Women and non-white people among Lasker Award recipients from 1946 to 2022: cross sectional study

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ABSTRACT

OBJECTIVE

To determine whether gender and racial inequities exist among Lasker Award recipients.

DESIGN

Observational, cross sectional analysis.

SETTING

Population based study.

PARTICIPANTS

Recipients of four Lasker Awards from 1946 to 2022.

MAIN OUTCOME MEASURES

Gender and race (non-white categorized as racialized *v* white categorized as non-racialized) of all Lasker Award recipients. Personal characteristics of award recipients were categorized by four independent authors using previously established methods and consistency of categorization among authors was analyzed. Women and non-white people were thought to be underrepresented among Lasker Award recipients compared with professional degree recipients overall.

RESULTS

Among 397 Lasker Award recipients since 1946, 92.2% (366/397) were men. Most award recipients were identified as white (95.7%, 380/397). One non-white woman was identified as having received a Lasker Award over the course of seven decades. The proportion of women among award recipients in the most recent decade (2013-22) is similar to the first decade of awards (1946-55; 15.6%, 7/45 *v* 12.9%, 8/62). The median timeframe from terminal degree receipt to Lasker Award conferral for all award recipients is 30 years. The proportion of women who received a Lasker Award between 2019 and 2022 (7.1%) was less than would be expected based on the proportion of life science doctorates awarded to women in 1989 (30 years previously; 38.1%).

CONCLUSIONS

The number of women and non-white people in academic medicine and biomedical research continues to increase, yet the proportion of women among Lasker Award recipients has not changed in more than 70 years. Additionally, time from terminal degree receipt to Lasker Award conferral does not appear to fully account for the observed inequities. These findings establish the need for further investigation of possible factors that could hinder women and non-white people from entering the pool of eligible award recipients, potentially limiting the diversification of the science and academic biomedical workforce.

WHAT IS ALREADY KNOWN ON THIS TOPIC

Despite initiatives to advance the inclusion of women and members of historically marginalized groups in academic medicine and biomedical research, gender and racial inequities remain

Studies assessing the proportion of women among prestigious award recipients have shown that women are underrepresented among Nobel laureates and recipients of various international research awards

WHAT THIS STUDY ADDS

The number of women and non-white people in academic medicine and biomedical research continues to increase, yet the proportion of women among Lasker Award recipients has not changed in more than 70 years

Women have received just 5% of Lasker Awards for research, but 20% of public service awards, suggesting that women are more likely to receive non-research awards

One non-white woman was identified as having received a Lasker Award over the course of seven decades

Introduction

Despite initiatives to advance the inclusion of women and members of historically marginalized groups in academic medicine and biomedical research, gender and racial inequities remain.[1] Inequities are recognized in compensation, senior leadership positions, highly cited research publications, and professional society awards.[2-4] Studies assessing the proportion of women among prestigious award recipients have shown that women are underrepresented among Nobel laureates[5 6] and recipients of various international research awards.[7] The Recognizing Scholars Project (RAISE Project), a database of over 2500 awards, shows the underrepresentation of women among many of these awards.[8] Projects such as this are crucial for monitoring the effectiveness of interventions intended to improve gender equity among recognition award recipients because numerous medical societies and professional organizations have implemented strategies to address this issue. However, few studies assess other personal characteristics, such as race and ethnicity, among award recipients. Furthermore, despite interventions, there is a paucity of data assessing the impact and success of these diversity, equity, and inclusion initiatives.

The Lasker Awards program, despite being considered America's most prestigious biomedical research awards, draws from a pool of international candidates, and has a reputation for identifying future Nobel laureates since their first presentation in 1946.[9] To qualify, people must have provided important contributions to, or public service on behalf of medicine. The Lasker Awards are given in the categories of Basic Research, Clinical Research,

Special Achievement, and Public Service. The Lasker Awards program was created in 1945 by Albert and Mary Lasker to highlight biological discoveries and clinical advances in medicine, and call attention to the importance of public support of science. The Lasker Foundation has promoted or published three articles since 2014 emphasizing the importance of diversity, equity, and inclusion, and advocating for women in science and medicine.[10-12] We analyzed Lasker Award recipients to assess people's perceived gender and race, and if potential inequities have improved after the organization's promotion of diversity, equity, and inclusion.

Methods

This observational, cross sectional analysis adhered to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) reporting guidelines. Institutional review board review was not required because the identities of the recipients of the four Lasker Award categories (Basic Research, Clinical Research, Special Achievement, and Public Service) have been publicly available since 1946.

The four awards and their criteria according to the Lasker Award Foundation[13] are the Albert Lasker Basic Medical Research Award (awarded for a fundamental discovery that opens up a new area of biomedical science); the Lasker-DeBakey Clinical Medical Research Award (awarded for a major advance that improves the lives of many thousands of people); the Lasker-Koshland Special Achievement Award in Medical Science (awarded for research accomplishments and scientific statesmanship that engender the deepest feelings of awe and respect); and the Lasker-Bloomberg Public Service Award (awarded for improving the public's understanding of medical research, public health or healthcare; playing a major role in the support of policy, legislative, or other initiatives that accelerate progress in medical science or health; providing or generating support for medical science or public health; benefitting the lives of many people through public health practice).

Award recipients were identified from the Lasker Foundation's website for each individual award year. Awards received by organizations (Planned Parenthood, Médecins Sans Frontières, and so on) were excluded from the analysis.

Four authors independently classified each Lasker Award recipient since 1946 as white (categorized during the study as non-racialized) or non-white (categorized as racialized), and their perceived gender (woman, man, or other) following previously used and validated methods.[1] Gender was classified as woman, man, or other through online biographies and pronouns (he/she/they); however, there were no instances of the use of the terms they/them/theirs, ze/hir/hirs, or categorization of other, so we report the gender as binary (eg, he/she) and recognize the inability to fully account for the gender spectrum as a limitation of this study. Coding variability was assessed after analysis, and discrepancies were adjudicated by author consensus. Additionally, we assessed the time from terminal degree to award receipt for basic and clinical research award recipients, which we define as lag time. We incorporated this lag time into our analysis to try and correct for the time between the start of a research career and receipt of a Lasker Award as acknowledgment for the research performed.

Descriptive statistical analyses were conducted using GraphPad PRISM version 9.2.0 (GraphPad Software, San Diego, CA, USA). We are willing to share our data and have posted it on Github (https://github.com/jwjacobs42/Lasker-Award-Data.git).

Patient and public involvement

Patients and members of the public were not involved in this research for many reasons, including an absence of funding, as well as challenges regarding implementing an unbiased process to engage them in this research. These findings will be disseminated through presentations, social media, and plain language summaries on publicly available websites.

Results

Since 1946, 397 Lasker Awards have been presented (table 1). The timeframe between terminal degree and award conferral was available for 313 of 322 basic and clinic research awards, with a median time of 30 years (interquartile range 22-39 years).

A total of 92.2% (366/397) of award recipients were men and 7.8% (31/397) were women. Most award recipients were categorized as white (95.7%, 380/397) and 4.3% (17/397) were categorized as non-white. One woman identified as non-white received an award in 2011 (the Lasker-DeBakey Clinical Medical Research Award). Table 1 shows the personal characteristics of recipients by award.

The proportion of women among award recipients in the most recent decade (2013-22) does not differ

Table 1 | Lasker Award winners from 1946 to 2022

		Gender		Race		Race and gender			
Award information	Total	Women	Men	Non-white	White	Non-white women	White women	Non-white men	White men
All awards	397	31 (8)	366 (92)	17 (4)	380 (96)	1 (0)	30 (8)	16 (4)	350 (88)
Albert Lasker Basic Medical Research Award	167	7 (4)	160 (96)	8 (5)	159 (95)	0 (0)	7 (4)	8 (5)	152 (91)
Lasker-DeBakey Clinical Medical Research Award	155	9 (6)	146 (94)	8 (5)	147 (95)	1 (1)	8 (5)	7 (4)	139 (90)
Lasker-Bloomberg Public Service Award	58	13 (22)	45 (78)	1 (2)	57 (98)	0 (0)	13 (22)	1 (2)	44 (76)
Lasker-Koshland Special Achievement Award in Medical Science	17	2 (12)	15 (88)	0 (0)	17 (100)	0 (0)	2 (12)	0 (0)	15 (88)

Data are numbers (percentages).

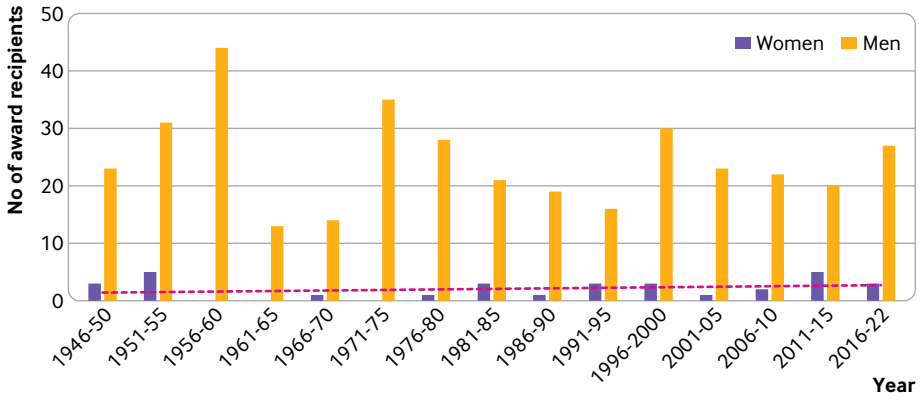

Fig 1 | Gender of Lasker Award recipients in five year increments from 1946 to 2022. Dashed pink line represents trend in proportion of women among award recipients

from the first decade of awards (1946-55; 15.6%, 7/45 *v* 12.9%, 8/62; fig 1). Since 2014, when the first diversity, equity, and inclusion initiative was published by the Lasker Foundation, more men (86.8%, 33/38) than women (13.2%, 5/38) have received an award. These data do not differ from the previous decade (2004-13) when award recipients comprised 88.2% (45/51) men and 11.8% (6/51) women. Likewise, most award recipients since 2014 have been white (94.7%, 36/38; non-white: 2/38, 5.3%), which is similar to the previous decade (white: 48/51, 94.1%; non-white: 3/51, 5.9%; fig 2).

The median time from terminal degree to Lasker Award receipt is 30 years. From 2019 to 2022, women have comprised a smaller proportion of basic and clinical research award recipients (7.1%, 1/14) than would be expected based on the proportion earning life science doctoral degrees 30 years previously in 1989 (38.1%).

Discussion

Principal findings

The number of women and non-white people in academic medicine and biomedical research continues to increase,[4 14] yet the proportion among Lasker Award recipients has not changed in more than 70 years, and lag times do not appear to fully account for the observed inequities. Moreover, the proportions have not changed among Lasker Award recipients despite public proclamation of the importance of diversity, equity, and inclusion by the Lasker Foundation.

Women have received just 5% of Lasker Awards for research, but 20% of public service awards. These data suggest that women are more likely to receive non-research awards, reflecting potential implicit biases or adherence to historical gender norms.[10 15 16] This gender inequity is magnified when considering women with intersectional identities that focus on overlapping identity characteristics which may increase levels of discrimination (eg, gender and race combined) because one non-white woman was identified as having received a Lasker Award over the course of seven decades. These findings are consistent with previous research suggesting bias against these groups.[16]

Perhaps one of the most telling findings is that of the 12 Nobel laureates in Physiology or Medicine who were women (this award has shown important gender inequities[5]), 33.3% (4/12) have not received a Lasker Award. This inequity was most pronounced in 1947 when Carl Cori and Gerti Cori shared the Nobel Prize in Physiology or Medicine for their discovery of the catalytic conversion of glycogen;[12] however, in the previous year, the Lasker Award for the same contributions was awarded only to Carl Cori.

Policy and societal implications

The anonymity of the nomination process precludes the ability to assess if women and non-white people are being nominated at equitable rates, and once nominated, if they are receiving awards equitably based on the composition of nominees. Thus, we propose the entire award process be made transparent, from the call for award nominations to review, selection, and conferral. It would be beneficial to know the methods used for the award process, including the language used in the call for the award. Furthermore, understanding the personal characteristics of those involved in the awards is paramount to allow for analysis of potential inequities at all award stages. The people involved include those who are nominating candidates for awards, members of the review and selection committees, and the award nominee cohorts themselves. Moreover, detailing how review and award selection committee members are chosen would help ensure these committees have diverse members.

Furthermore, establishing a database of demographic and other relevant personal data for award recipients, award nominees, and the pool of potential award candidates overall would allow temporal analysis of the gender ratio among award recipients compared with the gender ratio among suitable candidates. This process of temporally tracking award nominees and recipients by gender would allow researchers and the public to independently assess the impact of diversity, equity, and inclusion initiatives, and ensure the Foundation is held accountable.

In addition to these initiatives, transparency about academic metrics and award criteria is critical

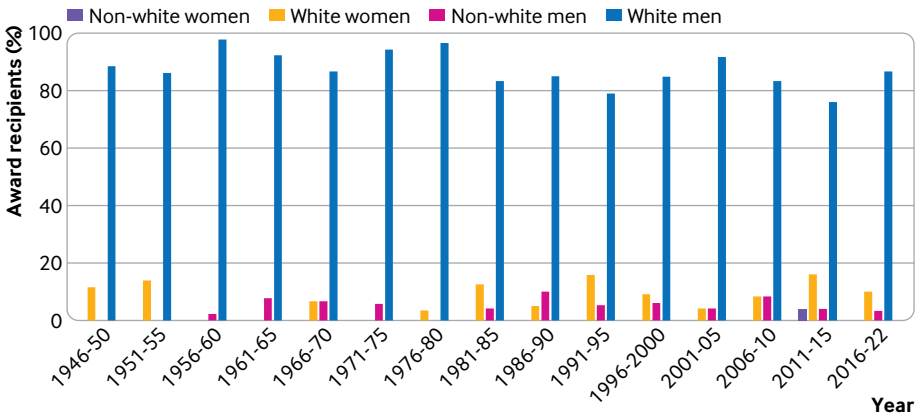

Fig 2 | Gender and race of Lasker Award recipients in five year increments from 1946 to 2022

for rectifying inequities. Academic metrics, while important for award recognition, must be evaluated carefully because many of these metrics could be manipulated. Therefore, it is crucial to understand the importance placed upon specific quantifiable award metrics, such as the number of publications, Hirsch index (H index), and research funding. However, perhaps more important is understanding how award selection committees define unquantifiable metrics, and to what extent emphasis is placed upon them, such as importance of discoveries, major contributions, and groundbreaking work. These are important considerations because previous studies have shown that women are not equitably represented when considering these metrics, which likely contribute to inequities among recognition awards, including the Lasker Award. For example, studies show that women are credited less than men in research,[17 18] men might tend to overstate the importance of their research,[19] and this lack of restraint could lead to perceived bias about their contributions to science.[20] These findings suggest that women, if producing research that is considered similarly impactful as that being produced by men, are less likely to be recognized and cited. Furthermore, some authors have suggested that women must reach higher levels of scholarly achievement than men to achieve similar career success.[21]

Finally, while this study focused on inequities among recipients of a prestigious biomedical award, the implications transcend recognition awards. We have established the need for further investigation into the myriad of potential factors that might hinder women and members of historically minoritized groups from advancing in biomedical science and academic medicine. These factors include recruiting pathways, available mentors, resources, implicit biases, stereotypes, and external structural biases, among others.

Strengths and limitations

This observational study could not assess causation, and we do not assert any one factor as the sole cause because inequities are often multifactorial. Another limitation is potential mischaracterization of personal characteristics. While all methods of identifying personal characteristics are subject to limitations, perception by others is believed to be important because it could affect bias.[10] Furthermore, our methods have previously been used.[1] We acknowledge that race and ethnicity are social constructs and all forms of categorization have known limitations. Binary forms such as racialized, visible minority, and non-white have all been used quite extensively. In our analysis we selected the term racialized because it has recently been gaining favor in the literature.

The proportion of non-white people in biomedicine was not calculated as it was for women because the number of active non-white scholars in biomedicine is unknown. These data are no longer collected by many institutions by law, and it is impossible to estimate this figure algorithmically from scholars' last names.

Finally, we acknowledge that the true denominator or the population from which recipients of the Lasker Award are selected is unknown. While we attempted to account for the time required from the beginning of a scholar's research career to recognition by the Lasker Foundation, for all practical purposes, only the highest achieving researchers (and not all researchers) make up the population to which the awards are bestowed. Unfortunately, identifying this high achieving population is fraught with challenges. While one could theoretically calculate the proportion of women and men among the 5% of researchers with the highest H index for example, this does not necessarily reflect the appropriate denominator because those involved in clinical medicine and public health are unlikely to fall into this population. Furthermore, and potentially more concerning, is that these metrics are already inherently flawed. As previously mentioned, several studies have shown that women tend to be credited less than men for their research,[17 18] and must attain greater achievement than men to reach similar success in their academic career.[21] Therefore, using metrics that are already inherently inequitable would only further contribute to these inequities.

Conclusions

In summary, the Lasker Awards are prestigious biomedical awards, and while the number of women

and non-white people in academic medicine and biomedical research continues to increase, the proportion of women among recipients has not changed in more than 70 years. The proportions of white men among recent award recipients remain high, which is difficult to reconcile given the ever increasing number of qualified scientists from diverse backgrounds. Moving forward, offering support at every level to enable people to excel not only remains important, but continuing to interact with institutions conferring awards to maintain accountability and equitable representation among selection committees should also be emphasized. These trends show that continued diversity, equity, and inclusion efforts are required. However, researchers and advocates must hold organizations responsible for outcomes because our findings highlight that simply publicizing commitment to diversity, equity, and inclusion initiatives does not necessarily guarantee change or equitable practice.

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Ethical approval: Ethics committee approval was not required, as no patient or protected information were used, and all information was publicly available.

Data sharing: Dataset available on Github (https://github.com/jwjacobs42/Lasker-Award-Data.git).

The lead author (the manuscript's guarantor) affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

Dissemination to participants and related patient and public communities: These findings will be disseminated via presentations, social media, and plain-language summaries on websites.

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1 Persaud N, Ally M, Woods H, et al. Racialised people in clinical guideline panels. *Lancet* 2022;399:139-40. doi:10.1016/S0140-6736(21)02759-8
2 Ma Y, Oliveira DFM, Woodruff TK, Uzzi B. Women who win prizes get less money and prestige. *Nature* 2019;565:287-8. doi:10.1038/d41586-019-00091-3
3 Holman L, Stuart-Fox D, Hauser CE. The gender gap in science: how long until women are equally represented?*PLoS Biol* 2018;16:e2004956. doi:10.1371/journal.pbio.2004956
4 Silver JK, Slocum CS, Bank AM, et al. Where are the women? The underrepresentation of women physicians among recognition award recipients from medical specialty societies. *PM R* 2017;9:804-15. doi:10.1016/j.pmrj.2017.06.001
5 Mahmoudi M, Poorman JA, Silver JK. Representation of women among scientific Nobel Prize nominees. *Lancet* 2019;394:1905-6. doi:10.1016/S0140-6736(19)32538-3
6 Lunnemann P, Jensen MH, Jauffred L. Gender bias in Nobel prizes. *Palgrave Commun* 2019;5.
7 Meho LI. The gender gap in highly prestigious international research awards, 2001-2020. *Quant Sci Stud* 2021;2:976-89. doi:10.1162/qss_a_00148.
8 Haseltine F. Recognizing scholars awards. https://raiseproject.org/index.php. Accessed 30 March 2022.
9 Marks LE. Lasker Award often prologue to Nobel Prize. *JAMA* 1989;262:1742. doi:10.1001/jama.1989.03430130010004
10 James A, Chisnall R, Plank MJ. Gender and societies: a grassroots approach to women in science. *R Soc Open Sci* 2019;6:190633. doi:10.1098/rsos.190633
11 Watson C. Women less likely to win major research awards. *Nature* 2021;•••. doi:10.1038/d41586-021-02497-4.
12 Casais E. Nobel prize awards by gender in each category. Nobel prizes by gender. https://stats.areppim.com/stats/stats_nobel_sexxcat.htm. Accessed 2 February 2022.
13 Lasker Foundation. About the awards. https://laskerfoundation.org/awards/about-the-awards/. Accessed 23 March 2023.
14 Kang JF. Data tables. National Science Foundation. https://ncses.nsf.gov/pubs/nsf21308/data-tables. Accessed 2 February 2022.
15 Salles A, Awad M, Goldin L, et al. Estimating implicit and explicit gender bias among health care professionals and surgeons. *JAMA Netw Open* 2019;2:e196545. doi:10.1001/jamanetworkopen.2019.6545
16 Spector ND, Asante PA, Marcelin JR, et al. Women in pediatrics: progress, barriers, and opportunities for equity, diversity, and inclusion. *Pediatrics* 2019;144:e20192149. doi:10.1542/peds.2019-2149
17 Ross MB, Glennon BM, Murciano-Goroff R, Berkes EG, Weinberg BA, Lane JI. Women are credited less in science than men. *Nature* 2022;608:135-45. doi:10.1038/s41586-022-04966-w
18 Ni C, Smith E, Yuan H, Larivière V, Sugimoto CR. The gendered nature of authorship. *Sci Adv* 2021;7:eabe4639. doi:10.1126/sciadv.abe4639
19 Lerchenmueller MJ, Sorenson O, Jena AB. Gender differences in how scientists present the importance of their research: observational study. *BMJ* 2019;367:l6573. doi:10.1136/bmj.l6573
20 Jagsi R, Silver JK. Gender differences in research reporting. *BMJ* 2019;367:l6692. doi:10.1136/bmj.l6692
21 Madison G, Fahlman P. Sex differences in the number of scientific publications and citations when attaining the rank of professor in Sweden. *Stud High Educ* 2021;46:2506-27. doi:10.1080/03075079.2020.1723533.