



# COVID-19 Related Racial Discrimination in Small Asian Communities: A Cross Sectional Study

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## Abstract

Since the outbreak of COVID-19, there has been a surge of discrimination against Asians across the globe. However, there is a knowledge gap of COVID-19 related racial discrimination against Asians in smaller Asian populations. A total of 221 adults living in Florida completed an online survey between June–July 2020. Adjusted logistic regression assessed associations between sociodemographic factors and experienced discrimination, hypervigilance of safety, nervousness in public, and anticipated discrimination. Statistical analyses were performed using SPSS. Asian respondents were more likely than non-Asians to experience discrimination during COVID-19 (AOR = 12.58; 95% CI 4.74, 33.38;  $p \leq 0.001$ ). Asians were more likely to anticipate discrimination after the pandemic ends (AOR = 4.35, 95% CI 1.33, 14.17;  $p < 0.05$ ). We found that Asians in smaller Asian populations suffer from a disproportionate level of discrimination due to COVID-19, relative to non-Asians. Our findings support previous research that racial discrimination exists on a continuum of violence and can have severe negative health consequences.

**Keywords** COVID-19 · Pandemic · Stigma · Asian · Discrimination · Racism

## Background

In March 2020, the World Health Organization (WHO) declared the novel COVID-19 outbreak as a pandemic [1, 2]. The pandemic which was traced to Wuhan, China, has caused devastating effects throughout the world and has impacted virtually all races and ethnicities; yet, some media propaganda in the United States (U.S.) have reported the virus as the “China Virus,” “Kung flu,” and “China virus pandemonium” [3]. Shortly after the US media’s association of COVID-19 with China, hate crimes against all Asians subgroups across the country drastically increased [2]. For example, there were over 1135 reports of COVID-19-related hate crimes and discrimination against Asians within the first 2 weeks of launching the STOP AAPI Hate crime incident reporting platform on March 19, 2020 [4]. In Midland,

Texas, there was an attempted murder of a Burmese-American family at a Sam’s Club for being Chinese and “infecting people with China Virus” [5]. Another study found that 30% of Americans blamed China and/or Chinese people for the COVID-19 pandemic, and one in three respondents witnessed someone blaming Asians for the pandemic [6]. In response to the surge of hate crimes, over 450 civil rights, social justice, and labor organizations called on Congress to denounce the hostile rhetoric against the Asian-American community [7].

Experienced discrimination can have negative long-term effects on Asian health outcomes, especially in regions where Asians are minorities and considered more ‘foreign,’ such as Florida [8]. Experienced discrimination is defined as the experience of stigmatizing behaviors from others. Exposure to racial or ethnic discrimination is a chronic source of trauma, resulting in long-term mental and physical disorders, such as cardiovascular disease [8–10]. Such correlation was observed in Muslims after the 9/11/2001 attacks on the U.S. World Trade Center. Muslims reported poorer mental health, scoring higher on depressive and PTSD symptoms than non-Muslim counterparts [11]. Furthermore, anticipated discrimination is defined as expectations of bias being perpetrated by others. Anticipated discrimination is also associated

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with increased depressive distress and cardiovascular stress responses, as demonstrated by studies among other stigmatized communities [12–14]. Anticipated discrimination can also contribute to an avoidance of accessing health services, leading to negative health outcomes [15]. Thus, examining racial discrimination is critical in recognizing and preventing the potential physical and mental harm it can cause.

Research indicates that over half of the reported hate crimes during the COVID-19 pandemic occurred in California and New York (58.5%), where Asians make up 14.7% and 8.5% of the population, respectively [16, 17]. On the other hand, only 1.6% of hate crimes were reported from Florida [16]. This may be due to a small number of Asians in Florida, as only Asians compose 2.8% of the state's population, or due to potential underreporting of hate crimes. Florida's racial distribution is mostly comprised of White, Hispanic, and Black individuals, respectively [16–18]. This paper operationalizes a "small Asian community" as a community in which less than 5.7% of the population is Asian, as labelled by U.S. Census Bureau in 2017 [19]. One paper in the 1980s examined the incidence of coronary abnormalities in a "small Asian population," where only 1.7% of the study area population was Asian [20]. Given that the Asian population in the U.S. quadrupled from 1980 to 2010 [21], we assessed Florida as having "small Asian communities." Discrimination in small Asian communities may be overlooked, underreported, and even more extreme than in communities with more Asians [18]. Thus, the current paper seeks to examine the impact of COVID-19 on the experienced discrimination of Asians in Florida. We hypothesized that Asians would experience more discrimination, be more hypervigilant, and be more nervous during the pandemic, and anticipate more discrimination after the pandemic ends, relative to non-Asians. To the best of our knowledge, this is the first paper to explore discrimination against Asians in small Asian communities during the COVID-19 pandemic.

## Theoretical/Conceptual Framework

This study is guided by The Health Stigma and Discrimination Framework to assess discrimination among this population and to understand health impacts [12]. This approach describes how racial stigma intersects with health-related stigmas and leads to social and health impacts. There are factors that drive the health-related stigma, and the stigma 'marking,' in which stigma is applied to people according to a specific health condition or other differences like race and occupation. Stigma manifests in a range of experiences and practices, including experienced stigma and anticipated stigma. An example of experienced stigma is the feeling one has after being unreasonably rejected in a job application whereas an example of anticipated stigma is when an

individual does not apply for a job because she/he expects to be rejected [12, 14]. For the purpose of this study, hypervigilance of safety and nervousness were added because previous studies have reported an association between racial harassment and hypervigilance among minorities, and discrimination and anxiety among Asian-Americans [22, 23]. The Health Stigma and Discrimination Framework guided us to examine these factors in the present study.

## Methods

### Participants and Data Collection

Data were collected through an online survey on Qualtrics (Qualtrics, Provo, UT) for three weeks between June and July 2020. There were 56 items on the survey. Recruitment occurred using respondent-driven sampling of popular opinion leaders and snowball sampling as is commonly used in cross-sectional internet based surveys targeting minority populations [24]. Accordingly, study staff emailed the survey to community leaders throughout Florida and requested they distribute the survey to their social networks. The survey was also available on social media platforms and sent out to various schools and organizations in order to recruit non-Asian respondents. The survey was available in languages common in Florida in order to include as many participants as possible: English, Spanish, Chinese (Simplified), Korean, Vietnamese, and Haitian Creole [25]. The survey was written in English, translated to each of these languages, then back-translated by a certified bilingual native translator [26]. Informed consent to participate in the study was obtained from all participants. Participant inclusion criteria included: (a) being age 18 years or older, and (b) living in Florida during the pandemic (January 2020 to the time of study participation). This study was reviewed and approved by the University of Miami's Institutional Review Board and adhered to the tenets of the Declaration of Helsinki. The data was stored on a university secured data network.

### Measures

Demographic and the experienced discrimination outcomes were both adapted from the "Mt. Sinai Speak UP on COVID-19 Survey," a survey that examined participants' COVID-19-related physical and mental health, social determinants, and attitudes [27]. We also adapted STOP AAPI's hate crime reporting form to assess reason and type of discrimination [28]. Non-Asians are those who did not identify themselves as Asian. Demographic characteristics included categorical measures of age categories in years (18–24 as referent group, 25–34, 35–44, 45–54, 55–64, 65+), gender (male as referent group, female, non-binary), sexuality

(heterosexual as referent, homosexual), race (non-Asian as referent group, Asian), country of birth (not born in the U.S. as referent, born in U.S), education (no college degree as referent, college degree), employment (full-time employment as referent, not full-time employment), and income (less than \$75,000 as referent, more than \$75,000). Continuous measures included length of stay in Florida in years. Respondents also reported their work situation during the pandemic (not working or working less as referent, working the same as or more than before the pandemic), and perceived number of Asians in their community (no Asians in community as referent, a few Asians in their community, a lot of Asians in their community).

The experienced discrimination measure asks participants to indicate the extent to which they have felt discriminated against during the pandemic. The anticipated discrimination measure asks participants to indicate the extent to which they expect to be discriminated against after the pandemic ends. The outcome variable of experienced discrimination and anticipated discrimination were coded as binary for ‘Not at all,’ and ‘Less than’=0, and ‘The same as,’ and ‘More than before the pandemic’=1. Participants who reported

experiencing discrimination were prompted with additional survey questions regarding the reason and type of discrimination. Hypervigilance of personal safety and nervousness of experiencing a hate crime in public spaces during the pandemic were ranked using a 5-point Likert scale (1 = strongly disagree and 5 = strongly agree).

## Qualitative

Participants who reported that they felt discriminated against ‘The same as’ or ‘More than before than pandemic’ were asked to follow-up with additional details of the experienced discrimination. Responses were translated to English if reported in another language. The qualitative data was not coded for this study.

## Statistical Analysis

Binary logistic regression models were used to assess associations between Asians versus non-Asians with socio-demographic characteristics, experienced discrimination, hypervigilance, nervousness, and anticipated discrimination

**Table 1** Socio-demographic characteristics

	Asians (n=168)	Non-Asian (n=53)	Total sample (n=221)
Age			
18–24	20.2%	52.8%*	28.1%
25–34	25.0%	30.2%	26.2%
35–44	15.5%	3.8%	12.7%
45–54	17.9%	9.4%	15.8%
55–64	16.7%	1.9%	13.1%
65+	4.8%	1.9%	4.1%
Sexuality (heterosexual)	86.3%	79.2%	84.6%
Gender (male)	32.7%	30.2%	32.1%
Asians in community			
None	8.3%	11.3%	9.0%
Few	75.0%	71.7%	74.2%
A lot	16.7%	17.0%	16.7%
Length of stay in FL (in years, mean $\pm$ SD)	14.6 $\pm$ 11.8	13.7 $\pm$ 10.5	14.4 $\pm$ 11.5
Born in USA (yes)	22.6%	75.5%*	35.3%
Education (> graduated from college)	85.1%	86.8%	85.5%
Employment (full-time)	45.8%	26.4%*	41.2%
Income (> \$75,000)	31.5%	39.6%	33.5%
Not working/working less in COVID	46.4%	30.2%*	42.5%
Completed the survey in an Asian language	41.1%	1.9%*	31.7%
Experienced discrimination (the same as or more than)	56.5%	18.9%*	47.5%
Anticipated discrimination (the same as or more than)	63.1%	28.3%*	54.8%
Hypervigilance (agree or strongly agree)	58.4%	9.5%*	46.6%
Nervousness (agree or strongly agree)	41.0%	7.6%*	33.0%

SD standard deviation

\*p<0.05: significant difference between Asians and non-Asians

(Table 1). Adjusted odds ratio (AOR), 95% confidence intervals (CI) and the p-values were calculated using SPSS Statistics (Version 26.0.0, 2019, Armonk, NY).

## Results

Table 1 describes the socio-demographic information of respondents. Of 168 Asian and 53 non-Asian participants, the majority were between ages 18 to 45 years (60.7% of Asians and 86.8% of non-Asians). Of the non-Asians, 66.7% were White, 21.1% were Hispanic, 19.3% were Black, and 7.1% also identified as Other. Participants were allowed to check on more than one racial subgroup. While 75.5% of non-Asians were born in the U.S., only 22.6% of Asian respondents were born in the U.S. Of the 77.4% Asians born outside of the U.S., the majority of respondents were born in China ( $n = 88$ ) and South Korea ( $n = 17$ ). Furthermore, 46.4% of Asian respondents and 30.2% of the non-Asian reported not working or working less during the COVID-19 pandemic. The majority of participants reported living in communities with ‘no or few’ Asians (83.2%), and only 16.7% in communities with ‘a lot’ of Asians.

### Experienced Discrimination

As seen in Table 2, respondents who were between the ages 45 to 54 years (AOR = 0.24; 95% CI 0.07, 0.83;  $p < 0.05$ ) and ages 65 years and older (AOR = 0.04, 95% CI 0.004, 0.44;  $p < 0.05$ ) were less likely to report experienced discrimination than respondents who were between ages 18 to 24 years. Asian respondents were more likely to report experienced discrimination during the COVID-19 pandemic relative to non-Asians (AOR = 12.58; 95% CI 4.74, 33.38;  $p \leq 0.001$ ). Distribution of responses for experienced discrimination between Asians and non-Asians is shown in Fig. 1. There was no statistical difference in experienced discrimination between non-Chinese Asians and Chinese Asians. There was no statistical difference in the length of stay in Florida and experienced discrimination. Of the 95 Asian participants who reported experiencing discrimination during the pandemic, 86 respondents indicated the reason(s) for discrimination—94.2% believed it was due to racial profiling and 36.0% believed wearing a mask to be the cause. Others believed it was due to their gender (4.7%), age (4.7%), or other (16.4%), such as, sexuality, religion, education, clothing, job, and home location. Furthermore, of 82 Asian respondents who indicated the type of discrimination, 43.9% reported shunning and 41.5% reported being verbally harassed. Some participants (15.9%) reported that their discrimination was through social media platforms and 12.2% reported that it was a workplace discrimination. A

quarter (25.5%) reported that they were either cough or spat on, barred from establishment, or experienced vandalism.

### Hypervigilance During COVID-19

More than half of Asian respondents (58.4%) reported being hypervigilant of their personal safety due to their race/ethnicity during COVID-19 (Fig. 2). As shown in Table 2, participants who experienced discrimination during COVID-19 were more likely to report hypervigilance for their safety than those who have not experienced discrimination, regardless of their race (AOR = 1.79; 95% CI 1.01, 3.19;  $p < 0.05$ ). Compared to non-Asians, Asians were more likely to report hypervigilance for their safety (AOR = 11.03; 95% CI 4.83, 25.23;  $p < 0.001$ ).

### Nervousness During COVID-19

Similarly, 41.0% of Asian participants reported being nervous/scared to go to public place because they may experience discrimination due to their race/ethnicity (Fig. 2). They were also more likely to report that they were nervous/scared to go outside to public places because of fear of experiencing discrimination due to their race/ethnicity than non-Asians (AOR = 3.03; 95% CI 1.68, 5.47;  $p < 0.05$ ). Those who completed the survey in an Asian language were more likely to indicate that they were nervous/scared than those who completed the survey in a non-Asian language (AOR = 2.56; 95% CI 1.25, 5.24;  $p < 0.05$ ).

### Anticipated Discrimination

As shown in Fig. 1, 63.7% of Asian participants and 28.3% of non-Asian participants reported that they anticipate similar or higher levels of discrimination after the pandemic ends. Respondents who reported experienced discrimination during the pandemic were more likely to report that they anticipate similar or a higher level of discrimination after the pandemic ends than those who did not experience racial discrimination (AOR = 29.36; 95% CI 11.54, 74.73;  $p < 0.001$ ; Table 2). Respondents who were ages 55–64 years were less likely to report similar or a higher level of discrimination than other age groups post-pandemic (AOR = 0.12; 95% CI 0.02, 0.70;  $p < 0.05$ ). Respondents who reported working the same or more during the pandemic than before were more likely to report that they anticipate similar or higher level of discrimination after the pandemic (AOR = 2.55; 95% CI 1.04, 6.38;  $p < 0.05$ ). Asian respondents were more likely to report that they anticipate similar or higher level of discrimination after the pandemic than non-Asians (AOR = 4.35,

**Table 2** The association between socio-demographic characteristics with experienced discrimination, hypervigilance, nervousness, and anticipated discrimination

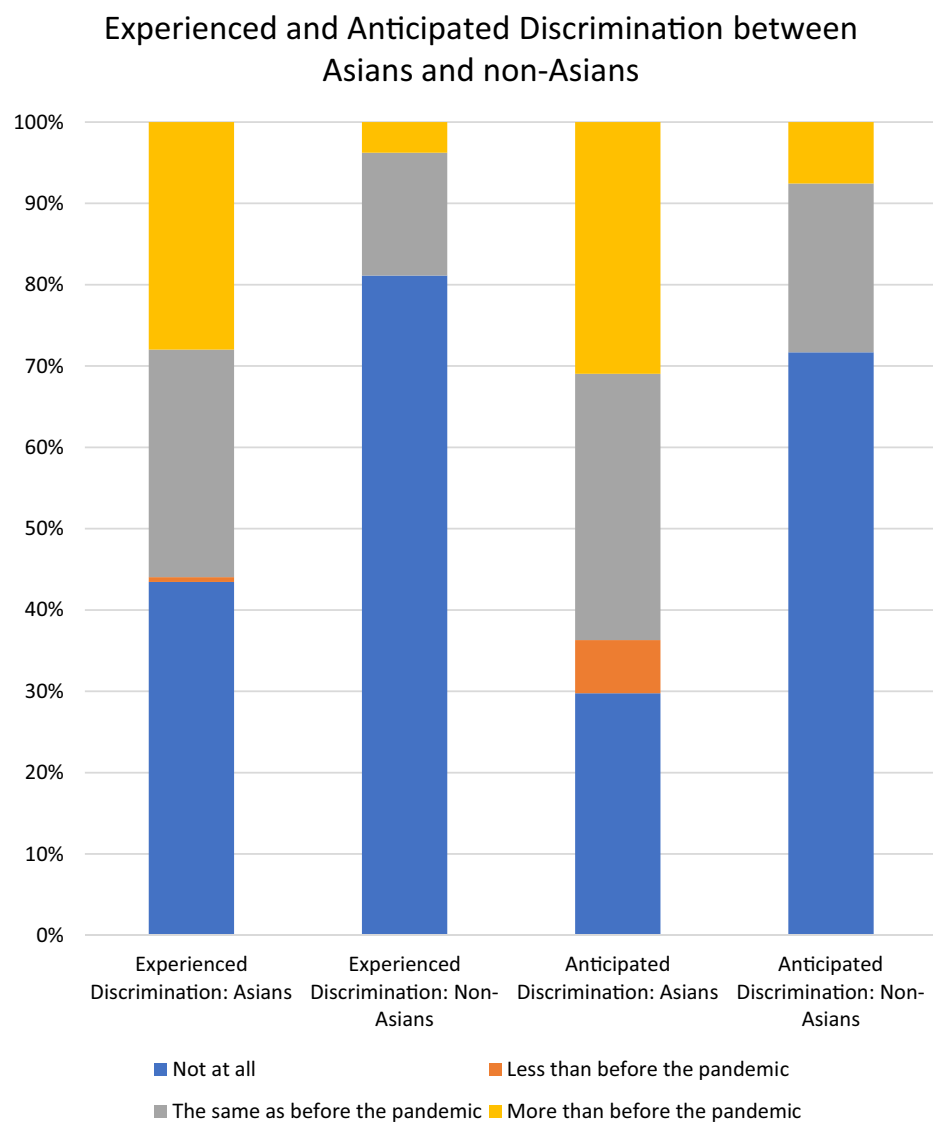
	Experienced discrimination			Hypervigilance			Nervousness			Anticipated discrimination		
	AOR	95%CI	p-value	AOR	95%CI	p-value	AOR	95%CI	p-value	AOR	95%CI	p-value
<i>Age group (in years)<sup>g</sup></i>												
25–34	0.81	0.31–2.14	0.67	1.26	0.59–2.78	0.53	0.64	0.33–1.63	0.45	0.44	0.13–1.51	0.19
35–44	0.62	0.19–2.03	0.43	0.87	0.33–2.28	0.78	0.81	0.30–2.16	0.67	0.26	0.055–1.22	0.09
45–54	<b>0.24</b>	<b>0.07–0.83</b>	<b>0.03*</b>	0.95	0.35–2.57	0.92	1.46	0.52–4.11	0.47	0.51	0.10–2.53	0.41
55–64	0.37	0.10–1.36	0.14	1.28	0.44–3.85	0.64	1.20	0.40–3.64	0.74	<b>0.12</b>	<b>0.02–0.70</b>	<b>0.018**</b>
65 +	<b>0.04</b>	<b>0.004–0.44</b>	<b>0.008*</b>	0.71	0.18–2.87	0.63	1.39	0.34–5.66	0.64	0.10	0.008–1.24	0.07
<i>Non-heterosexual orientation<sup>b</sup></i>	1.20	0.50–2.91	0.68	1.26	0.61–2.58	0.54	1.30	0.62–2.73	0.49	1.87	0.61–5.73	0.27
<i>Gender<sup>f</sup></i>	1.20	0.60–2.42	0.61	0.91	0.52–1.60	0.75	0.98	0.56–1.72	0.94	0.80	0.32–1.98	0.63
Female												
Non-binary	7.17	0.61–84.89	0.12	0.73	0.07–7.19	0.78	1.47	0.16–13.52	0.74	0.12	0.005–2.55	0.17
<i>Race: Asian<sup>d</sup></i>	<b>12.58</b>	<b>4.74–33.38</b>	<b>0.000***</b>	<b>11.03</b>	<b>4.83–25.23</b>	<b>0.000***</b>	<b>7.15</b>	<b>3.12–16.40</b>	<b>0.000***</b>	<b>4.35</b>	<b>1.33–14.17</b>	<b>0.015**</b>
<i>Asians in Community<sup>e</sup></i>	3.04	1.00–9.27	0.05	1.13	0.47–2.76	0.78	1.42	0.56–3.59	0.46	1.15	0.31–4.2	0.84
Few												
A lot	0.63	0.17–2.24	0.49	0.50	0.18–1.44	0.20	0.82	0.28–2.40	0.71	1.30	0.28–6.00	0.74
<i>Length of stay in FL (years)</i>	1	0.96–1.03	0.68	0.99	0.96–1.02	0.45	1.00	0.97–1.02	0.70	1.00	0.96–1.05	0.89
<i>Born in the USA<sup>f</sup></i>	0.84	0.34–2.06	0.70	0.90	0.45–1.81	0.77	0.85	0.42–1.73	0.66	2.76	0.83–9.20	0.10
<i>Education (graduated from college)<sup>g</sup></i>	0.55	0.22–1.38	0.20	1.08	0.50–2.32	0.85	1.24	0.57–2.69	0.59	1.39	0.43–4.48	0.59
<i>Full-time employment<sup>h</sup></i>	0.54	0.24–1.21	0.14	0.93	0.48–1.81	0.84	0.84	0.43–1.64	0.62	0.69	0.24–1.99	0.49
<i>Income of \$75,000 or more<sup>i</sup></i>	1.11	0.55–2.26	0.77	0.68	0.39–1.20	0.18	0.59	0.33–1.06	0.075	0.74	0.31–1.79	0.51
<i>Working more during COVID<sup>j</sup></i>	1.33	0.66–2.68	0.43	1.21	0.69–2.12	0.51	0.96	0.54–1.71	0.89	<b>2.55</b>	<b>1.05–6.28</b>	<b>0.041*</b>
<i>Completed the survey in an Asian language<sup>k</sup></i>	0.51	0.22–1.19	0.12	1.57	0.78–3.15	0.20	<b>2.56</b>	<b>1.25–5.24</b>	<b>0.01*</b>	2.93	0.96–8.92	0.06
<i>Experienced discrimination during COVID</i>	–	–	–	<b>1.79</b>	<b>1.008–3.19</b>	<b>0.047*</b>	<b>3.03</b>	<b>1.68–5.47</b>	<b>0.000***</b>	<b>29.36</b>	<b>11.53–75.73</b>	<b>0.000***</b>

Bold values are statistically significant (p < 0.05)

\*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001

Referent groups: <sup>a</sup>18–24 years old; <sup>b</sup>Heterosexual; <sup>c</sup>Male; <sup>d</sup>Non-Asian; <sup>e</sup>No Asians in community; <sup>f</sup>Born outside of U.S.; <sup>g</sup>No college degree; <sup>h</sup>Not full-time work; <sup>i</sup>Less than \$75,000; <sup>j</sup>Not working or working less during COVID-19; <sup>k</sup>Completed the survey in English or Spanish

**Fig. 1** Distribution of responses for experienced and anticipated discrimination



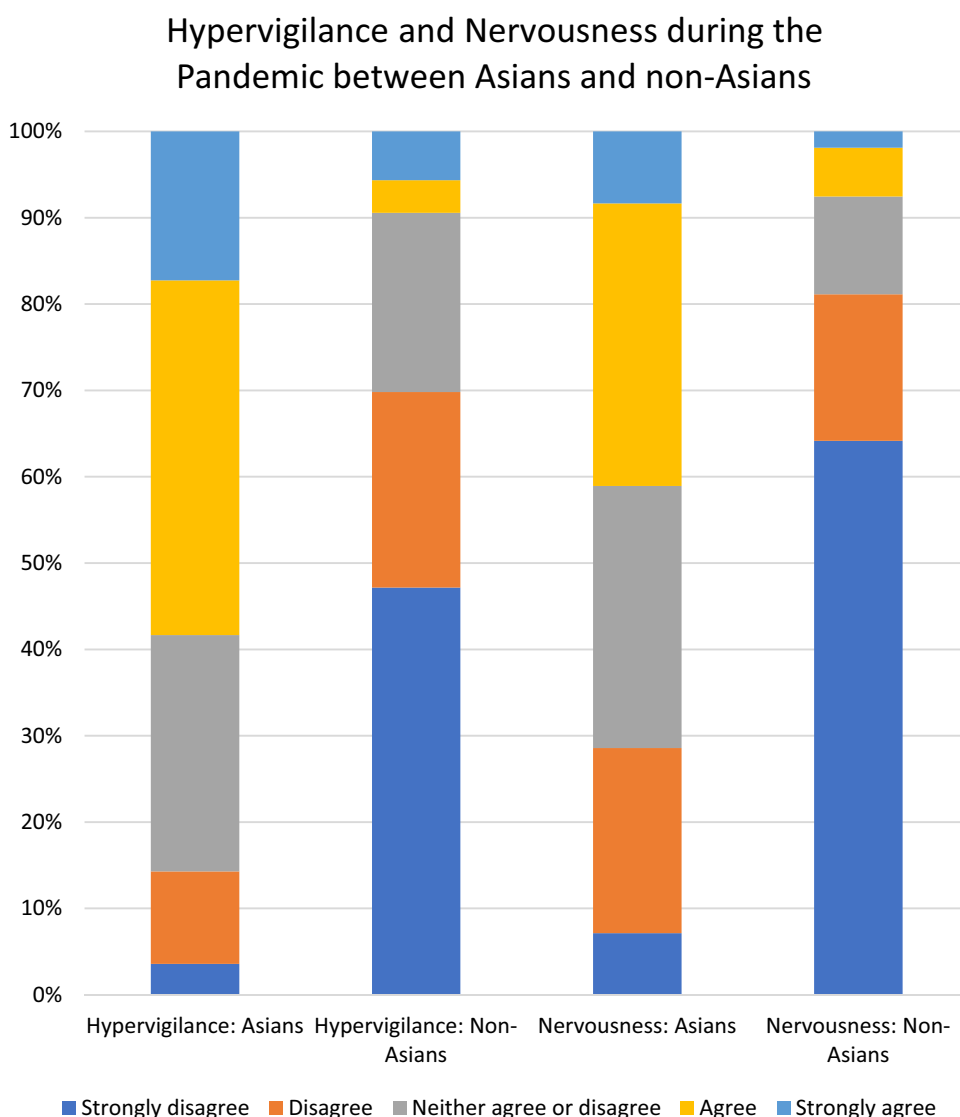
95% CI 1.33, 14.17;  $p < 0.05$ ). Lastly, there was no statistical difference in anticipated similar or higher level of discrimination between non-Chinese Asians and Chinese Asians.

### Qualitative Findings

Of the Asians who experienced racial discrimination during COVID-19, 39 participants described their racial encounter. One description was excluded because it was not a racial discrimination; the individual described that she or he had to quarantine after returning to Miami. There were 11 male and 27 female participants. Most of the experiences (20) were verbal harassment. Of these, seven participants were referred to as “China Virus” and 13 were verbally attacked. For example, the respondents shared that, “two men saw me wear a mask and shouted, ‘Chinese Virus’ and ‘I was told that the virus is in Chinese blood.’” Those who were verbally

attacked were told “*Go back to where you came from.*” One participant shared that she or he felt like an ‘outsider’ when trying to enter an open community: “A security guard... suddenly shouted at me, ‘Hey Mandarin! Mandarin! The [Brickell key] island is closed!’”; he did not say [anything] to other people crossing the bridge.” Fourteen participants experienced microaggressions such as people frantically putting on their mask when passing by them and people glaring at them while grocery shopping. Two participants shared that they experienced racial discrimination on social media. Lastly, one encountered vandalism: “*While driving, someone kept throwing garbage at my car window.*”

**Fig. 2** Distribution of responses for hypervigilance and nervousness during pandemic



## Discussion

Our study examined the impact of COVID-19 on experienced racial discrimination in small Asian communities. Our findings suggest that Asians were more likely to report experienced discrimination relative to non-Asians during the months of June and July 2020. Relative to non-Asians, our findings also suggest that Asians were more likely than non-Asians to report increased hypervigilance of their safety, nervousness in public, and anticipation of racial discrimination after the pandemic ends. Given that Asians in regions with minority Asian populations likely lack a strong cultural support network, these findings of disproportionate levels of discrimination are particularly concerning.

Experienced discrimination during COVID-19 can be detrimental to Asians because racial discrimination is associated with physical and mental health problems [29]. These associations were not assessed in-depth in this particular

study. Future studies can use a mixed methods exploratory approach to identify health problems using a qualitative approach then assess the saliency of health problems using a quantitative approach. Previous research found that language and racial discrimination among Asian Americans are associated with a lowered sense of community support and chronic conditions, such as obesity, hypertension, heart attack, diabetes, and mental disorders [8, 30]. This is concerning because respondents who completed the survey in an Asian language were more likely to report that they are nervous going outside than those who completed it in a non-Asian language. Given that self-reported racial discrimination among Asians nationwide is associated with anxiety and depressive disorders, and the general public has been experiencing higher scores of anxiety and depression compared to before COVID-19 [31, 32], Asians experience a double burden—the fear of discrimination on top of fear of COVID-19. These fears are further fueled by financial



insecurities, as we found that 46.4% of our respondents indicated not working or working less during the pandemic than before. This may be related to how Asian businesses have been affected due to the COVID-19-related racial discrimination [33]. Such financial stress and insecurity have been associated with long-term poorer health and psychological distress [34, 35]. Furthermore, fear of discrimination may deter Asians from accessing healthcare because scapegoated groups are often more reluctant to seek out medical care even when symptomatic, relative to those non scapegoated groups [26]. Therefore, in conjunction with a decreased likelihood of seeking out healthcare due to fear of mistreatment, discrimination could lead to longitudinal health consequences that disproportionately affect Asians in areas with smaller Asian populations.

Another matter of concern is how the discrimination may affect individuals' willingness to adhere to preventative measures for COVID-19. In June 2020, the World Health Organization (WHO) released guidelines on the proper use of masks to prevent the transmission of COVID-19 [36]. Despite this being a national guideline, over one-third of our respondents reported the cause of their experienced discrimination as mask-wearing and some respondents shared that they were verbally attacked for wearing a mask. Another national survey from June found that 36% of Asians worried that people would be suspicious of them if they wore a mask [37]. This is concerning because even though mask-wearing was a national recommendation, and a required mandate in some counties, Asians were assaulted and discriminated against for adhering to the guidelines [38]. Discrimination due to mask-wearing can potentially be attributed to the fact that face masks are less common in Western culture, while considered a hygiene etiquette in many Asian countries [39]. Further, this fear of discrimination may disincentivize individuals from testing for COVID-19 as a positive result would confirm the existing prejudices [40]. This may also prevent individuals from following Centers for Disease Control and Prevention's recommendations on maintaining a six feet social distance and avoiding large crowds [41]. Thus, fear of discrimination is associated with more high-risk behavior and fewer health-promoting activities [42], indicating that individuals may not wear their mask, avoid testing, and refuse to comply with social distancing rules in order to disassociate themselves from the stigma. Overall, discrimination against Asians for mask-wearing can exacerbate the transmission of the virus and should be addressed to curtail the COVID-19 pandemic.

Although less than 2% of reported discrimination in STOP AAPI Hate occurred in Florida [16], our findings demonstrate that Asians in Florida have experienced racial discrimination during the pandemic and anticipate continued or increased level of discrimination after the pandemic ends. This further accentuates that their experiences may be

overlooked and underreported. Previous research has found that Chinese-Americans who lived in neighborhoods with no other Chinese-Americans were 3.45 times more likely to experience unfair treatment than those who lived within all-Chinese communities. Our findings also suggest that Asians in small Asian communities may experience more racial discrimination than those who live in communities with larger Asian populations. This difference in discrimination is likely attributed to being considered more 'foreign' or as an 'outsider' in places with smaller Asian populations, just as one of our respondents shared about entering an open community [18]. In addition, most of our Asian respondents reported few or no Asians in their community. The lack of cultural support may also lead to negative health consequences because social support can buffer the relationship between discrimination and health, especially considering how emotional support can be protective against illness [43]. Future multilevel studies can understand the mediating impact of community-level factors on discrimination-related experiences and health outcomes.

Our findings are consistent with the nationwide STOP AAPI Hate data collected between March 19 and March 25, 2020 [5]: verbal harassment and shunning were the two leading attributable causes of discrimination. The STOP AAPI Hate survey and the present study reported race as the primary reason for discrimination (89.5% vs. 94.2%, respectively). Our findings offer a unique perspective of the disproportionate discriminations and subsequent health risks that Asians in isolated communities face during the COVID-19 pandemic. This necessitates additional longitudinal research to understand the impact that hypervigilance, nervousness to go out into the community, and anticipated post-pandemic discrimination can have on health outcomes.

## Study Limitations

Study limitations include recall and self-selection bias. Recall bias may occur if respondents are accustomed to experiencing discrimination, implying that these COVID-19 related experiences are not unique. Another limitation is the small size of the non-Asian participants and the lack of representation from other small minorities in Florida. Because we used respondent-driven sampling methods, there may be some sampling bias. There may have been self-selection bias because the sample was not randomly selected but recruited using respondent-driven sampling. Those who experienced discrimination may have participated in the survey because it is an opportunity to describe their experiences. Given that the survey was distributed via email and social media, those who are more active online will more likely complete the survey whereas others may delete the request. Additionally, Asians are a diverse group of different ethnicities who vary



linguistically, culturally, and historically from each other [8]. Therefore, experiences of discrimination could be subjective and culturally different. We did not code the qualitative findings as these analyses will be performed for a future study: instead, we chose to include a few illustrative quotes for the present publication. Lastly, another study limitation is the lack of evaluation of interaction effects as well as the a priori selection of independent variables. However, our analysis does not show collinearity between the variables as the variable inflation factor were all less than 2.0 [44].

## New Contribution to the Literature

To the best of our knowledge, this is the first study to examine experienced discrimination, hypervigilance, nervousness, and anticipated discrimination among Asians in Florida during the COVID-19 pandemic. Our findings indicate that small Asian communities in the U.S. experience a double burden: the fear of experiencing anti-Asian discrimination compounded with the fear of contracting COVID-19. Given that racial discrimination is intricately tied to severe physical and mental health outcomes among Asians, news agencies and health organizations should refrain from using discriminatory language (e.g. “China virus”) and attributing the disease to a race/ethnicity. In addition, public health campaigns should use careful and non-accusatory language free of biases to promote healthy behaviors in future, similar instances.

## Data and/or Code Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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## Declarations

**Conflict of interest** Authors have no relevant financial or non-financial interests to disclose. The authors also have no conflicts of interest to declare that are relevant to the content of the article.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Bioethics Committee of the University of Miami School of Medicine (No. 20200660).

**Consent to Participate** Informed consent was obtained from all individual participants included in the study.

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