VIEWPOINT

Disparities Research, Disparities Researchers, and Health Equity

Mercedes R. Carnethon, PhD
Northwestern University Feinberg School of Medicine, Department of Preventive Medicine, Chicago, Illinois.

Kiarri N. Kershaw, PhD
Northwestern University Feinberg School of Medicine, Department of Preventive Medicine, Chicago, Illinois.

Namratha R. Kandula, MD, MPH
Northwestern University Feinberg School of Medicine, Department of Preventive Medicine, Chicago, Illinois; and Northwestern University Feinberg School of Medicine, Division of General Internal Medicine and Geriatrics, Department of Medicine, Chicago, Illinois.

Author Audio Interview

Corresponding Author: Mercedes R. Carnethon, PhD, Northwestern University, Department of Preventive Medicine, 680 N Lake Shore Dr, Ste 1400, Chicago, IL 60611 (carnethon@northwestern.edu).

Disparities in life expectancy by race, ethnicity, sex, and socioeconomic status present a significant challenge in the United States and around the world. In response, the world's largest funder of biomedical research, the US National Institutes of Health (NIH), supports a suite of research and career development programs designed to eliminate health disparities.[1] Despite the clear message from the NIH that health disparities are a significant concern, the scientific community has not embraced the message.

Evidence that disparities research may not be a priority to the community emerged when the NIH conducted a study to investigate reasons for research funding gaps between black and white investigators. After confirming prior reports that black researchers remained significantly less likely (10.7%) than white researchers (17.7%) to be awarded NIH R01 grants,[2] the text of funded grants was analyzed to identify topics and the race of the investigators proposing those grants.[3] Black investigators were more likely than white investigators to propose topics such as health disparities and to use study designs that included humans, communities, and behavioral interventions. Topic choice accounted for 21% of the funding gap between black and white researchers, an observation that led the NIH study team to conclude that disparities were "less likely to excite the enthusiasm of the scientific community."[3] In response, NIH leadership reiterated a need to understand the reasons for these findings.[4]

A number of factors contribute to these observations, the first of which may be the rules governing who can serve in peer review of research proposals. Grant history, funding from the NIH or other agency, is listed as a consideration for permanent appointment to a study section.[5] This rule is designed to ensure that study section members have the necessary expertise to judge the quality of the science proposed and the feasibility of completing the research. Peer reviewers are expected to be experts in the disease condition, population, or behavior or the research methodologies used in those fields. At face value, these expectations should enhance the quality of the peer review. In reality, they may introduce biases that perpetuate the status quo.

One bias is that ranking the value of proposed research outside of an individual's own area of expertise can be quite difficult. Successful investigators who are highly trained in their own area of expertise may not be experts in the methodologies and important questions in another field. Whereas clustering grants of a similar type together for review can eliminate extreme scenarios such as asking a basic scientist to review the work proposed by a health services researcher, there are subdisciplines represented within any discipline. For example, it is not uncommon to find a molecular epidemiologist challenging a dissemination and implementation scientist about the most effective way to address cardiovascular disease on a population health panel. When current funding is a requirement for serving as a reviewer and certain subdisciplines are underrepresented among those currently funded, the discussion can quickly become an unbalanced echo chamber.

Another related bias is that in the era of "-omics," precision medicine, nanotechnology, artificial intelligence, and big data, the topic of health disparities can seem pedestrian. Because most medical schools and graduate training programs provide education about disparities involving major illness or injury, the topic of disparities research can fail to be perceived as innovative. Consequently, it becomes easy to assign unfavorable rankings regarding the innovation of the research question and its methodologies for studies on health disparities. As a result, "innovation," 1 of the 5 criteria for review along with significance, investigators, approach, and environment, can fail to receive high marks.

The other major issue, and rationale for the recent NIH study, is that black investigators continue to remain less likely to receive NIH funding than white researchers even once institutional characteristics and previous research accomplishments are taken into account.[2] A notable finding from the report is that while white scientists who proposed research on health disparities were also less likely to have their research funded (13.1%) than white scientists who proposed research in other topics (24.2%), white researchers remained nearly 2 times (rate ratio, 1.87) more likely to have their disparities research funded than black researchers, who had 7% of their research applications funded.[3] The NIH has tested the feasibility and comparability of double-blind peer review.[6] While this approach may help reduce bias, blinding reviewers to the investigator's identity could make it more difficult for the reviewer to judge whether the investigators' prior accomplishments determine the likelihood of future success, thereby effectively nullifying 1 of 5 review criteria.

Implicit bias, which involves the attitudes or stereotypes that affect judgments, decisions, and behaviors in an automatic and unconscious manner,[7] was raised in the report to explain both findings. [3] First, implicit biases may underlie why health disparities research is judged to be less significant, innovative, or of lower quality than basic science research. Second, it may also explain why the review process appears to disadvantage black investigators compared with white investigators. Implicit bias may shape the language used to describe investigators during the review process or create a rigid mental model of what an excellent

investigator "looks like," thus putting anyone who does not fit the picture at a disadvantage.[8] However, focusing too heavily on implicit bias can obscure the structural and cultural changes needed to eliminate funding gaps between black and white scientists and achieve equity in the NIH grant review process. Without intervention, the lower rates of significant research funding among black investigators directly contributes to the lower probability of appointments at the highest-ranked research institutions and at senior academic ranks. Without these signs of achievement, black investigators will be perceived as being less accomplished than their peers. Thus, the cycle continues.

The commitment of the NIH to addressing these challenges is reflected by its willingness to investigate this topic and publish the results, efforts to increase the diversity of investigators through targeted career development support, and willingness to rigorously explore strategies for intervention.[6] Progress could be hastened by considering the following recommendations.

First, include experts in health disparities on every study section. Because disparities can be found in nearly all diseases, dispersing disparities expertise across panels may be a better way to ensure an equitable review. Expertise in health disparities should not be defined by the race or ethnicity of the researcher, but by a portfolio of work that includes studies designed to define or eliminate health disparities.

Second, diversify the pool of peer reviewers by race and ethnicity. At present, only 2.4% of the pool of peer reviewers at the NIH are black,[3] which is far below the estimated 25% critical mass estimated to require a shift in the culture in any organization.[9] Public-facing guidelines produced by the NIH Center for Scientific Review do not require that reviewers hold current funding, but mention "grant history." These guidelines leave open the possibility that scientific excellence could be redefined based on publications, engagement with professional organizations, or even public health influence in the community. Implementing a holistic definition of qualifications for grant review could eliminate one barrier to participation in peer review by black investigators and enhance the critical mass in a study review section.

Third, designate a proportion of research within each institute that must address health disparities. One of the most promising observations is that the recent NIH study[3] found no apparent racial bias in making discretionary funding decisions (applications funded out of score order but that address institute priorities) by NIH institutes and centers if an application is scored and discussed. Each funding institute or center should be challenged to devote a percentage of its funding portfolio to addressing disparities. Policy without enforcement is ineffective and institutes and centers that fail to meet these guidelines should lose that proportion of their annual budget.

Fourth, expand specific efforts to increase the diversity of NIH investigators by targeting funding toward investigators who are studying health disparities. Programs to increase the diversity of NIH investigators through career development support of junior investigators have provided an opening for many underrepresented minorities engaging in research. These programs should expand to include investigators of any racial/ethnic background whose research history and proposed research trajectory include studies of disparities. A similar model is the Building Interdisciplinary Research Careers in Women's Health (BIRWCH) institutional funding support that is open to investigators from either sex. Creating a new category of diversity-focused science that supports promising investigators could build the critical mass needed to shift the culture and priorities of the institute.

The reasons underlying funding gaps for health disparities research and black scientists are complex and deserve continued attention. However, the latest findings should spur funding agencies to make greater investments in funding and review processes that are structured to maximize representation of health disparities researchers and scientists from underrepresented backgrounds. Only by doing so will the NIH promote scientific innovation in a manner that can eliminate disparities and promote health equity around the world.

ARTICLE INFORMATION

Published Online: December 16, 2019. doi:10.1001/jama.2019.19329

Conflict of Interest Disclosures: Drs Carnethon, Kershaw, and Kandula reported receiving grants from NIH outside the submitted work. No other disclosures were reported.

REFERENCES

1. Jones NL, Breen N, Das R, Farhat T, Palmer R. Cross-cutting themes to advance the science of minority health and health disparities. *Am J Public Health*. 2019;109(S1):S21-S24. doi:10.2105/AJPH.2019.304950

2. Ginther DK, Schaffer WT, Schnell J, et al. Race, ethnicity, and NIH research awards. *Science*. 2011;333(6045):1015-1019. doi:10.1126/science.1196783

3. Hoppe TA, Litovitz A, Willis KA, et al. Topic choice contributes to the lower rate of NIH awards to African-American/black scientists. *Sci Adv*. 2019;5(10):eaaw7238. doi:10.1126/sciadv.aaw7238

4. *Research Topic Contributes to Persistent Gap in NIH Research Grants to Black Scientists*. Bethesda, MD: National Institutes of Health; 2019.

5. NIH Center for Scientific Review. How Scientists Are Selected to Be Members of a Chartered Review Group. https://public.csr.nih.gov/ForReviewers/BecomeAReviewer/CharteredReviewers. Accessed October 30, 2019.

6. Valantine HA, Collins FS. National Institutes of Health addresses the science of diversity. *Proc Natl Acad Sci U S A*. 2015;112(40):12240-12242. doi:10.1073/pnas.1515612112

7. Pritlove C, Juando-Prats C, Ala-Leppilampi K, Parsons JA. The good, the bad, and the ugly of implicit bias. *Lancet*. 2019;393(10171):502-504. doi:10.1016/S0140-6736(18)32267-0

8. Gaucher D, Friesen J, Kay AC. Evidence that gendered wording in job advertisements exists and sustains gender inequality. *J Pers Soc Psychol*. 2011;101(1):109-128. doi:10.1037/a0022530

9. Centola D, Becker J, Brackbill D, Baronchelli A. Experimental evidence for tipping points in social convention. *Science*. 2018;360(6393):1116-1119. doi:10.1126/science.aas8827