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Implicit Bias in Pediatric Academic Medicine

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Abstract

Objective—Despite known benefits of diversity, certain racial/ethnic groups remain underrepresented in academic pediatrics. Little research exists regarding unconscious racial attitudes among pediatric faculty responsible for decisions on workforce recruitment and retention

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in academia. This study sought to describe levels of unconscious racial bias and perceived barriers to minority recruitment and retention among academic pediatric faculty leaders.

Methods—Authors measured unconscious racial bias in a sample of pediatric faculty attending diversity workshops conducted at local and national meetings in 2015. A paper version of the validated Implicit Association Test (IAT) measured unconscious racial bias. Subjects also reported perceptions about minority recruitment and retention.

Results—Of 68 eligible subjects approached, 58 (85%) consented and completed the survey with IAT. Of participants, 83% had leadership roles and 93% were involved in recruitment. Participants had slight pro-white/anti-black bias on the IAT (M=0.28, SD=0.49). There were similar IAT scores among participants in leadership roles (M=0.33, SD=0.47) and involved in recruitment (M=0.28, SD=0.43). Results did not differ when comparing participants in local workshops to the national workshop (n=36, M=0.29, SD=0.40 and n=22, M=0.27, SD=0.49 respectively; p=0.88). Perceived barriers to minority recruitment and retention included lack of minority mentors, poor recruitment efforts, and lack of qualified candidates.

Conclusions—Unconscious pro-white/anti-black racial bias was identified in this sample of academic pediatric faculty and leaders. Further research is needed to examine how unconscious bias impacts decisions in academic pediatric workforce recruitment. Addressing unconscious bias and perceived barriers to minority recruitment and retention represent opportunities to improve diversity efforts.

Keywords

diversity; racial bias; implicit bias

1. Introduction

Workforce diversity is an important strategy to address racial and ethnic disparities in healthcare.[1–3] While evidence exists that minority physicians are more likely to work in underserved areas, serve largely minority populations, and improve the health outcomes of minority populations,[4,5] the benefits of diversity are understood to reach beyond these positive effects. Diversity adds value to every aspect of medicine including patient care, education, research and public policy.[6–8] Effective training of healthcare providers in the practice of culturally competent clinical care is best accomplished by creating an environment that resembles the diverse society that health care providers are called upon to serve. An environment enriched with diverse faculty provides the needed support for faculty and trainees at all levels in the form of role models, educators, and mentors.

In research, a more diverse workforce leads to greater diversity of medical investigations aimed at improving the health and delivery of healthcare services to populations of racial, ethnic, and cultural minorities.[9] Medically trained health care policymakers who accurately reflect the diversity of the American public can have a substantial influence on the future of healthcare policy for all Americans. Despite these known benefits of physician workforce diversity and research demonstrating the need for such diversity, enhancing the racial, ethnic, and cultural diversity of the healthcare workforce remains a significant challenge.[9–11]

The Implicit Association Test (IAT) is a validated tool that has been used extensively to examine unconscious racial attitudes. Previous research using the IAT has demonstrated that most healthcare providers hold implicit pro-white/anti-black racial bias.[12–23] What is less well-understood is the prevalence of implicit pro-white/anti-Black bias among a sub-set of health care providers, namely academic faculty and leaders who are in a position to influence decisions on recruitment and retention. Understanding levels of implicit bias among faculty in academic medicine may prove useful in developing strategies to increase workforce diversity.

The primary objective of this study was to describe levels of implicit racial bias among pediatric faculty involved in recruiting and retaining residents, fellows, and faculty at academic institutions. We hypothesized that implicit pro-white/anti-black racial bias exists among pediatric faculty involved in recruitment and retention. The secondary objective was to identify barriers, facilitators, and perceptions regarding the recruitment and retention of minorities in academic pediatrics from the perspective of those in leadership and recruitment roles. To achieve these objectives and to test our hypothesis, we performed a cross sectional survey of pediatric faculty from various academic institutions. The survey instrument included a paper version of the IAT and questions pertaining to faculty demographics, job descriptions, and perceptions of recruitment at academic institutions.

2. Methods

2.1 Study design and setting

The data for this analysis were collected as part of a series of workshops on the recruitment and retention of minorities in academic pediatrics in April, May, and September 2015. These workshops were conducted at a large academic children's hospital and at a national academic meeting. We excluded participants who were in residency or fellowship training programs. This study was determined exempt by the Children's Hospital of Philadelphia's Committees for the Protection of Human Subjects.

2.2 Methods and measurements

Our primary outcome was participant implicit racial bias, which was measured using a paper format of the IAT. The paper IAT is a timed categorization task that consists of two randomized blocks of trials. Each block has two columns of stimuli (e.g., "Black-Pleasant," "White-Unpleasant," Figure 1). For each block, participants were given 20 seconds to categorize names that would more stereotypically represent black or white names, with words that represent pleasant or unpleasant. The IAT measures the relative strength of association using the number of correct categorizations in one condition compared to the other. Participants who find it easier to associate white names with pleasant (and black with unpleasant) have an implicit pro-white/anti-black bias. The paper format of IAT with verbal stimuli has shown comparable patterns of pro-white/anti-black attitudes as the computerized IAT.[24,25] Both the paper and computerized instruments also have similar psychometric properties.[25]

Following completion of the paper IAT, participants were asked to report their demographic characteristics (ethnicity, race, gender, age, geographic region of the country), job description and work responsibilities (clinical practice setting; academic rank; specialty; percentage of work that is clinical, research, teaching, and service/administration/other; leadership roles; involvement in recruitment efforts) and perceptions about minority recruitment and retention at their institution.

2.3 Statistical analyses

We used descriptive statistics to summarize participant demographic characteristics, job description and work responsibilities, and perceptions about minority recruitment and retention at their institution. The IAT was scored using the product:square root of difference scoring procedure. Similar to the D algorithm used for the electronic IAT, this scoring method has shown the best performance in reducing the unwanted influence of individual response speed on IAT scores for analyzing paper IAT data that.[25] IATs scores were then grouped into standard categories, with values ranging from −0.15–0.15 indicating no racial bias; 0.16–0.35, slight pro-white bias; 0.36–0.65, moderate pro-white bias; and >0.65, strong pro-white bias.[26] Negative scores of similar magnitudes indicate pro-black bias.

We performed sub-analyses of IAT scores among participants who reported having leadership roles and involvement in recruitment at their institution and stratified analyses of IAT scores by demographic characteristics. To maintain confidentiality of participants' results, stratified analysis were not performed for any subgroup with less than 5 participants. We calculated Cohen's d to facilitate interpretation of the magnitude of implicit race bias. Cohen's d represented the magnitude of bias towards either race compared to zero bias. Cohen's d provides a standardized effect size, where d of 0.2 represents a small effect; d of 0.5 represents a medium effect; and d of 0.8 represents a large effect.[51] We used STATA version 11 (StataCorp, College Station, Texas) to perform our statistical analysis.

3. Results

A total of 77 participants attended the workshops. Three participants arrived to the workshop after survey was administered, and 6 were excluded due to being residents (n=2) or fellows (n=4). Of 68 eligible participants approached, 58 (85%) completed the entire survey and consented to have their data included in our analyses, 36 from the local workshop and 22 from the national workshop. Of the remaining, 5 did not consent to having their results published for research, 3 completed the survey but did not complete the IAT, and 2 were excluded from analysis for incorrectly completing the IAT.

3.1 Demographic characteristics of the Sample

Demographic characteristics of the sample are summarized in Table 1. Briefly, most participants were non-Hispanic white (34/58, 59%) or non-Hispanic black (15/58, 26%), female (29/58, 50%), and lived in the Northeast region (44/58, 76%). The median age of respondents was 50 years (range 31–69).

Most participants identified themselves as pediatric medical subspecialist (30/58, 52%) while 21 participants (36% of 58) were general pediatricians. The majority of participants

were ranked as full professors (25/58, 60%). Most reported having at least one leadership role (49/58, 85%) including residency program director (7/58, 12%), fellowship program director (12/58, 21%), medical director (9/58, 16%), division chief (14/58, 24%), department chair (6/58, 10%), or another leadership role (18/58, 31%). The majority reported involvement in recruitment efforts (54/58, 93%) at the medical school (16/58, 28%), residency (36/58, 62%), fellowship (38/58, 66%), and faculty level (35/58, 60%).

3.2 Implicit racial bias in the sample

On average, participants had slight implicit pro-white/anti-black bias on the IAT (M=0.28, SD=0.49, Cohen's d=0.57; Table 2). Although 28% of participants (16/58) had IAT scores that were categorized as no racial bias, most had unconscious pro-white bias with categories ranging from slight to strong bias (n=34, 59% of 58, Figure 2). There were similar levels of bias among participants in leadership roles (M=0.33, SD=0.47, Cohen's d=0.70) and involved in recruitment (M=0.28, SD=0.43, Cohen's d=0.65). Results did not differ when comparing participants in local workshops to the national workshop (n=36, M=0.29, SD=0.40 and n=22, M=0.27, SD=0.62 respectively; p=0.88). When stratified by race/ethnicity, we found that non-Hispanic whites had the strongest implicit pro-white/anti-black bias (M=0.32, SD=0.40, Cohen's d=0.80), while non-Hispanic blacks had the lower levels of bias (M=0.20, SD=0.69, Cohen's d=0.29).

When stratified by gender we found that men had had stronger implicit pro-white/anti-black bias than women (M=0.35, SD=0.41, Cohen's d=0.85, and M=0.25, SD=0.51, Cohen's d=0.49 respectively). Although these differences in mean IAT scores were not statistically significant due to small sample size, we do see differences across groups in the effect size as measured by Cohen's d. These results are summarized in Table 2.

3.3 Perceptions about minority recruitment

Nearly all participants reported that minorities were underrepresented in pediatrics at their institutions (57/58 participants, 98%), and most participants attributed this to the underrepresentation of minorities in pediatrics nationally (41/58 participants, 83%) and lack of minority mentors and role models at their institution (41/58 participants, 71%). Many participants also identified poor recruitment efforts (28/58 participants, 48%), lack of qualified candidates (25/58 participants, 43%), and inadequate resources to support retention (24/58 participants, 41%) as reasons for the underrepresentation of minorities at their institution. Only 7% of participants (4/58) identified discrimination at their institution as a reason for the underrepresentation of minorities. Barriers to successful minority physician recruitment are summarized in Table 3, with the most commonly identified barriers including lack of mentors and role models (50/58, 86%), lack of qualified candidates (29/58, 50%), inadequate financial resources to support recruitment (28/58, 48%), and poor recruitment efforts (26/58, 45%).

Most participants personally rated minority recruitment as very important or extremely important (43/58 participants, 74%). However, only half believed their institution found minority recruitment as very or extremely valuable (28/58 participants, 48%). Examples of minority recruitment efforts reported included diversity councils or committees, diversity

deans, electives with stipends targeting minority medical students, and pipeline programs at the undergraduate and medical school level. Of participants who rated the effectiveness of their institution's minority recruitment efforts, only one individual rated them as very effective, while the remaining participants rated them moderately (31/58, 53%), slightly (23/58, 39%), or not at all effective (3/58, 5%). Approximately half (30/58, 52%) believed the recruitment process at their institution was unbiased.

3.4 Perceptions about minority retention

Nearly half of the participants believed their institution had low retention of minority physicians (27/58, 47%). Barriers to successful minority physician retention are summarized in Table 3, with the most commonly identified barriers including limited access to high quality mentors and role models (22/58, 38%), and inadequate opportunities for career advancement (18/58, 31%).

4. Discussion

This is the first study to examine implicit racial attitudes among academic pediatric faculty in leadership and recruitment roles. In this sample of 58 participants we found that implicit pro-white racial bias is present among faculty and leaders. These findings are important because research in other settings has shown that implicit bias predicts behavior.[27,28] We found higher implicit pro-white/anti-black bias among Non-Hispanic white participants as well as male responders. Although these differences in mean IAT scores were not statistically significant due to small sample size, we do see differences across groups in the effect size as measured by Cohen's d. The white male demographic is historically more represented in leadership across disciplines, including pediatrics. Our findings suggest that the implicit biases of those in leadership may impact minority faculty recruitment, retention, and promotion.

Our findings of implicit racial bias in academic pediatrics are consistent with research demonstrating that racial bias is a pervasive issue in the general labor market.[29–31] A survey of law firms found that racial bias negatively influences the way that minority law students' achievements and aspirations are evaluated.[30] Minority candidates are also labeled as a flight or failure risk without justification.[30] In a study where investigators sent resumes in response to want ads, applicants with more stereotypical white names were 50% more likely to get a call back for interview compared to those with stereotypical black names.[31] Research directly measuring the impact of implicit racial bias on hiring discrimination found an association between implicit bias against Arab-muslin men (versus Swedish men) with a lower probability of calling job applicants with Arab-Muslim names.[28] However, research in the general labor market cannot be directly applied to pediatric academic medicine. We are the first to investigate bias among academic pediatric faculty in leadership and recruitment roles.

Prior research on implicit racial bias among physicians has focused on linking IAT scores with racial disparities in healthcare. For example, implicit bias in a sample of internal medicine and emergency medicine resident physicians from four academic medical centers was associated with disparities in treatment recommendations for adult patients presenting

with chest pain in clinical vignettes.[12] In a sample of pediatric faculty, fellows, and resident physicians from a single academic institution, higher implicit bias was associated with racial disparities in narcotic analgesic prescriptions for children with post-operative pain in clinical vignettes.[23] Implicit bias among primary care physicians in an urban community-based practice was associated with poor communication and poor ratings of care by black patients.[17,32] Higher implicit bias among primary care providers from a public institution, a nonprofit healthcare organizaiton, private medical practices, and federally qualified health centers was also associated with lower ratings of patient-centered care by black patients.[25] We expand prior knowledge about physician implicit bias that captured a wide range of levels of experience and healthcare settings by focusing on those in leadership and recruitment roles in academic pediatrics. This has implications for recruitment, retention, and diversity in academic pediatric medicine.

We identified perceived barriers regarding the recruitment and retention of minorities in academic pediatrics from the perspective of those in leadership and recruitment roles. Perceived recruitment barriers include lack of minority mentors and role models at their institution, poor recruitment efforts, lack of qualified candidates, and inadequate resources to support recruitment. Although 52% of participants believed that the recruitment process at their institution is unbiased, only 28% of participants had no racial bias on the IAT. These findings suggest the need to increase awareness about implicit bias in academic pediatrics. Commonly identified barriers to retention included limited access to high quality mentors and role models and inadequate opportunities for career advancement. Addressing implicit racial bias as well as these perceived barriers to recruitment and retention represents an opportunity to improve current efforts geared towards pediatric workforce diversity.

5. Limitations

Limitations should be taken into consideration when interpreting our findings. Attendance at the workshops where data was collected was voluntary, with self-selection of individuals who are interested in diversity issues. Therefore our results likely underestimate levels of implicit racial bias of those in leadership positions and involved in recruitment. Additionally, two black physician investigators administered the IAT. Previous research has demonstrated that positive black priming may result in lower IAT scores.[33] This would also result in underestimating levels of implicit racial bias in our sample. Although some of the data was collected in a national workshop, we have a relatively small sample size with participants predominantly from the northeast region of the country. This may limit the generalizability of our findings. Additional research should be conducted with a larger, more geographically diverse sample. Despite these limitations, strengths of our study include measuring implicit bias using the IAT, which is a validated instrument shown to be more reliable than self-report.

6. Implications

We provide new evidence that implicit racial bias exists among academic pediatricians involved in leadership and recruitment roles. The role of racial bias should be taken into consideration when addressing issues related to minority recruitment and retention. Pediatric

leaders and those involved in recruitment should be aware of implicit racial biases they may have against black candidates, students, trainees, and faculty members. Programs aimed at addressing recruitment and promotion in academic pediatrics should include implicit bias training. Future research should investigate implicit biases against other groups underrepresented in medicine, such as Hispanics, as well as further explore the role that implicit bias has in ranking medical trainees, hiring faculty members, and academic promotion.

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Black Pleasant		White Unpleasant
O	Melanie	O
O	love	O
O	Brandon	O
O	evil	O
O	Malik	O
O	terrific	O
O	Rachel	O
O	poison	O
O	Sharise	O
O	vomit	O
O	Lionel	O
O	joy	O
O	Lashelle	O
O	hatred	O
O	Amber	O
O	bad	O
O	Justin	O
O	good	O
O	Tanisha	O
O	happy	O

White Pleasant		Black Unpleasant
O	Malik	O
O	vomit	O
O	Melanie	O
O	love	O
O	Tanisha	O
O	good	O
O	Peter	O
O	bad	O
O	Lashelle	O
O	evil	O
O	Rachel	O
O	poison	O
O	Justin	O
O	hatred	O
O	Jamal	O
O	joy	O
O	Sharise	O
O	happy	O
O	Brandon	O
O	terrific	O

Figure 1.

Sample Blocks of Trials for the Paper Implicit Association Test

Participants were administered the paper Implicit Association Test (IAT), a timed categorization task that consists of two randomized blocks of trials. For each block, participants were given 20 seconds to categorize names that would more stereotypically represent black or white names, with words that represent pleasant or unpleasant. The paper IAT measures the relative strength of association using the number of correct categorizations in one condition compared to the other.

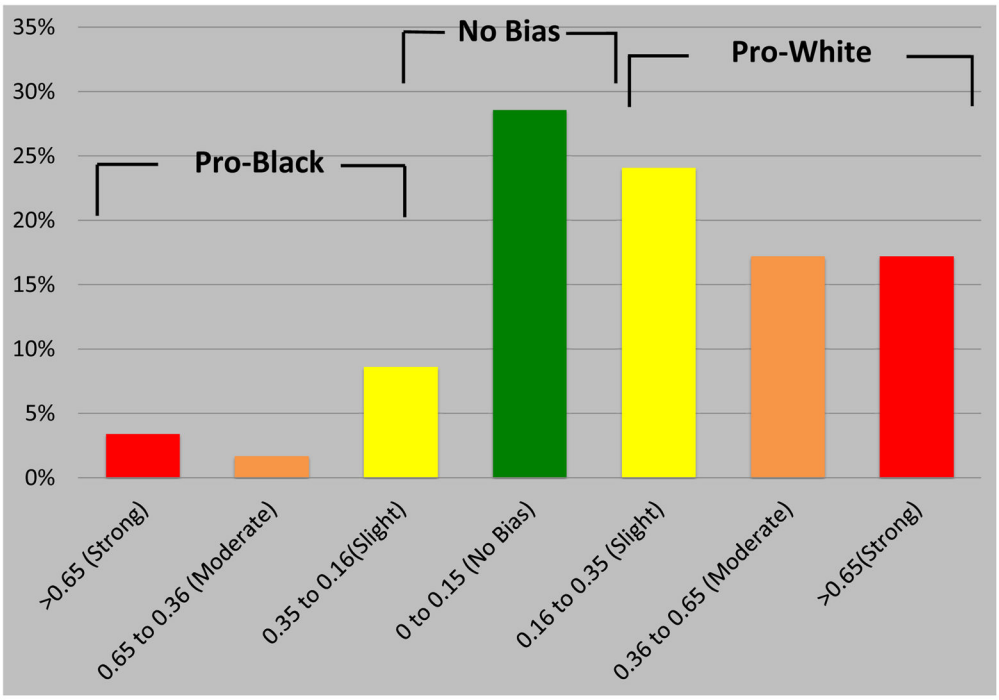

Figure 2.

Percentage of Participants with Categories of Implicit Racial Bias

Figure shows the percentage of participants with each category of bias on the Implicit Association Test.

Table 1

Participant Demographic Characteristics (n = 58)

Demographic Characteristics	
Race, N (%)	
Non-Hispanic White	34 (59)
Non-Hispanic Black	15 (26)
Hispanic	6 (10)
Mixed	2 (3)
Asian	1 (2)
Age, y, median (IQR)	50 (39–58)
Female gender, N (%)	29 (50)
Region of residence, N (%)	
Northeast	44 (76)
Midwest	1 (2)
South	5 (9)
West	8 (14)
Specialty, N (%)	
General Pediatrics	21 (36)
Pediatric medical subspecialty	30 (52)
Other	6 (10)
No response	1 (2)
Clinical Practice Setting, N (%)	
Clinic or office based practice	25 (43)
Hospital inpatient	24 (41)
Other	13 (22)
None (not clinical)	2 (4)
Academic Rank, N (%)	
Instructor	2 (3)
Assistant Professor	16 (28)
Associate Professor	10 (17)
Full Professor	25 (60)
Other	5 (9)
Leadership roles, N (%)[a]	49 (85)
Residency Program Director	7 (12)
Fellowship Program Director	12 (21)
Medical Director	9 (16)
Division Chief	14 (24)
Department Chair	6 (10)
Dean	1 (2)

Demographic Characteristics	
Other	18 (31)
Involvement in recruitment efforts, N (%)[a]	54 (93)
Medical School	16 (28)
Residency	36 (62)
Fellowship	38 (66)
Attending physicians	35 (60)
Other	8 (14)

[a]Due to participants having more than one leadership or recruitment role, percentage totals may be greater than 100%

Abbreviations: y, years; IQR, Inter-quartile range

Table 2

Implicit Racial Attitudes as Measured by the Paper Implicit Association Test[a]

	N	Mean	SD	P value[b]	Cohen's d[c]
All Participants	58	0.28	0.49	0.0001	0.57
Leadership Role	48	0.33	0.47	<0.0001	0.70
Recruitment Efforts	54	0.28	0.43	<0.0001	0.65
Workshop Attended					
Local	36	0.29	0.40	0.88	0.73
National	22	0.27	0.62		0.44
Race[d]					
White Non-Hispanic	34	0.32	0.40	0.45	0.80
Black Non-Hispanic	15	0.20	0.69		0.29
Gender					
Female	29	0.25	0.51	0.40	0.49
Male	28	0.35	0.41		0.85
Age					
≤40	16	0.37	0.52	0.24	0.71
41–55	21	0.16	0.51		0.31
>55	19	0.38	0.34		1.12

Abbreviations: SD, standard deviation

[a]Implicit Association Test interpretation: values ranging from −0.15–0.15 indicates no racial bias; 0.16–0.35, slight pro-white bias; 0.36–0.65, moderate pro-white bias; and >0.65, strong pro-white bias. Negative scores of similar magnitudes indicate implicit pro-black bias.

[b]The P values for the IAT scores for all clinicians, those in leadership role, and those involved in recruitment efforts compare the mean IAT scores to a score of zero using a 2-sided 1 sample t-test. Other P values are from t-tests or analysis of variance (if more than 2 groups) to compare mean scores across participant characteristics (attendance at local versus national workshop, race, gender, and age category).

[c]Cohen's d interpretations: d of 0.2 represents a small effect; d of 0.5 represents a medium effect; and d of 0.8 represents a large effect.

[d]Data from Hispanic and mixed race participants excluded from sub-analysis due to small sample size

Table 3

Barriers to Successful Recruitment and Retention of Minority Physicians

Barriers to successful recruitment minority physician:	**N (%)**
Lack of mentors/role models at my institution	50 (86)
Lack of qualified candidates applying to my institution	29 (50)
Inadequate financial resources to support recruitment efforts	28 (48)
Poor recruitment efforts	26 (45)
Location	13 (22)
Inadequate opportunities for career advancement	12 (21)
Excessive work load	14 (24)
Low salary compared to other institutions	12 (21)
Inadequate resources for research	8 (14)
Few benefits/perks compared to other institutions	8 (14)
Discrimination at my institution	4 (7)
Inadequate opportunities to use skills	2 (4)
Inadequate educational opportunities	1 (2)
Barriers to successful retention of minority physicians:	**N (%)**
Limited access to high quality mentors/role models	22 (38)
Inadequate opportunities for career advancement	18 (31)
Inadequate programs to enhance academic productivity	14 (24)
Inadequate research support	13 (22)
Workload	12 (21)
Location	9 (16)
Excessive service requirements	8 (14)
Inadequate educational opportunities	5 (9)
Discrimination at the institution	3 (5)
Inadequate opportunities to enhance clinical skills	3 (5)