Examining Implicit Racial Attitudes among College Students in Hawai‘i, a Project of the Hawai‘i Implicit Bias Initiative

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Abstract

For the past 2 decades, investigations into implicit racial bias have increased, building evidence on the impact of bias on health and health care for many minority communities in the US. However, few studies examine the presence and impacts of implicit bias in Hawai‘i, a context distinct in its history, racial/ethnic diversity, and contemporary inequities. The absence of measures for major racialized groups, such as Native Hawaiians, Pacific Islanders, and Filipinos, impedes researchers' ability to understand the contribution of implicit bias to the health and social disparities observed in Hawai‘i. The purpose of this study was to measure bias toward these underrepresented groups to gain a preliminary understanding of the implicit racial bias within the distinctive context of this minority-majority state. This study measured implicit racial bias among college students in Hawai‘i using 3 implicit association tests (IATs): (1) Native Hawaiian compared to White (N = 258), (2) Micronesian compared to White (N =257), and (3) Filipino compared to Japanese (N = 236). The mean IAT D scores showed implicit biases that favored Native Hawaiians over Whites, Whites over Micronesians, and Japanese over Filipinos. Multiple regression was conducted for each test with the mean IAT D score as the outcome variable. The analysis revealed that race was a predictor in the vast majority of tests. In-group preferences were also observed. This investigation advances the understanding of racial/ethnic implicit biases in the uniquely diverse state of Hawai‘i and suggests that established social heirarchies may influence implicit racial bias.

Keywords

Implicit bias, racial bias, IATs, Hawai‘i, Native Hawaiian, Pacific Islander, Filipino

Abbreviations

HIBI = Hawai‘i Implicit Bias Initiative
IAT = Implicit Association Test
NH = Native Hawaiian
PI = Pacific Islanders
SDO = Social Dominance Orientation
SDO_7 = Social Dominance Orientation Scale Version 7
UHM = University of Hawai‘i at Mānoa

Introduction

Numerous organizations across the United States (US) have designated racism as a public health crisis.[1] Racism impacts many facets of society, including the criminal justice system, the educational system, and the healthcare system. Models repeatedly show that racism affects people on many different levels, including systemic/institutional, interpersonal, and internalized,[2-4] and takes many different forms, including discriminatory laws and practices, exclusion or stereotyping, and hidden biases that can affect behavior and decision-making.[4-9] To fully comprehend the intricate paths through which racism affects health outcomes and the determinants of health, more studies and interventions are required.[1] This paper presents new findings from the Hawai‘i Implicit Bias Initiative (HIBI), a project created to engage in critical research, develop evidence-based resources, and increase awareness of implicit biases in Hawai‘i.[10]

Implicit bias refers to mental associations (eg, beliefs or attitudes) that are activated automatically when people think about social categories and can lead to discrimination.[11,12] The formation of bias is a natural part of human processing, but the specific characteristics of a person's bias are learned through their environment and context. Thus, implicit *racial* biases are thought to embody "overlearned" stereotypes and evaluative associations with racialized identities.[12] Research in this field has demonstrated a robust positive preference for White over Black people, as well as a stronger association of Black with negative stereotypes and White with positive stereotypes.[13,14] Many different disciplines have looked into the connection between implicit biases and behavioral outcomes, but the findings and interpretations of the growing body of research are conflicting and complex.[14]

There are few studies that have examined implicit racial bias in Hawai‘i, but it is an important setting to explore racial biases, as the racial makeup is distinctive, with high proportions of Native Hawaiians (NH), the Indigenous people of Hawai‘i, Asians, Pacific Islanders (PI), and persons who identify with more than 1 race. NH, PI, and Filipinos make up about 40% of the state's population.[15] Unfortunately, health, education, economic, and housing outcomes for NHPI in Hawai‘i are frequently grouped towards the bottom of population-level statistics.[16-19] Data on Filipino and Japanese groups are often aggregated under the single category "Asian," yet when disaggregated, results frequently reveal outcomes for Filipinos are worse relative to Japanese.[17-19] These racial disparities underscore the need to examine factors that extend beyond the biomedical realm and consider more complex causal pathways that include the relationship of racism, biases and broader social inequities with health for NH, PI, and Filipinos.

The current literature on implicit bias does not meaningfully capture the racial and ethnic communities or characterize the complex racial dynamics in Hawai‘i. Importantly, similar to Indigenous and racial/ethnic minority communities elsewhere

in the US, the NH, PI, and Filipino groups have experienced discrimination and prejudices in Hawai‘i via historical and contemporary policies, practices, and attitudes that have created barriers to accessing the same opportunities and resources as other racial/ethnic groups.[20-24] Some smaller studies have found an implicit pro-White/anti-Micronesian bias, pro-Japanese/anti-Micronesian bias, and a greater Black-guilty/White-not-guilty bias in samples of Hawai‘i residents and students.[25-27] One larger study found pro-White/anti-Black bias in Hawai‘i.[28] More research needs to be done within Hawai‘i to improve our understanding of the influence of implicit bias on outcomes, such as incarceration, teacher discipline in the classroom, and medical decision-making. The current study begins to address this empirical gap by measuring implicit racial biases among college students in Hawai‘i. It reports results from novel Implicit Association Tests (IATs) (White-Native Hawaiian, White-Micronesian, and Japanese-Filipino) adapted to measure implicit biases. This study is an initial step in a broader effort to adapt IATs to the socio-cultural context of Hawai‘i with the aim of expanding the research to engage the wider public in an effort to better understand the influence of implicit bias on a health and social determinants of health in Hawai‘i.

Methods

Setting

The Hawai‘i Implicit Bias Initiative (HIBI) is an interdisciplinary, community-engaged research and education initiative seeking to conduct critical research, develop evidence-based resources, and increase community awareness of implicit biases in Hawai‘i. The HIBI research team includes 8 individuals from diverse fields, led by a 5-person Steering Committee from different schools within the University of Hawai‘i (Schools of Medicine and Law, and the Colleges of Education and Social Sciences). The team programmed multiple IATs to capture implicit biases salient to the racialized experiences of those living in Hawai‘i with a focus on undergraduate students from the University of Hawai‘i at Mānoa (UHM).

UHM is located on the island of O‘ahu and has 14 198 undergraduate students enrolled in the academic year 2022-2023. In-state residents make up 58% of the student body, international students account for 7%, and the remaining 36% are out-of-state, US national students. The undergraduate student population is diverse, with the highest percentage of students categorized as either Asian (35%) or White (24%). Sixteen percent identified as NH or other PI and another 16% identified as 2 or more races. All groups listed above were non-Hispanic.[29] Thirteen percent of the undergraduate student population is Hispanic.[30]

The IATs in this study assess attitudes and stereotypes toward groups that are frequently aggregated together in public health datasets and research; Japanese and Filipinos are frequently aggregated under Asian and NH and diverse PI communities are commonly aggregated under Asian or combined within the NHPI category. “Pacific Islander” is a pan-ethnic term that largely references those who share ancestral origins to island nations and territories in the western and southern Pacific Ocean. The term “Micronesian” is used in this study not as an ethnic, national, or regional identity, but as an identity that has been racialized in the context of Hawai‘i and is broadly applied by the press and in the wider social discourse to people with ties to islands in Micronesia, particularly Chuuk, Pohnpei, Kosrae, Yap, the Marshall Islands, and Palau, irrespective of how individuals themselves identify. These communities are targets of racism in the state, frequently in the form of dehumanizing prejudices and discrimination.[31-34]

Participants and Procedure

Undergraduate students were recruited through the University’s psychological studies platform and consented prior to participating. The study was approved by the University of Hawai‘i Institutional Review Board (Protocol Number: 2020-00531). Participants completed 1 or more IATs (White-NH, White-Micronesian, Japanese-Filipino) that measured implicit bias and answered survey questions that measured social dominance orientation and demographics. Sample sizes were 258 for the White-NH task, 257 for the White-Micronesian task, and 236 for the Japanese-Filipino task.

Measures

IATS

Participant’s implicit attitudes (good/bad) toward different racial/ethnic groups were measured using 3 new IATs. The IAT is the most widely used measure of implicit bias and is a computer-based, timed sorting experiment in which the sorting activity is conducted several times per participant under 2 opposing conditions.[12,14,35] For example, a participant would be asked to sort stimuli of positive terms (eg, joy, happiness) with Japanese/Good and negative terms (eg, sad, anger) with Filipino/Bad for Condition 1, and do the activity again with the opposite instruction (Condition 2) where negative terms sorted with Japanese/Bad and positive terms with Filipino/Good. The relative length of time it takes an individual to sort to the targets in different conditions is interpreted as an indication of the strength of the implicit association between the paired race and attitudes. The IAT can use pictures or words as exemplars for concepts. The 3 IATs administered in the current study utilize words rather than faces as exemplars for different racial/ethnic groups. These were determined by the research team and pretested with 15 UHM students. Stimuli for each of the tests are presented in **Table 1**. A variety of terms for each racial category were considered, including terms used in prior studies. Eventually, the selection was narrowed to improve equivalence between the groups being compared. Initially, names (eg, Kawika) were considered, but names as exemplars for the Micronesian category were

Table 1. Terms Used As Exemplars for Racial/Ethnic Categories in the Novel Implicit Association Tests[a]				
Hawaiian	**White**	**Micronesian**	**Japanese**	**Filipino**
Hawai'i	Idaho	Chuuk	Mochi	Adobo
O'ahu	Vermont	Palau	Tempura	Lechon
Kaua'i	Wyoming	Yap	Udon	Pancit
Lana'i	Iowa	Pohnpei	Osaka	Lumpia
Moloka'i	Nebraska	Kosrae	Tokyo	Manila
Maui	Maine	Marshall Islands	Japan	Philippines

[a] The positive and negative associations were measured using standard terms used in prior publicly available work to capture attitudes (eg, joy vs horrid)

problematic because of the substantial diversity and possible overlap with other groups. Place names and foods were chosen due to relative familiarity across groups.

Social Dominance Orientation

The Social Dominance Orientation Scale version 7 (SDO_7) was included to assess the support of each participant for inequality between social groups.[36] Items included statements like, "An ideal society requires some groups to be on top and others to be on the bottom." or "Groups at the bottom are just as deserving as groups at the top." Participants rated 8 items on a scale of 1-7 (strongly disagree to strongly agree). Higher mean scores indicated stronger support for inequality and group-based dominance. The SDO_7 measure was psychometrically evaluated against previous versions and found to correlate highly with the SDO version 6 and maintain its established validity in measuring intergroup conflict and inequality.[36]

Demographics

Participants were asked their age, gender identity, race/ethnicity, and the number of years living in Hawai'i. Race/ethnicity was collected in 2 separate questions. The first asked participants to indicate all race/ethnicities they identify with and the second asked participants to select a single race they identified with. The second question included the option for participants to select multiracial, prefer to self-describe, or refuse to answer.

Analysis

The primary outcome was mean IAT *D* scores for each IAT test or "task" (eg, White-Native Hawaiian IAT). The IAT *D* score is the difference in the speed between the respondent's performance in sorting a single set of stimuli to 2 different conditions. The score ranges from -2.0 to +2.0. An IAT *D* score of 0 is interpreted as neutral and as scores move further from 0, the stronger the bias in either direction. Secondary analyses examined the associations between IAT *D* scores and covariates. Data was collected using Qualtrics (Qualtrics, Provo, UT) and IAT *D* scores were computed using the iatgen.org Shiny App,[37] using a 2003 algorithm from Greenwald.[38] For each of the tasks, a one-sample *t*-test comparing the IAT *D* score to 0 examined whether there was a significant implicit bias toward the different racial/ethnic groups. Positive *D* scores indicate a positive bias toward the first ethnic group in the hyphenated task name.

For demographic variables, years lived in Hawai'i were recoded to create a categorical variable: less than 5 years or 5 years or more. Because Japanese and Whites have consistently had higher educational attainment, income, and occupational status than other groups,[24,39] dichotomous racial variables were created for Whites and White and Japanese to compare these groups to other racial/ethnic groups. The SDO_7 score was calculated based on the standard scoring procedure.[36] Finally, a multiple regression with the *D* score as the outcome variable and demographic characteristics and SDO as predictors was conducted for each task.

Results

For all tasks, mean age of participants was between 19 and 20 years, 80% were female, and a little more than half were living in Hawai'i for less than 5 years (**Table 2**). Participation per test ranged slightly by race: 27-31%White, 12-14% Japanese, 12-15% Filipino, 5-8% NH, 7-9% multiracial, and 26-29% were of another race.

For the White-NH task, the one-sample *t*-test showed that participants had a positive bias toward NHs compared to Whites ($t(257) = -6.616$, $P < .001$, 95% CI: [-0.278, -0.150]). The multiple regression model found that White participants showed a slight positive bias toward Whites compared to NH ($M = 0.095$, $SD = 0.515$), whereas non-White participants showed a positive bias toward NH compared to Whites ($M = -0.361$, $SD = 0.459$). Those who lived in Hawai'i for 5 years or more ($M = -0.446$, $SD = 0.424$) had a stronger positive bias toward NH than those who lived in Hawai'i less than 5 years ($M = -0.034$, $SD = 0.516$). Similar effects were found when examining the same multiple regression with race coded as White and Japanese compared to All Other Groups; however, the White and Japanese group showed a very slightly positive bias toward NH, which was in the opposite direction of the findings for the White group in the White vs non-White comparison.

Table 2. Characteristics of University of Hawai'i Student Participants in Each Implicit Association Task			
Characteristics	**Tasks**		
	White-Native Hawaiian N=258	**White-Micronesian** N=257	**Japanese- Filipino** N=236
Age	19.65 (SD: 3.10)	19.91 (SD: 3.64)	19.93 (SD: 3.81)
	[Range: 18 – 45]	[Range: 18 – 45]	[Range: 18 – 48]
	Percent (No.)	**Percent (No.)**	**Percent (No.)**
Gender			
Male	17.1% (44)	16.0% (41)	17.1% (40)
Female	80.5% (207)	80.9% (208)	80.3% (188)
Non-binary[a]	2.3% (6)	3.1% (8)	2.6% (6)
	1 missing data		2 missing data
Race[b]			
White	31.8% (82)	30.9% (79)	27.5% (65)
Japanese	14.7% (38)	12.5% (32)	12.3% (29)
Filipino	12.8% (33)	14.5% (37)	15.7% (37)
Native Hawaiian	5.4% (14)	5.1% (13)	8.5% (20)
Multiracial	8.2% (21)	7.8% (20)	9.7% (23)
Other groups	27.1% (70)	29.3% (75)	26.3% (62)
		1 missing data	
Reside in HI[c]			
< 5 years	55.5% (142)	55.1% (141)	52.1% (123)
> 5 years	44.5% (114)	44.9% (115)	47.9% (113)
	2 missing data	1 missing data	

[a] This category includes non-binary, genderqueer/gender non-conforming, and those who preferred to self-describe.
[b] Participants were asked 2 questions regarding their racial/ethnic identity. The first allowed for multiple responses, the second asked participants to identify a single category they most identify with, but included "multiracial," "prefer to self-describe," and the option to decline. This table reports the results of the second question with the racial/ethnic groups that are the focus on for this study.
[c] Reside in HI = Length of residency in Hawai'i and is categorized as less than 5 years or equal to or greater than 5 years.

For the White-Micronesian IAT, the one-sample *t*-test indicated participants had a pro-White/anti-Micronesian bias ($t(256)=5.070$, $P<.001$, 95% CI: [0.094, 0.213]). The multiple regression showed that White participants ($M=0.327$, $SD=0.426$) had a stronger negative bias toward Micronesians compared to non-White participants ($M=0.074$, $SD=0.492$) (**Table 3**). Neither participant residency length nor SDO were significant predictors of the IAT *D* score. Similar effects were found when examining the same multiple regression with race coded as White and Japanese compared to All Other Groups; a pro-White preference was found on average across both groups (combined White and Japanese and all other participant groups), but with a weaker preference among All Others Group.

Lastly for the Japanese-Filipino task, the one-sample *t*-test revealed participants had a negative bias toward Filipinos compared to Japanese ($t(236)=5.798$, $P<.001$, 95% CI: [0.105, 0.213]). The multiple regression (with race coded as White, non-White) showed that none of the predictors significantly predicted implicit bias (**Table 3**). When race was coded instead as White and Japanese versus all other groups, participants' race was a significant predictor of implicit bias ($t(233)=2.420$, $P=.016$), whereby, compared to other groups, White and Japanese participants had a stronger pro-Japanese/anti-Filipino bias ($M=0.227$, $SD=0.383$) compared to participants belonging to other groups ($M=0.111$, $SD=0.441$) (**Table 3**). Finally, an exploratory multiple regression with a different race coding, examining only Japanese and Filipinos, was conducted. The exploratory multiple regression model showed that participant race was a significant predictor of implicit bias ($t(62)=6.954$, $P<.001$), where Japanese showed a positive bias toward Japanese ($M=0.526$, $SD=0.282$) and Filipinos showed a positive bias toward Filipinos ($M=-0.160$, $SD=0.461$).

Table 3. Results of the Multiple Regression Analyses of Implicit Association Tests (IAT) Among University of Hawai'i Students by Race Groups and Length of Residency

Tasks	Mean IAT *D* (*SD*)	Mean IAT *D* (*SD*)	t-value (N)	*P*-value
	White[a]	**Non-White**[a]		
White-Native Hawaiian	0.095 (*SD*: 0.515)	-0.361 (*SD*: 0.459)	t(250) = 4.462	<.001
White-Micronesian	0.327 (*SD*: 0.426)	0.074 (*SD*: 0.492)	t(251) = 3.514	<.001
Japanese-Filipino	0.094 (*SD*: 0.346)	0.183 (*SD*: 0.445)	t(233) = -1.188	.236
	White & Japanese[b]	**Other**[b]		
White-Native Hawaiian	-0.085 (*SD*: 0.556)	-0.330 (*SD*: 0.463)	t(250) = 2.323	.021
White-Micronesian	0.249 (*SD*: 0.468)	0.077 (*SD*: 0.488)	t(251) = 2.372	.018
Japanese-Filipino	0.227 (*SD*: 0.383)	0.111 (*SD*: 0.441)	t(233) = 2.420	.016
	<5 Years[a]	**>5 Years**[a]		
White-Native Hawaiian	-0.034 (*SD*: 0.516)	-0.446 (*SD*: 0.424)	t(250) = -4.293	<.001
White-Micronesian	0.206 (*SD*: 0.484)	0.091 (*SD*: 0.485)	t(251) = -0.190	.85
Japanese-Filipino	0.136 (*SD*: 0.386)	0.184 (*SD*: 0.457)	t(233) = 0.126	.9

[a] Multiple regression model with IAT *D* score as the outcome with participant race as White vs non-White, residency length (lived in Hawai'i more than 5 years vs less), and social dominance orientation.
[b] Multiple regression model with IAT *D* score as the outcome with participant race as White & Japanese vs Other, residency length (lived in Hawai'i more than 5 years vs less), and social dominance orientation.
SD = Standard deviation

Discussion

This first study of the novel race attitude IATs developed by HIBI found implicit biases that were similar to findings from earlier studies conducted in Hawai'i.[29,30] Participants generally had a positive preference for Whites compared to Micronesians. The average IAT *D* score was like that reported in the research investigating implicit attitudes toward Micronesians and Whites among obstetrician-gynecologists.[26] It is important to note that in addition to differences in the sample population (clinicians vs undergraduates), the exemplar terms for White and Micronesian used in the 2 studies were different; thus, there is some evidence for generalizability of this finding within the state. Moreover, contrary to Delafield and colleagues[26] who found the 2 factors to be significantly positively correlated, the time of residency in Hawai'i was not a predictor of the IAT *D* score.[26] It may be that time spent in Hawai'i is a proxy for exposure to messages regarding racialized groups at the environmental level. Participants who spent less time in Hawai'i may respond to the term "Micronesian" as "other" or a "non-White" group in general and see that as less positive in comparison to an established racial categorization. Alternatively, environmental cues concerning the racial category of Micronesian may be so potent that students who move to Hawai'i quickly absorb negative stereotypes and attitudes.

NH were seen favorably in comparison to Whites, which supports a finding by Levinson et al.[25] In the current study, the period of residency in Hawai'i and participant race—coded as White vs non-White and White and Japanese vs all others—were both significant predictors of implicit bias in this task. The pro-White/anti-NH prejudice was most pronounced among White individuals. The preference was weaker when Japanese and White combined into 1 group and compared to all other groups, but it still leaned in the same pro-NH/anti-White direction as the all others group. NH were preferred above Whites by those who had lived in Hawai'i for 5 years or more. The authors of the Levinson et al[25] study hypothesized that the connections revealed by the White-NH attitude IAT might be typical of contemporary Hawai'i.[29] Although there is significant social inequality and NH communities generally have lower socioeconomic status, there has been a concerted effort to promote NH culture and values. NH communities themselves have participated in this effort through acts of defiance and a cultural revival movement. Given that in this study participants who lived in the state for less than 5 years displayed a slight pro-NH preference, it is also possible that the promotion of tourism to the islands, even superficially, as an alluring and welcoming destination for tourists, may have had an impact on the White-NH IAT results. Further research is needed to better understand how specific factors relate to test responses.

The results of this innovative examination of implicit biases in the Japanese-Filipino task revealed that Japanese were viewed more favorably than Filipinos and that neither race nor time in Hawai'i predicted implicit bias. However, an exploratory analysis showed that implicit in-group preference had a significant impact, especially among Japanese participants. The direction of prejudice in this task and the White-Micronesian task is congruent with the socio-economic hierarchy and history of these cultures, albeit there are no studies that have looked at implicit attitudes among these populations.

Interpreting these research findings should be done with considerable care. First, IATs are limited by their design and cannot speak to the intersectionality of identities. The focus on race/ethnicity is 1 factor that has been measured widely and offers important contributions to the discourse around racism in the US, but there are other aspects of identity and context that may influence results. Second, these tasks employ new terms, as opposed to images or photographs, for each racial/ethnic group that are meant to be exemplars of the group. While the use of terms in IATs is not new, these exemplars are largely place names or names of foods affiliated with each racial/ethnic category. This approach was chosen within the confines of the study budget and the feasibility of determining what physical features may represent the diverse racial/ethnic groups in this investigation. While these findings are largely consistent with previously published studies conducted in Hawai‘i, it is possible that attitudes toward a group of people may be confounded with attitudes toward a place. This may be particularly relevant for the White-NH task, for which the islands names may elicit implicit positive emotions that may be confounded with their implicit attitudes toward NH people.

Additionally, this sample is a convenience sample of undergraduate students from a single academic institution that self-selected into the study. Students at academic institutions tend to have characteristics that are different from the general population; for example, roughly 55% of participants had resided in Hawai‘i for less than 5 years. However, it is unclear from the literature how these characteristics might have influenced the results of this study. A strength of the sample is that although the percentages of racial/ethnic groups do not reflect the general population of Hawai‘i, the sample was highly diverse.

This investigation was a first step in the broader mission of HIBI to engage in critical research on implicit bias in this uniquely diverse state. Additional research is needed on the influence of environmental-level messages regarding racial associations and stereotypes and opens the door for testing out other possible stimuli (eg, photographs or names) to provide more context for understanding these results. To assess the impact of implicit racial bias on broader determinants of health experienced by NH, PI, and Filipino communities in Hawai‘i, future studies must move beyond being solely descriptive. Gaining a deeper comprehension of factors affecting bias can aid in the creation of bias-mitigation treatments. This research might also be useful for NH, PI, and Filipino populations outside of Hawai‘i. The majority of respondents in a recent study of over 250 NHPI individuals from throughout the US reported having encountered discrimination at work, at school, or on the street.[40] Similar investigations exploring implicit racial biases against smaller populations that are underrepresented in research may be inspired by this investigation.

A key public health finding is that implicit racial bias may exist even in racially diverse environments. Understanding how racism, including implicit racial bias, operates and affects NH, PI, and Filipino communities is a crucial first step toward greater equity and justice, especially in light of the disparities in health, education, income, and criminal justice that exist in Hawai‘i.

Conflict of Interest

None of the authors identify a conflict of interest.

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