

# Gender diversity in academia

What's the problem?  
Why should you care?  
How can we improve?

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Slides and resources at

<http://anneurai.net/2018/01/28/gender-diversity-in-academia/>

**What's the problem?**

**Observational studies**

# Does gender matter?

The suggestion that women are not advancing in science because of innate inability is being taken seriously by some high-profile academics. Ben A. Barres explains what is wrong with the hypothesis.

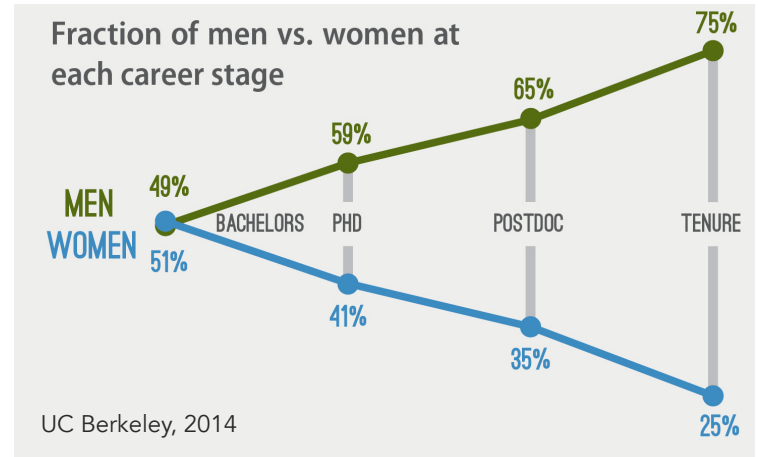


- [Nature 442, 133-136](#) (2006)

tion was much stronger (I had published six high-impact papers whereas my male competitor had published only one). Shortly after I changed sex, a faculty member was heard to say “Ben Barres gave a great seminar today, but then his work is much better than his sister’s.”

# What's going on here?

- Fraction of women in academia drops off steeply throughout career ladder
  - Also when corrected for class composition at time of graduation
- Men are evaluated more favorably given the same academic productivity
  - Wennerås & Wold. [Nepotism and sexism in peer-review](#). Nature (1997)
- Women are paid less for the same jobs
  - Median salary for men 24% higher than women with PhD in the same field.
  - Gender pay gap persists. [Nature](#), (Accessed: 12th January 2018)
- Women receive smaller start-ups as assistant professors
  - [Sege et al. JAMA, 2015](#)



# What's going on here?

- Women are invited to give fewer talks at top U.S. universities
  - 20% difference after adjusting for base rate of professors, [Nittrouer et al. PNAS \(2018\)](#)
- Men are 15% more likely to share data with another man
  - [Massen et al. Sci. Rep \(2017\)](#)
- Women are underrepresented as reviewers, editors and last authors
  - [Murray et al. bioRxiv \(2018\)](#)
- Women are underrepresented, and cited less, in high-impact journals
  - [Shen et al. bioRxiv \(2018\)](#), [Bendels et al. PLoS ONE \(2018\)](#)
- In peer review, editors of both genders favour same-gender authors
  - [Helmer et al. eLife \(2017\)](#), [Murray et al. bioRxiv \(2018\)](#)

# What's going on here?

- Women are half as likely to receive excellent recommendation letters
  - [Dutt et al. Nature Geoscience](#) (2016)
- Women get less credit for the same contribution/effort on publications
  - [Feldon et al. Soc Sci](#), 2017
- Women received lower grant scores than men with comparable career success
  - h-index, funding history, etc. [Tamblyn et al. \(2018\)](#)
- Women have lower application, funding and renewal rates for NIH grants
  - [Pohlhaus et al. Academic Medicine](#) (2011); [Kaatz et al. Academic Medicine](#) (2016)
- Female grant applicants are equally successful when peer reviewers assess the science, but not when they assess the scientist
  - [Witteman et al. bioRxiv](#) (2017)

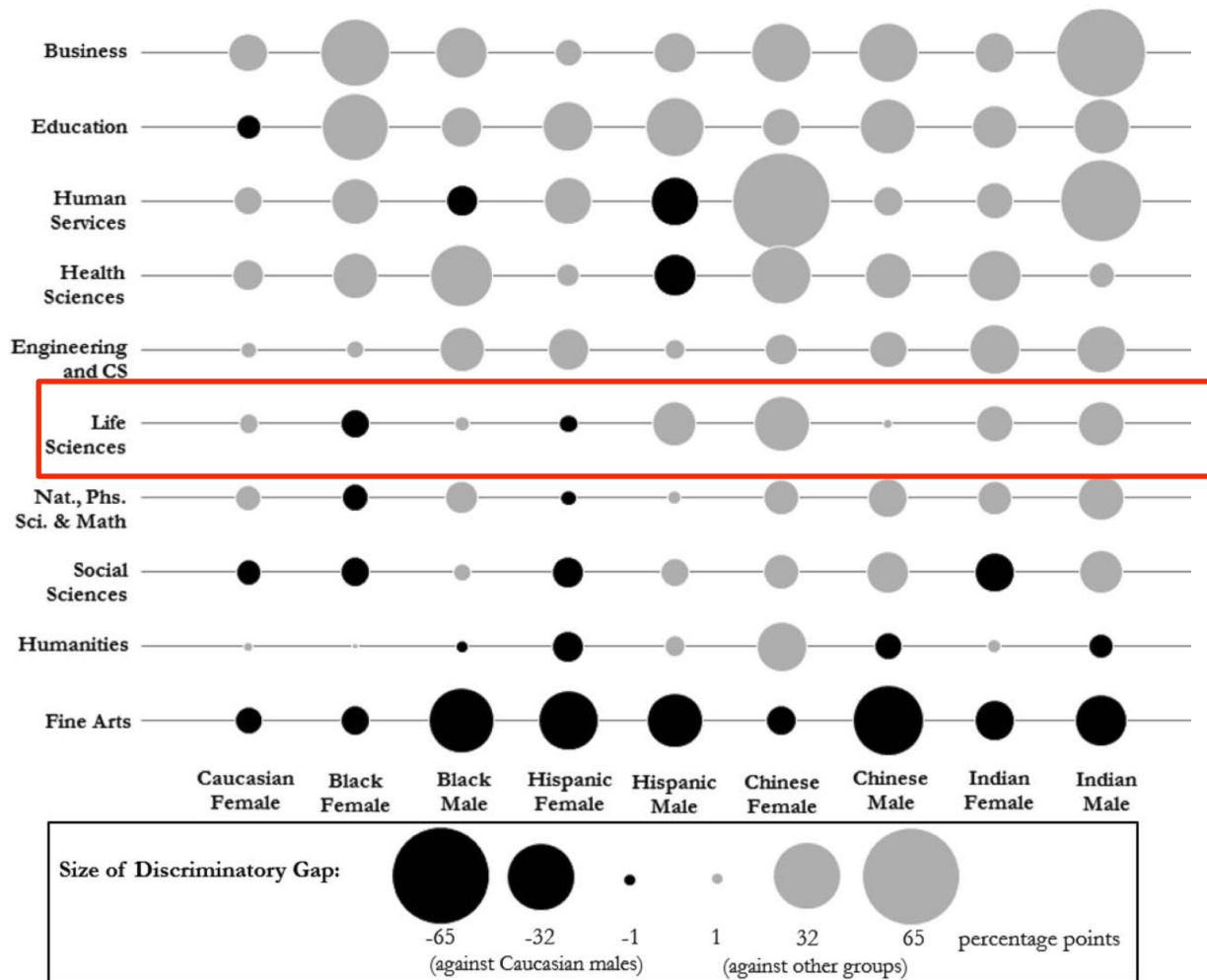
**What's the problem?**

**Randomized studies**

# What's going on here?

- 'Brian' is hired for tenure-track job 70% vs. 'Karen' 55% of the time
  - [Steinpreis et al., Sex Roles](#) (1999)
- Male students with identical CVs are judged to be more competent, hireable, deserving of mentoring and \$3000 higher salary
  - [Moss-Racusin et al. PNAS](#) (2012)
- "Male" teaching assistants rated better in online class
  - [MacNell, et al. Innov Higher Ed](#) (2015)
- Professors less likely to informally meet women/minority students
  - No advantage of contacting a professor of the same gender or race
  - [Milkman et al. J. Appl. Psychol.](#) (2015)

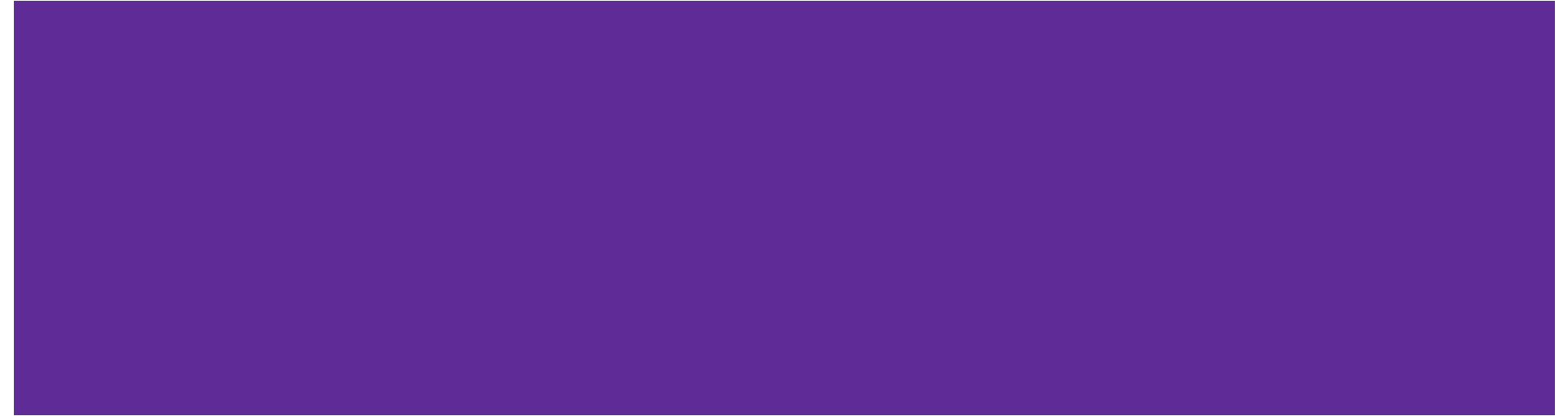




# What's the problem? Implicit bias

- Scientists are mostly expected to be white men
  - Children: [Miller et al. Child development](#) (2008)
  - Adults: [Nosek et al. PNAS](#) (2009)
- Test your own implicit bias! <https://implicit.harvard.edu>
- Everyone is biased
  - Women's behavior is just as biased as men's  
[Raymond, Nature](#) (2013)
  - But... men less likely to believe research on gender bias  
[Handley et al. PNAS](#) (2015)

**Why should you care?**



# Why should you care?

- **Fairness**

- Women need to work harder to achieve the same & for less money

- **Selfishness**

- Diverse groups are more creative [Woolley, et al. Science](#) (2010)
- Biases prevents us as a field from tapping into all talent and potential

# What should/can you do?

Solutions focused on women/minority scientists (short-term)

Solutions focused on the scientific community more broadly (long-term)

# How can I improve?



**Iris van Rooij** @IrisVanRooij · May 16



Several male scientists have asked recently what they can do to be better allies for women in science. I'm making this thread to collect possible answers & examples. If you have tips, advice, requests, examples etc. please feel free to add to this thread (or @ me & I'll add it).



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1.2K



1.7K



<https://twitter.com/IrisVanRooij/status/996842292559405056>

# How can I improve?

- Examine your own and others' bias
  - Speak up, hold yourself and each other accountable, listen to your colleagues
  - Increasing diversity is *everyone's* job
- Promote, nominate, credit, suggest your women colleagues
  - Avoid mansplaining, man interrupting and gendered assumptions
- Do not sit on all-male panels
  - Sign the Gender Avenger pledge <https://www.genderavenger.com/the-pledge/>
- Call out imbalanced seminar series, conferences, labs, panels, prizes, hiring pools
  - <https://biaswatchneuro.com>, [www.anneslist.net](http://www.anneslist.net), <http://compcog.science>

# How can I improve?

- Set criteria before review, aim to hire/review blindly
  - [Uhlmann & Cohen. Psychol Sci](#) (2005)
  - After assigning candidate to gender-stereotypic jobs, criteria are adjusted to fit decision
- Beware gendered language in evaluations
  - *helpful, kind, sympathetic, agreeable, interpersonal, warm vs.*
  - *assertive, ambitious, daring, outspoken, independent, intellectual*
  - [Madera et al. J Appl Psychol](#) (2009).
- Hold all your colleagues to the same standards: volunteering, mentoring, service tasks
  - [Babcock et al. American Economic Review](#) (2017)



# How can we improve?

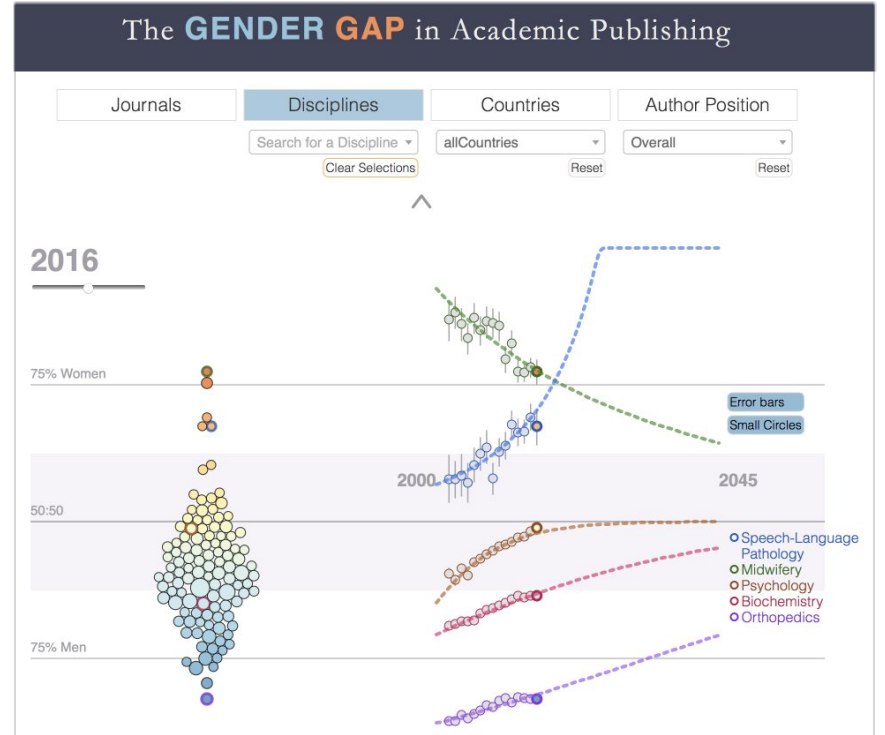
- Blind peer review
  - [Budden et al. Trends in Ecology & Evolution](#) (2008)
- Judge the science, not the person
  - In grant review, peer review and hiring procedures
- Evidence-based implicit bias training
  - Pietri et al. Using Video to Increase Gender Bias Literacy Toward Women in Science. *Psychology of Women Quarterly* 41, 175-196 (2017).
  - WAGES: Workshop Activity for Gender Equity Simulation. <http://wages.la.psu.edu/>

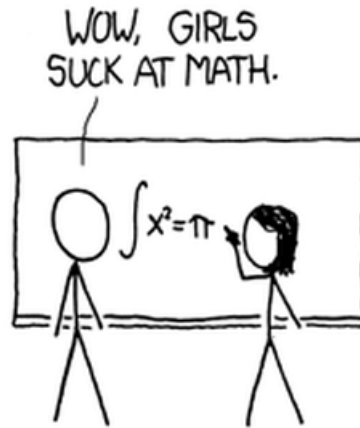
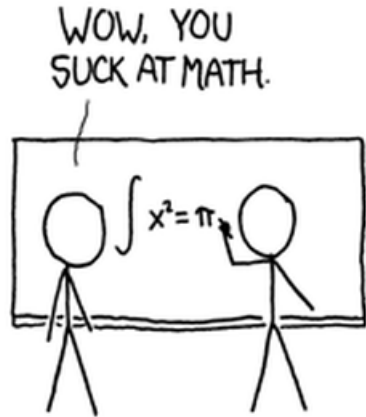
**Will any of this work?**



# Will any of this work?

- The big consequences of small bias: [Day, Research Policy](#) (2015)
  - A total review bias of 3.7% (one point lower for one reviewer on NIH 9 point scale) translates to a 20% lower grant success rate
- We're in for the long haul
  - [Holman et al. PLoS Biology](#) (2018); <https://lukeholman.github.io/genderGap/>
  - But: small changes in improvement rate accumulate over time





Thanks!

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