Breaking the Bias Habit

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Women are underrepresented in leadership in academic science & medicine

AAMC, 2017-2019; Survey of Earned Doctorates 2016

Women = 51% U.S. population
Racial & ethnic minorities are underrepresented at all career stages.

![Bar chart showing percentage of under-represented minorities (URM) compared to the percentage of white/Asian/unknown individuals across different career stages.]

- **All MD Degrees**: 19% URM, 81% White/Asian/Unknown
- **Bio PhDs**: 17% URM, 83% White/Asian/Unknown
- **Residents**: 21% URM, 79% White/Asian/Unknown
- **Assistant Professors**: 16% URM, 84% White/Asian/Unknown
- **Associate Professors**: 14% URM, 86% White/Asian/Unknown
- **Professors**: 9% URM, 91% White/Asian/Unknown
- **Chairs**: 12% URM, 88% White/Asian/Unknown

URM = 36% U.S. population

AAMC, 2017-2019; Survey of Earned Doctorates 2016
Asians are relatively underrepresented in leadership in academic medicine

Asians = 6% U.S. population

AAMC, 2017-2019; Survey of Earned Doctorates 2016
Do we care?

- Diverse groups are more productive, creative, innovative, and engage in higher levels of critical analysis (Phillips, 2014; Kets & Sandroni, 2015; Page, 2017; and more)
  - E.g., publish more articles in higher impact journals (Freeman & Huang, 2014, 2015)

- Diverse perspectives yield new approaches to teaching, research, and mentorship (Morrison & Grbic, 2015; Woolley et al., 2010, Umbach, 2006; Xie et al., 2011; Nielsen et al., 2017; and more)

- White medical students at schools with diverse student bodies feel better prepared to care for non-White patients (Saha et al., 2008)

- Decreases health disparities (Levine & Ambady, 2013; Louis Sullivan Commission, 2004; Smedley et al., 2003; Smedley et al., 2004)
Assumptions about groups of people lead two kinds of inter-group bias

1. Explicit, consciously endorsed, personal beliefs
   - Decreasing

2. Implicit processes based on mere existence of cultural stereotypes
   - Still highly prevalent – https://implicit.harvard.edu/implicit/demo/takeatest.html
   - Strong predictor of behavior in some settings, even if at odds with personal beliefs
   - Functions as a habit

Habits of mind usually serve us well but they can lead to errors and interfere with our conscious intentions
“Stroop Effect” and the color naming task

<table>
<thead>
<tr>
<th>Compatible Trial</th>
<th>Incompatible/Interference Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED</td>
<td>RED</td>
</tr>
<tr>
<td>BLACK</td>
<td>BLACK</td>
</tr>
<tr>
<td>BROWN</td>
<td>BROWN</td>
</tr>
<tr>
<td>GREEN</td>
<td>GREEN</td>
</tr>
<tr>
<td>YELLOW</td>
<td>YELLOW</td>
</tr>
<tr>
<td>BLUE</td>
<td>BLUE</td>
</tr>
</tbody>
</table>

Stroop, *Journal of Experimental Psychology* 1935
Habits of mind distort perceptions

• 450 word recorded essay read by Standard American English speaker
• Random assignment to photo
• All participants hear the same recording

Perceived accent (p<.001)

White photo: 2.8
Asian photo: 3.8

Rubin, 1992; Kang & Rubin, 2009
We know common stereotypes even if we don’t believe them

<table>
<thead>
<tr>
<th>Men(^1)</th>
<th>Women(^1)</th>
<th>White(^2)</th>
<th>Asian(^2)</th>
<th>Black(^2)</th>
<th>Latino(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong</td>
<td>Caring</td>
<td>High status</td>
<td>Intelligent</td>
<td>Ghetto or unrefined</td>
<td></td>
</tr>
<tr>
<td>Decisive</td>
<td>Nurturing</td>
<td>Rich</td>
<td>Bad drivers</td>
<td>Illegal immigrant</td>
<td></td>
</tr>
<tr>
<td>Stubborn</td>
<td>Family-oriented</td>
<td>Intelligent</td>
<td>Good at math</td>
<td>Uneducated</td>
<td></td>
</tr>
<tr>
<td>Competitive</td>
<td>Emotional</td>
<td>Arrogant</td>
<td>Nerdy</td>
<td>Family-oriented</td>
<td></td>
</tr>
<tr>
<td>Ambitious</td>
<td>Supportive</td>
<td>Privileged</td>
<td>Shy</td>
<td>Lazy</td>
<td></td>
</tr>
<tr>
<td>Risk-taking</td>
<td>Sympathetic</td>
<td>Blonde</td>
<td>Skinny</td>
<td>Day laborer</td>
<td></td>
</tr>
<tr>
<td>Assertive</td>
<td>Nice</td>
<td>Racist</td>
<td>Educated</td>
<td>Unintelligent</td>
<td></td>
</tr>
<tr>
<td>Logical</td>
<td>Helpful</td>
<td>All-American</td>
<td>Quiet</td>
<td>Loud</td>
<td></td>
</tr>
<tr>
<td>Authoritative</td>
<td>Dependent</td>
<td>Ignorant</td>
<td></td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>Independent</td>
<td></td>
<td></td>
<td></td>
<td>Illegal</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Carli et al., 2016, Eagly and Sczesny, 2009, Bem, 1974; \(^2\) Ghavami and Peplau, 2013
Things to know about stereotypes

- They persist in the face of disconfirming data
- A trivial piece of information makes the entire content of a stereotype pop to mind and filters all subsequent information
- Just knowing them (even if we don’t believe them) can influence interpretation of objective data
- Depending on the situation, they create *stereotype-advantaged* or *stereotype-disadvantaged* groups
Implicit Gender-Science Stereotypes

Male Respondents

Female Respondents

Nosek BA, Banaji MR & Greenwald AG, 2006
http://implicit.harvard.edu/
Gender and Leadership IAT Scores

Male Respondents
(n=359)

Female Respondents
(n=315)

Number of Respondents

IAT Score --> Male/Leader Stereotyping

72%

71%

8%

8%
Bias is a habit that can be broken
Breaking the bias habit takes more than good intentions

- Awareness
- Motivation
- Self-efficacy
- Positive outcome expectations
- Deliberate practice

Cluster randomized trial of gender bias habit-reducing intervention

92 STEMM depts.
2,290 faculty

46 experimental
1,137 faculty
Attendance/dept 31% ± 21
Overall 310 = 26%

46 control
1,153 faculty

Baseline, 3 d & 3 months
Survey response: 587 (52%)

Baseline, 3 d & 3 months
Survey response: 567 (49%)

Personal bias reduction strategies

• Stereotype Replacement
• Counter-Stereotypic Imaging
• Individuating
• Perspective-Taking
• Increase Opportunities for Contact


• Plus 2 that DON’T work:
  – Stereotype Suppression
  – Too Strong a Belief in One’s Personal Objectivity


Differences Between Experimental and Control Departments Compared With Difference at Baseline
(IAT in D-scores; others on 7-point Likert scales)

N = 92 departments; 1154 faculty (50.4% response rate)
IAT = Implicit Association Test (standardized D-score)
*P < 0.05; models adjusted for faculty gender and rank
† P < 0.05 for action at 3 months when comparing only experimental depts with ≥25% attendance
Notes:
N=92 departments; 671 faculty respondents for response rate between 48% (2010) and 43% (2012).
* Indicates statistically significant difference between experimental and control departments compared with differences at baseline, at $p<.05$.
** Significant only for departments in which 25% or more of the faculty attended the workshop, $p<.05$.

Source: Carnes et al., *Academic Medicine* 2015.
Diversity of New Faculty Hires, Experimental vs. Control Departments in Bias Literacy Workshop Study

Diversity of New Faculty Hires:

<table>
<thead>
<tr>
<th>Category</th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Women</td>
<td>46%</td>
<td>32%</td>
</tr>
<tr>
<td>% NonWhite</td>
<td>29%</td>
<td>24%</td>
</tr>
<tr>
<td>% URM</td>
<td>8%</td>
<td>10%</td>
</tr>
</tbody>
</table>

BEFORE (2008-2010) vs. AFTER (2012-2014)

Targeting individual faculty had institutional impact

**Institutional Outcomes:**
Gender parity among new hires, greater retention of male faculty

**Department Climate:**
Improved feelings of fit, feeling valued, raising personal issues

**Individual Behaviors:**
Increased motivation, self-efficacy, and action
Future Directions

Does this approach work beyond one institution and beyond gender bias?

R35 GM122557

Bias Reduction in Internal Medicine (BRIM)

- Cluster randomized study of 3-hour bias habit-reducing workshop
- 20 departments of Medicine
- Divisions randomly assigned to receive workshop early (Group 1) or later (Group 2)
- Outcome measures: self-reported equity-promoting behaviors, perceptions of department climate, burnout
- Targeted completion 2022
Summary & Conclusions

• Group stereotypes affect our attitudes, behaviors, and judgments -- even when we don’t want them to and even when we are unaware of it happening.

• These group stereotypes have real effects on individuals in selecting and persisting in careers in science and medicine -- especially as they rise toward leadership.

• The bias habit can be broken -- but it takes more than good intentions.

• When STEMM faculty broke the gender bias habit – department climate improved for everyone, more women faculty were hired, and more male faculty retained.