COVID-19–Related Discrimination Among Racial/Ethnic Minorities and Other Marginalized Communities in the United States

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See also Crawford and Lewis, p. 354.

Objectives. To determine the prevalence of COVID-19–related discrimination among major US racial/ethnic groups and estimate associations between discrimination, race/ethnicity, and other sociodemographic characteristics.

Methods. We conducted a nationally representative online survey of 5500 American Indian/Alaska Native, Asian, Black/African American, Hawaiian/Pacific Islander, Latino (English and Spanish speaking), White, and multiracial adults from December 2020 to February 2021. Associations between sociodemographic characteristics and COVID-19–related discrimination were estimated via multinomial logistic regression.

Results. A total of 22.1% of the participants reported experiencing discriminatory behaviors, and 42.7% reported that people acted afraid of them. All racial/ethnic minorities were more likely than White adults to experience COVID-19–related discrimination, with Asian and American Indian/Alaska Native adults being most likely to experience such discrimination (discriminatory behaviors: adjusted odd ratio [AOR] = 2.59; 95% confidence interval [CI] = 1.73, 3.89; and AOR = 2.67; 95% CI = 1.76, 4.04; people acting afraid: AOR = 1.54; 95% CI = 1.15, 2.07; and AOR = 1.84; 95% CI = 1.34, 2.51). Limited English proficiency, lower education, lower income, and residing in a big city or the East South Central census division also increased the prevalence of discrimination.

Conclusions. COVID-19–related discrimination is common, and it appears that the pandemic has exacerbated preexisting resentment against racial/ethnic minorities and marginalized communities. Efforts are needed to minimize and discredit racially driven language and discrimination around COVID-19 and future epidemics. (*Am J Public Health*. 2022;112(3):453–466. https://doi.org/10.2105/AJPH.2021.306594)

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Historically, infectious disease outbreaks have often been accompanied by discrimination, stigma, and xenophobia.[1,2] How these diseases are named and discussed can have a major impact on subsequent discrimination. Because of this, both the World Health Organization and the Centers for Disease Control and Prevention have guidelines that recommend against attaching locations or ethnicity to a disease to minimize backlash against members (and perceived members) of the identified community.[3,4] Despite these recommendations, some public officials in the United States repeatedly referred to COVID-19 as the "Chinese virus" or "Wuhan virus" instead of COVID-19,[3,5] and reports of racist and xenophobic incidents directed toward those perceived to be Chinese or of Asian descent have increased.[6–9] Because of the broad scope of systemic racism in the United States, we hypothesized that attributing blame for the pandemic could also extend to other minority and marginalized communities.

To date, 4 studies to our knowledge have attempted to measure the

prevalence of COVID-19–related discrimination in the United States. However, 2 focused on Asians only[10,11]; 1 was restricted to Asian, Black, Latino, and White individuals[12]; and 1 combined several racial/ethnic minority groups into a single category ("other race").[13] Thus, discrimination among other racial/ethnic minority groups (e.g., American Indian/Alaska Native) has yet to be assessed, and a comparison of all groups in one study is needed. Also, although other sociodemographic characteristics, such as age, household income, and immigration status, have been linked to a higher prevalence of discrimination,[13] additional research is needed.

Thus, the goals of this study were to (1) estimate the prevalence of COVID-19–related discrimination among all major US racial/ethnic groups (as defined by the US Bureau of the Census), (2) estimate the association between COVID-19–related discrimination and race/ethnicity after adjusting for sociodemographic characteristics, and (3) identify other sociodemographic characteristics associated with COVID-19–related discrimination among a nationally representative and diverse sample of US adults.

METHODS

The COVID-19's Unequal Racial Burden (CURB) survey was administered by YouGov, a consumer research firm based in Palo Alto, California, that uses a proprietary, opt-in survey panel composed of more than 1.8 million US residents to conduct nationally representative online surveys. Panel members are recruited through a variety of methods to ensure diversity, including Web advertising, permission-based e-mail campaigns, partner-sponsored solicitations, telephone-to-Web recruitment, and mail-to-Web recruitment. Participants receive incentives through a loyalty program to complete individual surveys.

To obtain nationally representative estimates, YouGov randomly matches eligible panel members with matching demographic characteristics (matched sample) to a theoretical cohort (target sample) identified by sampling nationally representative data. The target sample for the CURB study was drawn from the 2018 American Community Survey 1-year sample and included 1000 Asian, 1000 Black/African American, 1000 Latino (including 500 Spanish-speaking), 1000 White, 500 American Indian/Alaska Native, 500 Hawaiian/Pacific Islander, and 500 multiracial adults 18 years or older (overall n = 5500). A proximity matching method was then used to match YouGov panel members (matched sample) to the target sample according to race/ethnicity, gender, age, education, and language preference (Latino sample only). YouGov invited matched panel members to participate via e-mail until sample quotas were met for each racial/ethnic group. Online surveys were completed between December 8, 2020, and February 17, 2021.

After survey completion, survey weights were calculated. Briefly, within each racial/ethnic group, the matched sample and American Community Survey 1-year data were combined and multivariable logistic regression adjusting for age, gender, education, and region was used to estimate probability for inclusion in the study. Probabilities were then grouped into deciles and poststratified on gender, age, education, and region to produce a final weight for each participant. Ultimately, this combination of matching and weighting allowed for the generation of national estimates.[14,15] Weights generating nationally representative populations within each racial/ethnic group were used in this analysis (e.g., Asian participants represented all Asian adults in the United States). YouGov has been used previously to conduct nationally representative survey-based research.[16–18]

The CURB survey was designed to assess the social, behavioral, and economic effects of the COVID-19 pandemic among diverse populations, including experiences of discrimination. The survey was created in English, translated into Spanish by an American Translators Association certified translator, and finalized by 4 bilingual/bicultural researchers via team reconciliation[19] and decentering methods.[20]

Dependent Variable

Four items assessed experiences of COVID-19–related discrimination. Three were adapted from the Everyday Discrimination Scale: (1) people acting afraid of you, (2) being called names or insulted, and (3) being threatened or harassed.[21] On the basis of news reports that people of Chinese descent were hearing racist comments from people thinking they were the cause of COVID-19, we created a new item that asked participants how often they heard racist comments because people thought they belonged to a group that contracts COVID-19 more often. For all 4 items, we asked how often participants had experienced the specific type of discrimination (e.g., people acting afraid of you) "because they think you might have COVID-19" using a 4-level response scale (1 = never, 2 = rarely, 3 = sometimes, 4 = always). Complete data for all 4 items were available for 5494 participants (more than 99%).

According to a multitrait scaling analysis,[22] the people acting afraid of you item was not highly correlated with the other 3 items (r = 0.49). Thus, we

developed 2 measures of COVID-19–related discrimination: a single-item measure (people acted afraid of you) and a 3-item scale (discriminatory behaviors). The discriminatory behaviors scale was scored as the mean of nonmissing values; the internal-consistency reliability for the total sample was 0.88, with similar results in each racial/ethnic group. The continuous scale was then categorized according to the original response scale: never (score of 1), rarely (scores from above 1 to 2), sometimes (scores from above 2 to 3), and always (scores above 3). The people acted afraid of you measure ranged from 1 to 4 (original response scale).

The 2 measures were then categorized into never, rarely, and sometimes/always; sometimes and always were combined into a single category owing to the small percentage of participants reporting "always" experiencing discrimination (4.2% and 1.7%, respectively). In sensitivity analyses, a composite "any" discrimination (sometimes/always or rarely) was also assessed. (For a full description of the survey questions and analysis metrics, see Table A, available as a supplement to the online version of this article at http://www.ajph.org.)

Independent Variables

All eligible panel members were asked "Which one of the following would you say best represents your race/ethnicity?" Response options were Latino/a/x or Hispanic, American Indian or Alaska Native, Asian, Black or African American, Pacific Islander, White, and multiracial. Among Asian participants, we included a question on national origin (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or other Asian).

Self-reported sociodemographic characteristics included age (categorized as 18–34, 35–49, 50–64, 65 years or older), gender (male, female, transgender or nonbinary), immigration status (US-born citizen, foreign-born citizen or legal resident, undocumented), English speaking proficiency (limited vs not limited), highest education level (less than high school, high school, more than high school), employment status (employed vs not employed), family annual income (< $20 000, $20 000–$59 999, $60 000–$99 999, ≥ $100 000), census division, and urbanicity (big city, smaller city, suburban, small town, rural). Limited English proficiency was defined as being able to speak English "not at all," "poorly," or "fairly well." Amounts of missing data were minimal for all variables other than family annual income (659 [unweighted] participants selected "prefer not to say").

Statistical Analyses

Descriptive statistics were used to estimate the prevalence of COVID-19–related discrimination across racial/ethnic groups. Multinomial logistic regression was used to estimate the independent association between race/ethnicity, sociodemographic characteristics, and the prevalence (sometimes/always or rarely vs never) of discriminatory behaviors and people acting afraid of the participant. Models included race/ethnicity, age, gender, immigration status, limited English proficiency, educational attainment, employment status, family annual income, census division, and urbanicity.

We conducted a secondary analysis restricted to Asian respondents to assess whether demographic characteristics associated with COVID-19–related discrimination differed within Asian subpopulations. Multinomial logistic regression models included the same variables listed earlier, with national origin included instead of race/ethnicity. As a result of the large proportion of Asian participants with college degrees, education was recategorized as high school or less, some college/vocational degree, bachelor's degree, and postgraduate degree in this analysis. Census region was used instead of division to assess geographic differences.

As a sensitivity analysis, we used multivariable logistic regression to estimate the association between race/ethnicity and other social determinants and the odds of experiencing any discriminatory behaviors or people acting afraid (rarely/sometimes/always vs never).

We used SAS version 9.4 (SAS Inc, Cary, NC) for all of the analyses. All analyses were weighted to produce nationally representative estimates within each racial/ethnic group, and counts were rounded for interpretation.

RESULTS

There were 5804 online survey respondents (response rate: 20.0%) who were matched down to a sample of 5500 to produce the final weighted data set. Demographic characteristics, stratified by race/ethnicity, are reported in Table B (available as a supplement to the online version of this article at http://www.ajph.org).

Prevalence and Frequency of Discrimination

Overall, 22.1% of participants reported experiencing discriminatory behaviors (sometimes/always: 12.4%; rarely: 9.7%), and 42.7% reported experiences of people acting afraid of them (sometimes/always: 22.6%; rarely: 20.1%). A full breakdown is included in Table C

(available as a supplement to the online version of this article at http://www.ajph.org).

The prevalence of discriminatory behaviors was highest among Asian participants (sometimes/always: 12.6%; rarely: 17.4%; Figure 1 and Table D, available as a supplement to the online version of this article at http://www.ajph.org). More than one quarter of Latino (sometimes/always: 10.6%; rarely: 16.3%) and American Indian/Alaska Native (sometimes/always: 16.8%; rarely: 9.4%) participants reported discriminatory behaviors, followed by Hawaiian/Pacific Islander (sometimes/always: 10.8%; rarely: 12.0%), Black/African American (sometimes/always: 9.1%; rarely: 11.4%), and multiracial (sometimes/always: 3.8%; rarely: 14.6%) adults; only 10% of White participants reported experiencing discriminatory behaviors (sometimes/always: 5.4%; rarely: 5.0%).

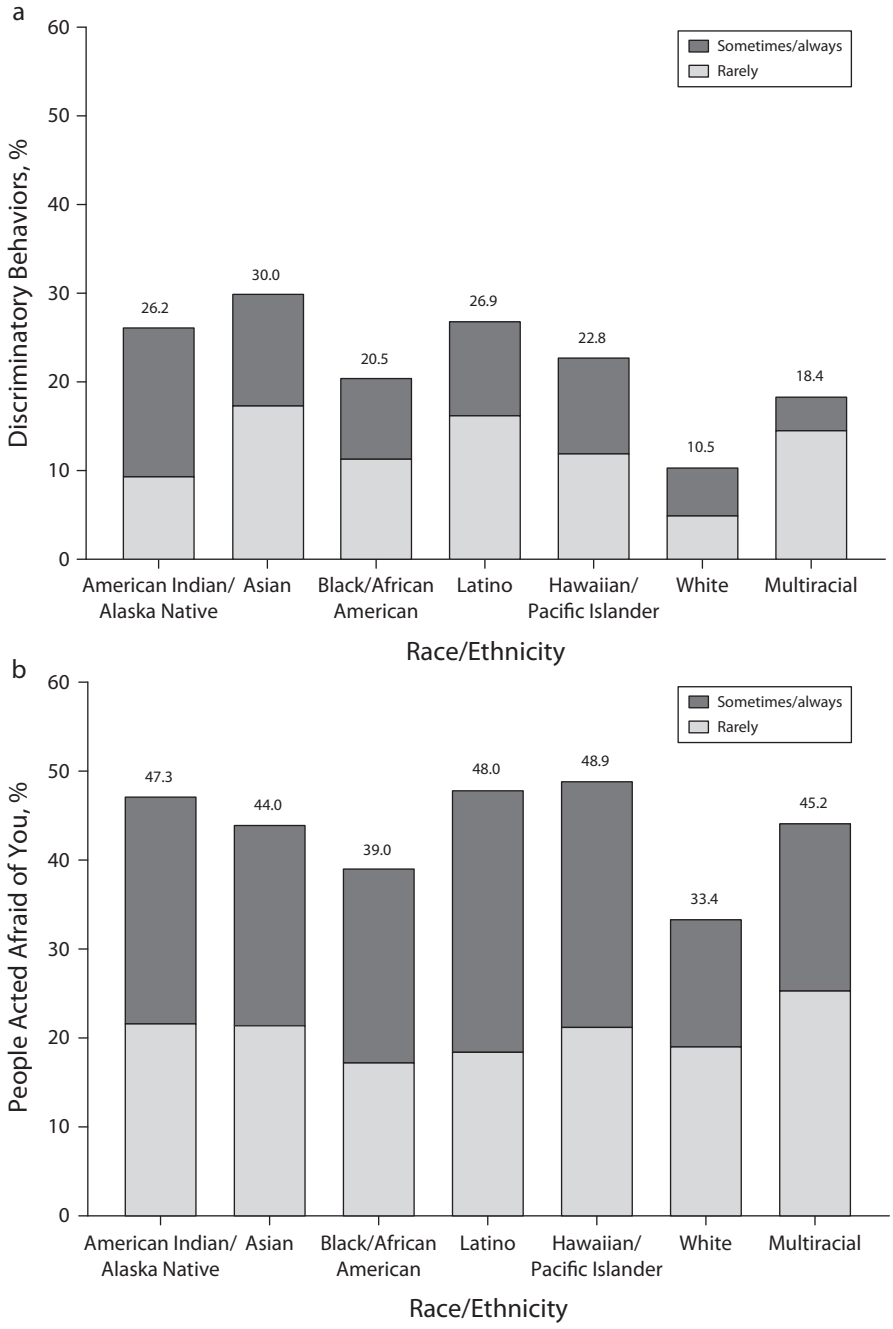

FIGURE 1— Prevalence of Self-Reported Experiences of COVID-19–Related Discrimination Experiences Including (a) Discriminatory Behaviors and (b) People Acted Afraid of You Thinking You May Have COVID-19 or Belong to a Racial/Ethnic Group That Gets COVID-19 More Often: United States, December 2020–February 2021

Notes. Discriminatory behaviors were defined as being called names or insulted, being threatened or harassed, and racist comments. Percentages are weighted to be nationally representative within each racial/ethnic group.

Similar trends were seen within the individual items in the discriminatory behaviors scale (Figure A, available as a supplement to the online version of this article at http://www.ajph.org). Reports of people acting afraid were common, with half of participants reporting that such discrimination occurred sometimes/always (Figure 1b). The prevalence of people acting afraid was highest among Hawaiian/Pacific Islander (sometimes/always: 27.7%; rarely: 21.2%), Latino (sometimes/always: 29.5%; rarely: 18.4%), and American Indian/Alaska Native (sometimes/always: 25.5%; rarely: 21.7%) adults, although the prevalence was similarly high among other racial/ethnic minority groups (Asian: sometimes/always: 22.5%; rarely: 21.5%; Black/African American: sometimes/always: 21.8%; rarely: 17.3%; multiracial: sometimes/always: 18.8%; rarely: 25.4%).

Race/Ethnicity and Discrimination

After adjustment, all racial/ethnic minority groups were substantially more likely

to experience discriminatory behaviors (rarely vs none; adjusted odds ratios [AORs] = 1.86–3.61), but only American Indian/Alaska Native and Asian participants were significantly more likely than White adults to report sometimes/always experiencing discriminatory behaviors (AOR = 2.67; 95% confidence interval [CI] = 1.76, 4.04; and AOR = 2.59; 95% CI = 1.73, 3.89; Table 1).

Fewer racial/ethnic differences were seen across the people acted afraid of

TABLE 1— Prevalence of Self-Reported Experiences of COVID-19–Related Discriminatory Behaviors, Stratified by Sociodemographic Characteristics, and Adjusted, Independent Associations With COVID-19–Related Discrimination: United States, December 2020–February 2021

	Rarely		Sometimes/Always	
Characteristic	No. (%)	OR (95% CI)[a]	No. (%)	OR (95% CI)[a]
Race/ethnicity				
American Indian/Alaska Native	47 (9.4)	1.86 (1.19, 2.91)	84 (16.8)	2.67 (1.76, 4.04)
Asian	174 (17.4)	3.61 (2.45, 5.31)	126 (12.6)	2.59 (1.73, 3.89)
Black/African American	114 (11.4)	1.97 (1.35, 2.88)	91 (9.1)	1.24 (0.84, 1.85)
Latino	163 (16.3)	2.20 (1.48, 3.29)	106 (10.6)	1.13 (0.74, 1.74)
English speaking	58 (11.7)	. . .	29 (5.8)	. . .
Spanish speaking	104 (20.7)	. . .	78 (15.5)	. . .
Hawaiian/Pacific Islander	60 (12.0)	1.99 (1.27, 3.12)	54 (10.8)	1.39 (0.87, 2.24)
White	50 (5.0)	1 (Ref)	54 (5.4)	1 (Ref)
Multiracial	73 (14.6)	2.13 (1.40, 3.23)	19 (3.8)	0.44 (0.24, 0.82)
Age group, y				
18–34	341 (17.4)	1.54 (1.25, 1.91)	264 (13.5)	1.50 (1.18, 1.90)
35–49	189 (13.0)	1 (Ref)	163 (11.3)	1 (Ref)
50–64	127 (9.6)	0.70 (0.54, 0.91)	88 (6.7)	0.62 (0.46, 0.84)
≥ 65	24 (3.1)	0.27 (0.17, 0.43)	18 (2.4)	0.14 (0.07, 0.27)
Gender				
Male	336 (13.0)	1 (Ref)	302 (11.7)	1 (Ref)
Female	316 (11.4)	0.82 (0.68, 0.98)	198 (7.1)	0.53 (0.43, 0.66)
Transgender or nonbinary[b]	27 (20.5)	1.80 (1.09, 2.98)	34 (25.6)	1.99 (1.16, 3.40)
Immigration status				
US-born citizen	476 (11.1)	1 (Ref)	377 (8.8)	1 (Ref)
Foreign-born citizen/legal resident	149 (15.8)	1.03 (0.80, 1.33)	123 (12.9)	0.96 (0.72, 1.29)
Undocumented	54 (19.8)	0.86 (0.57, 1.30)	31 (11.5)	0.47 (0.28, 0.77)
English proficiency[c]				
Limited	127 (20.5)	2.14 (1.59, 2.88)	141 (22.8)	4.06 (3.02, 5.47)
Not limited	554 (11.3)	1 (Ref)	393 (8.1)	1 (Ref)
Highest educational level				
< high school	89 (17.8)	1.38 (1.01, 1.89)	80 (16.1)	1.77 (1.26, 2.49)
High school or equivalent	190 (10.6)	0.87 (0.70, 1.08)	197 (11.0)	1.09 (0.85, 1.38)
> high school[d]	402 (12.5)	1 (Ref)	257 (8.0)	1 (Ref)
Employment status				
Employed	327 (13.4)	0.97 (0.80, 1.18)	271 (11.1)	1.26 (1.01, 1.58)
Not employed[e]	353 (11.5)	1 (Ref)	263 (8.6)	1 (Ref)
Family annual income, $[f]				
< 20 000	163 (14.9)	1.36 (0.98, 1.89)	138 (12.6)	2.02 (1.35, 3.04)
20 000–59 999	242 (12.6)	1.25 (0.94, 1.67)	205 (10.6)	1.83 (1.27, 2.63)

Continued

TABLE 1— Continued

Characteristic	Rarely		Sometimes/Always	
	No. (%)	OR (95% CI)[a]	No. (%)	OR (95% CI)[a]
60 000–99 999	110 (11.3)	1.07 (0.78, 1.46)	91 (9.4)	1.66 (1.12, 2.45)
≥ 100 000	88 (10.8)	1 (Ref)	46 (5.6)	1 (Ref)
Prefer not to say[g]	77 (11.1)	. . .	55 (7.9)	. . .
Census division				
New England	17 (10.4)	0.81 (0.44, 1.48)	25 (15.7)	1.33 (0.72, 2.45)
Middle Atlantic	81 (13.0)	1.12 (0.79, 1.58)	61 (9.8)	1.11 (0.75, 1.66)
East North Central	59 (10.7)	1.02 (0.70, 1.47)	43 (7.8)	0.97 (0.63, 1.51)
West North Central	26 (11.4)	1.15 (0.69, 1.92)	22 (9.7)	1.24 (0.71, 2.16)
South Atlantic	121 (11.3)	1 (Ref)	79 (7.4)	1 (Ref)
East South Central	39 (15.6)	1.99 (1.28, 3.07)	41 (16.3)	2.43 (1.50, 3.92)
West South Central	92 (13.7)	1.12 (0.81, 1.55)	63 (9.5)	1.01 (0.69, 1.47)
Mountain	69 (12.5)	1.03 (0.71, 1.48)	64 (11.6)	1.13 (0.75, 1.71)
Pacific	177 (12.7)	0.92 (0.69, 1.23)	135 (9.7)	0.82 (0.58, 1.15)
Urbanicity[h]				
Big city	193 (13.4)	1.01 (0.80, 1.29)	174 (12.1)	1.47 (1.11, 1.94)
Smaller city	148 (14.5)	1.05 (0.81, 1.36)	105 (10.3)	1.05 (0.77, 1.44)
Suburban area	196 (11.8)	1 (Ref)	132 (7.9)	1 (Ref)
Small town	73 (11.1)	0.91 (0.65, 1.26)	63 (9.6)	0.98 (0.67, 1.43)
Rural area	67 (11.8)	1.15 (0.82, 1.62)	56 (10.0)	1.44 (0.98, 2.10)

Note. CI = confidence interval; OR = odds ratio. Discriminatory behavior includes being called names, being threatened/harassed, and hearing racist comments because people think you might have COVID-19. Data are weighted to be nationally representative within each racial/ethnic group. The study sample size was 5500.

[a]Modeled with multinomial logistic regression (sometimes/always, rarely, and never [reference]); all ORs adjusted for all other variables in the table.
[b]Nonbinary includes individuals who reported being nonbinary, gender fluid, gender queer, "other," and no gender.
[c]Limited English proficiency was defined as speaking English "not at all," "poorly," or "fairly well."
[d]Includes some college/vocational school, bachelor's degree, master's degree, and doctoral or postgraduate education.
[e]Not employed includes temporarily laid off, unemployed, retired, permanently disabled, taking care of home or family, student, and other.
[f]Collected at enrollment into panel and updated every 6 months.
[g]A total of 659 (unweighted) participants selected "prefer not to say" and were dropped from the model; when household income was not included in the analysis, similar effect estimates for the other covariates were seen (data not shown).
[h]A total of 125 participants (unweighted) did not provide information on residential urbanicity and were not included in the analysis.

you item. Relative to White adults, only American Indian/Alaska Native (rarely: AOR = 1.40; 95% CI = 1.03, 1.91; sometimes/always: AOR = 1.84; 95% CI = 1.34, 2.51) and Hawaiian/Pacific Islander (rarely: AOR = 1.42; 95% CI = 1.02, 1.97; sometimes/always: AOR = 1.90; 95% CI = 1.37, 2.64) adults were significantly more likely to report incidents in which people acted afraid of them across both frequency levels (Table 2). Asian adults appeared to also be more likely to report incidents of people acting afraid of them at both frequencies, but confidence intervals were wide (rarely: AOR = 1.22; 95% CI = 0.92, 1.62; sometimes/always: OR = 1.54; 95% CI = 1.15, 2.07). Latino participants were more likely to report frequent (sometimes/always) incidents of people acting afraid of them (OR = 1.45; 95% CI = 1.08, 1.96), and multiracial participants were more likely to report rare incidents of people acting afraid of them (AOR = 1.44; 95% CI = 1.07, 1.95). No differences were seen between Black/African American and White adults.

Other Sociodemographic Characteristics

Among the sociodemographic variables, having limited English proficiency was most strongly associated with experiencing both discriminatory behaviors (rarely: AOR = 2.14; 95% CI = 1.59, 2.88; sometimes/always: AOR = 4.06; 95% CI = 3.02, 5.47) and people acting afraid (rarely: AOR = 1.51; 95% CI = 1.14, 1.99; sometimes/always: AOR = 1.68; 95% CI = 1.30, 2.15; Tables 1 and 2).

TABLE 2— Prevalence of Participants' Self-Reported Experiences of People Acting Afraid of Them Because of Suspected COVID-19 Infection, Stratified by Sociodemographic Characteristics, and Adjusted, Independent Associations With COVID-19–Related Discrimination: United States, December 2020–February 2021

	Rarely		Sometimes/Always	
Characteristic	No. (%)	OR (95% CI)[a]	No. (%)	OR (95% CI)[a]
Race/ethnicity				
American Indian/Alaska Native	108 (21.7)	1.40 (1.03, 1.91)	128 (25.5)	1.84 (1.34, 2.51)
Asian	215 (21.5)	1.22 (0.92, 1.62)	225 (22.5)	1.54 (1.15, 2.07)
Black/African American	173 (17.3)	0.93 (0.70, 1.22)	218 (21.8)	1.18 (0.90, 1.56)
Latino	184 (18.4)	0.95 (0.71, 1.28)	295 (29.5)	1.45 (1.08, 1.96)
English speaking	94 (19.0)	. . .	98 (19.8)	. . .
Spanish speaking	90 (17.9)	. . .	197 (39.2)	. . .
Hawaiian/Pacific Islander	106 (21.2)	1.42 (1.02, 1.97)	138 (27.7)	1.90 (1.37, 2.64)
White	190 (19.0)	1 (Ref)	144 (14.4)	1 (Ref)
Multiracial	127 (25.4)	1.44 (1.07, 1.95)	94 (18.8)	1.17 (0.84, 1.64)
Age group, y				
18–34	454 (23.2)	1.27 (1.05, 1.53)	514 (26.2)	1.26 (1.05, 1.51)
35–49	298 (20.6)	1 (Ref)	366 (25.3)	1 (Ref)
50–64	260 (19.6)	0.95 (0.77, 1.18)	277 (20.9)	0.91 (0.74, 1.12)
≥ 65	92 (12.0)	0.44 (0.32, 0.59)	85 (11.0)	0.39 (0.29, 0.52)
Gender				
Male	575 (22.2)	1 (Ref)	608 (23.5)	1 (Ref)
Female	500 (18.0)	0.76 (0.65, 0.89)	596 (21.5)	0.84 (0.72, 0.97)
Transgender or nonbinary[b]	29 (21.5)	0.81 (0.49, 1.35)	38 (28.9)	0.89 (0.55, 1.44)
Immigration status				
US-born citizen	860 (20.1)	1 (Ref)	882 (20.6)	1 (Ref)
Foreign-born citizen/legal resident	190 (20.1)	0.97 (0.77, 1.22)	252 (26.6)	1.21 (0.98, 1.50)
Undocumented	53 (19.3)	1.15 (0.76, 1.73)	107 (39.2)	1.54 (1.08, 2.21)
English proficiency[c]				
Limited	132 (21.4)	1.51 (1.14, 1.99)	229 (37.1)	1.68 (1.30, 2.15)
Not limited	971 (19.9)	1 (Ref)	1013 (20.7)	1 (Ref)
Highest educational level				
< high school	110 (22.1)	1.37 (1.03, 1.83)	159 (31.9)	1.53 (1.18, 2.00)
High school or equivalent	307 (17.2)	0.93 (0.77, 1.11)	452 (25.2)	1.11 (0.93, 1.31)
> high school[d]	686 (21.4)	1 (Ref)	632 (19.7)	1 (Ref)
Employment status				
Employed	552 (22.6)	1.12 (0.95, 1.32)	562 (23.0)	1.07 (0.91, 1.26)
Not employed[e]	551 (18.0)	1 (Ref)	680 (22.2)	1 (Ref)
Family annual income, $[f]				
< 20 000	201 (18.4)	0.90 (0.69, 1.19)	332 (30.3)	1.98 (1.50, 2.62)
20 000–59 999	396 (20.6)	0.98 (0.78, 1.23)	449 (23.4)	1.58 (1.24, 2.03)
60 000–99 999	196 (20.1)	0.90 (0.71, 1.15)	198 (20.3)	1.35 (1.04, 1.77)
≥ 100 000	191 (23.4)	1 (Ref)	117 (14.3)	1 (Ref)
Prefer not to say[g]	119 (17.3)	. . .	146 (21.1)	. . .

Continued

TABLE 2— Continued

Characteristic	Rarely		Sometimes/Always	
	No. (%)	OR (95% CI)[a]	No. (%)	OR (95% CI)[a]
Census division				
New England	32 (20.0)	1.17 (0.74, 1.86)	35 (22.1)	0.93 (0.58, 1.48)
Middle Atlantic	146 (23.5)	1.33 (0.99, 1.77)	125 (20.2)	0.99 (0.74, 1.33)
East North Central	98 (17.8)	1.02 (0.75, 1.38)	111 (20.0)	0.90 (0.67, 1.21)
West North Central	52 (23.4)	1.22 (0.81, 1.84)	48 (21.3)	1.11 (0.74, 1.66)
South Atlantic	189 (17.7)	1 (Ref)	224 (20.9)	1 (Ref)
East South Central	43 (17.0)	1.19 (0.79, 1.80)	73 (28.9)	1.58 (1.10, 2.26)
West South Central	133 (19.9)	1.09 (0.82, 1.45)	153 (22.9)	0.91 (0.69, 1.19)
Mountain	144 (25.9)	1.42 (1.06, 1.91)	133 (24.0)	1.04 (0.77, 1.39)
Pacific	266 (19.1)	0.93 (0.73, 1.20)	340 (24.4)	0.91 (0.72, 1.16)
Urbanicity[h]				
Big city	308 (21.5)	1.24 (1.01, 1.53)	358 (25.0)	1.12 (0.92, 1.37)
Smaller city	237 (23.2)	1.31 (1.05, 1.64)	240 (23.5)	0.94 (0.75, 1.17)
Suburban area	316 (19.0)	1 (Ref)	345 (20.8)	1 (Ref)
Small town	130 (19.8)	1.19 (0.92, 1.55)	154 (23.3)	1.09 (0.84, 1.40)
Rural area	89 (15.7)	0.92 (0.68, 1.23)	129 (22.8)	1.02 (0.78, 1.34)

Note. CI = confidence interval; OR = odds ratio. Participants were asked: How often have you experienced the following since the start of the pandemic: people acted as if they were afraid of you because they think you might have COVID-19. Data are weighted to be nationally representative within each racial/ethnic group. The study sample size was 5500.

[a]Modeled with multinomial logistic regression (sometimes/always, rarely, and never [reference]); all ORs adjusted for all other variables in the table.
[b]Nonbinary includes individuals who reported being nonbinary, gender fluid, gender queer, "other," and no gender.
[c]Limited English proficiency was defined as speaking English "not at all," "poorly," or "fairly well."
[d]Includes some college/vocational school, bachelor's degree, master's degree, and doctoral or postgraduate education.
[e]Not employed includes temporarily laid off, unemployed, retired, permanently disabled, taking care of home or family, student, and other.
[f]Collected at enrollment into panel and updated every 6 months.
[g]A total of 659 (unweighted) participants selected "prefer not to say" and were dropped from the model; when household income was not included in the analysis, similar effect estimates for the other covariates were seen (data not shown).
[h]A total of 125 participants (unweighted) did not provide information on residential urbanicity and were not included in the analysis.

Being less than a high school graduate (relative to having more than a high school education) was also consistently associated with higher odds of experiencing discriminatory behaviors (rarely: AOR = 1.38; 95% CI = 1.01, 1.89; sometimes/always: AOR = 1.77; 95% CI = 1.26, 2.49) and people acting afraid (rarely: AOR = 1.37; 95% CI = 1.03, 1.83; sometimes/always: AOR = 1.53; 95% CI = 1.18, 2.00).

Lower annual income was associated with sometimes/always experiencing discriminatory behaviors (e.g., for < $20 000 vs ≥ $100 000, discriminatory behaviors: AOR = 2.02; 95% CI = 1.35, 3.04; people acting afraid: AOR = 1.98; 95% CI = 1.50, 2.62). Adults living in the East South Central division (Alabama, Kentucky, Mississippi, and Tennessee) were most likely to experience discriminatory behaviors (rarely: AOR = 1.99; 95% CI = 1.28, 3.07; sometimes/always: AOR = 2.43; 95% CI = 1.50, 3.92) and sometimes/always experience people acting afraid of them (AOR = 1.58; 95% CI = 1.10, 2.26); minimal differences were seen across other census divisions.

Younger age (18–34 years), being male or transgender/nonbinary, and living in a city or rural area also appeared to be associated with higher odds of experiencing COVID-19–related discrimination (discriminatory behaviors or people acting afraid). Similar trends were seen when discrimination was modeled as any versus never (Table E, available as a supplement to the online version of this article at http://www.ajph.org).

Discrimination Against Asian Adults

When we restricted our analysis to Asian participants, Vietnamese adults reported higher levels of COVID-19–related discrimination and Japanese adults reported the lowest levels (Figures B and C, available as supplements to the online version of this article at

TABLE 3— Prevalence of Self-Reported Experiences of COVID-19–Related Discrimination, Stratified by Sociodemographic Characteristics, and Adjusted, Independent Associations With COVID-19–Related Discrimination Among Asian Participants: United States, December 2020–February 2021

Characteristic	Rarely		Sometimes/Always	
	No. (%)	OR (95% CI)[a]	No. (%)	OR (95% CI)[a]
Discriminatory behaviors				
National origin				
Asian Indian	18 (10.3)	0.41 (0.20, 0.80)	25 (14.4)	1.48 (0.76, 2.90)
Chinese	58 (21.1)	1 (Ref)	35 (12.7)	1 (Ref)
Filipino	31 (19.3)	1.00 (0.55, 1.81)	21 (13.2)	1.02 (0.46, 2.26)
Japanese	11 (8.1)	0.42 (0.19, 0.93)	10 (7.2)	0.83 (0.34, 2.03)
Korean	17 (22.2)	1.03 (0.50, 2.12)	8 (10.9)	0.88 (0.35, 2.21)
Vietnamese	16 (27.2)	1.26 (0.58, 2.73)	10 (17.8)	1.59 (0.62, 4.06)
Other Asian	23 (18.7)	0.87 (0.46, 1.63)	17 (13.7)	0.99 (0.46, 2.14)
Age group, y				
18–34	84 (24.0)	1.07 (0.68, 1.70)	53 (15.2)	0.93 (0.55, 1.57)
35–49	55 (19.1)	1 (Ref)	43 (15.0)	1 (Ref)
≥ 50	34 (9.5)	0.40 (0.23, 0.69)	30 (8.3)	0.40 (0.21, 0.75)
Gender[b]				
Male	83 (18.3)	1 (Ref)	58 (12.8)	1 (Ref)
Female	87 (16.6)	0.95 (0.64, 1.40)	62 (11.8)	0.82 (0.51, 1.29)
Immigration status				
US-born citizen	100 (19.4)	1 (Ref)	67 (13.0)	1 (Ref)
Foreign born	74 (15.2)	0.65 (0.43, 0.98)	60 (12.3)	0.58 (0.36, 0.94)
English proficiency[c]				
Limited	25 (20.2)	2.04 (1.09, 3.83)	30 (24.2)	2.60 (1.40, 4.83)
Not limited	149 (17.0)	1 (Ref)	97 (11.0)	1 (Ref)
Highest educational level[d]				
High school/equivalent or less	36 (13.4)	1.16 (0.57, 2.33)	44 (16.5)	1.36 (0.63, 2.92)
Some college/vocational school	48 (22.2)	2.02 (1.07, 3.83)	27 (12.6)	1.47 (0.69, 3.16)
Bachelor's degree	61 (20.7)	1.68 (0.95, 2.94)	35 (11.7)	1.37 (0.70, 2.67)
Postgraduate degree	29 (12.9)	1 (Ref)	21 (9.3)	1 (Ref)
Employment status				
Employed	86 (17.4)	0.82 (0.54, 1.26)	64 (12.9)	1.38 (0.84, 2.29)
Not employed[e]	88 (17.3)	1 (Ref)	63 (12.4)	1 (Ref)
Family annual income, $[f]				0.00
< 20 000	20 (19.2)	1.17 (0.56, 2.42)	19 (17.9)	4.11 (1.74, 9.74)
20 000–59 999	48 (17.2)	1.04 (0.61, 1.78)	46 (16.5)	2.68 (1.32, 5.42)
60 000–99 999	35 (15.2)	0.95 (0.56, 1.60)	27 (11.8)	1.95 (0.97, 3.91)
≥ 100 000	43 (17.8)	1 (Ref)	16 (6.7)	1 (Ref)
Prefer not to say[g]	27 (19.0)	. . .	18 (12.8)	. . .
Census region				
Northeast	34 (16.0)	0.81 (0.46, 1.41)	38 (17.7)	1.37 (0.75, 2.51)
Midwest	18 (17.5)	1.31 (0.69, 2.49)	15 (14.4)	1.48 (0.69, 3.18)
South	39 (17.1)	1.32 (0.80, 2.17)	32 (13.9)	1.57 (0.87, 2.84)
West	81 (18.1)	1 (Ref)	41 (9.2)	1 (Ref)

Continued

TABLE 3— Continued

Characteristic	Rarely		Sometimes/Always	
	No. (%)	OR (95% CI)[a]	No. (%)	OR (95% CI)[a]
Urbanicity[h]				
Big city	47 (17.8)	0.98 (0.61, 1.57)	32 (12.0)	1.44 (0.81, 2.54)
Smaller city	31 (19.4)	0.99 (0.56, 1.74)	24 (15.0)	1.62 (0.86, 3.05)
Suburban area	73 (17.5)	1 (Ref)	44 (10.6)	1 (Ref)
Small town/rural area	22 (14.2)	0.93 (0.48, 1.79)	27 (16.7)	1.18 (0.57, 2.43)
People acted afraid of you				
National origin	40 (23.1)	0.92 (0.53, 1.60)	42 (23.8)	1.28 (0.73, 2.23)
Asian Indian	63 (23.0)	1 (Ref)	50 (18.1)	1 (Ref)
Chinese	40 (24.6)	1.76 (0.99, 3.12)	42 (26.1)	1.60 (0.88, 2.91)
Filipino	21 (16.0)	0.80 (0.42, 1.54)	17 (12.6)	0.60 (0.29, 1.22)
Japanese	16 (20.5)	0.92 (0.44, 1.91)	20 (26.0)	1.20 (0.59, 2.45)
Korean	13 (21.7)	1.10 (0.48, 2.50)	20 (34.2)	1.89 (0.89, 4.01)
Vietnamese	23 (18.5)	0.75 (0.39, 1.41)	36 (28.8)	1.17 (0.63, 2.15)
Other Asian				
Age group, y	84 (23.9)	0.86 (0.55, 1.35)	92 (26.2)	1.14 (0.73, 1.80)
18–34	74 (25.7)	1 (Ref)	66 (23.1)	1 (Ref)
35–49	58 (16.0)	0.64 (0.40, 1.03)	67 (18.5)	0.93 (0.57, 1.50)
≥ 50				
Gender[b]	103 (22.7)	1 (Ref)	93 (20.5)	1 (Ref)
Male	110 (20.9)	1.12 (0.78, 1.62)	128 (24.5)	1.40 (0.97, 2.02)
Female				
Immigration status	117 (22.8)	1 (Ref)	105 (20.3)	1 (Ref)
US-born citizen	98 (20.3)	0.71 (0.48, 1.04)	120 (24.8)	0.96 (0.65, 1.41)
Foreign born				
English proficiency[c]	33 (26.9)	2.46 (1.38, 4.39)	36 (29.2)	1.25 (0.70, 2.24)
Limited	182 (20.8)	1 (Ref)	189 (21.6)	1 (Ref)
Not limited				
Highest educational level[d]	44 (16.4)	0.75 (0.40, 1.40)	74 (27.5)	1.35 (0.74, 2.47)
High school/equivalent or less	47 (21.7)	0.97 (0.54, 1.73)	48 (22.5)	1.15 (0.63, 2.12)
Some college/vocational school	72 (24.5)	1.14 (0.70, 1.84)	62 (21.0)	1.11 (0.65, 1.89)
Bachelor's degree	52 (23.7)	1 (Ref)	41 (18.5)	1 (Ref)
Postgraduate degree				
Employment status	112 (22.8)	1.10 (0.73, 1.64)	118 (24.0)	1.54 (1.03, 2.32)
Employed	103 (20.3)	1 (Ref)	107 (21.1)	1 (Ref)
Not employed[e]				
Family annual income, $[f]	17 (16.5)	0.82 (0.39, 1.71)	39 (36.5)	3.29 (1.68, 6.44)
< 20 000	52 (18.6)	0.83 (0.50, 1.39)	80 (28.4)	2.10 (1.24, 3.56)
20 000–59 999	48 (20.9)	0.73 (0.46, 1.17)	38 (16.7)	0.94 (0.55, 1.61)
60 000–99 999	65 (27.1)	1 (Ref)	39 (16.1)	1 (Ref)
≥ 100 000	40 (23.1)	0.92 (0.53, 1.60)	42 (23.8)	1.28 (0.73, 2.23)
Prefer not to say[g]	33 (22.7)	. . .	30 (20.9)	. . .
Census region				
Northeast	55 (25.5)	1.49 (0.92, 2.41)	41 (19.0)	0.94 (0.56, 1.59)
Midwest	21 (20.3)	1.07 (0.57, 2.02)	29 (27.5)	1.44 (0.80, 2.59)

Continued

TABLE 3— Continued

Characteristic	Rarely		Sometimes/Always	
	No. (%)	OR (95% CI)[a]	No. (%)	OR (95% CI)[a]
South	47 (20.5)	1.61 (0.99, 2.63)	65 (28.2)	2.05 (1.30, 3.24)
West	92 (20.5)	1 (Ref)	90 (20.1)	1 (Ref)
Urbanicity[h]				
Big city	70 (26.4)	1.25 (0.81, 1.94)	56 (21.0)	1.10 (0.71, 1.73)
Smaller city	30 (19.0)	0.83 (0.48, 1.44)	36 (22.7)	0.76 (0.44, 1.30)
Suburban area	90 (21.7)	1 (Ref)	95 (22.8)	1 (Ref)
Small town/rural	25 (15.6)	0.92 (0.50, 1.69)	38 (24.1)	1.02 (0.58, 1.79)

Note. CI = confidence interval; OR = odds ratio. Discriminatory behavior includes being called names, being threatened/harassed, and hearing racist comments because people think you might have COVID-19. Also, participants were asked: How often have you experienced the following since the start of the pandemic—people acted as if they were afraid of you because they think you might have COVID-19.

[a]Modeled with multinomial logistic regression (sometimes/always, rarely, and never [reference]); all ORs adjusted for all other variables in the table.
[b]Nonbinary and transgender participants were excluded from all analyses.
[c]Limited English proficiency was defined as speaking English "not at all," "poorly," or "fairly well."
[d]Because of the large proportion of Asian participants with college degrees, education was categorized as high school graduate or less (< high school n = 40), some college/vocational degree, bachelor's degree, and postgraduate degree.
[e]Not employed included temporarily laid off, unemployed, retired, permanently disabled, taking care of home or family, student, and other.
[f]Collected at enrollment into the panel and updated every 6 months.
[g]A total of 141 (unweighted) participants selected "prefer not to say" and were dropped from the model; when household income was not included in the analysis, similar effect estimates for the other covariates were seen (data not shown).
[h]One participant (unweighted) did not provide information on residential urbanicity and was not included in the analysis.

http://www.ajph.org). However, no substantial differences in COVID-19–related discrimination by national origin were seen either before or after adjustment, but confidence intervals were wide (Table 3).

Among Asians, limited English proficiency was strongly and consistently associated with experiencing discriminatory behaviors (rarely: AOR = 2.04; 95% CI = 1.09, 3.83; sometimes/always: AOR = 2.60; 95% CI = 1.40, 4.83) and people acting afraid (rarely: AOR = 2.46; 95% CI = 1.38, 4.39; sometimes/always: AOR = 1.25; 95% CI = 0.70, 2.24). Lower household income was also associated with experiencing discrimination sometimes/always (Table 3). Being employed and living in the South were associated with sometimes/always experiencing people acting afraid (AOR = 1.54; 95% CI = 1.03, 2.32; and AOR = 2.05; 95% CI = 1.30, 3.24, respectively). No differences in discrimination were seen across gender, educational level, or urbanicity.

DISCUSSION

In a nationally representative online survey conducted from December 2020 to February 2021 that included adults from the 6 major US racial/ethnic minority groups (as defined by the US Census Bureau) and White adults, we found that all racial/ethnic minorities experienced higher levels of COVID-19–related discrimination than White adults, with American Indian/Alaska Native, Asian, Hawaiian/Pacific Islander, and Latino adults having the highest prevalence. Despite news and social media reports on targeting of Chinese individuals, similar COVID-19–related discrimination trends were seen across all Asian adults regardless of national origin.

In comparison with White adults, all racial/ethnic minorities were more likely to report that people acted afraid of them because of suspected COVID-19 infection. Having limited English proficiency, less than a high school education, an annual income below $60 000, and living in a big city, rural community, or Alabama, Kentucky, Mississippi, or Tennessee were also associated with experiencing increased discrimination. To the best of our knowledge, this is the largest, most racially diverse, and most recent assessment of COVID-19–related discrimination in the United States.

We found that experiencing COVID-19–related discrimination was common among Asian adults (discriminatory behaviors: 30%; people acting afraid: 44%) and that half of those experiencing discrimination reported that the discrimination occurred sometimes or always. These rates are substantially higher than estimates obtained

earlier in the pandemic, suggesting that COVID-19–related discrimination has not improved over time. In surveys conducted in March and April 2020, the prevalence of COVID-19–related discrimination was 18% and 22%, respectively, among Asian adults.[13] Also, Liu et al. found that those who reported COVID-19–related discrimination in March were more likely to report such discrimination in April, supporting our finding that discrimination occurs repeatedly.[13]

In May and June 2020, 13% of Bhutanese and Burmese refugees reported being threatened or harassed, and 28% reported feeling that others were afraid of them owing to COVID-19.[11] In a survey conducted from March to May 2020, Cheah et al. found that 50% of adults reported at least one incident of in-person COVID-19–related discrimination, but they adapted the Racial and Ethnic Microaggressions Scale, which includes less severe forms of discrimination (e.g., "people were unfriendly or unwelcoming").[10] It has also been estimated that 42% of adults living in the United States are extremely likely to engage in anti-Asian behaviors during the pandemic,[23] and more than 2800 incidences of anti-Asian hate were reported in 2020 alone.[7] These estimates of the prevalence and frequency of COVID-19–related discrimination targeted at Asian individuals, including our own, represent a call for action.

The prevalence of discriminatory behaviors was higher among all racial/ethnic minorities than among White adults, and most (American Indian/Alaska Native, Asian, Hawaiian/Pacific Islander, multiracial) were also more likely to report that people acted afraid of them. To the best of our knowledge, we are the first to report this substantial level of COVID-19–related discrimination toward American Indian/Alaska Native adults. In fact, American Indian/Alaska Native adults were just as likely to face frequent (sometimes/always) discriminatory behaviors as Asian adults (OR = 2.67 vs OR = 2.59) and were potentially more likely to report that people acted afraid of them (OR = 1.84 vs OR = 1.54). Hawaiian/Pacific Islanders were also at higher risk of reporting frequent incidents of people acting afraid of them (OR = 1.90).

Given these findings, it appears that the COVID-19 pandemic has exacerbated preexisting resentment against racial/ethnic minority groups in the United States. Future studies and public health efforts focused on COVID-19–related discrimination should explicitly include all major racial/ethnic groups, as most appear to be at equally high risk as Asian adults but have thus far been largely ignored in antidiscrimination efforts.

Both overall and among Asian participants, we found that limited English proficiency, lower household income, and lower education were the strongest predictors of reporting sometimes/always experiencing discriminatory behaviors and people acting afraid, even after adjustment for race/ethnicity. Liu et al. also assessed other predictors of discrimination during COVID-19.[13] Although they did not include English proficiency as a predictor, they did find that immigrants (first or second generation vs nonimmigrant) were more likely to experience discrimination, as were those with lower household incomes. Interestingly, both our study and the Liu et al.[13] investigation showed that older adults were less likely to experience COVID-19–related discrimination. Given the recent reporting of violence targeting older Asian adults,[7] additional research is needed to assess whether older adults are truly less likely to experience COVID-19–related discrimination or they are less likely to report it.

Public health and media messaging must aim to reduce racism and xenophobia during COVID-19 and future pandemics. One recent study showed that COVID-19 messaging that focused on China or Chinese cultural practices as the origin of the pandemic (i.e., food markets) led to high levels of xenophobia and anti-Chinese sentiments, whereas information that did not mention China did not increase these negative beliefs.[24] In a recent analysis of Twitter data, half of the tweets that referred to COVID-19 as the "Chinese virus" had anti-Asian sentiments; moreover, anti-Asian sentiments associated with COVID-19 on Twitter increased by more than 700% after the first "Chinese virus" reference by former president Donald J. Trump in March 2020.[3] A similar increase in implicit bias toward Asian Americans was seen in the United States after the first "Chinese virus" reference by the former president.[25] These findings provide further evidence that the language used by individuals in positions of influence (online and offline) can have a substantial impact on racism and xenophobia during public health emergencies.[26]

Limitations

This study involved some limitations. First, the survey was administered online, and individuals with limited Internet access or familiarity with technology were less likely to be included. Although we did match and weight participants to obtain a nationally representative sample, it is possible that some selection bias existed. In our

analysis, we found that both lower income levels and lower educational levels were associated with higher rates of discrimination, suggesting that we may be underestimating the burden of COVID-19–related discrimination in the United States. Second, the survey was administered only in English and Spanish (Latino participants only), and thus non-Latino individuals with limited English reading proficiency were more likely to be excluded. Limited English proficiency was the strongest predictor in our analysis, again suggesting that we may be underestimating the burden of COVID-19–related discrimination.

Third, although our survey was designed to be representative of the major US racial/ethnic groups, stratified results for Asians by national origin may not be representative, and sample sizes were small in some groups. Finally, discrimination measures were based on individuals' perceptions of the motivation behind others' behaviors, and we did not ask about the perpetrators of discriminatory behaviors. Ethnographic approaches would enable a more nuanced understanding of these encounters. The extent to which our findings reflect actual discriminatory acts based on systemic racism, awareness or misperceptions of higher COVID-19 infection risks among certain racial/ethnic groups, a desire to protect oneself, and other factors needs to be investigated.

Public Health Implications

To our knowledge, this is the largest and most diverse survey on COVID-19–related discrimination in the United States to date, and it provides a critical update. Overall, in this nationally representative survey of US adults, we found that COVID-19–related discrimination was more prevalent than indicated in prior estimates and that all racial/ethnic minorities are at risk, with American Indian/Alaska Native, Asian, and Hawaiian/Pacific Islander adults experiencing the most discrimination. Limited English proficiency, lower education, and lower income were also significant predictors of discrimination. It appears that the COVID-19 pandemic has exacerbated preexisting resentment against racial/ethnic minorities, immigrants, and other marginalized communities. Moving forward, better efforts will be needed, especially from public officials, to minimize racially driven language around COVID-19 and future pandemics to stop targeted discrimination and xenophobia. AJPH

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CONTRIBUTORS

P. D. Strassle, A. L. Stewart, and A. M Nápoles designed the study. P. D. Strassle analyzed the data and wrote the first draft. All of the authors critically reviewed the article.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

HUMAN PARTICIPANT PROTECTION

The institutional review board of the National Institutes of Health determined that this study did not qualify as human subjects research because data were deidentified.

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