

# Women postdocs less likely than men to get a glowing reference

Women and men applying for geoscience postdocs receive very different letters of support from their mentors.

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Gender bias in scientific fields is no secret, and it is pervasive. It even creeps into the all-important recommendation letter, in which mentors typically bolster the credentials of their protégés.

Globally, female applicants are about 10% less likely than their male counterparts to receive 'excellent' letters for postdoctoral positions in the [Earth sciences](#), according to a study published in *Nature Geoscience* on 3 October<sup>1</sup>. The finding holds regardless of the gender of their recommenders or what part of the world the applicant works in.

"These results uncover a real problem in the geosciences, just like other disciplines," says Kuheli Dutt, a social scientist at Columbia University in New York City and lead author of the paper. Women start off at a disadvantage, she adds, because they're perceived as less competent than their male counterparts.

For example, in the US, women in science, technology, engineering and mathematics earn 41% of doctoral degrees, yet in 2012–13 they accounted for only 24% of postdoctoral positions at US federally funded research centres and labs, according to the [National Science Foundation](#). In the geosciences, [less than 10%](#) of full professors are women, indicating that the postdoctoral stage — the usual gateway into faculty jobs — is the point at which many women leave the field.

Several factors contribute to this, says Dutt, but biases in how women are perceived at the postdoctoral level are important, and recommendation letters play a key part in getting those positions.

## Faint praise

Dutt and her colleagues analysed the tone and length of 1,224 recommendation letters submitted by researchers in 54 countries for geoscience postdoctoral fellowships from 2007 to 2012. The team redacted applicant and institution names from the letters, then read and classified them as 'excellent', 'good', or 'doubtful'.

The majority of the letters were rated as good. The letters used phrases such as 'highly intelligent' and 'very productive', while the rarer excellent letters included the phrases "scientific leader", "brilliant scientist", "trailblazer" or "one of the best students I've ever had". The writers of recommendation letters produced 'excellent' letters for 24% of male applicants, but gave the same level of recommendation to only 15% of female applicants.

Furthermore, Dutt and her co-authors found that male and female recommenders were equally likely to write stronger letters for male applicants. This suggests implicit biases and stereotypes probably account for this result, Dutt says.

Studies in fields including chemistry<sup>2</sup>, medicine<sup>3</sup> and psychology<sup>4</sup> have found similar biases in recommendation letters. Recommenders used more superlative and standout adjectives like "remarkable" and "outstanding" for men, but gave women 'grindstone' descriptors such as "hard-working".

## Follow the leader

People on hiring committees need training to minimize implicit gender biases when evaluating recommendation letters, says Virginia Valian, a psychologist at Hunter College of the City University of New York. "Describing someone as a 'team player', for example, won't be interpreted the same way for a man and a woman." For men, she says, that's taken as a leadership quality, while the phrase can make a woman seem like a follower.

Valian is concerned that the study didn't account for differences in qualifications between some male and female applicants. However, other studies that do account for those differences find similar, albeit smaller, gender differences, she says.

[Gender stereotypes](#) become ingrained when people are young, because they see more men in science and think of science as a male

profession, says Toni Schmader, a psychologist at the University of British Columbia in Vancouver, Canada. But there are three steps that people writing and evaluating recommendations should take to prevent such biases from influencing their behaviour, she says. "You have to be aware that you have the biases in the first place, you have to be motivated to set them aside and you have to have the time and effort to do so."

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## Corrections

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**Corrected:** Kuheli Dutt was originally identified as an Earth scientist. She is a social scientist. The story has been changed to reflect this.

## References

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