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RACISM, EQUITY AND INCLUSION IN RESEARCH FUNDING



Photo credit: Dr Agnese Abrusc

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A physicist working on quantum sensing at University College London. Between 2017-19 she ran the UCL Women in Physics Group & is currently a member of the UCL Race Equality Steering Group. She is also the Founder of Zero Point Motion, an early stage start-up developing chipscale optical inertial sensors for navigation.



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A materials scientist at Cambridge University studying materials for photonic and electronic devices. In 2020, she was named as one of the Top 50 Women in Engineering by the Women in Engineering Society. She is an Equality and Diversity Champion of Cambridge's School of Physical Sciences and a founding member of The Inclusion Group for Equity in Research in STEM (TIGERS).



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SCIENCE DEPENDS ON RESEARCH FUNDING

Government funded research grants from United Kingdom Research and Innovation (UKRI) are the lifeblood of our research ecosystem in science, engineering, technology, mathematics and medicine (STEMM). These grants pay the salaries of researchers, support staff and technicians, allow academics to buy consumables and equipment, and cement partnerships, including access to world class facilities. This pre-determines what knowledge is produced. Winning grants is vital to career progression from being a PhD student, to developing independence as an early career researcher, to running your own lab and hiring a research team. Whilst this article recognises the systemic barriers in progression in higher education and STEMM careers¹ that privilege² 'white' people, we focus on evidence within the grant funding system to consider discrepancies in who is given the opportunity to do research and why this matters.

Funding data recently released by UKRI³ highlight the different success rates, grant amounts and experiences of 'Black' and 'ethnic' minority applicants and awardees over the past 5 years, compared to 'white' researchers. When discussing these data, we are mindful that race and ethnicity are long proven to be social constructs⁴ for maintaining power and privilege. We acknowledge that imperial science has played a role in racialised constructions of power,⁵ and that data collected using categories such as 'Black, Asian and Minority Ethnic (BAME)' homogenise across different cultural backgrounds.⁶ Since, data collection by funders adopts these terms, we employ them to highlight racialised inequity in funding allocation, which damages the economy and society. A weakness of this dataset is that focusing on BAME versus white categories alone, hides anti-Black racism and ignores the experience of those with intersectional identities, across race, gender^{1,7}, class,

disability⁸ and/or LGBTQI+⁹. Specifically, we focus here on data released by the Engineering and Physical Sciences Research Council¹⁰ (EPSRC), one of the UKRI's 11 constituent research councils. Many of the trends we present are seen more broadly across UKRI's STEMM-oriented councils. One key observation from the EPSRC data is that for every year of the last five years, lead applicants who identify in funding applications as an 'ethnic minority' have been less successful in their grant applications than those who identify as 'white'. The average success rate is $25 \pm 1\%$, for 'ethnic minority' researchers as compared to $33 \pm 2\%$ for 'white' researchers. But what difference do these numbers imply for researchers, in everyday terms?

These data imply (Figure 1) that an 'ethnic minority' researcher needs to write four proposals on average in order to win one grant, compared to a 'white' researcher who writes three. Proposal writing generally takes six months, and equates to

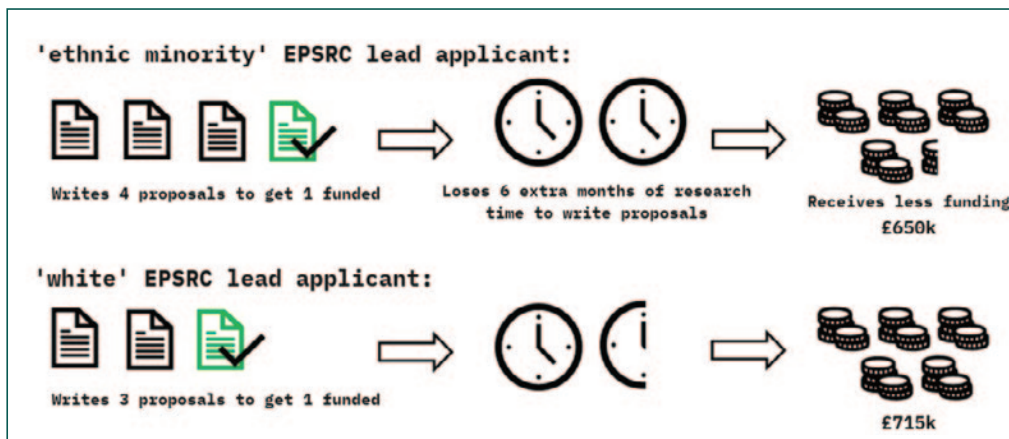


Figure 1

lost research time. When 'ethnic minority' researchers do win grants, the average grant award over the past 5 years is approximately £65,000 lower than for 'white' awardees. This is the equivalent cost of an experienced researcher working in your lab for one year. The resulting underfunding may mean that the 'ethnic minority' researcher achieves fewer published papers, and less impact for their labour. It should be noted that these data on grant value probably underestimate the true scale of the problem since the EPSRC data omit some very large awards, for example for the founding or continuation of research institutes, and we observe that these are won overwhelmingly by older, white men.

The language of 'winning' and 'losing' funding assumes there is a level playing field in the STEM funding 'game'. This assumption ignores the historical impacts of racism in academia, and in broader society. This is also evidenced by funding data, which indicates that 'ethnic minority' students are less likely to be UKRI-funded than 'white' students.^{11,12} Likewise at the most senior decision-making levels, 'ethnic minority' scientists are severely under-represented.¹³ This means that senior researchers devising calls for research proposals and judging

the resulting applications are not representative of the UK tax paying population, who fund research.

This under-representation creates additional barriers to the success of 'ethnic minority' researchers within their own institutions: racial microaggressions; lack of support for proposal development; and the privileging of 'white' researchers in both job promotions and the institutional sifting processes that determine who is *allowed* to apply for grants. Together, this can lead to many minoritised researchers leaving academia¹⁴ or remaining precariously employed on short term contracts.¹⁵ For those who stay, failure to 'win' on the skewed playing field of the funding game, leads to a cycle of reduced opportunities for research career progression, as shown in Figure 2. While some scientists have found ways of circumnavigating or flipping these barriers,¹⁶ to drive innovation alongside community or industrial partners, the 'make it or break it' role of funders and their funding cycles remains a recurring theme. There is a lack of recognition of the ways in which minoritised researchers, carve out alternative career pathways, take on unacknowledged Equality, Diversity and Inclusion work to reduce institutional barriers¹¹ and carry out more equitable

and inclusive research that benefits society.¹⁷

FUNDING EQUITY BENEFITS SCIENCE & INNOVATION

Promoting equity via institutional and funder policy leads to better outcomes. How research is funded and who gets funded to carry out research has drastic impacts on society. The voices and ideas that are

research proposals. A Black women's collective, orchestrated by Dr Addy Adelaine, who specialises in 'inclusive accountability', investigated who was funded as an outcome of this call, which failed to award funding to Black researchers, in spite of many applying.²⁰ As a result, the funded projects were highly slanted towards genetic and biological factors, an approach which is scientifically contested and fails to account for the systemic and social factors which Black researchers had proposed to investigate. These abuses of power and privilege not only prevent Black communities from generating effective solutions but also risk further reducing trust in science. Similar issues are prevalent within environmental science and climate change research^{21,22}. Crucially, whilst some collaborative initiatives seek to

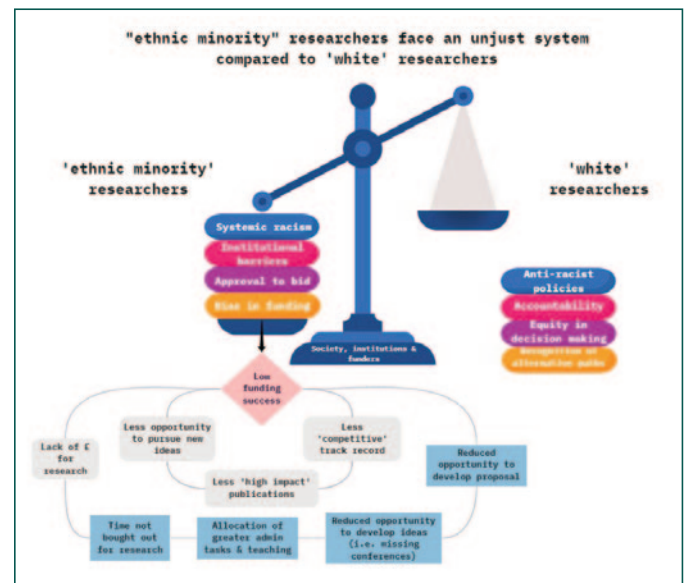


Figure 2

excluded and the science that is underfunded^{17,18} cause harm to minoritised communities. In the COVID-19 pandemic, minoritised communities, specifically, African, Caribbean, Bangladeshi and Pakistani people have died at a much higher rate than 'white' people,¹⁹ an issue which was addressed by UKRI in a specific call for

overturn this trend, existing inequities often place the burden on resource-stretched community practitioners.²³ An important step is acknowledging that systemic inequity and racism exist, to begin to redress the balance and reap societal benefits.

Increasing the diversity of the workforce is known to improve

outcomes in many sectors^{24, 25, 26, 27}. One recent study used automated text-based analysis to look for markers of innovation across 1.2 million PhD theses published in the USA between 1977 and 2015.²⁸ The study found that minority scientists are more innovative than their majority counterparts, but that they receive less reward for their new ideas and inventions. This suggests that ethnic minority researchers may well be more innovative than their white peers – but they are being held back from success by the funding system. This suppresses innovations which could create a stronger and more inclusive economy.

WHAT CAN WE DO?

It is vital to consider and report on the diversity of those framing and judging research proposals. The Haldane principle states that decisions about what to spend research funds on should be made by researchers rather than politicians. This principle, coupled with the concept of peer review (where researchers' proposals and outputs are judged by their peers) notionally underpin our entire research funding system. However, Black and minority ethnic researchers are largely not judged by their Black and minority ethnic peers. EPSRC, for example, convenes expert panels to make decisions on which proposals should be funded, but only 8% of EPSRC panel members and 5% of EPSRC panel chairs identify as an ethnic minority, whilst ethnic minority researchers make up 20% of the EPSRC researcher cohort.²⁹ Funders have a responsibility to ensure panels are culturally diverse, that panel members are adequately trained, and funding decisions or feedback are not racially prejudiced.

In order to ensure that research

proposals from Black and minority ethnic scientists actually *reach* this vital peer review stage, funders could mandate that institutions meet minimum requirements for removing the barriers experienced by Black and ethnic minority researchers, which could be evidenced by Race Equality Charter accreditation. Accredited institutions should demonstrably monitor and boost the number of minoritised researchers applying for funding and improve the support they are offered.

When the National Institute for Health Research (NIHR) introduced incentives to encourage institutions to achieve Athena Swan accreditation for dismantling barriers to women's progress, the number of women in mid-level leadership positions and the proportion of funding going to women increased.³⁰ This demonstrates the effectiveness of this type of approach, which unfortunately the government has recently banned research funders from following.³¹ Nonetheless, it is vital that meaningful incentives are established by UKRI and other research funders to increase the diversity of both those who receive funding and those who make funding decisions. This must be achieved within a culture of increased transparency and accountability. Some funders, such as Wellcome, have appointed an anti-racism expert group.

More radically, since the Haldane principle nominally encourages researchers to decide on the direction of scientific research and training, we can consider measures which empower every researcher to influence funding decisions, rather than just a privileged few. This would require a substantial overhaul of

our funding processes. Novel approaches such as the "Universal Basic Research Grant"³² (in which all researchers receive at least some minimum financial support to explore their ideas) or full³³ or hybrid³⁴ lottery systems, could potentially reduce the impact of racism on our scientific systems, as long as pitfalls such as Institutional gatekeeping of access to such schemes are avoided.

Given the growing need for research and innovation to address societies' biggest challenges, from pandemics to the climate crisis to systemic abuses of power, change is urgently needed. Individual researchers, institutions, funders and the government can all play a role by committing to change, addressing inequity and taking action together.

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improvements³⁷. Findings from the Mental Health Act Review²⁶ and the Five Year Forward View for Mental Health and the NHS Long Term Plan³⁸ indicate that the views and experiences of patients and their families and a co-production ethos is integral to service redesign and commissioning that is fit for purpose in a multicultural society.

However, research that currently informs ‘evidence-based practice’ is predominantly quantitative with randomised control trials currently at the top of the ‘hierarchy of evidence’. Qualitative research, which seeks to bring insights from the perspectives of those experiencing healthcare, especially those whose health is most adversely affected, does not currently feature within this ‘hierarchy of evidence’. Including qualitative research within the hierarchy of evidence could serve to incentivise and foreground vital research that includes and amplifies the voices of patients, carers, racialised communities and healthcare practitioners. As indicated by Li and colleagues³⁹, those undertaking this kind of research are less likely to receive funding and/or receive smaller awards or have their socially impactful work published in what are considered high-ranking journals. We therefore assert that changes to the funding system, which is vital to research career progression, is urgently needed. More equitable funding and greater transparency in recruitment and appointment processes will increase the likelihood of under-represented groups attaining senior leadership roles and/or membership to influential research funding panels or editorial boards with ability to influence what counts as ‘evidence’.

We conclude that it is crucial for government, who invest in both research and healthcare

services to recognise that, as with psychiatry and mental health, scientific racism, also underpins the foundations of academia. Research investments aimed at redressing systemic inequalities through co-produced research, holds the promise of broader academic and societal value.

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