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Resonate: Reflections and Recommendations on Implicit Biases Within the ISMRM

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Why Do Diversity, Equity, and Inclusiveness Matter to ISMRM?

Science undeniably evolves through collaboration, transparency, and inclusiveness.

Unconscious attitudes or stereotypes based on culture, personal experiences, or institutional

influences, ie, *implicit bias*, can either positively or negatively inform our understanding, actions, and decisions.¹ The negative effects of implicit bias threaten the intrinsic worth of the scientific method and minimize progress. There is growing evidence that diverse research teams are more productive and make better group decisions and the use of diverse study populations leads to more impactful science.² As an example, LeWinn et al³ recently challenged the—often implicit—assumption in population selection for neuroimaging studies that basic neural functions are not influenced by sample characteristics. LeWinn et al used >1000 samples from the Pediatric Imaging, Neurocognition and Genetics study to show that age-related changes in brain structure are dependent on the composition of the sample, thereby highlighting the need for study populations to reflect target populations of interest to ensure generalizability of the study outcomes.

The ISMRM, like others in Science, Technology, Engineering, Maths (STEM) fields, face challenges because of implicit bias. For example, although the overall membership of women in the ISMRM is slowly increasing (growing from 21% in 2008 to 27% in 2017), there remains a significant disparity in the representation of women among student members (35% female) when compared to full members (21% female). This gap between young and senior female scientists is persistent and consistent across STEM fields.⁴ Moss-Racusin et al⁴ suggest that interventions addressing gender bias might advance women's participation in STEM fields. Consistent with this body of literature, in 2013 the first annual “Women in MR forum” was organized at the annual meeting of the ISMRM. This event, arguably, marks the start of the society's efforts to openly address implicit bias towards gender. This year, we (the members *and* the society's leadership) extended the conversation at our annual scientific meeting by highlighting the further range of implicit biases that affect our science in magnetic resonance imaging (MRI).

Resonate: A Community-Wide Conversation on Implicit Bias and Equity in ISMRM

Various events organized during the 26th Annual Meeting of the ISMRM were designed to identify and address implicit biases that the ISMRM membership are facing today. These events included 1) an inaugural Presidential Lecture delivered by Professor Curt Rice, summarizing current research on diversity in research organizations; 2) a Member-Initiated Symposium entitled *Resonate: A Discussion on Social Biases Within the ISMRM*; 3) Women in MR forum focusing on gender bias; and 4) an informal secret session on *Hacks for Dealing With Bias*. Implicit-bias-related issues raised by the ISMRM membership across these events include gender equality,^{4,5} international diversity,⁵ LGBTQA in STEM,⁶ accessibility for people with disabilities,⁷ and other barriers to member participation, such as a lack of childcare facilities at meetings and workshops. Certain demographic examples indicative of bias within the ISMRM were discussed—for example, the fact that, of 77 ISMRM Gold Medal awardees, only four have been women, and only one has been based outside North America or Europe.

Where Do We Go From Here?

“There is nothing noble in being superior to some other man. The true nobility is being superior to your previous self.”

— W.L. Sheldon (Ethical Addresses 1897)

Addressing implicit bias and minimizing its negative effect on the conduct of science begins with the individual and must be supported by collective efforts of the group. At an individual level, it is important to acknowledge that no one is immune to unconscious bias, including bias against members of one’s own group. This starts with being aware of one’s own implicit bias,¹ in particular when facing a critical decision such as selecting a study population, reviewing manuscripts and grants, or filling a vacancy within your research team or organization.

At the institutional level there is a range of strategies that can be used to mitigate negative effects of implicit bias, including some strategies for which evidence is emerging in the literature.^{8–10} For example, although opponents of hiring quotas to reduce gender inequality often perceive a threat to meritocracy (for example, competent men being replaced by mediocre women), recent studies indicate that gender quotas have the opposite effect (competent women replacing mediocre men). These studies showed that well-executed quota systems motivate competent women to compete, thereby increasing performance.^{8,10}

A softer approach to promoting diversity and ensuring all qualified individuals are included is to adopt wording in job advertisements and calls for nominations such that more applications are received from underrepresented groups. Wille and Derous⁹ show that job advertisements wording affects the application pool, by tapping into negative stereotypes in the self-perception of underrepresented groups.

It is worth considering what interventions could help to improve diversity within the ISMRM. For example, *nominations* for awards and committee memberships could be subject to numerical quotas reflecting the demographics of ISMRM members, even if quotas are not applied for the appointments and awards themselves. Similarly, a systematic review of the wording used in both calls for nominations and the selection criteria for positions and awards within the society could reveal sources of implicit bias, including barriers against self-nomination for certain groups.

Following the 2018 Annual Meeting, the ISMRM ratified and appointed an Equity Officer of the Society, as a long-term commitment to minimizing the negative effects of implicit bias for individual members and our community as a whole.² The ISMRM Equity Officer will serve on the ISMRM Executive Committee, and will be responsible for establishing strategies and tracking performance for improving diversity and inclusion. In addition, an ISMRM Code of Conduct is implemented. An open and ongoing dialog between the ISMRM’s leadership and all of the members, for instance via *#equity_in_ismrm* on Slack and Twitter, will be vital to the success of this process. We invite all ISMRM members to

¹The Harvard Implicit Association Tests. Available at <https://implicit.harvard.edu/implicit/>

²<https://www.ismrm.org/about/history-mission/>

continue this journey as we strive to look inwards to marshal all our disruptive innovative forces so we can come together to create new ways of seeing.

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References

1. Staats C, Capatosto K, Tenny L, Mamo S. State of the science: Implicit bias review 2017 <http://kirwaninstitute.osu.edu/researchandstrategicinitiatives/implicit-bias-review/>
2. Hong LU, Page SE. Groups of diverse problem solvers can outperform groups of high-ability problem solvers. *Proc Natl Acad Sci U S A* 2004; 46:16385–16389.
3. Lewinn KZ, Sheridan MA, Keyes KM, Hamilton A, McLaughlin KA. Sample composition alters associations between age and brain structure. *Nat Commun* 2017;8:874. [PubMed: 29026076]
4. Moss-Racusin CA, Dovidio JF, Brescoll VL, Graham MJ, Handelsman J. Science faculty's subtle gender biases favor male students. *Proc Natl Acad Sci U S A* 2012;109:16474–16479. [PubMed: 22988126]
5. Murray D, Siler K, Larivière V. Gender and international diversity improves equity in peer review. *bioRxiv* 2018 [Epub ahead of print].
6. Yoder JB, Mattheis A. Queer in STEM: Workplace experiences reported in a national survey of LGBTQA individuals in science, technology, engineering, and mathematics careers. *J Homosex* 2016 doi:10.1080/00918369.2015.1078632 [Epub ahead of print].
7. National Science Foundation, National Center for Science and Engineering Statistics 2017 Women, minorities, and persons with disabilities in science and engineering: 2017 Special Report NSF 17–310. Arlington, VA Available at www.nsf.gov/statistics/wmp
8. Balafoutas L, Sutter M. Affirmative action policies promote women and do not harm efficiency in the laboratory. *Science* 2012;335:579–582. doi: 10.1126/science.1211180. [PubMed: 22301317]
9. Wille L, Deros E. Getting the words right: When wording of job ads affects ethnic minorities' application decisions. *Manag Commun Q* 2017 doi:10.1177/0893318917699885 [Epub ahead of print].
10. Besley T, Folke O, Persson T, Rickne J. Gender quotas and the crisis of the mediocre man: Theory and evidence from Sweden. *Am Econ Rev* 2017 doi:10.1257/aer.20160080 [Epub ahead of print].