Implicit Racial Bias in Medical School Admissions
Quinn Capers IV, MD, Daniel Clinchot, MD, Leon McDougle, MD, and Anthony G. Greenwald, PhD

Abstract

Problem
Implicit white race preference has been associated with discrimination in the education, criminal justice, and health care systems and could impede the entry of African Americans into the medical profession, where they and other minorities remain underrepresented. Little is known about implicit racial bias in medical school admissions committees.

Approach
To measure implicit racial bias, all 140 members of the Ohio State University College of Medicine (OSUCOM) admissions committee took the black–white implicit association test (IAT) prior to the 2012–2013 cycle. Results were collated by gender and student versus faculty status. To record their impressions of the impact of the IAT on the admissions process, members took a survey at the end of the cycle, which 100 (71%) completed.

Outcomes
All groups (men, women, students, faculty) displayed significant levels of implicit white preference; men (d = 0.697) and faculty (d = 0.820) had the largest bias measures (P < .001). Most survey respondents (67%) thought the IAT might be helpful in reducing unconscious racial bias in our admissions process.

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the OSUCOM admissions committee members. The results were coded only to gender and student versus faculty status. The committee members were assigned deidentified codes that were used only to verify that all members completed the IAT. All 140 committee members completed the black–white IAT in late spring or early summer 2012. Individual results were only visible to the test taker and only at the time of the IAT. In August 2012, the aggregate results were presented to the committee by an implicit bias expert (A.G.G.), who discussed strategies to combat or reduce unconscious biases.

Implicit preference measure
The black–white IAT has previously been described in detail.1 Briefly, test takers quickly pair facial images and positive (e.g., joy, love, peace) or negative (e.g., agony, horrible, pain) words as they appear on a computer screen by pressing either a right or left computer key. Participants are first instructed to assign black faces and positive words to one key and white faces and negative words to the other key; then the task is reversed. The differences in response times indicate the relative strengths of the associations. For example, short response latencies for the association of a white face with positive words and a black face with negative words and longer response latencies for the association of black faces with positive words and white faces with negative words would indicate implicit white preference.

Explicit preference measure
For the explicit measure portion of the IAT, test takers were asked, “What best describes you?” with regard to these statements: “I strongly/moderately/slightly prefer white Americans to African Americans,” “I like white Americans and African Americans equally,” and “I strongly/moderately/slightly prefer African Americans to white Americans.” Similar methodology is routinely incorporated into IATs.

Statistical analysis
To measure explicit preference, we coded test takers’ answers to the explicit measure to a seven-point, Likert-type scale ranging from −3 to +3, with positive values indicating an explicit preference for white Americans over black Americans, negative values indicating an explicit preference for black Americans over white Americans, and zero indicating no relative preference. We calculated an explicit measure mean effect size for each group of test takers by dividing the mean (where a positive explicit measure mean indicates an explicit preference for white Americans over black Americans and a negative explicit measure mean indicates an explicit preference for black Americans over white Americans) on the seven-point Likert-type scale by its standard deviation.

To measure implicit preference, the IAT effect is calculated using a standard scoring algorithm applied to the response latencies, known as the D score, based on differences in the mean response latencies to the IAT’s two different combination task conditions. Our results are reported in standard deviation units—specifically, the D score divided by its standard deviation. This is known as Cohen’s d, a standardized effect size measure that we calculated for each group of test takers. Cohen’s d is interpreted as 0.20 = small effect, 0.50 = medium effect, and 0.80 = large effect, corresponding to 46%, 58%, and 69%, respectively, of respondents having statistically nontrivial bias.6

We compared means for the implicit and explicit measures for each group of test takers to zero or trivial, nonsignificant bias.

Admissions committee survey
In May 2013 (following the 2012–2013 admissions cycle), we distributed the annual, anonymous admissions committee survey, with additional questions specific to the IAT exercise, to all 140 committee members to record their impressions of the impact of the IAT on the admissions process. One hundred committee members completed the survey (71% response rate).

Outcomes
Explicit and implicit preferences
Self-reported explicit white preference was trivial and not significantly different from zero for all groups of test takers (mean effect size: faculty = 0; males = 0.080; students = 0.087; females = 0.042) (Table 1).

All groups displayed significant levels of implicit white preference (d: faculty = 0.820, P < .001; males = 0.697, P < .001; students = 0.379, P = .003; females = 0.321, P = .01) (Table 1). These findings are similar in magnitude to a sample of voluntary test takers in the United States and a group of medical doctors.1,4

Several observations about our findings and the composition of our admissions committee are noteworthy. First, whereas all groups demonstrated significant levels of unconscious bias in favor of whites, the faculty and males had the largest bias measures. Second, implicit white preference was lowest among females, consistent with previous reports.7 Regarding our medical students, the magnitude of their implicit white preference is less than half that of our faculty (d = 0.379 vs. 0.820). Finally, it has been shown that African Americans, both physicians and nonphysicians, tend to have

<table>
<thead>
<tr>
<th>Committee member category</th>
<th>No. (%)</th>
<th>Explicit measure, mean effect size</th>
<th>P valueb</th>
<th>Implicit measure, Cohen’s d (95% CI)c</th>
<th>P valueb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>67 (48)</td>
<td>0.042</td>
<td>NS</td>
<td>0.321 (0.080–0.562)</td>
<td>.01</td>
</tr>
<tr>
<td>Males</td>
<td>73 (52)</td>
<td>0.080</td>
<td>NS</td>
<td>0.697 (0.463–0.931)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Medical students</td>
<td>97 (69)</td>
<td>0.087</td>
<td>NS</td>
<td>0.379 (0.176–0.582)</td>
<td>.003</td>
</tr>
<tr>
<td>Faculty</td>
<td>43 (31)</td>
<td>0</td>
<td>NS</td>
<td>0.820 (0.515–1.130)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Abbreviations: IAT indicates implicit association test; CI, confidence interval; NS, nonsignificant.

a Measure explicit preference, a seven-point, Likert-type scale was coded to range from −3 to +3, with positive values indicating an explicit preference for white Americans over black Americans, negative values indicating an explicit preference for black Americans over white Americans, and zero indicating no relative preference.

Mean effect size for each group was calculated by dividing the mean on the seven-point Likert-type scale by its standard deviation.

b The explicit and implicit measures for each group are compared with zero or trivial, nonsignificant bias.

c The explicit and implicit measures for each group of test takers are compared with zero or trivial, nonsignificant bias.
Underrepresented in Medicine (URM) Admissions Statistics From the 2011–2012 and 2012–2013 Admissions Cycles, Ohio State University College of Medicine (OSUCOM)

<table>
<thead>
<tr>
<th>Admissions cycle</th>
<th>URM applicants, no.</th>
<th>URMs interviewed, no. (%)</th>
<th>URMs offered acceptance, no. (%)</th>
<th>New URM matriculants, no.*</th>
<th>URM yield (matriculants/offers × 100), %</th>
<th>URMs in entering class, no. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011–2012</td>
<td>876</td>
<td>173 (20)</td>
<td>56 (32)</td>
<td>24</td>
<td>43</td>
<td>30/178 (17)</td>
</tr>
<tr>
<td>2012–2013</td>
<td>1,038</td>
<td>200 (19)</td>
<td>57 (23)</td>
<td>31</td>
<td>54</td>
<td>37/188 (20)</td>
</tr>
</tbody>
</table>

*URM students in the OSUCOM Medical Careers Pathway Post Baccalaureate Program (MEDPATH) program are not counted in the number of new URM matriculants but are counted in the number of URMs in the entering class. Absolute number of MEDPATH students (n = 6) did not change from the 2011–2012 to 2012–2013 admissions cycle.
The identification and elimination of unconscious racial bias in medical school admissions could ultimately help to reduce racial health care disparities, and we join others in calling for an examination of bias at all levels of academic medicine. Given the availability of a free, publicly available instrument to detect unconscious bias, we propose that all medical school admissions committee members be encouraged to take the IAT and review bias reduction strategies.

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Ethical approval: This study was ruled exempt for ethical approval by the Ohio State University institutional review board.

References

Appendix 1

5. My knowledge of my individual IAT results impacted my evaluation and disposition of medical school candidates.
   A. Strongly agree. (1%)
   B. Agree. (20%)
   C. Neutral. (42%)
   D. Disagree. (21%)
   E. Strongly disagree. (13%)
   F. N/A. (3%)

6. The IAT/implicit bias exercise prior to this admissions cycle likely led to a reduction of bias in the evaluation of candidates.
   A. Strongly agree. (4%)
   B. Agree. (38%)
   C. Neutral. (44%)
   D. Disagree. (9%)
   E. Strongly disagree. (5%)

7. The IAT/implicit bias exercise is a worthwhile activity for the admissions committee that should be repeated annually or biannually.
   A. Strongly agree. (21%)
   B. Agree. (43%)
   C. Neutral. (26%)
   D. Disagree. (5%)
   E. Strongly disagree. (4%)

8. The IAT/implicit bias exercise should be accompanied by a workshop on strategies to neutralize unconscious bias.
   A. Strongly agree. (18%)
   B. Agree. (42%)
   C. Neutral. (27%)
   D. Disagree. (8%)
   E. Strongly disagree. (5%)

Representative comments from open-ended survey question

The survey ended with an open-ended question: “Please provide any comments about the implicit bias exercise and IAT testing for the admissions committee, including suggestions on how to make it more effective.” The authors have divided all narrative responses to this question into the three most common themes that emerged: (1) comments indicating a belief that taking the IAT will reduce bias in the admissions process (41%), (2) comments indicating a belief that the IAT exercise is not helpful to the admissions process (34%), and (3) comments indicating concerns that the IAT exercise will encourage the admission of underqualified minority candidates (24%). Representative comments from each category are shown below:

1. Taking the IAT will reduce bias in the admissions process:
   “Made me more cognizant of my prejudices entering the interview season.”
   “It’s an important topic to review prior to an admission season and this is probably the best way to initiate and address the topic.”
   “It allows us to consciously be careful not to execute those underlying biases.”
   “Continue the process and need workshops to help get rid of bias in [the admissions] process.”
   “I have done similar exercises in the past and find them useful measures to assist in self-inventory.”

2. Taking the IAT exercise is not helpful to the admissions process:
   “I think it’s good to know your biases, but I don’t know how they play into my interview/deliberation decisions.”
   “… my IAT said I prefer blacks over whites, yet I feel it would be inappropriate for me to try to compensate for that.”
   “A good exercise in self-awareness and self-evaluation but I’m not sure it is useful in this setting. However, I am of a younger generation and cannot speak for faculty who were raised in a different culture or era.”
   “I don’t believe the results of this ‘test.’”
   “Looking at pictures and clicking buttons does not equal how one interacts with a human being. I am not convinced of any validity of this test.”

3. The IAT exercise will encourage the admission of underqualified minority candidates:
   “I thought it might cause people to overcompensate—for example, if I’m slightly biased against black people, I might look over deficiencies I would otherwise flag because I’m ‘trying’ not to be racist.”
   “I think this is a good exercise in self-awareness, but I think that it could also have the effect of causing folks to overcompensate in the other direction for their biases.”
   “It is more likely it creates bias in that it implicitly encourages admission of minority candidates rather than focusing on the content of their character.”

Abbreviations: IAT indicates implicit association test; OSUCOM, Ohio State University College of Medicine; N/A, not answered.