



An Analysis of Implicit Bias in Medical Education

Racquel J Wells, BS, MA¹; Christine Motzkus, MPH¹; Suzanne Cashman, ScD, MS²; Jeroan Allison, MD, MS³; Michael Buckner BS¹; Sonia Chimienti, MD⁴; Deborah Plummer, PhD, Med⁵

¹Department of Medicine, University of Massachusetts Medical School (UMMS), Worcester, MA

²Department of Family Medicine and Community Health, UMMS, Worcester, MA

³Department of Quantitative Health Sciences, UMMS, Worcester, MA

⁴Office of Student Affairs, UMMS, Worcester, MA

⁵Department of Psychiatry and Quantitative Health Sciences, UMMS, Worcester, MA

BACKGROUND

- The **Implicit Association Test (IAT)** is a well-researched method for identifying an individual's implicit bias¹
- Occurring outside of conscious awareness, implicit bias is a **form of nonverbal thoughts, behaviors and actions** that influence an individual and suggest unequal treatment
- In the undergraduate medical education curriculum, the IAT is commonly used to **assess** the medical students' personal bias¹
- Studies from the American Association of Medical Colleges (AAMC) have shown that bias is ranked highly as one of **the least addressed educational goals** in medical education and training²
- Medical literature suggests that implicit bias affects clinical faculty **patient care decisions**; this in turn affects medical student education³
- Data collected from our medical school's first year curriculum suggest that there are missed opportunities to explore the effects of implicit bias on health outcomes.

OBJECTIVE

- To understand students' insight into implicit bias and stereotyping
- To analyze comments in reflection papers submitted by students enrolled in the required "Determinants of Health" (DoH) course during the Spring 2015 at the University of Massachusetts Medical School (UMMS). Student reflections responded to the request that they *"select a reading, experience in taking the IAT or class discussion and comment on how the material led to new insight about the potential effect of bias or stereotyping on future clinical decisions."*

METHOD

125 first-year medical students (48% Female, 52% Male; mean age 25 years; 95% from Massachusetts, 8.8% identified as under-represented ethnic/racial minorities) in the entering class of 2014 submitted written reflections following attendance and discussion-based learning in the DoH course. This research was exempt from IRB regulation as it involved existing documents and subjects were not directly identifiable. Grounded theory methodology was used for the qualitative analysis of the comments. Papers were de-identified, read, and codes were constructed according to emerging themes (descriptive, diagnostic and prescriptive) found. The codebook development focused on "bias," "systemic/institutional bias," "individual bias," "awareness" and "health disparities". Student commentary was coded for themes and tallied for total amount of discussion for each theme. Inter-rater reliability was calculated for 20% of the sample using Cohen's kappa.

RESULTS

Under-represented minorities: include Mexican-American, Mexican-Chicano, American Indian/Native Alaskan, Cambodian, African, Vietnamese, Black/African American and Portuguese.

Statistical Analysis

For the twenty-five essays coded by both raters, Cohen's kappa was calculated to be 0.81 (p<0.0001), indicating a high level of agreement between raters.



76% (95/125) of comments mapped to Implicit Bias

	Descriptive Theme	Diagnostic Theme	Prescriptive Theme
76% (95/125) of comments mapped to Implicit Bias	Bias is inevitable: 27% (n=26)	IAT is a beneficial tool to acknowledge implicit bias: 16% (n=20)	Recognizing bias is an important step in actively acting against it for the benefit of better patient care: 73% (n=91)
	Bias is a product of society, cultural backgrounds and media: 57% (n=55)	Racial bias exists in medicine: 32% (n=40)	It is important to understand where biases stem from to make conscious efforts to treat patients equally and not judge unfairly: 58% (n=73)
	Bias has a negative effect on the decision-making process that impacts patient care and treatment: 83% (n=79)	There is a fine line between clinical judgement and highlighting bias towards patient care: 13% (n=16)	It is a physician's responsibility to dismantle the bias found in the healthcare system, through avenues such as advocacy and legislation: 32% (n=40)

Themes and Implicit Bias

76% of students' comments mapped to implicit bias

Comments regarding IAT

- 56% (n=70) comments mapped to discussing the IAT
 - 43% (n=30) were surprised by their results
 - 29% (n=20) were not surprised
- 68 of 75 students reflected on implicit bias and its origin, despite not commenting on their reaction

Current Climate of Healthcare

40 students' comments (32%) identified racism or racial bias existing within the medical field

- potential sources of racism included lack of trust in physicians from historical events (including Tuskegee Syphilis Experiment) and societal disparities
- 29 comments (23%), mentioned systemic/institutional bias as potentially having an impact on individual bias and vice versa

CONCLUSIONS

- The IAT is informative in the medical education curriculum
- Medical students gain insight into the importance of understanding personal implicit bias and the effect it may have on clinical decision-making
- Medical students can identify and self-reflect on the development of behaviors and skills that will facilitate improved patient care decision-making and interactions
- Medical students may benefit from conversations with current faculty clinicians about the methods currently used to combat personal implicit bias in the current climate of healthcare
- Additional exploration of faculty involvement in these topics may engage medical students throughout their undergraduate medical training

ACKNOWLEDGEMENTS

I would like to thank the medical students of the entering Class of 2014 for their honest and open opinions surrounding these critical components of the medical student professional development.

REFERENCES

- Greenwald, A 2009. Understanding and Using the Implicit Association Test: III. Meta-Analysis of Predictive Validity, Journal of Personality and Social Psychology **97** (1): 17-41.
- Association of American Medical Colleges. (2015). Assessing Change: Evaluating Cultural Competence Education and Training. Washington, D.C.
- Hafferty, F 1998. Beyond Curriculum Reform: Confronting Medicine's Hidden Curriculum, Academic Medicine **73**: 403-409.