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Effects of a Curriculum Addressing Racism on Pediatric Residents' Racial Biases and Empathy

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ABSTRACT

Background Racism is a longstanding driver of health inequities. Although medical education is a potential solution to address racism in health care, best practices remain unknown.

Objective We sought to evaluate the impact of participation in a curriculum addressing racism on pediatric residents' racial biases and empathy.

Methods A pre-post survey study was conducted in 2 urban, university-based, midsized pediatric residency programs between July 2019 and June 2020. The curriculum sessions included Self-Reflection on Implicit Bias, Historical Trauma, and Structural Racism. All sessions were paired with empathy and perspective-taking exercises and were conducted in small groups to facilitate reflective discussion. Wilcoxon signed rank tests were used to assess changes in racial bias and empathy. Linear regression was used to assess the effect of resident characteristics on racial bias and empathy.

Results Ninety of 111 residents receiving the curriculum completed pre-surveys (81.1%), and among those, 65 completed post-surveys (72.2%). Among participants with baseline pro-White bias, there was a statistically significant shift (0.46 to 0.36, $P=.02$) toward no preference. Among participants with a baseline pro-Black bias, there was a statistically significant shift (-0.38 to -0.21, $P=.02$), toward no preference. Among participants with baseline pro-White explicit bias, there was a statistically significant shift (0.54 to 0.30, $P<.001$) toward no preference. Among all residents, there was a modest but statistically significant decrease in mean empathy (22.95 to 22.42, $P=.03$).

Conclusions Participation in a longitudinal discussion-based curriculum addressing racism modestly reduced pediatric residents' racial preferences with minimal effects on empathy scales.

Introduction

Interpersonal racism, including physicians' racial biases, contributes to disparate care.[1] The Association of American Medical Colleges (AAMC) has therefore called for the development of education promoting racial equity,[2] and the Accreditation Council for Graduate Medical Education (ACGME) requires residents to demonstrate sensitivity to race.[3]

Educational approaches to address racial inequities have varied, with focuses on cultural competency,[4] cultural humility,[5] advocacy,[6] or health disparities.[7] While there has been a shift toward addressing racial biases,[8] few existing interventions directly address racism.[9] Such omission fails to recognize racism's societal impact and can reinforce biases that perpetuate racial inequities.[10] Additionally, recent findings highlight the role of empathy in mitigating the consequences of racial bias within health care.[11]

While empathy is often taught in medical education, the role of empathy within the context of racism curricula has not been investigated. Curricular evaluations have also focused predominantly on knowledge and satisfaction, rather than attitudes and skills, and often use evaluation tools with limited evidence.[12]

We aimed to address these gaps by evaluating the impact of a curriculum, explicitly focused on racism, on residents' racial biases and empathy.

Methods

Setting

This pre-post survey study was conducted between July 2019 and June 2020 at 2 urban, university-based, midsized pediatric residency programs. The curriculum was a mandatory component of existing rotations, but research participation was voluntary. Residents received the pre-curriculum survey 1 week before their rotations. Residents who completed the pre-survey were sent the post-survey after completing their rotations.

Curriculum Development

Using Kern's model,[13] the first author (M.J.) created the curriculum, which consists of 3 one-hour lectures, including Self-Reflection on Implicit Bias, Historical Trauma, and Structural Racism (provided as online supplementary data). Each lecture was supplemented with empathy and perspective-taking exercises. Facilitator guides were used to minimize site-to-site variation.

Curriculum Evaluation

The independent variable was curriculum exposure. The dependent variables were racial biases (implicit and explicit) and empathy (empathic concern and perspective-taking). Implicit bias was measured using the race Implicit Association Test (IAT), which assesses unconscious attitudes by measuring the speed with which an individual pairs positive or negative concepts with Black or White faces.[14] Explicit bias was assessed using a composite score of the race preference scale and feeling thermometer scale.[15,16] Empathy was measured by the Interpersonal Reactivity Index (IRI), a tool with validity evidence[18] that is used within medical settings[17] and education research.[19] Two of 4 subscales, empathic concern and perspective-taking, were selected given their relationship to bias mitigation.[11,20] Order of bias and empathy measures were randomized for each participant, and IAT results were revealed after survey completion.

We also collected sociodemographic data (age, sex, race/ethnicity, childhood household income, and geography based on US Census regions)[21] and training characteristics (institution, training level, residency program, intended career path, previous bias training, and burnout).[22]

Data Analysis

We performed descriptive analyses with analyses of variance to associate key covariates with dependent variables. We compared pre-post responses using Wilcoxon signed rank tests to assess the impact of the curriculum on racial bias and empathy. We then assessed associations between each dependent variable and key covariates selected based on prior research, followed by multivariable linear regression.

The institutional review boards at both sites approved this study.

Results

Of 111 residents who received the curriculum, 90 completed pre-surveys (81.1%) and 65 completed post-surveys (72.2%). The TABLE summarizes sample characteristics. There were no significant differences between those who completed both surveys and those who only completed the pre-survey.

FIGURES 1A and 1B display changes in bias following curriculum exposure. Participants with baseline pro-White implicit bias shifted (0.46 to 0.36, $P=.02$) toward no preference. Participants with a baseline pro-Black implicit bias shifted (-0.38 to -0.21, $P=.02$) toward no preference. Participants with baseline pro-White explicit bias shifted (0.54 to 0.30, $P<.001$) toward no preference. Among all residents, mean empathy decreased (22.95 to 22.42, $P=.03$).

Online supplementary data TABLE 1 shows associations between resident characteristics and dependent variables before curriculum exposure. Pre-curriculum implicit bias was associated with childhood household income. Pre-curriculum empathic concern was associated with sex. Pre-curriculum perspective-taking was associated with childhood household income and geography.

Online supplementary data TABLE 2 displays associations between resident characteristics and changes in bias and empathy. Significant associations were demonstrated with younger age, White race, growing up in the Northeast, and growing up in a household with an income >$150,000 per year.

Discussion

The shift from pro-White or pro-Black implicit bias toward no preference in our study adds to evidence demonstrating the effectiveness of curricular interventions on bias mitigation.[23,24] Only one other study within medical literature, to our knowledge, has used an objective measure (eg, IAT), rather than self-report measures,[25] but found no changes in bias.[22]

The shift demonstrated in explicit bias following the curriculum is unique and has not been previously reported.[23] This finding may be attributed to a change in the national climate amid COVID-19 racial disparities and widely publicized police violence against Black Americans, resulting in increased activity within movements such as Black Lives Matter, which has been shown to shift explicit biases.[26] However, these shifts in bias may also relate to the curriculum's emphasis on historical context and structural forces that sustain racism, thereby transferring attention from bias against patients to interrogation of the system.
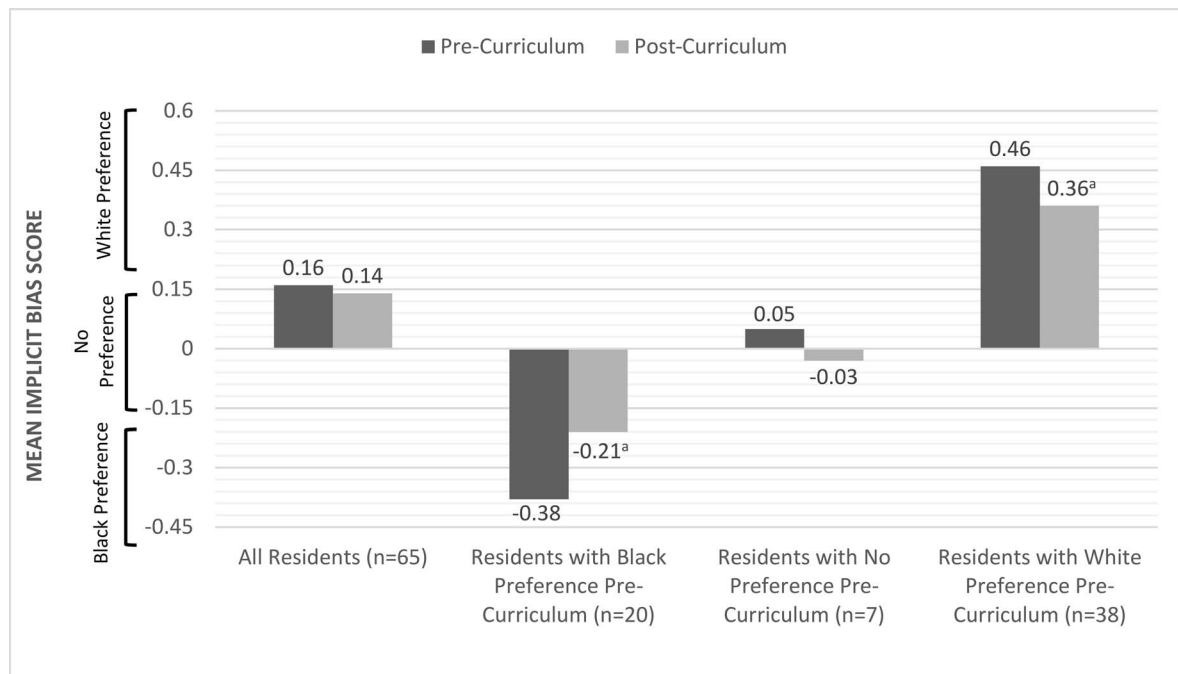
Next, although implicit and explicit bias decreased when examining the full sample, these findings were not statistically significant. This may be due to small sample size.[24] Additionally, our sample may have included "deniers" (ie, individuals who do not agree

TABLE

Characteristics of Residents Exposed to the Racism Curriculum

Sociodemographic Characteristics	Residents (n=65)	Johns Hopkins (n=36)	Cincinnati Children's (n=29)
Sex, n (%)			
Male	20 (30.8)	11 (30.6)	9 (31)
Female	45 (69.2)	25 (69.4)	20 (69)
Age, mean (SE)	27.9 (0.17)	28.1 (2.1)	27.6 (1.82)
Race/Ethnicity, n (%)			
Non-Hispanic White	48 (73.8)	27 (75)	21 (72.4)
Hispanic White	3 (4.6)	2 (5.5)	1 (3.4)
Non-Hispanic Black	3 (4.6)	1 (2.8)	2 (7)
Asian	11 (17)	6 (16.7)	5 (17.2)
Childhood household income, n (%)			
<$100,000	22 (33.8)	12 (33.3)	10 (34.5)
$100,000-$150,000	20 (30.8)	11 (30.6)	9 (31)
>$150,000	23 (35.4)	13 (36.1)	10 (34.5)
Region in which lived longest prior to college, n (%)			
West	9 (13.8)	15 (41.6)	13 (44.8)
Midwest	18 (27.7)	6 (16.7)	12 (41.4)
Northeast	10 (15.4)	9 (25)	1 (3.5)
South	28 (43.1)	6 (16.7)	3 (10.3)
Training Characteristics	**Residents**	**Johns Hopkins**	**Cincinnati Children's**
Training level, n (%)			
Intern	42 (64.6)	20 (55.6)	22 (76)
Senior resident	23 (35.4)	16 (44.4)	7 (24)
Residency program, n (%)			
Categorical pediatrics	45 (69.2)	26 (72.2)	19 (66)
Internal medicine and pediatrics	11 (16.9)	5 (13.9)	6 (10.5)
Other[a]	9 (13.8)	5 (13.9)	4 (14)
Intended career path, n (%)			
Primary care/hospital medicine	20 (30.8)	11 (30.6)	9 (31)
Subspecialty	45 (69.2)	25 (69.4)	20 (69)
Previous training in implicit bias, n (%)	50 (76.9)	24 (66.7)	26 (89.7)
Burnout,[b] mean (SE)			
Emotional exhaustion	24.37 (1.14)	25.50 (13.3)	22.97 (12.5)
Depersonalization	10.08 (0.67)	10.83 (8.1)	9.14 (6.9)
Baseline Bias Characteristics	**Residents**	**Johns Hopkins**	**Cincinnati Children's**
Baseline implicit bias, mean (SE)	0.16 (0.04)		
Black preference, n (%)	20 (30.8)	13 (36.1)	7 (24.1)
No preference, n (%)	7 (10.8)	4 (11.1)	3 (10.3)
White preference, n (%)	38 (58.4)	19 (52.8)	19 (65.6)
Baseline explicit bias, mean (SE)	0.06 (0.03)		
Black preference, n (%)	10 (15.4)	6 (16.7)	4 (13.8)
No preference, n (%)	41 (63.1)	25 (69.4)	16 (55.2)
White preference, n (%)	14 (21.5)	5 (13.9)	9 (31)

[a] "Other" includes additional subspecialty resident tracks such as pediatric neurology, pediatric genetics, pediatric psychiatry, etc.

[b] Burnout was measured in the pre-survey only using the adapted 2-item Maslach Burnout inventory (emotional exhaustion and depersonalization). Emotional exhaustion is categorized as high (27-54), average (19-26), or low (0-18). Depersonalization is categorized as high (10-30), average (6-9), or low (0-5).

that biases impact care),[27] who are more challenging to teach about racial biases.[28]

While the findings regarding shifting biases are promising, the decrease in empathic concern was unexpected. While empathy can facilitate positive inter-group relations, empathy promotion among those with bias may activate stereotypes rather than minimize them.[29] Additionally, empathy may worsen with burnout.[30] Although burnout may have been a relevant confounder, we did not collect post-survey data on burnout, precluding our ability to assess this relationship. These results should, however, also be interpreted with caution given the small magnitude of change between the values—as statistical significance does not always translate to clinical significance.

Lastly, our findings show specific resident characteristics were significantly associated with changes in bias and empathy. Younger residents showed decreases in implicit bias and increases in empathy. Older age is not only associated with implicit bias, which may be due to diminished ability to suppress automatic associations,[31] but also lower levels of empathy.[32] This suggests the importance of education early in training. Growing up in a low-income household was associated with decreases in implicit bias. This contrasts with research demonstrating a relationship between individuals with lower income and higher levels of explicit racial bias, but not with implicit

bias.[33] Residents from low-income households may have formed a sense of shared identity through feeling "othered" by the dominant group, a bias mitigating strategy.[28] White race was associated with increases in explicit bias, consistent with prior literature.[34] Perhaps the curriculum increased White residents' awareness of their biases and reporting of their explicit biases in post-surveys, a mechanism which should be further explored. Residents who grew up in the Northeast had decreases in their perspective-taking. Although regional differences in bias have been shown,[35] less is known about regional differences in empathy.

Our study was not without limitations. First, measures used to evaluate explicit bias and empathy are subject to social desirability. However, comparisons of observer ratings on the IRI to self-report are strongly correlated.[36] Second, the test-retest reliability of the IAT is moderate.[37] Although we employed a pre-post design similar to prior educational research,[38] and compared group IAT scores as opposed to individual scores,[39] future research may consider using experimental designs or averaging multiple scores for each individual before determining pre-post differences across groups.[37] Lastly, while there is limited information regarding the relationship between degree of change in bias or empathy and clinical outcomes, such as provider communication,
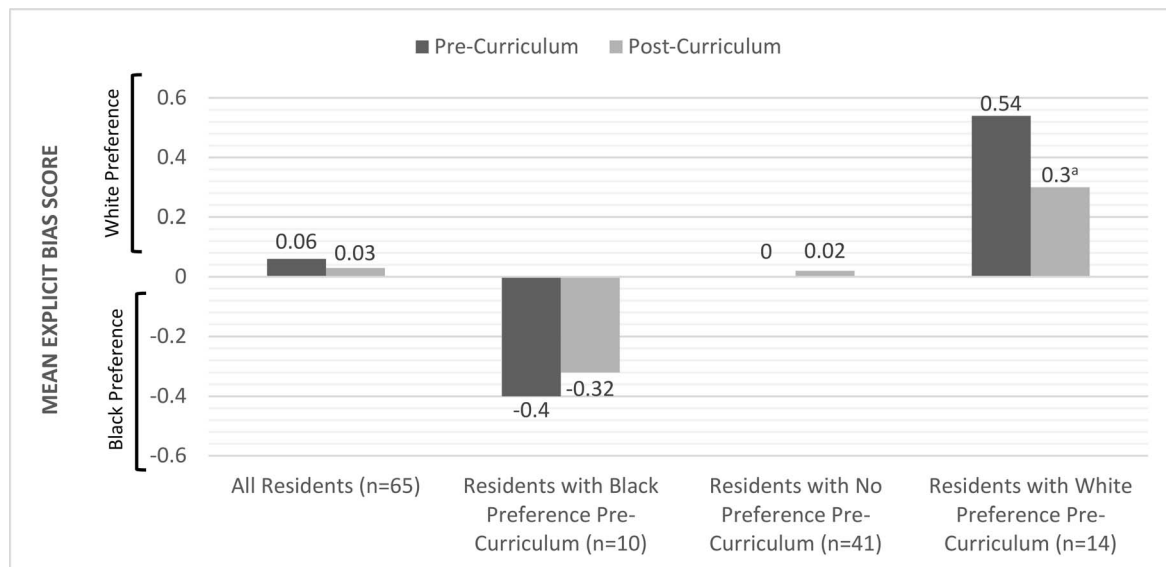
Change in Explicit Bias Following Curriculum

Note: Possible explicit bias scores range from -2 to +2 with negative scores indicating pro-Black bias, 0 indicating no preference, and positive scores indicating pro-White bias.

[a] Denotes $P<.01$.

patient satisfaction, and medical errors,[17,40,41] it is unknown whether the changes demonstrated in our study would lead to behavior change. Direct observation through simulation or patient encounters will be important next steps. Qualitative methods may also provide deeper context[42] and can be utilized in future evaluations.

Conclusions

Overall, our study demonstrates that resident participation in a longitudinal discussion-based curriculum addressing racism modestly reduced pediatric residents' racial preferences with minimal effects on empathy scales.

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