should consider doing so, because understanding patterns in nominations and nominees is integral to determining why members of groups that are marginalized in science remain under-represented among prizewinners.

Systemic barriers mean that women and people of colour, and especially women of colour, are under-represented in science in high-income nations. But this alone doesn't suffice as an explanation for award-givers, because even when the imbalance is taken into account, women remain under-represented in prizes. According to an analysis of 141 top prizes awarded over the period from 2001 to 2020, the proportion given to women fell short of the proportion of female professors in several fields¹.

The situation could well be even worse for minority genders and people of colour, but the data needed to assess this are rarely collected. The authors of an unpublished analysis of almost 9,000 winners of science prizes dating back to the eighteenth century (presented at this year's EGU meeting, see page 439) managed to identify just one woman of colour.

That said, some efforts are under way to make prizes

fairer. In mathematics, for example, the International Mathematical Union, which awards the Fields Medal, has introduced guidelines to make nominators and award-committee members aware of unconscious bias. Many prize nomination forms now include statements encouraging nominators to consider diversity, and the committees that award Nobel prizes have told *Nature* that they are attempting to increase diversity in nominees and that the proportion of women nominated is rising. No Black person has won a natural-science prize in the awards' 121-year history, and just 22 women have done so.

However, neither the organizers of the Fields Medal nor the organizers of the Nobel prizes publish up-to-date aggregate data on nominators or nominees. Similarly, these data are not published for awards and prizes given by *Nature*. We are taking measures to improve diversity, and, in future, will publish aggregate data on how applications break down by region and by gender.

The necessity of data

Nobel committee members revealed to *Science* last year that women made up just 7–8% of 2021 chemistry nominees², although this, they said, was double the figure in 2018. The EGU's example shows the necessity of such data to understanding where imbalances lie and correcting them. Prize-givers, including *Nature*, should find ways to collect and publish nomination data, in particular information on race, ethnicity and country of origin; Blunier noted that the EGU does not yet record these data.

Prize-givers also need to widen their nomination pools. In 2019, *Nature* suggested that award organizers might cast their nets wider when seeking nominations³ by approaching networks that include academies of science in low- and middle-income countries, such as the International Science Council and the World Academy of Sciences. This is still not happening on the scale that it needs to. Of the three major prize-awarding organizations approached by *Nature*, only the Norwegian Academy of Science and Letters, which is responsible for the Kavli prizes and the Abel Prize, does so; it has done this since at least 2018. Members of the committees awarding Nobel prizes in physics, chemistry and economics say that invitations are global, going each year to faculty members at around 200 of 1,600 universities, chosen on a rotating basis. However, no information is released on their geographical distribution.

Universities can also play a part, particularly in boosting diversity in awards for which nominations are open, rather than invitation-only. Institutions can encourage a wider range of staff to submit nominations by training them in how to do it successfully, helping them with the administrative burden and encouraging them to put forward colleagues from under-represented groups.

Sadly, these measures will not make science prizes match global diversity, at least not straight away. Many prizes are based on work carried out decades ago, when the barriers to entering science were even higher than they are today for people from under-represented groups and countries. Excellent science and scientists exist everywhere. At the very least, professional societies must ensure

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that their nomination pools are representative of their communities. Greater transparency and a wider, more-diverse pool of nominees increases the chance of awards rewarding excellence, rather than amplifying existing networks of prestige.

1. Meho, L. I. *Quant. Sci. Stud.* **2**, 976–989 (2021).
2. Langin, K. *Science* <https://doi.org/10.1126/science.acx9351> (2021).
3. *Nature* **574**, 295 (2019).

Research must do no harm: new guidance addresses all studies relating to people

Springer Nature editors urge consideration of the potential harms of all research relating to human populations, not just that directly involving human participants.

In 1971, psychologist Philip Zimbardo set out to examine how the situations we find ourselves in affect our behaviour. He put human volunteers in a mock prison on the Stanford University campus in California. Participants were assigned the roles of ‘prisoner’ or ‘guard’ and asked to behave in ways befitting their roles. The experiment was extraordinary in its realism – ‘prisoners’ were even ‘arrested’ by local police. Although intended to run for two weeks, it ended on the sixth day. ‘Guards’ had subjected ‘prisoners’ to increasingly abusive, dehumanizing and brutal behaviours, causing extraordinary distress (P. G. Zimbardo *Cognition* **2**, 243–256; 1973).

The Stanford prison experiment prompted much discussion about the ethics of psychological research, and rules were tightened. It could not be reproduced today – ethics committees and institutional review boards would not approve research posing such a high risk of psychological harm to participants, no matter the potential benefit to knowledge.

There are now several well-established ethics frameworks that govern studies involving human participants, including the 1964 Declaration of Helsinki (amended most recently in 2013; see World Medical Association *JAMA* **310**, 2191–2194; 2013) and the 1979 Belmont Report (see go.nature.com/3mj33xy). But these are generally silent about the benefits and harms of academic research whose conclusions could affect groups of people that haven’t directly participated. Examples include research that could lead to people being stigmatized, discriminated against or subjected to racism, sexism or homophobia, among other things. Such work might be used to justify undermining

the rights of specific groups, simply because of their social characteristics.

Guidance developed by Springer Nature editors aims to fill this gap in the frameworks (see go.nature.com/3mduozj). In essence, it encourages authors, reviewers and editors to respect the dignity and rights of groups of people. Specifically, it means at least three things: first, that the research community should consider potentially harmful implications of research as applied to groups; second, that the community should strive to minimize the potential for misuse and the risks of harm to these groups; and third, that authors should use respectful, non-stigmatizing language in their manuscripts.

The guidance applies principles that are already cornerstones of research ethics (see go.nature.com/3anccnr): beneficence (a moral obligation to act for the benefit of others) and non-maleficence (a duty to avoid harm). It takes as a foundation the first article of the Universal Declaration of Human Rights – all humans are “equal in dignity and rights”. The declaration was adopted by the United Nations in 1948, following the atrocities of the Second World War, which the international community pledged would never happen again.

Editors, authors and reviewers should together consider and discuss benefits and harms that might emerge from manuscripts dealing with human population groups, and discuss when potential harms warrant revisions. Ethical concerns need to be flagged about research that could fuel hate speech; about potentially denigrating images; about content that could be used to undermine the dignity or rights of a human group; and about content that could cause harm in other ways. Although cases are not always clear cut, if publication risks people being harmed, authors and editors need to consider those risks against any benefits that could arise from publication.

The past few years have seen several examples of not just correction or retraction, but also removal of the kind of content that this guidance seeks to discourage. The removal of retracted content distorts the historical record, impedes accountability and prevents current and future generations from critically examining both the work and our actions. Unless there is a legal or public-health imperative, content published by Nature Portfolio journals that is retracted because it was deemed harmful to human population groups will be labelled with a retraction notice but will not be removed from the record (see go.nature.com/3qihqbd).

This guidance is ultimately about protecting people from harm. It is not about stifling ethically conducted research on differences between individuals or human groups, or discouraging work that is socially or academically controversial. Science has for too long been used to prop up structural inequalities and discrimination in society, perpetuating injustice. Our guidance takes a step towards countering this. Academic freedom is a fundamental and non-negotiable premise of scholarship. However, it is not without limits. All academic research requires ethical consideration to maximize benefits and reduce or eliminate harms.

 **The guidance encourages authors, reviewers and editors to respect the dignity and rights of groups of people.”**