MEDICAL PUBLISHING

How pandemic publishing struck a blow to the visibility of women’s expertise

The biases in scientific publishing during the pandemic damaged women’s visibility, recognition, and career advancement, reports Jocalyn Clark

Jocalyn Clark international editor

Before covid-19, Reshma Jagsi had a thriving clinical and research career. As a full time physician and deputy department chair of radiation oncology at the University of Michigan, USA, she was ascending the leadership ladder before the world around her went into lockdown.

“Everything was an emergency, and [all my colleagues were] working around the clock out of a sense of need, because the house was on fire,” she says. It felt as though “I was drowning.”

On top of the acute emergency of helping sick patients, Jagsi was developing rapid treatment guidelines for covid-19 and reorganising research efforts for colleagues—while caring for her elderly mother and tutoring two schoolchildren. Other colleagues with younger children experienced high levels of anxiety, their careers completely sidelined by the pandemic.

She says, “During an emergency, it didn’t matter how urgent the need was and how great your expertise was: if you’ve got a toddler who needs your attention and you can’t rely on your parents or your neighbours or day care, what else are you going to do?”

When laboratories, operating rooms, and clinical trial sites worldwide closed because of national lockdowns, millions of people working in science found an opportunity to write, driven by a desire to help as well as the need to recover losses or to stay relevant and maintain publication records—the chief currency in research careers.1 Clinicians and academics were eager to secure authorships.2 But the covid-19 publishing game had by no means an equal playing field.

Of the three million submissions to major health and medical journals in the first half of 2020, just 36% were from women. This gender gap applied to research and non-research articles, across all authorship positions, in both top tier and lower impact journals,3 and was especially pronounced among younger cohorts of female authors beginning their careers.

The BMJ, for example, recorded a notable reduction in articles from women among nine specialist journals and two large general medical journals it publishes: just 22.9% of the corresponding authors of covid-19 research manuscripts submitted from January to May 2020 were women, down from 38.9% of pre-pandemic submissions.4

Amid the massive, rapid publication of covid papers,4 the harm to women’s research productivity was immediate, especially those early in their careers. Research by Jagsi and colleagues revealed just how much: when compared with 2019, women’s publication output in 2020 dropped by 15%, and relative to men it amounted to a 24% lower output.5 Analysis of almost half a million authors across basic medicine, biology, chemistry, and clinical medicine confirmed a widening gender gap, showing that the early disadvantage to women’s recognition and careers was real and durable.6

A winning formula—for men

Notching up publication lists during the pandemic rewards authors because citations increase their visibility and impact over time. Covid-19 citations were particularly outsized and allowed men to bank desired capital much more than women: by mid-2021, covid-19 papers in medical journals received 20 times the number of citations received by a non-covid paper on average in the same period.7 Of the 45 most prolific academic authors of these publications (each with 60 or more papers in the first 18 months of the pandemic), just five (11%) are women.8

The top medical journals, all of which have made public commitments to gender equity, diversity, and inclusion, nevertheless shrunk the perspectives they provided during the world’s global health emergency, prominently elevating male authors.

The Dimensions database of scientific research to 31 December 2022 shows that, among the top academic authors by volume since the beginning of the pandemic, nine of the 10 at the Lancet and The BMJ were men, as were seven of the 10 at the New England Journal of Medicine. Just the Journal of the American Medical Association had more women (n=6) than men among its 10 most prolific academic authors during the pandemic.

This didn’t just apply to research papers: women were also far less likely to be lead authors on high profile invited commentaries and editorials during the pandemic, in an analysis of the three highest impact clinical journals in the US.9 And a 2022 assessment by the Fawcett Society confirmed the poor inclusion of women in the UK’s science advisory groups and the very masculine face of Britain’s covid response.10

Just 92 (34%) of the 274 experts advising the government were women, it reported.
The male expert in an emergency

What caused this gap? It seems to have been a relapse to old biases during a time of emergency. Journal editors admit to having struggled to secure diverse pools of writers and to maintain their own equity targets, despite the flood of offers. “Everyone was locked at home with the kids and the dogs and wanted to write,” says Eric Rubin, editor of the *New England Journal of Medicine.* “And the temptation is always to go to the people you know.”

Rebecca Cooney, North American editor of the *Lancet* during covid-19, says that this was “another unanticipated blow dealt by the pandemic—that despite decades of progress we were sifting through a virtual wave of misogyny. Men had somehow been able to use this catastrophe as a means to find the time to write up virtually anything, while women were simply unable to.”

At the same time that men were benefiting from covid opportunities, women were shouldering the domestic burden imposed on them. This was particularly brutal if they had small children and during early lockdowns, when schools and day care centres closed and researchers were working from home, where male faculty members were already four times more likely than women to have a partner doing full time domestic care.11

“The pandemic simply exacerbated these inequities,” says Clare Wenham, professor of global health security and an expert in outbreak governance at the London School of Economics, UK. “It stripped away whatever supports women had, including childcare.”

Wenham was among the first to raise concerns about the differential effects on women, who are the predominant health workers in society and provide most of the informal care within families.12 Academic women had to balance online teaching, research, and otherwise working at home with increased caring responsibilities.

“You can’t underestimate the stress of trying to work while also all day minding the children, home schooling, cooking and feeding, tidying up, and checking in on extended family, friends, and students and colleagues,” says Wenham, adding how privileged she was to be in a secure job and highlighting that this wasn’t the case for people doing shifts or informal work. As such, men dominated the pool of academically visible expertise, which translated to being publicly visible as the media seized on any expert willing to be interviewed.

By October 2020, researchers at King’s College, London, quantified the concerns that women’s voices and expertise were being marginalised and disregarded in press coverage. Their analysis of covid-19 coverage found that just one third of people quoted were women.13 Of the scientific experts quoted by journalists, just 5% were women. Other analyses published in *BMJ Open* showed that female experts were vastly under-represented among covid experts used in broadcast news media in the US, as well as Denmark, Germany, and Greece.14

During the pandemic “the checks and balances meant to promote merit and protect against the default bias towards white men have broken down,” wrote Caroline Buckee, associate professor at Harvard University, USA, in a commentary with 34 other prominent female scientists published in *Times Higher Education.*15 While everyone had to “have their covid moment” to contribute, it was men who had the privilege of choice, says Vincent Larivière from the University of Montreal, Canada.

The US National Academies of Science, Engineering, and Medicine reported that 90% of its female faculty members said that most of their children’s school and childcare demands during the pandemic fell on their shoulders. Just 9% reported equally sharing such duties with their spouse.16

The narrowing of science

The biggest loss, say female academics with young children, was the lack of time to think. There simply wasn’t enough quiet, solitude, or “bandwidth” to concentrate or be strategic about new innovative ideas for future research, says Nicole Woitowich, research assistant professor at Northwestern University, USA, who is studying the extent of women’s exclusion from covid research and its effects on the quality of the science being produced.

The male expert in an emergency

The effects will be felt in the diversity and quality of science, says Larivière, even as women’s productivity recovers. He estimates that the proportion of women as authors of covid papers increased to almost half of first authors and a third of senior authors in health journals by mid-2022, according to a Web of Science analysis. This improvement is consistent with an analysis published in *The BMJ* which showed that, by May 2021, rates of women submitting to 11 BMJ journals as corresponding authors had returned to pre-pandemic levels. But the consequences of early exclusion will have major and enduring ramifications, says Larivière, and this is where interventions must be targeted.

In addition to the loss of women’s expertise in the pandemic response, says Woitowich, “we’re going to see future gaps—in career advancements, in the knowledge base, and in the questions being asked in future research.” Wenham adds that there are no easy solutions but there are clear “levels of responsibility,” in which everyone has a role to play.

Changing the culture of research

In the immediate term, funders need to allocate increased resources in areas that were lost during the pandemic, says Larivière, including women’s research ideas and innovations. For instance, funders and universities can elevate topics in which gendered and racially minoritised authors are more present—such as women’s health, racial discrimination, and health disparities, which have historically been under-represented—and may have become more so during covid.

Stopping tenure clocks or requesting covid impact statements to explain gaps in productivity on CVs or funding applications may also help, but Wenham warns that these are not a panacea, as she would expect them just to delay women’s promotions rather than improve the chances of them happening. Flexible working is often touted as a silver lining of the pandemic, but Wenham points out that this also favours men, whose relative freedom from domestic...
responsibilities allows them to put the face time in, rebuild networks, and secure promotions.

The culture of research needs to change. One way is for universities to register, value, and reward women’s labour as carers—both at home and in supporting clinical or research trainees, says Jagi. Funders should offer budgeting provisions for childcare, she says, and institutions should provide in-house childcare support to help “destigmatise and normalise family caregiving responsibilities and change the culture of medicine.”

The drive for gender parity across health leadership and scientific publications was active and visible before covid-19, but the gender equality gains in these realms are now backsliding, having been quickly swallowed up by the global health emergency. As Kamran Abbasi, editor of The BMJ, has put it, “What the pandemic has done is make us recognise how hard won progress on equity was, and how quickly it can disappear. Journals have a role to play in recovering losses, and we are determined to do our part.”

Competing interests: Jocalyn Clark is international editor of The BMJ and was executive editor at the Lancet during covid-19. She is a 2023 visiting researcher at the Brocher Foundation for a project on pandemic publishing.

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