

REDUCING IMPLICIT AND EXPLICIT BIAS IN RESEARCH

Megan H Bair-Merritt, MD, MSCE

Professor of Pediatrics

Multi-PI, BU CTSI

Learning Objectives

1. Recognize medical research's history of implicit and explicit sexism and racism, and its potential impact on health;
2. Identify systems and methodologies that could detect biases in the research plans, execution or publication;
3. Understand the new IRB processes and form related to assessing for potential biases in research studies.

Research historically has been plagued by racism and sexism, fueling health inequities

- **Overt biases:** consideration of male physiology as the “norm”; “proving” superiority of intelligence of white men
- **Implicit biases:** gendered and racialized language, failure to consider racism’s role in inequities
- Changing the culture and practice of medical research complex and requires widespread systems-level change, with continuous improvements over time

History of Women's Participation in Clinical Trials

- **1977:** FDA issues a policy that no women of child bearing age should be included in Phase 1 or 2 drug trials
 - ✓ Tremendous adverse impact on women's health with conditions relevant for women's health ignored and lack of data about side effects and efficacy for women
- **1993:** NIH Revitalization Act: Women and Minorities as Subjects in Clinical Research (introduced by MA Senator Kennedy)

The Disturbing Resilience of Scientific Racism

A new book explores how racist biases continue to maintain a foothold in research today



Nazi officials use callipers to measure an ethnic German's nose on January 1, 1941. The Nazis developed a pseudoscientific system of facial measurement that was supposedly a way of determining racial descent. (Hulton-Deutsch Collection / CORBIS / Corbis via Getty Images)

Women as Scientific Mentors

[nature](#) > [nature communications](#) > [articles](#) > [article](#)

Article | [Open Access](#) | [Published: 17 November 2020](#)

RETRACTED ARTICLE: The association between early career informal mentorship in academic collaborations and junior author performance

[Bedoor ALShebli](#) , [Kinga Makovi](#) & [Talal Rahwan](#) 

Nature Communications **11**, Article number: 5855 (2020) | [Cite this article](#)

494k Accesses | **4** Citations | **7584** Altmetric | [Metrics](#)

 This article was [retracted](#) on 21 December 2020

- *“We also find that increasing the proportion of female mentors is associated not only with a reduction in post-mentorship impact of female protégés, but also a reduction in the gain of female mentors.”*

Women as Scientific Mentors

[nature](#) › [nature communications](#) › [editorials](#) › [article](#)

[Editorial](#) | [Open Access](#) | [Published: 21 December 2020](#)

Regarding mentorship

Nature Communications **11**, Article number: 6447 (2020) | [Cite this article](#)

19k [Accesses](#) | **625** [Altmetric](#) | [Metrics](#)

The publication of a paper on mentorship, now retracted, led us to reflect on our editorial processes and strengthened our determination in supporting diversity, equity and inclusion in research.

Journal of Vascular Surgery Article by BMC Investigators

From the Society for Clinical Vascular Surgery

Prevalence of unprofessional social media content among young vascular surgeons



Scott Hardouin, MD,^a Thomas W. Cheng, MS,^a Erica L. Mitchell, MD,^b Stephen J. Raulin, MPH,^a Douglas W. Jones, MD, MPH,^a Jeffrey J. Sircuse, MD,^a and Alik Farber, MD, MBA,^a Boston, Massachusetts and Salem, Oregon

ABSTRACT

Objective: It has been demonstrated that publicly available social media content may affect patient choice of physician, hospital, and medical facility. Furthermore, such content has the potential to affect professional reputation among peers and employers. Our goal was to evaluate the extent of unprofessional social media content among recent vascular surgery fellows and residents.

Methods: The Association of Program Directors in Vascular Surgery directory was used to compile a list of graduating vascular surgery trainees from 2016 to 2018. Neutral Facebook, Twitter, and Instagram accounts were used to search for publicly available information. All content was screened by two separate investigators for specified clearly unprofessional or potentially unprofessional content. Clearly unprofessional content included unhealth insurance, Reliability and Accountability Act violations, intoxicated appearance, unlawful behavior, possession of guns or drug paraphernalia, and unconsented profanity or offensive comments about colleagues/work/patients. Potentially unprofessional content included holding/consuming alcohol, inappropriate attire, censored profanity, controversial political or religious comments, and controversial social topics. Descriptive data were compiled and Fisher exact test was used for categorical comparisons.

Results: There were 480 vascular surgeons identified. 325 (68%) were male, 156 (39%) held MD degrees, and 115 (24%) were Integrated (D + S) vascular surgery residents. Of these, 25 had publicly identifiable social media accounts across all platforms. Sixty-one (26%) account holders had either clearly unprofessional or potentially unprofessional content. Eight accounts (8.4%) contained content categorized as clearly unprofessional, obvious alcohol intoxication in three Facebook accounts and unconsented profanity or offensive comments about colleagues/work/patients in one Facebook and five Twitter accounts. Potentially unprofessional content appeared in 53 accounts (25%) and included holding/consuming alcohol (29 accounts, 12.3%), controversial political comments (22 accounts, 9.4%), inappropriate/offensive attire (9 accounts, 3.8%), censored profanity (8 accounts, 3.4%), controversial social topics (6 accounts, 2.5%), and controversial religious comments (2 accounts, .9%). There was no significant difference in unprofessional content across sex, training paradigm (MD vs non-MD), or residency track (D + S or S + D) (all $P > .05$). However, there was more unprofessional content for those who self-identified as residents vs non-residents (7%, $P = .007$).

Conclusions: One-half of recent and soon-to-be graduating vascular surgery trainees had an identifiable social media account with more than one instance of the containing unprofessional content. Account holders who self-identified as vascular surgeons were more likely to be associated with unprofessional social media behavior. Young surgeons should be aware of the permanent public exposure of unprofessional content that can be accessed by peers, patients, and current/future employers. (J Vasc Med Biol 2020;32:667-71.)

Keywords: Professionalism; Social media; Trainee; Vascular surgery

Social media has increasingly become a prominent part of our everyday lives where individuals use social media to share and create original content, ever since its creation in 2004. However, individuals do use social media as part of their informed medical decisions such as for symptom- or provider-specific

research. It is estimated that up to 44% of adults search for their doctor or other health professional online and up to 41% of adults report that information found specifically on social media would affect their choice in a specific physician or medical facility.^{1,2} Furthermore, research has revealed that 35% of practicing physicians have

Journal of Vascular Surgery Article: #medbikini

The New York Times

IN HER WORDS

Women Doctors Ask: Who Gets to Decide What's 'Professional'?

With #MedBikini, doctors are pushing back against what many see as sexist expectations of appearance and behavior.



The Boston Globe

#MedBikini: Here's why health care professionals are posting photos of themselves in bathing suits

Authors apologize after uproar over study calling certain personal social media posts "potentially unprofessional."

J Vasc Surg Questions

- What research study did the authors plan?
- Was the research team diverse? Did it need to be?
- Definitions of professionalism were adopted from prior papers. Were the prior papers important, credible? Well done?
- What information did the Department chair have to review for signoff on the study? Was it sufficient to make a decision on the study design?
- How did the authors get a list of graduating residents?
- A major critique was that the three men gathering the data was not diverse. Did they need to be?
- Was there stigmatizing language used?

BUSM & BMC Approach

- What systems and established methodologies could have been in place that would have detected any implicit biases in the research plans, execution or publication, and allowed the authors to reach their intended research goals while avoiding even the appearance of sexism or bias?

Culture and
Climate*

Study Question Generated: What research study do the authors plan?

Study Team Established: Is the research team diverse? Do they have the correct expertise? Is there thoughtful conceptualization of the study?

IRB Submitted: Should IRB review be broadened? What about studies that do not go through the IRB?

Chair Sign Off: Does the Chair have sufficient information to review?

Research Conducted including Acquiring Data: Does the study team take time to question assumptions and definitions?

Paper Written, Edited, Signed Off and Submitted: Do the authors have sufficient time and outside input?

Education: Does research training include minimizing implicit and explicit bias?

BMC and BUSM are committed to equity, diversity and inclusion across our tripartite mission

- **Committee goal** to recommend systems-level changes to identify and minimize racism, sexism and other forms of bias in research design and reporting.
- For research, embedding principles of equity, vitality and inclusion from study inception through publication leads to more innovative, creative science that improves health across diverse communities.

Questions Considered by the Committee

- What key systems can we adopt to recognize and minimize racism, sexism and other forms of bias in research design and reporting? How do we operationalize these systems in a way that is feasible and timely?
- How do we accomplish the following:
 - ✓ change the culture and climate of research to raise awareness;
 - ✓ promote scientific freedom *and* ensure that research is high quality and free of bias;
 - ✓ promote the creation of study teams that are diverse;
 - ✓ teach the next generation of researchers these concepts.

Core Values around the Recommendations

- (1) Moving towards the shared goal of minimizing bias in research requires **collective responsibility**;
- (2) **Broad-based training** is critical; and
- (3) Given the complexity of this issue, and the role of our Institution in forging this path across the country, implementing these recommendations will need to be done within the **frame of continuous improvement**.
- (4) Efforts should focus on **support and education** as opposed to punitive action

Note: Equitable research also requires building meaningful community partnerships and including diverse participants in studies. This research approach was not within the Committee, but is noted to be a valuable “piece of the larger puzzle.”

Key Recommendations- Recommendation #1

- **Create and implement a system to minimize racism, sexism and other forms of bias in research design and reporting** by recognizing studies that may be impacted by bias, and providing supportive resources when needed.

Key Recommendations- Recommendation #1

- *Implementation Steps:*
 - ✓ Within IRB, application routed to PI to answer questions which are sent to the Chairs for sign off and confirmation they have evaluated the potential for the study to have implicit and explicit biases.
 - ✓ Designed to:
 - Ensure a “pause” and reflection
 - Provide Departmental leadership with sufficient information
 - Provide opportunities for early support

Let's Look at the Form Together



Key Recommendations- Recommendation #2

- **Continue and expand education of medical students and doctoral students, residents, fellows, faculty and leadership about the history of racism and sexism in medical research as well as ways in which to combat these biases.** This education must be ubiquitous across career levels and must include continuous learning.
 - ✓ Journal club-didactic lecture/lecture series using case examples
 - Included in RCR training for researchers
 - Medical school curriculum
 - T32 didactic sessions for early career researchers
 - ✓ Specific training for Chairs

Key Recommendations- Recommendation #3

- **Leverage and customize technology platforms to identify biased language in publications.**
 - ✓ Partnering with BU colleagues to customize a technology platform that uses machine learning or other algorithms to identify gendered and racialized language
- *Possible Implementation Steps:*
 - ✓ Most difficult and potentially costly to implement
 - ✓ BU does have some background with AI to flag concerning language

THE BRINK

Pioneering Research from Boston University

Is Your Computer Sexist?

It may say “boss” is a man’s job, BU and Microsoft researchers discover

Key Recommendations- Recommendation #4

- **Create an online platform for anonymous reporting of concerns related to explicit and implicit bias in research.**
 - ✓ Note Value #4: Efforts should focus on **support and education** as opposed to punitive action
 - Identify common concerns, and deploy resources accordingly.
 - ✓ Enhance awareness of the potential impact of explicit and implicit bias in research, and the need to create and align systems that minimize this bias.
 - ✓ Serve as a metric by which to track progress

Questions for the Group

- 1) How will this impact the research you are doing/will do?
- 2) Will the proposed approach help to identify biases in research? If not, how might we improve our approach?
- 3) Any suggestions around technology/AI to help screen for biases?

The BU CTSI Community Engagement Program presents:

Communicating to Engage Workshop

*Enhance your skills to communicate with
diverse partners to advance health equity.*



Join us for a workshop to increase awareness of personal bias, power structures that promote inequities in health, and strategies to balance power dynamics in communication.

- For community members, researchers, professionals – anyone!
- Zoom session is **Friday, March 26, 2:00 – 4:00 pm**
- For more information or to register, email Dema Hakim, dkhakim@bu.edu by **March 19**

Thanks and Questions?