The Role of Bias by Emergency Department Providers in Care for American Indian Children

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Background: American Indian children have high rates of emergency department (ED) use and face potential discrimination in health care settings.

Objective: Our goal was to assess both implicit and explicit racial bias and examine their relationship with clinical care.

Research Design: We performed a cross-sectional survey of care providers at 5 hospitals in the Upper Midwest. Questions included American Indian stereotypes (explicit attitudes), clinical vignettes, and the Implicit Association Test. Two Implicit Association Tests were created to assess implicit bias toward the child or the parent/caregiver. Differences were assessed using linear and logistic regression models with a random effect for study site.

Results: A total of 154 care providers completed the survey. Agreement with negative American Indian stereotypes was 22%–32%. Overall, 84% of providers had an implicit preference for non-Hispanic white adults or children. Older providers (50 y and above) had lower implicit bias than those middle aged (30–49 y) ($P = 0.01$). American Indian children were seen as increasingly challenging ($P = 0.04$) and parents/caregivers less compliant ($P = 0.002$) as the proportion of American Indian children seen in the ED increased. Responses to the vignettes were not related to implicit or explicit bias.

Conclusions: The majority of ED care providers had an implicit preference for non-Hispanic white children or adults compared with those who were American Indian. Provider agreement with negative American Indian stereotypes differed by practice and respondents' characteristics. These findings require additional study to determine how these implicit and explicit biases influence health care or outcomes disparities.

Key Words: American Indian health, bias, emergency medicine, pediatrics

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Care for children in the emergency department (ED) should be high quality and free from differential treatment based on race and ethnicity. However, given the unique, time-stressed environment of EDs, providers may have increased reliance on classification and cognitive shortcuts leading to greater use of stereotypes.[1–3] In addition, given their "safety-net" role, EDs are often used for nonurgent reasons.[4–6] Utilization by parents for concerns that are perceived as nonurgent may reduce empathy toward disadvantaged groups.[7–10] This environment could play a role in increasing bias against racial and ethnic minority children and their caregivers through subtle, nonverbal cues, bias in triage assignment and differences in clinical care provided throughout the visit.[11]

Many factors affect health care use and access by American Indian children, including low insurance rates, lack of access to quality primary care, and higher prevalence of diabetes, asthma, mental health issues, and injuries.[12–16] American Indian children often rely on the ED to access necessary medical care instead of a medical home.[13,14,17] In addition, many American Indian parents perceive that they are discriminated against when they seek care at the ED or elsewhere. In 1 study, American Indian parents were 25 times more likely to perceive racial discrimination in health care for their child compared with non-Hispanic white parents and often felt that providers did not understand their culture or respect their religious beliefs.[18] Other research suggests differences in ED treatment and outcomes for American Indian children, but no studies have fully explained the reasons for these differences.[19,20]

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The theoretical framework for this study is based in intergroup relations and bias. Intergroup bias is usually seen as a mild form of in-group favoritism sometimes including out-group derogation.[21] This type of bias can either be explicit (eg, stereotypes, blatant prejudice) or implicit (eg, unintentional or unconscious bias).[21] Major et al[22] suggest that both implicit and explicit bias influence the quality of health care interactions and can contribute to health disparities. Previous studies have found high levels of implicit bias with a preference for non-Hispanic whites in physicians and medical students, but low levels of explicit bias.[23–31] Although differences in clinical care and decision making could arise based solely on implicit attitudes,[23,24,27,29] not all studies have consistently found this association.[25,26,31,32] This inconsistency could be based on population differences, clinical measurements, or type of provider studied. Even without differences in treatments or outcomes, implicit or explicit bias may degrade the patient's or family's perception of clinical care during ED encounters.

This study explored implicit and explicit bias against American Indian children and their parents/caregivers. Tests were created to determine whether implicit bias was associated with the child or the parent/caregiver accompanying the child to the ED. We hypothesized that (1) we would observe high levels of implicit preference for non-Hispanic white adults and low levels of explicit bias against American Indian children and parents/caregivers; (2) levels of implicit bias against American Indian adults would be higher than levels of implicit bias against American Indian children; (3) levels of implicit and explicit bias would be lower for nurses and among those with greater familiarity with American Indian children; and (4) that implicit and explicit bias would be related to the child's race and responses on clinical vignettes including increased agreement with biased treatment options for non-Hispanic white children.

METHODS

Study Sites

Five EDs were included in this study. Two were in large cities (population $\geq$250,000), 1 was in a mid-sized city (population $\geq$150,000), and 2 were in rural towns (population <20,000). Urban sites primarily served American Indians living in those cities while rural sites primarily served American Indians living on nearby reservations. The American Indian population ranged from 2.6% to 3.5% for urban sites and from 16.3% to 19.0% for rural sites.[33] The percent of pediatric ED visits by American Indian children ranged from 33.1% to 68.0% at rural sites and 2.3% to 8.7% at urban sites based on data for visits between June 2011 and May 2012.

Differences by study site were assessed by hospital characteristics including rural/urban location and the percentage of American Indian children seen on a typical shift at the ED.

Survey Development

We developed and administered a survey to a cross-sectional sample of physicians, nurses, and advanced practice providers at 5 EDs in the Upper Midwest. The study was approved by the relevant institutional review boards for each ED. Providers were recruited through e-mail and posters. Each potential participant received 1 initial e-mail and 3 weekly follow-up e-mails. Survey responses were anonymous with no individual identifiers collected.

The survey included demographic and practice information, explicit bias questions, case vignettes, and implicit bias measures in that order. The survey was piloted at a site that did not participate in the final survey.

Implicit Bias Measures

The Implicit Association Test (IAT) is an established measure of implicit bias with good internal consistency and test-retest reliability.[34] Predictive validity of the IAT was found to be good in a meta-analysis of 103 studies with the IAT predicting prejudicial bias and stereotyping behaviors more accurately than self-report.[34] The IAT measures implicit bias through response time in categorizing pictures of those of various races with value concepts (eg, good/bad). Scoring depends on differences in response times, not the choice of a positive or negative value concept.[35] For example, a faster response grouping American Indian pictures with positive values compared with grouping non-Hispanic whites with such values would suggest a preference for American Indian individuals.

We created new versions of the race IAT[36] using pictures of adults and children from American Indians from the Northern Plains and from non-Hispanic whites through a partnership with Project Implicit (a nonprofit organization created by the original developers of the IAT, Boston, MA). Pictures were taken of American Indian and non-Hispanic white adults and children living in the study area. For children's pictures, photographs were age, sex, lighting, and background-matched. Children were between 4 and 8 years old. Adult photographs included those aged 30–45 years and were similarly matched between American Indian and non-Hispanic white subjects. Parents and adults signed a picture release form for use of the photographs for the research project. To ensure validity, staff at Project Implicit guided the development and assessed all pictures for consistency between groups. We piloted the 2 IATs at a separate ED. Based on this testing, survey participants were randomly assigned to either the adult or child IAT to shorten the length of the test. Pictures were used in conjunction with words categorized as "good" (joy, love, wonderful, pleasant, laughter, happy) and "bad" (terrible, nasty, evil, awful, agony, hurt) (see Figs. S1 and S2, Supplemental Digital Content 1, http://links.lww.com/MLR/B153, which provide the IAT introduction screens).[36]

Continuous IAT scores range from -2 to 2. These scores are standardized and controlled for respondents' average response speed.[35] Scores near 0 (between -0.15 and 0.15) indicate no preference. Increasingly negative or positive scores indicate increasing strength of preference. For our IATs, negative values indicated a preference for American Indian individuals and positive values indicated a preference for non-Hispanic white individuals. Values between 0.16 and 0.35 or -0.16 and -0.35 suggest slight

preference, between 0.36 and 0.65 or −0.36 and −0.65 suggest moderate preference, and values >0.65 or <−0.65 suggest a strong preference.[35]

Explicit Bias Measures

Three statements were used to identify explicit bias by rating the respondents' agreement with common stereotypes of American Indian children and their caregivers. The 3 statements were: (1) treating American Indian children often is more challenging than treating white children in the ED; (2) American Indian children seem to present at the ED with less urgent complaints than white children; and (3) the parents/caregivers of American Indian children often are less compliant than parents/caregivers of white children. A 5-point Likert scale was used to measure agreement from strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree.

Case Vignettes

Four clinical vignettes were developed; modeled after the vignettes used in Sabin et al.[32] We focused on 2 areas in pediatric emergency medicine: asthma care and pain management. Two vignettes were created for each area and, for each vignette, 2 treatment/management options were presented. Both options represented appropriate care; however, 1 option provided an approach that may be related to bias (eg, choice of opioid analgesic vs. ibuprofen and acetaminophen). Agreement with the options was based on a 5-item scale (1, I strongly disagree. This is clearly the wrong treatment/management option; 2, I disagree. This is the wrong treatment/management option; 3, I neither agree nor disagree with this treatment/management option; 4, I agree. This is a good treatment/management option; 5, I strongly agree. This is clearly a good treatment/management option). Race was randomly assigned for each vignette with each respondent receiving 2 vignettes describing American Indian children and 2 describing non-Hispanic white children. Separate vignettes were designed for physicians/advanced practice providers and nurses to reflect differences in clinical decision making (see Table S1, Supplemental Digital Content 2, http://links.lww.com/MLR/B154, which provides the vignettes).

Statistical Analysis

Descriptive statistics were calculated as mean and SD for continuous variables and frequency and percent for categorical variables. Differences in demographic variables for those with valid IAT scores were compared with those without valid scores using a χ^2 test. To test differences in the IAT score based on demographic variables, type of IAT, provider type, explicit bias, and practice characteristics, we used a linear mixed-effects regression model with a random effect for the study location. Differences in explicit bias were similarly assessed using mixed-effects logistic regression models with a dichotomized version of our explicit bias questions (agree vs. disagree or neither).

Vignettes were analyzed by contrasting a more biased and less biased approach. Responses from both options were combined for each vignette, and models included a random subject effect. The 5-level categorical responses were treated as continuous and used in a linear mixed-effects regression model. The model included race of the child in the vignette, type of recommendation (ie, more biased or not), and their interaction. An interactive effect between implicit or explicit bias and race was also examined.

RESULTS

The survey was sent to e-mail addresses of 402 ED providers. The overall response rate was 38.3%. The sample matched the population of providers in the ED at the time of the survey well in terms of demographic characteristics (Table 1). Valid IAT scores (complete IAT and error rate <0.3) were obtained for 101 surveys. Demographic factors did not differ between those who started the survey and those with valid IAT scores, except that fewer nurses and other care providers completed the survey compared with physicians/advanced practice providers ($P = 0.01$). Demographic information for the respondents is presented in Table 1. The

TABLE 1. Comparison Between the Population and Survey Respondents

			n (%)*	
Variables	Category	Population (%)†	Overall (N = 154)	With Valid IAT (N = 101)
Role in ED	Physician/ APP	32.9	48 (31)	38 (38)
	Nurse/ other	67.1	106 (69)	63 (62)
Years in practice‡	<6		43 (30)	26 (28)
	6–10		31 (22)	19 (20)
	>10		68 (48)	48 (52)
	Missing		12	9
Race	White	93.8	134 (95)	86 (93)
	Other	6.3	7 (5)	6 (7)
	Missing		12	9
Ethnicity	Non-Hispanic	98.7	138 (98)	91 (99)
	Hispanic	1.3	3 (2)	1 (1)
	Missing		12	9
Sex	Female	73.0	108 (76)	70 (76)
	Male	27.0	34 (24)	22 (24)
	Missing		12	9
Age (y)	<30	14.8	24 (17)	11 (12)
	30–49	59.8	82 (59)	58 (63)
	≥50	25.4	34 (24)	23 (25)
	Missing		12	9
Location	Rural	20.1	26 (17)	15 (15)
	Urban	79.9	128 (83)	86 (85)
% of American Indian children on a typical shift	0–10	54.7§	84 (58)	57 (57)
	11–25	24.6§	30 (21)	23 (23)
	>25	20.7§	31 (21)	20 (20)

*No demographic information apart from role in the ED was collected from 1 site due to small numbers of providers (n = 11 overall and n = 9 with a valid IAT).
†Population refers to providers used in the EDs at the time of the survey.
‡No population data available.
§On the basis of overall proportion of American Indian children seen in the EDs.
APP indicates advanced practice provider; ED, emergency department; IAT, Implicit Association Test.

sample was racially homogeneous with over 90% of respondents identifying as white and non-Hispanic. Over half of the respondents were nurses (62%) and over three fourth of the sample was female (76.1%).

Implicit Bias

We found a high level of implicit preference for non-Hispanic white individuals, with 84% of those surveyed indicating some implicit preference for non-Hispanic whites [average IAT score = 0.54; 95% confidence interval (CI) = 0.47, 0.62]. Contrary to our hypothesis, we did not find a reduction in implicit bias using the child IAT compared with the adult IAT (mean difference = −0.12; 95% CI = −0.27, 0.03; $P = 0.12$) (Fig. 1). In fact, the mean IAT score for the child IAT was higher than for the adult IAT (Table 2).

On the basis of the similarity in responses, we combined results for the child IAT and adult IAT as a measure of implicit bias. IAT scores were not statistically different based on any demographic variables with the exception of age (Table 2). Those over the age of 50 years had a significantly lower IAT score than those middle aged (30–49 y) (mean difference = 0.25; 95% CI = 0.06, 0.42; $P = 0.01$). IAT scores were not statistically different by provider type, ED location (rural/urban), or percentage of children who are American Indian seen during a typical shift (Table 2).

Explicit Bias

Agreement with explicit bias questions ranged from 22% to 32% with 145 complete responses (Table 3). American Indian children were seen as increasingly challenging and parents/caregivers less compliant as the proportion of American Indian children seen during a typical shift increased ($P = 0.04$ and 0.02, respectively). Results were similar when limited to those with a valid IAT. Those with more years in practice had lower agreement with statements about American Indian children being more challenging and having less urgent complaints ($P = 0.01$). IAT scores were not a significant predictor of agreement with explicit bias questions.

Vignette Response

There was little difference in responses to vignettes based on race of the child described (Table 4). The only statistically significant difference was for nurses who were more likely to agree with what we considered to be the more biased recommendation to provide a work note to a mother of an asthmatic child presenting with a cough for a child described as American Indian. For a child described as non-Hispanic white, nurses were more likely to agree with the less biased recommendation to decline a work note and refer the mother to follow-up with the child's primary care provider ($P = 0.03$). Neither IAT scores nor agreement with explicit bias questions were a significant predictor of vignette response based on the child's race.

DISCUSSION

We found a high level of implicit bias favoring non-Hispanic whites among ED providers and relatively high levels of explicit bias compared with other studies.[23,24,26,29–32]

Contrary to our hypotheses, implicit bias was similar against both American Indian children and American Indian adults. Although no differences were detected between type

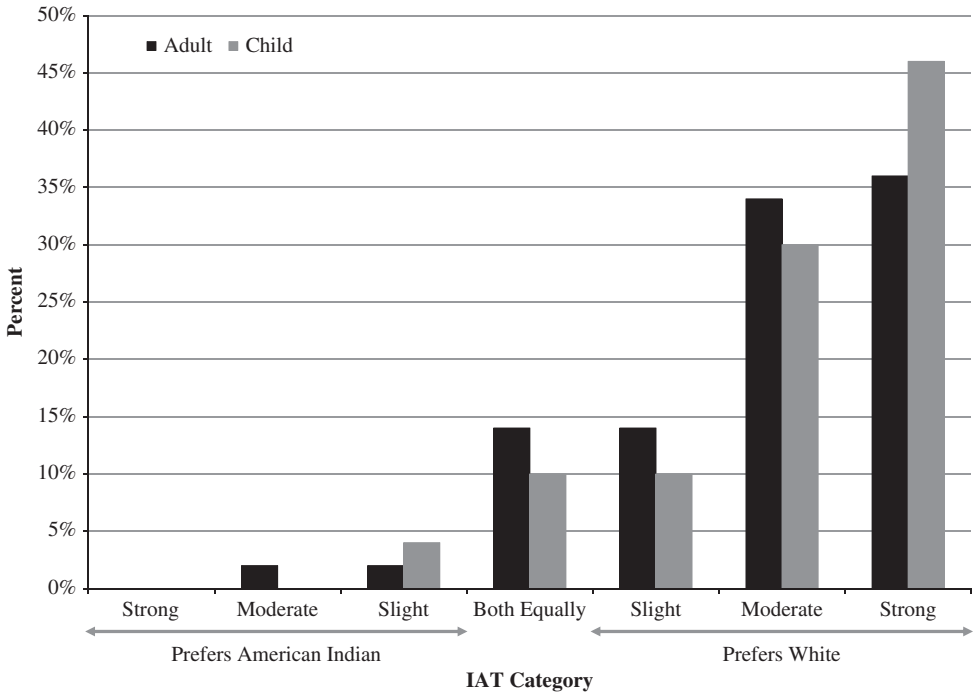

FIGURE 1. Categorized responses to the Implicit Association Test (IAT) by type: adult, IAT with pictures of adults; child, IAT with pictures of children.

TABLE 2. Associations Between Demographic Variables and the IAT Score

Variables	Category	N (101 Total)	IAT Score Mean	95% CI	*P**
Role in ED	Physician/APP	38	0.56	0.45, 0.68	0.73
	Nurse/other	63	0.53	0.43, 0.64	
Years in practice	<6	26	0.60	0.48, 0.72	0.25
	6–10	19	0.57	0.39, 0.74	
	>10	48	0.52	0.39, 0.64	
	Missing	9			
Race	White	86	0.56	0.48, 0.64	0.41
	Other	6	0.43	−0.25, 1.10	
	Missing	9			
Ethnicity	Non-Hispanic	91	0.55	0.47, 0.63	NA
	Hispanic	1	NA	NA	
	Missing	9			
Sex	Female	70	0.55	0.46, 0.64	0.94
	Male	22	0.55	0.36, 0.73	
	Missing	9			
Age (y)	<30	11	0.59	0.37, 0.81	0.04
	30–49	58	0.62	0.52, 0.71	
	≥50	23	0.37	0.20, 0.55	
	Missing	9			
Location	Rural	15	0.48	0.32, 0.63	0.47
	Urban	86	0.56	0.47, 0.64	
IAT type	Adult	51	0.49	0.39, 0.59	0.12
	Child	50	0.60	0.49, 0.72	
% of American Indian children on a typical shift	0–5	35	0.52	0.37, 0.67	0.90
	6–10	22	0.57	0.39, 0.74	
	11–25	23	0.57	0.40, 0.73	
	>25	20	0.53	0.40, 0.66	

*P-value for unadjusted models, similar results were obtained for models adjusted for all other demographic variables (data not shown).
APP indicates Advanced Practice Provider; CI, confidence interval; ED, emergency department; IAT, Implicit Association Test; NA, not available.

of care provider or rural/urban location, we did find differences in explicit bias based on the proportion of American Indian children seen during a typical ED shift. Little difference was seen in the agreement with responses in the vignettes based on the race of the child described. In fact, the only significant difference we found in the vignettes was an increased agreement with 1 response for American Indian children by nurses. Implicit bias seemed to be more common than explicit bias.

We found higher levels of implicit bias in our study than other studies using the race IAT in medical care providers or medical students.[23,24,26,29–32] Other studies have used different measures of explicit bias so our results are difficult to compare. However, Sabin et al[32] found that 45% of pediatricians perceived African Americans to be more likely to be more compliant compared with non-Hispanic whites, which is in stark contrast to our findings. Lower levels of implicit bias were seen in older providers in our data, which is also different than some studies,[32,37] yet consistent with others.[23,26] Interestingly, we also found that those with longer years of service had lower agreement with 2 of 3 explicit bias questions. This is different than the positive association found by Sabin et al.[32] Overall, it may be that, in ED care providers, older individuals with greater clinical experience have lower levels of bias. Additional exploration of the effect of age on bias is needed.

Although we expected to see lower levels of implicit bias for the child IAT, we saw levels of bias that were similar to the adult IAT. Although we would like to believe that health professionals generally find racial bias unacceptable and deny being biased when caring for children of different races, studies suggest differential care of children by race.[38,39] Thus our finding of little difference in implicit bias when viewing pictures of children or adults may not be so surprising.

Increasing proportion of visits involving American Indian children was associated with higher agreement with explicit bias questions. Some studies suggest that increasing intergroup contact reduces bias. However, this reduction may be tempered by the equality of the groups involved.[40] In our sites, high poverty and low numbers of American Indian providers suggest possible inequality. This trend, only present for explicit bias, may also relate more to true perceptions of care for American Indian children rather than representing broad stereotypes.

Although 1 study found an association between race, implicit bias, and treatment recommendations,[29] similar to many other studies, we did not find an association between explicit bias or clinical vignettes and implicit bias.[25,26,32] Some research has suggested that explicit and implicit biases are conceptually different constructs and might not be associated.[34] Implicit bias may be more likely to influence subtle cues and patient perceptions of care rather than actual care. For example, Cooper et al[23] found an association between physician IAT score with negative perceptions of their physician by African American patients. Even in cases when clinical care is equivalent, implicit bias could alter the in-

TABLE 3. Associations Between Demographic Variables and Agreement With Explicit Bias Questions

		More Challenging (N = 145)			Less Urgent (N = 145)			Less Compliant (N = 145)		
Variables	**Category**	**N (%) Agree**	**Odds Ratio†**	**95% CI**	**N (%) Agree**	**Odds Ratio†**	**95% CI**	**N (%) Agree**	**Odds Ratio†**	**95% CI**
Overall		33 (22)			38 (33)			48 (33)		
Role in ED	Physician or APP	9 (19)	1.0		13 (27)	1.0		9 (19)	1.0	
	Nurse or other	24 (24)	1.4	0.5, 3.8	35 (35)	1.2	0.5, 2.7	39 (39)	1.8	0.7, 4.4
Years in practice	<6	14 (33)	6.4**	1.8, 22.4	18 (42)	3.5**	1.4, 8.7	16 (37)	1.6	0.6, 4.0
	6–10	8 (28)	5.6**	1.5, 21.2	11 (38)	3.0*	1.1, 8.2	10 (34)	1.6	0.6, 4.4
	>10	4 (6)	1.0		11 (17)	1.0		15 (23)	1.0	
Race	White	24 (19)	1.0		38 (29)	1.0		38 (29)	1.0	
	Other	2 (29)	3.8	0.6, 23.2	2 (29)	1.1	0.3, 6.1	2 (29)	1.9	0.3, 10.9
Sex	Female	24 (23)	1.0		32 (31)	1.0		33 (32)	1.0	
	Male	2 (6)	0.2	0.05, 1.1	8 (24)	0.7	0.3, 1.8	7 (21)	0.7	0.3, 1.8
Age (y)	<30	8 (33)	2.3	0.5, 10.0	11 (46)	4.6*	1.3, 16.1	11 (46)	2.2	0.6, 8.2
	30–49	13 (16)	1.3	0.4, 4.6	23 (29)	2.2	0.8, 6.5	21 (27)	1.3	0.5, 3.8
	≥50	4 (13)	1.0		5 (16)	1.0		7 (22)	1.0	
Location	Rural	11 (46)	3.7	0.5, 29.5	12 (50)	2.4	0.5, 11.7	14 (58)	3.3	0.6, 19.2
	Urban	22 (18)	1.0		36 (29)	1.0		34 (27)	1.0	
% of American Indian children on a typical shift	0–5	5 (10)	0.2*	0.1, 0.9	11 (22)	0.3*	0.1, 0.9	7 (14)	0.1**	0.03, 0.4
	6–10	4 (12)	0.3	0.1, 1.2	11 (32)	0.6	0.2, 1.7	9 (26)	0.2*	0.1, 0.8
	11–25	10 (33)	0.9	0.3, 2.8	10 (33)	0.5	0.2, 1.5	11 (37)	0.3*	0.1, 1.0
	More than 25	14 (45)	1.0		16 (52)	1.0		21 (68)	1.0	

†Odds ratios and 95% CIs based on an unadjusted logistic regression model with a random site effect. Similar results were obtained for models adjusted for other demographic variables (data not shown).

APP indicates advanced practice provider; CI, confidence interval; ED, emergency department.

*$P<0.05$.

**$P<0.01$.

teraction with patients. Another explanation for our finding is that providers may be less truthful in answering explicit bias questions and responding to clinical vignettes.[34] It is possible that providers differentially responded to the vignettes after answering explicit bias questions. In the ED, caregivers might be unwilling to acknowledge their bias in an environment that stresses equal treatment and where diversity training has been regularly provided. Surveys designed to identify explicit bias could show lower levels of bias because caregivers feel it is in their best interest not to express their bias or feel that no such bias exists and that they treat all patients equally. In addition, vignettes may not be a good measure of how providers would actually respond in a clinical setting.

Interventions to mitigate implicit bias or its impact have been explored. Some interventions have shown a short-term effect on reducing levels of implicit bias through perspective taking and thinking about counter-stereotypical examples.[41–43] Other interventions have shown a more lasting change in implicit attitudes using similar strategies over time.[44] However, debate continues about whether or not implicit bias is changeable and, if so, whether this change is enduring.[45,46] This has led some researchers to suggest that simply recognizing implicit bias might be a more appropriate strategy than trying to change the bias itself.[47]

Limitations

This study has several limitations. We had limited sample size and relatively low response rates compared with published surveys including both ED physicians and nurses,[48–53] but feel that our responses are representative of the population given the similarity between our sample and the demographics of the population as a whole (Table 1). Some research also suggests reduced nonresponse bias in physician surveys.[54,55] Our generalizability is also possibly limited to the Upper Midwest. Another limitation is the possible difference between sites in exposure to diversity training. Diversity training was done at all of our sites, but actual content differed and may influence responses. To account for this, we controlled for site as a random factor in all of our analysis. We were unable to separate bias due to race or due to socioeconomic status. In our study sites poverty was 4–7 times greater for American Indians than non-Hispanic whites.[56] Thus stereotypes were likely confounded low socioeconomic status.

As we developed novel IATs for this study, additional studies should validate these IATs. However, working with the experienced Project Implicit staff provided a high likelihood of validity for our new IATs. Finally, our vignettes only covered 2 areas of care. We tried to balance the length of the survey and felt that these 2 areas represented commonly seen visits within the ED.

Our study makes several unique contributions to the literature. No other studies have developed a photograph-based IAT to examine differences in implicit bias against American Indian children or adults, giving us the ability to assess how this bias may apply to children or the child's parent/caregiver. We also included multiple sites with different characteristics representing a range of typical EDs that serve the Northern Plains American Indian populations. We

TABLE 4. Associations With Vignette Responses and Race of the Child Presented

		American Indian			White			
Question Category	**Treatment Recommendation***	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	***P*†**
Physicians/advanced practice providers								
(1) Asthma control	*Work note+acetaminophen*	30	3.6	0.9	24	3.2	1.2	0.21
	Decline+follow-up PCP	25	2.8	1.1	18	3.2	1.2	
(2) Pain control	Ibuprofen	26	3.7	1.1	27	4.0	0.6	0.53
	Intranasal fentanyl	24	3.2	1.3	26	3.2	1.1	
(3) Pain control	Oxycodone	24	3.7	1.1	30	4.1	0.8	0.68
	Ibuprofen	22	2.7	1.1	29	3.0	1.0	
(4) Asthma control	*Refer to pulmonary*	28	3.8	0.9	24	3.3	0.9	0.12
	Refer back to PCP	26	3.6	1.1	25	3.6	1.0	
Nurses								
(1) Asthma control	*Work note*	47	3.1	1.1	36	2.8	1.0	0.03
	Decline+follow-up PCP	40	3.0	1.2	34	3.4	1.2	
(2) Pain control	None	37	2.7	1.3	36	2.7	1.3	0.91
	Ibuprofen	40	3.8	1.3	39	3.7	1.1	
(3) Pain control	*Recommend oxycodone*	32	3.3	1.1	46	3.7	1.0	0.23
	Recommend ibuprofen	32	3.0	1.1	39	2.9	1.2	
(4) Asthma control	No treatment, triage 4 on ESI	36	3.9	0.9	41	3.8	0.9	0.74
	Albuterol, triage 3 on ESI	33	2.2	1.0	36	2.2	1.0	

*More empathetic treatment option presented in italics.
†*P*-value for interaction between race and type of recommendation with a random effect for study site
ESI indicates emergency severity index; PCP, primary care provider.

found similar rates of implicit bias at all sites. This reinforces the idea that implicit bias is pervasive in many different types of settings serving American Indian children. We are also the first to use the IAT in a combined sample of physicians, advanced practice providers and nurses, finding that implicit bias may be similar across different types of care providers.

Overall, a majority of ED care providers had an implicit preference for non-Hispanic white children or adults. Many ED providers, 22%–32%, agreed with explicit American Indian stereotypes and this differed by practice characteristics. Implicit and explicit biases did not relate to differences in responses to clinical vignettes. Although we did not find a link between implicit bias and agreement with vignette treatment options, the high levels of implicit bias could be associated with the perception of discrimination in health care, documented in other studies, leading to lower access of care by American Indians.[18,57] Addressing implicit bias in the ED setting is challenging, but may be best approached using a combination of interventions that include standardization in triage determination and treatment regimens, direct observation of ED encounters to assess subtle differential treatment, and training providers and staff about implicit bias in health care.

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