



LETTERS

edited by Jennifer Sills

Race Disparity in Grants: Check the Citations

THE REPORT "RACE, ETHNICITY, AND NIH RESEARCH AWARDS" (D. K. GINTHER *ET AL.*, 19 AUGUST, p. 1015), documenting a lower grant funding rate for black than for white applicants, has generated widespread alarm that there may be a hidden racial bias in the grant review process. However, the study is flawed. Ginther *et al.* looked at two groups—those with fewer and greater than 84 citations—and found that blacks in both groups were substantially unsuccessful with grant funding. This range does not seem relevant to competitive scientists. A meaningful cutoff for a typical assistant professor, approaching tenure and the renewal of his first grant, would be closer to 1000 citations, not 84.

The study also overlooks the fact that citations accumulate over time. Ginther *et al.* should have used an algorithm that normalizes citations to age. I believe they would have found that scientists who are highly successful, as defined by age-normalized citations or *h* index, would be equally successful in grant funding, with no disparity for race and ethnicity.

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Race Disparity in Grants: Empirical Solutions Vital

THERE IS A PRESSING MORAL IMPERATIVE TO eliminate racial disparity such as the success gap in R01 awards for black researchers reported by D. K. Ginther *et al.* ("Race, ethnicity, and NIH research awards," Reports, 19 August, p. 1015). However, it was troubling to read the reactionary and unscientific proposals offered in response to the finding ("NIH uncovers racial disparity in grant awards," J. Kaiser, News & Analysis, 19 August, p. 925). These include NIH "brainstorm" panels to increase success and even the chilling notion of having "reviewers and staff undergo tests to learn about implicit biases," presumably with the use of questionably valid "implicit association" tests (1). The achievement gap in black R01 funding is a correlational result, and mechanistic information is required

to determine which, if any, of our intended manipulations might reduce the disparity. Unlike laboratory approaches for identifying causal pathways, disparity-reduction policies represent social experiments with tremendously important consequences, the effects of which could take decades to identify. As scientists, we should not give in to the temptation to value our knee-jerk reactions more than our empirical inclinations.

We also cannot ignore morally complicated evidence. Indeed, much of the racial disparity reported could be attributed to black R01 applicants having half the citation count and one-fifth as many last-authored publications as white applicants from similarly ranked institutions. Coupled with the finding that R01s were awarded to highly ranked applications irrespective of race, this suggests that R01 disparity is due to lower research success among black applicants rather than to any problems with NIH review. One pos-

sible explanation for black applicants being less successful yet nonetheless having faculty positions at equally competitive institutions is affirmative action hiring policies. Although these policies can have tremendous short-term benefits for individuals, long-term negative consequences can result if race is emphasized over qualification. Such long-term negative consequences have already been suggested for black competitiveness and disparity in the legal profession (2).

Ginther *et al.* acknowledge (by discussing the idea of "cumulative advantage") that racial disparity is a deep societal problem. Although it is comforting to think that we can undo this endemic injustice just by increasing access to R01 grants or faculty positions, current evidence suggests that these efforts at best whittle down the tip of the proverbial iceberg, and at worst exacerbate racial inequalities in research success (2).

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Response

ERICKSON FEELS THAT OUR CUTOFF OF 84 citations was unrealistic and may have affected our results that NIH awarded significantly fewer R01 grants to black researchers than to white researchers. We do not believe that this was a factor. Our data included about 300 early-career individuals (defined as having obtained their Ph.D. after 1994) that had ~1000 citations. However, these are the top 1% of individuals with citations in the data. A recent evaluation of the NIH K program, targeted at early-career biomedical researchers, indicates that awardees publish about 10 publications in the 5 years following the award, each of which garners about 15 citations, yielding an average of 150 citations per person (1). Citation patterns vary widely across academic disciplines, and

this may account for the difference between Erickson's experience and what we observed.

We believe that age-normalizing citations would not change the results we reported for early-career investigators, but we are investigating Erickson's suggestion fully.

Voss suggests that race preferences in higher education provide a potential explanation for the differences in NIH R01 awards found in our paper. It could be that affirmative action in graduate school admissions plays a role in the funding differences that we observe. This is not a hypothesis that we can examine with our data. We do not have any information about the admissions process and cannot examine the effect of affirmative action on outcomes in the manner of Sander (2), who showed that black law students admitted under affirmative action had worse student and early-career outcomes—lower grades and lower chances of passing the bar exam—than white students.

That said, there is substantial evidence that affirmative action does not explain the results of our study. First, in our companion study, we examined race and ethnicity differences in obtaining a tenure-track job and receiving tenure in academic biomedicine. We found that blacks and whites were equally likely to receive tenure at higher education institutions that are research intensive (3). Second, biomedical scientific careers require a lengthy training process—an average of 5.5 years in graduate school and 2 years of postdoctoral study (4, 5). As a result, those NIH grant applicants who are a bad match for research careers will have most likely been weeded out earlier in their careers. The average age of applicants in the sample was 48 years old. Clearly, these applicants have progressed beyond the early career stage. Third, the pay in biomedical research is much lower than other occupations requiring graduate education (6), which would suggest that the small number of black scientists who are doing research are positively selected to the field (they are willing to sacrifice a higher salary to be scientists). If there is adverse selection of black scientists into research (for example, they could not get into medical school and chose biomedical research instead), we would again expect that the lengthy training process would weed them out before they rose to the level of submitting an R01 application. On balance, we think there is a case to be made for positive selection of black scientists—that they are the best of the best—as opposed to being bad matches resulting from affirmative action.

Although we have close ties to the

National Institutes of Health, we cannot respond directly to the past and proposed NIH policies. We are in favor of the NIH approach to experiment with interventions in the NIH review process in order to determine what works and what does not before fully implementing these programs. We are confident that such an evidence-based approach will address the concerns raised by Voss regarding the need to have better evidence before putting policies into place.

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Race Disparity in Grants: Oversight at Home

NIH DIRECTOR FRANCIS COLLINS HAS PROMISED to lead the NIH in identifying the cause(s) of and redressing the recently reported disparity in NIH funding associated with race ("Weaving a richer tapestry in biomedical science," L. A. Tabak and F. S. Collins, Policy Forum, 19 August, p. 940; "Race, ethnicity, and NIH research awards," D. K. Ginther *et al.*, Reports, 19 August, p. 1015). The limited public discussion on the possible underlying factors has focused on the NIH review process. Although this is an obvious place to continue the investigation, the explanation may lie elsewhere.

Investigators in the National Cancer Institute have reported that a major responsible factor cited by unfunded and underfunded minority investigators was "barriers at the home institution" (1). These included "inadequate research infrastructure, training, and development," "barriers to development as independent investigators," "inadequate mentoring,"



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and “lack of institutional support.” Although the report focused on barriers to NIH funding for minority investigators pursuing primarily cancer health disparities research, many of the identified obstacles apply to biomedical research funding in general.

To address these issues, Director Collins must be prepared to extend NIH policies to providing better oversight of the manner in which minority investigators are treated in their home institutions. For example, although NIH requires the writing of minority recruitment plans by its grantee institutions, it currently neither evaluates how nor even whether such plans are implemented. NIH also does not require outcome measures for whether minority scientists are fairly supported and promoted for successful research careers. Such stark omissions in NIH funding policies could certainly perpetuate or engender unfair racially biased attitudes and practices that would not have been uncovered by Ginther *et al.*'s study.

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Response

SHERLEY IS CONCERNED THAT NIH DOES NOT provide sufficient oversight of the minority recruitment plans at institutions. We agree that this is an important point. NIH recognizes a unique and compelling need to promote diversity in the biomedical, behavioral, clinical, and social sciences workforce. Therefore, NIH requires recruitment plans to enhance diversity, including underrepresented minorities, for institutional training grants at the pre- and postdoctoral levels (1). The plans on all NRSA training grants are rigorously reviewed, and if they are deficient, the grants are not funded until corrective action is taken on the part of the grantee. Awarded training grants that are subsequently submitted for renewal are reviewed for the recruitment plan's results. If the plans are judged ineffective, this assessment affects its likelihood of being funded again.

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