Gender diversity in academia

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

Lab meeting / CCN seminar
17 January 2018
Anne Urai

What's the problem?

Explicit sexism/racism/harassment

- Barres. Does gender matter? *Nature* 442, 133–136 (2006) https://www.nature.com/articles/442133a
- Nine researchers sue University of Rochester over sexual-harassment allegations. *Nature News* (January 2018) http://www.nature.com/articles/d41586-017-08235-z
    - University of Rochester president resigns as sexual-harassment probe ends. Available at: http://www.nature.com/articles/d41586-018-00422-w (Accessed: 12th January 2018)
- Goldhill. One spreadsheet reveals the horrifying ubiquity of sexual harassment in academia. *Quartz* (2018) https://qz.com/1153654/sexual-harassment-in-academia-a-crowdsourced-survey-reveals-the-scale-metoo/

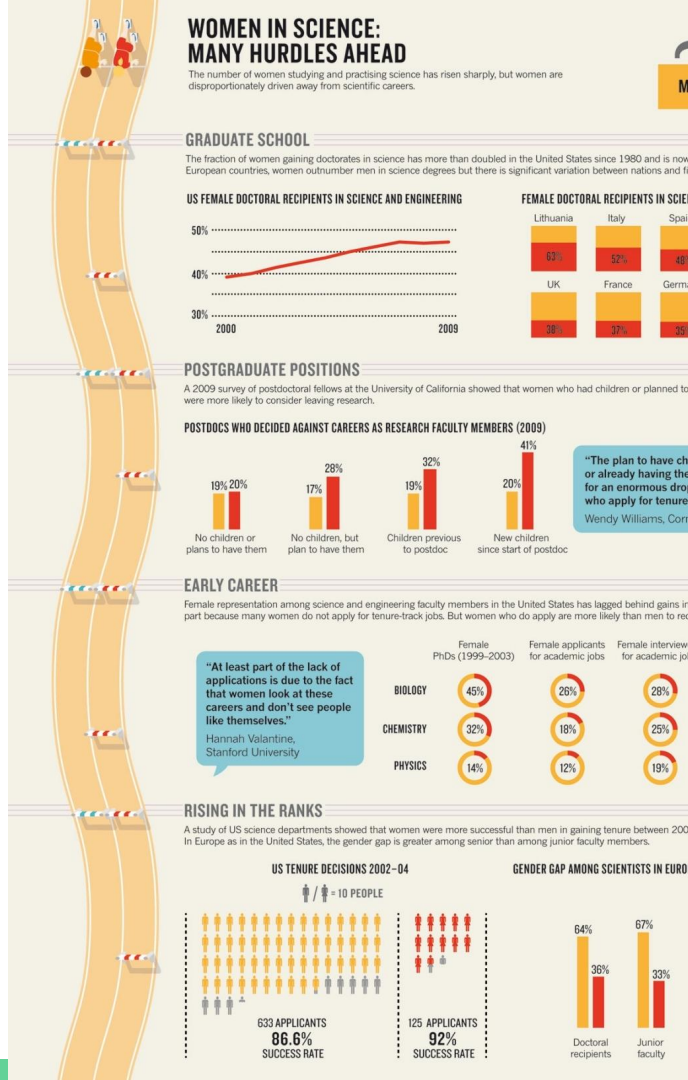
What's the problem?

Implicit bias

- Fraction of women in academia drops off steeply throughout career ladder
  - Also when corrected for class composition at time of graduation
- 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. (Accessed: 12th January 2018) http://www.nature.com/articles/d41586-018-00113-6

Turns out, academia isn't really a meritocracy…

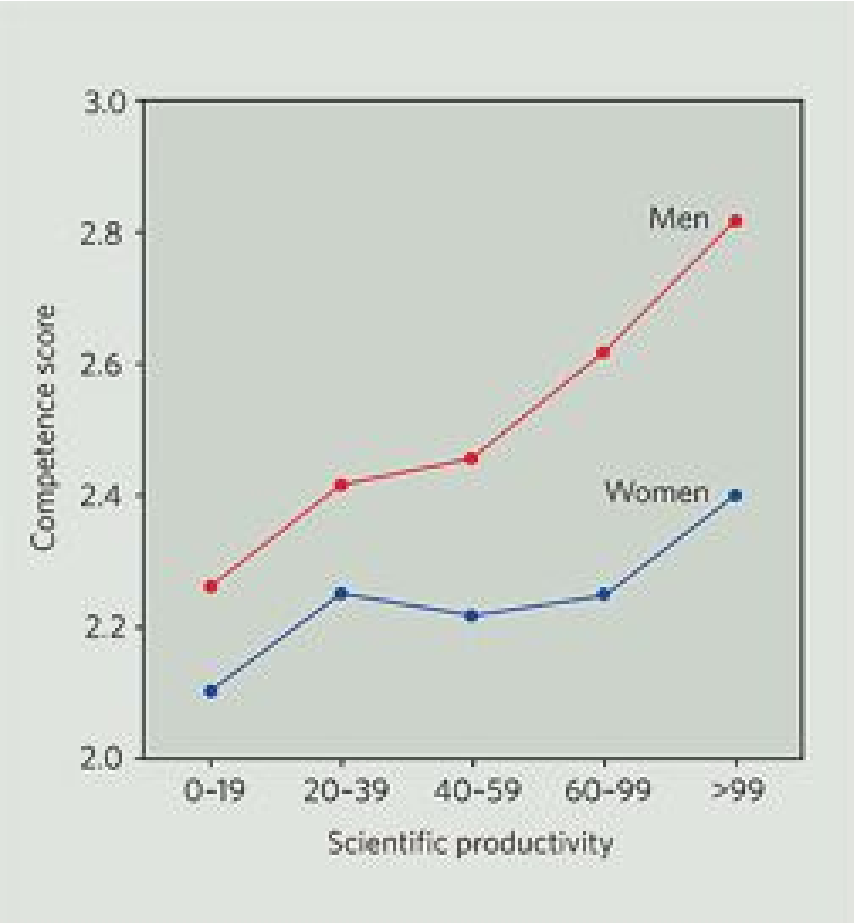
Shen. Inequality quantified:
Mind the gender gap. *Nat. News* 495, 22 (2013)



Show me the evidence

Men are evaluated more favourably given the same academic productivity

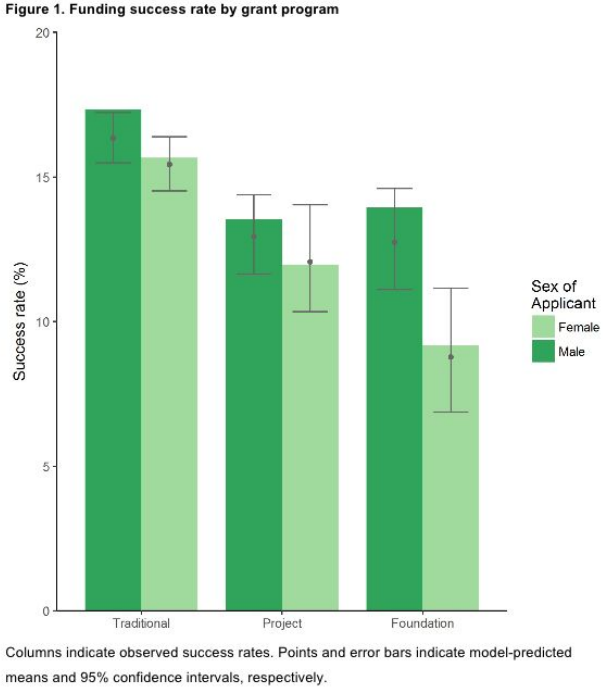
- Wennerås & Wold. Nepotism and sexism in peer-review. *Nature* (1997)
- Reviews of Swedish postdoctoral grants



Show me the evidence

Female grant applicants are equally successful when peer reviewers assess the science, but not when they assess the scientist.

- Witteman et al. *bioRxiv* 232868 (2017). doi:10.1101/232868
- 23,918 grant applications from 7,093 unique applicants in a 5-year natural experiment across all open, investigator-initiated Canadian Institutes of Health Research grant programs in 2011-2016

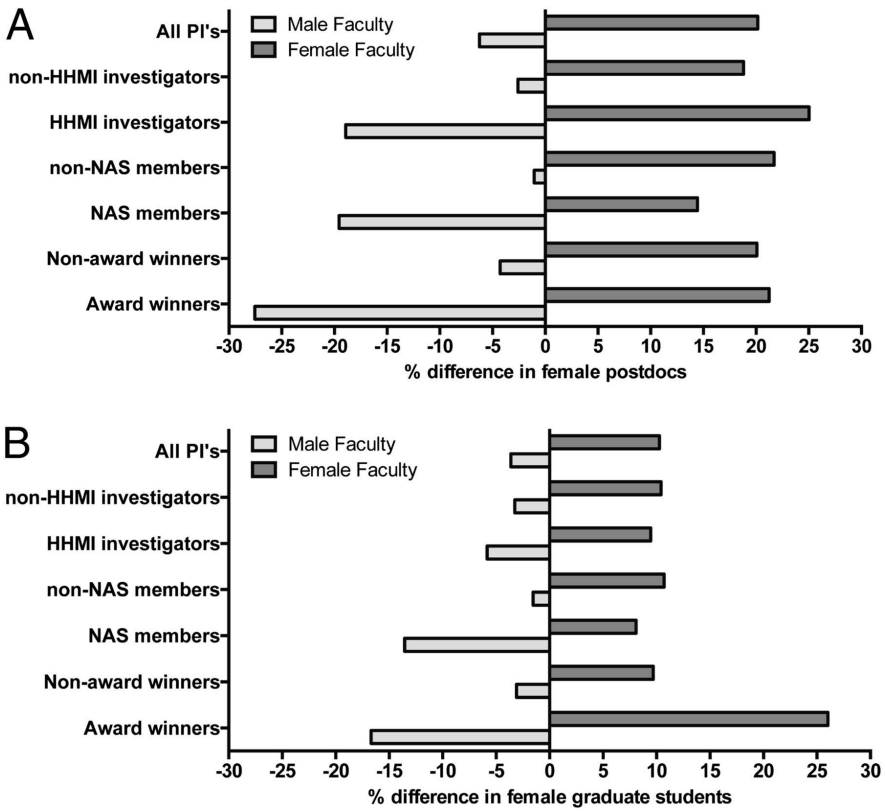


- Reviewers judge *the science:* men 0.9% more successful than women
- Reviewers judge *the researcher*: men 4% more successful than women

Show me the evidence

Elite male faculty in life sciences employ fewer women

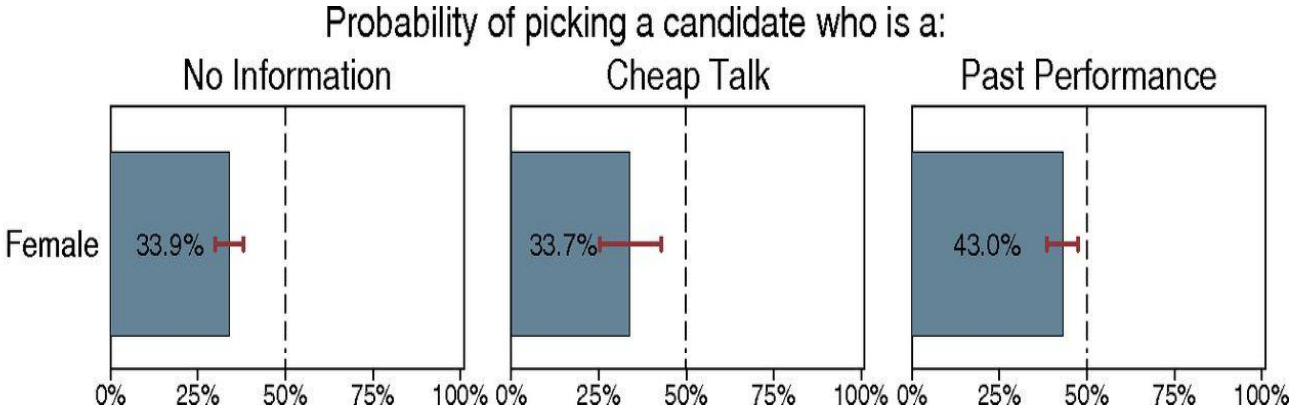
- Sheltzer & Smith. PNAS 111, 10107–10112 (2014)
- “male professors run laboratories that have about 22% fewer female postdocs and 11% fewer female graduate students than their female colleagues do”
- Self-selection vs. hiring decisions?



Show me the evidence

Both male and female evaluators more likely to hire men for math task

- Reuben et al. PNAS 111, 4403–4408 (2014).
- Difference decreases with ‘cheap talk’ (informal) and information about past math performance
- Women with demonstrably better math skills still less likely to be hired



Show me the evidence

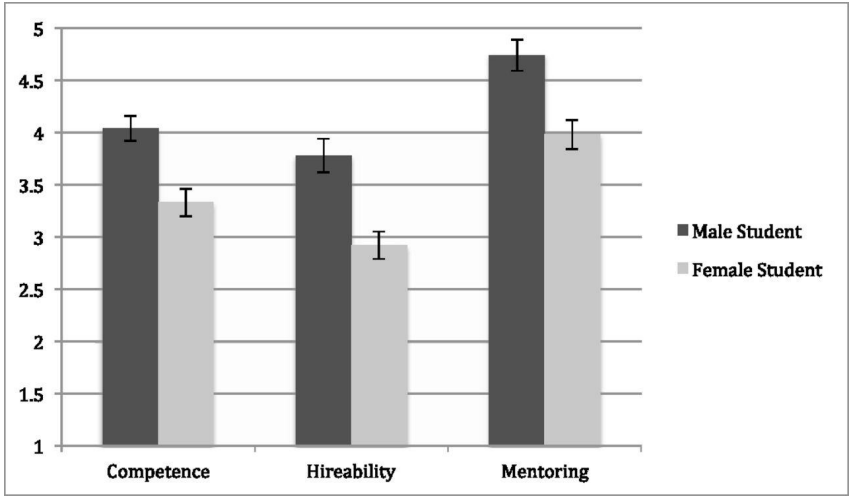
Women Are Invited to Give Fewer Talks Than Men at Top U.S. Universities

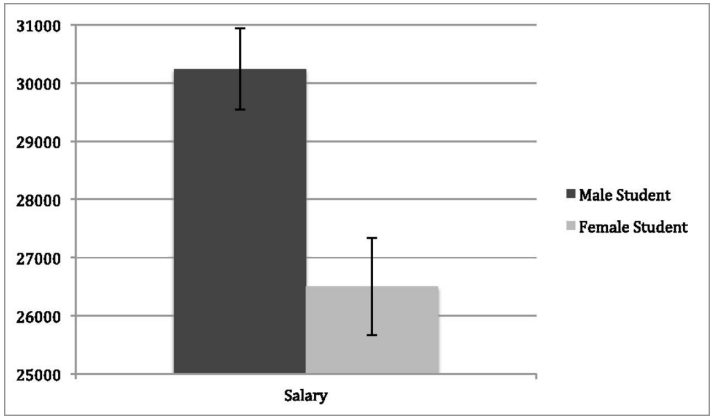
- Nittrouer et al. PNAS 115, 104–108 (2018).
- *20% difference after adjusting for base rate of professors*
- Women don’t decline more talks

Randomized experiments

Male students *with identical CVs* are judged to be more competent, hireable, deserving of mentoring and more salary

- Moss-Racusin et al. *PNAS* 109, 16474–16479 (2012)
- 127 US faculty members rated student CVs applying for a lab manager position
- Identical CVs with randomly assigned male/female names
- Both male and female reviewers show gender bias!

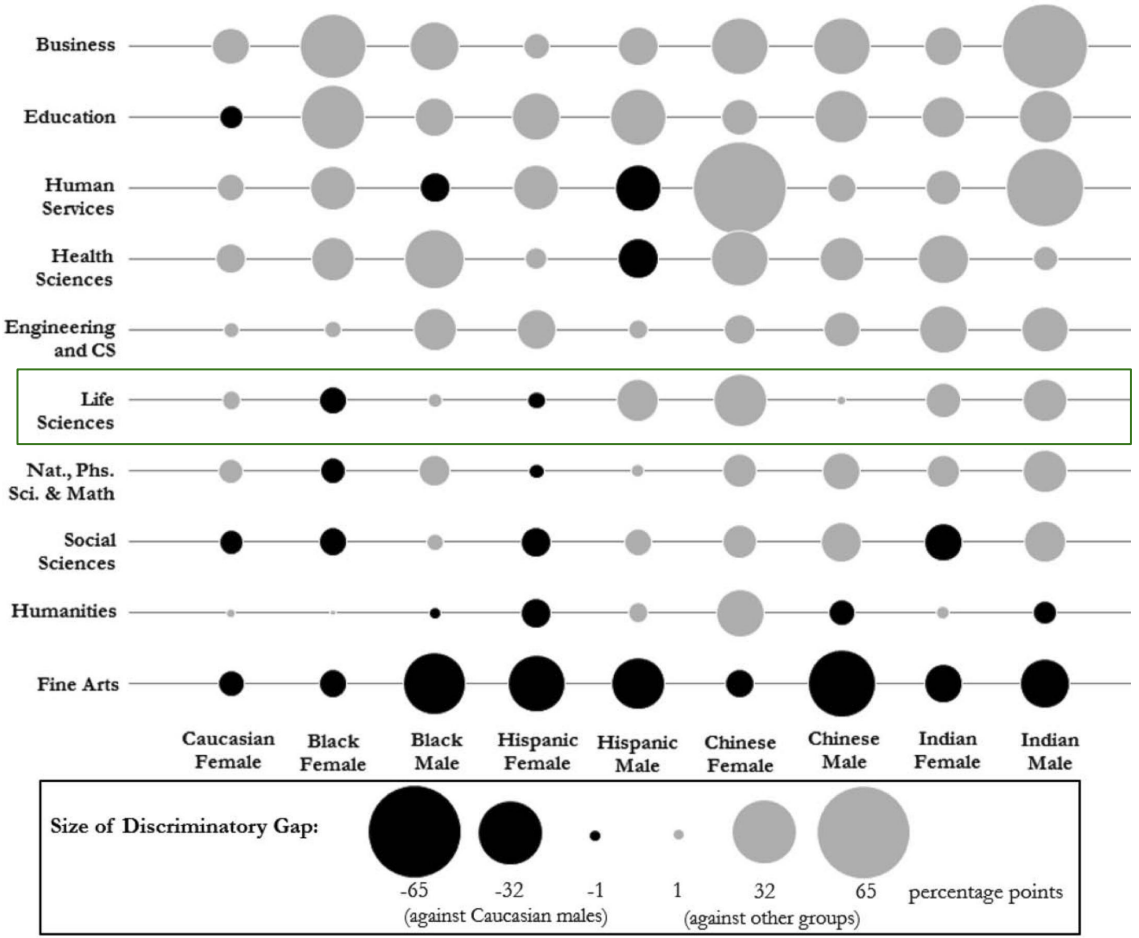




Randomized experi

Professors less likely to informally meet women/minority students

- Milkman et al. J. Appl. Psychol. 100, 1678–1712 (2015).
- Professors contacted by fictional prospective students discuss research opportunities prior to applying to grad school
- Bias in response rate (from Caucasian males as baseline)
- No advantage to contact professor of same gender/race!



Randomized experiments

- With identical CVs
- ‘Brian’ is hired 70% of the time
- vs. ‘Karen’ 55% of the time
- Steinpreis, R. E., Anders, K. A. & Ritzke, D. The Impact of Gender on the Review of the Curricula Vitae of Job Applicants and Tenure Candidates: A National Empirical Study. Sex Roles 41, 509–528 (1999).

Conclusions

- Implicit bias & stereotypes: gender & race
  - *Intersectionality*! Women of colour experience many of these problems much more strongly
- Scientists are mostly expected to be white men
- **Everyone** is biased!

Why should you care?

- Fairness
  - Women need to work harder to achieve the same & for less money
- Selfishness
  - Diverse groups are more creative
  - Biases prevents us as a field from tapping into all talent and potential

How can *I* improve?

- Solutions focused on women/minority scientists (short-term)
- Solutions focused on the scientific community more broadly (long-term)

- Barres (2006)
  - Enhance leadership diversity in academic and scientific institutions
  - Diverse faculty role models - open hiring
  - Don’t be silent in the face of discrimination
  - Enhance fairness in competitive selection process
  - Teach young scientists how to survive in a prejudiced world

How can *I* improve?

- Examine your own and others' bias, hold everyone accountable
  - Raymond. Sexist attitudes: Most of us are biased. Nature (2013). doi:10.1038/495033a
- 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/
- Set criteria before review, aim to hire/review blindly
  - Uhlmann & Cohen. Constructed Criteria: Redefining Merit to Justify Discrimination. Psychol Sci 16, 474–480 (2005).
  - After assigning candidate to gender-stereotypic jobs, criteria are adjusted to fit decision

How can *I* improve?

- Beware gendered language in evaluations
  - *helpful, kind, sympathetic, agreeable, interpersonal, warm* vs.
  - *assertive, ambitious, daring, outspoken, independent, intellectual*
  - Madera et al. J Appl Psychol 94, 1591–1599 (2009).
- Do not sit on all-male panels
  - Sign the Gender Avenger pledge https://www.genderavenger.com/the-pledge/

How can ***we*** improve?

- Ensure balanced conferences, meetings and seminar series
  - https://biaswatchneuro.com/, https://anneslist.net/
- Blind peer review
  - Budden et al. *Double-blind review favours increased representation of female authors.* Trends in Ecology & Evolution 23, 4–6 (2008).
- Judge the science, not the person
  - In grant review, peer review and hiring procedures