

Bias revisited

Women continue to represent too small a proportion of this journal's authors and referees.

Both in its goals and in its actions, *Nature's* editorial team is trying to address the issue of equity in science. See, for example, an Editorial published earlier this month (*Nature* 558, 5; 2018) and a collection of content from across the Nature group of journals (see go.nature.com/2gjjwkn).

As a part of this effort, we have previously provided statistics and regular updates on the balance between male and female contributors to *Nature* content, both as authors and as referees. Consistently, these have shown the involvement of too few women when compared with estimates of the number of females present in research communities. (As one indicator, data from the United Nations Educational, Scientific and Cultural Organization show that the global average proportion of women in the science workforce is about 29%; see go.nature.com/2koxupq.)

Since we published our first report on this topic in a 2012 Editorial (*Nature* 491, 495; 2012), the numbers show we have made some progress, but not enough and too slowly. A key element has been our attempt to counter unconscious bias, by getting senior staff and editors to ask themselves, 'Who are the outstanding women for this task?', before commissioning an author or a referee. We cannot claim that this important exercise happens on every occasion, but we have made substantial efforts.

So what do the latest statistics reveal? The sections of *Nature* that are directly commissioned by in-house editors are where we have most agency, and so have been most responsive to our efforts. In 2017, in our Comment, World View, Books & Arts and Obituary sections, 29% of our 255 authors were women. The proportion of women authors in Comment and World View in 2017 was 34% — an increase since the 19% recorded in 2012.

These articles are commissioned by a team (all female, as it happens) that (like many others) works hard to deliver on this agenda. They

report a noticeable tendency for senior women to decline invitations. As was detailed in our 2012 Editorial, there are many reasons why women researchers might have less time for such writing than have men. The team also finds that advisers and invitees, whatever their gender, often send all-male suggestions for alternative authors. We are countering this latter tendency by asking all those who suggest authors or referees to "bear diversity in mind".

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The News & Views section of *Nature* has considerably improved its position with commissions since we started our initiatives in 2012, when the proportion of women authors stood at 12%. But over the past 3 years, despite keeping up its efforts, that ratio has plateaued at about 26% female — 113 out of 442 authors in 2017.

In the 47 Review articles that we published in 2017, from a total of 217 authors, 42 of them — just over 19% — were women.

Our poorest outcome is in the refereeing of research papers. Counting only individuals whose gender we can attribute from their first names, the proportion of female referees has increased from 12% in 2011 to 16% in 2017.

When assigning gender, we used the algorithm from Gender API. We counted records for which the algorithm could not match the name with a gender, or returned an accuracy below 95%, as 'unknown gender'. These results are skewed because the algorithm has a hard time identifying gender in some languages, such as Chinese. We counted the referees for all submissions — if a referee reviewed three different manuscripts in a given year, we counted them as three, not as one.

For authors, we counted the total number of corresponding authors in a similar fashion. Counting only authors with an assignable gender, the percentage of female corresponding authors has remained constant at 16% over time.

The editors of *Nature* and of all the Nature journals have, in recent months, been consolidating existing initiatives on diversity and inclusion, and setting up new ones, to become more systematic and creative about this. We will report on those efforts soon. But the need to work harder is clear for all to see. ■

Reward synthesis

Enlarge and incentivize efforts that examine past discoveries.

The idea that scientists can see to make discoveries only because they stand on the shoulders of giants was popularized by Isaac Newton. Fittingly, he borrowed the idea from a significant figure who had gone before him, probably the twelfth-century French philosopher Bernard of Chartres. It's a sound principle: build on previous efforts to seek and find truth. But a vast number of previous discoveries are now captured in an overwhelmingly large body of literature — so what is a modern truth-seeker to do?

One strategy is to distil knowledge in a way that empowers those needing to resolve a practical solution. This comes in many forms — from the regular, heroic efforts of the Intergovernmental Panel on Climate Change to the ad-hoc assessments done urgently to help steer decisions on political or environmental crises. Other efforts — largely by not-for-profit organizations committed to evidence-based assessment — are driven by a need to ensure that the best possible outcomes will follow any intervention. The Cochrane reviews (go.nature.com/2jqocex) exemplify this assessment for best practice in health contexts, and the Campbell reviews (go.nature.com/2k86p1p)

do so in social, educational and behavioural contexts.

As societal challenges grow in research priority, there is ever more need for such synthesis. But it takes effort, as described by, for example, a Cornell University Library guide to a systematic review (go.nature.com/2k6ftil). And, more problematically, the academic ecosystem does not incentivize such work.

To help nudge the system in that direction, *Nature* this week publishes two Comment articles that highlight the importance of such assessments of evidence, and suggest ways to maximize their effectiveness. In the first (page 361), several experts from policy, funding and publishing (including *Nature's* editor-in-chief) present four principles to help make evidence syntheses aimed at policymakers easier to commission, and more powerful in delivery and implementation. The second (page 364), by two researchers who focus on evidence for conservation biology, discusses a form of evidence synthesis that can provide a more cost-effective way to appraise evidence when data are sparse and patchy. This is a reflection of the reality that, for some interventions, randomized controlled trials aren't possible, but there is, nevertheless, a need to make sense of the available evidence.

More scientists should identify fields for which such an exercise is necessary (or will be soon) and, after proper consultation with policymakers on what questions are most relevant, they should produce a useful assessment of the evidence. We hope that these articles will encourage researchers, and their institutions, funders and publishers, to recognize the benefits that good syntheses of knowledge will provide. ■