

# PEDIATRICS

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

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**DOI:** 10.1542/peds.2020-021816

**Journal:** *Pediatrics*

**Article Type:** Regular Article

**Citation:** Cheah CSL, Wang C, Ren H, Zong X, Cho HS, Xue X. COVID-19 racism and mental health in Chinese American families. *Pediatrics*. 2020; doi: 10.1542/peds.2020-021816

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## COVID-19 Racism and Mental Health in Chinese American Families

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**Conflict of Interest Disclosures (includes financial disclosures):** All of the authors have no conflicts of interest to disclose.

**Funding/Support:** All phases of this study were supported by a National Science Foundation RAPID Response Award (#2024124)

**Role of Funder/Sponsor:** The NSF had no role in the design and conduct of the study

### Table of Contents Summary

This study examined the rates of COVID-19 racism and racial discrimination experienced by Chinese American parents and youth and associations with their mental health.

### What's Known on This Subject

Increased rates of COVID-19 racial discrimination against Asian American have been documented by reporting centers and polls, but no data exist on children/adolescents' and their parents' experiences and associations with their mental health.

### What This Study Adds

This study demonstrates that high proportions of Chinese American youth and adults experienced COVID-19 racial discrimination across multiple dimensions. Associations with lower psychological well-being and higher internalizing and externalizing problems were found. Children/adolescents were also vulnerable to their parents' experiences.

### Contributors' Statement Page

Dr. Charissa S. L. Cheah conceived the study design, supervised data collection, conducted the literature search, and led the writing of the manuscript. Dr. Cixin Wang supervised data collection and reviewed and revised the manuscript. Mr. Huiguang Ren contributed to the data collection, conducted the analyses and reviewed and revised the manuscript. Ms. Xiaoli Zong contributed to the data collection, assisted with the analyses and drafted the writing of the method and results sections, and reviewed and revised the manuscript. Ms. Hyun Su Cho contributed to the data collection, assisted with the literature review and writing of the manuscript. Xiaofang Xue contributed to the data collection and assisted with the writing of the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

## Abstract

### Objective

The COVID-19 pandemic has fueled xenophobia against Chinese Americans. We examined the rates of 6 types of COVID-19 racism and racial discrimination experienced by Chinese American parents and youth, and associations with their mental health.

### Methods

This self-reported survey study conducted from March 14<sup>th</sup> -May 31<sup>st</sup>, 2020, recruited a population-based sample of Chinese American families via phone, e-email, and social media. Eligible parent participants identified as ethnically-racially Chinese, lived in the United States, and had a 4- to 18-year-old child; their 10- to 18-year-old children were also eligible to participate.

### Results

The sample included 543 Chinese American parents (mean [SD] age, 43.44[6.47] years; 425 mothers [78.3%]) and 230 of their children (mean [SD] age, 13.83[2.53] years; 111 girls [48.3%]) participated. Nearly half of parents and youth reported being directly targeted by COVID-19 racial discrimination online (parents: 172[31.7%], youth: 105[45.7%]) and/or in person (parents: 276[50.9%], youth: 115[50.2%]). 417[76.8%] parents and 176[76.5%] youth reported at least one incident of COVID-19 vicarious racial discrimination online and/or in person (parents: 481[88.5%], youth: 211[91.9%]). 267[49.1%] parents and 164[71.1%] youth perceived health-related Sinophobia in America and 274[50.4%] parents and 129[56.0%] youth perceived media-related Sinophobia. Higher levels of parental and youth perceived racism and racial discrimination were associated with poorer mental health in parents and youth.

### Conclusion

Healthcare professionals must attend to the racism-related experiences and mental health needs of Chinese American families, especially children/adolescents, throughout the COVID-19 pandemic via education and making appropriate mental health referrals. The long-term consequences of these experiences need further examination.

## COVID-19 Racism and Mental Health among Chinese American Families

The COVID-19 pandemic has refueled racist tropes about the Chinese (e.g., eating “strange” foods and being disease-ridden) that are veiled under health-related fears.<sup>1,2</sup> Racism and experiences of racial discrimination are known contributors to health disparities.<sup>3</sup> We responded to calls in public health and medicine for research attention to the racism pandemic targeting Asian Americans.<sup>1,2</sup> This study is first to report on multiple dimensions of perceived racial discrimination *due to COVID-19* that are experienced by Chinese American parents and their children.

Almost 1900 reports of discrimination targeting Asian Americans have been made since March 19<sup>th</sup>, 2020.<sup>4</sup> This heightened xenophobia during this pandemic reflects perceptions of Chinese Americans as “perpetual foreigners,”<sup>5</sup> threatening the physical and cultural health of a white Anglo-dominant U.S. society.<sup>6</sup> Indeed, increased Sinophobia<sup>7</sup> was documented on social media feeds during the COVID-19 outbreak.<sup>8</sup>

We focused on individuals of Chinese descent, who have been specifically targeted because the COVID-19 virus was first identified in Wuhan, China, and subsequently referred to as the “China/Chinese virus” or “Wuhan virus.”<sup>1</sup> The negative impact of perceived racial discrimination on general psychological distress, anxiety, and depressive symptoms in Chinese Americans has been documented.<sup>9-11</sup> However, the associations between discrimination triggered by the racialization of this acute public health crisis and mental health are unknown.

Racism occurs in various interpersonal, institutional, and cultural contexts, and discrimination based on race is manifested in various forms and levels, including through systems and structures<sup>2,3,12</sup> These experiences are stressors that lead to the disruption of homeostasis and “wear and tear” of body systems.<sup>6,13</sup> Racial discrimination can be experienced

directly or vicariously where one witnesses, reads or hears about an incident of discrimination directed at same-race others. With social distancing requirements, online experiences with discrimination may be particularly salient.<sup>15</sup> Therefore, we assessed participants' perceptions of *direct* and *vicarious* racial discrimination experiences both *in person* and *on-line*. We captured discriminatory experiences specifically due to COVID-19<sup>14</sup> (e.g., referred blame for the COVID-19 pandemic).

Harrell (2000)<sup>12</sup> highlighted that stress can be derived from the cultural-symbolic and sociopolitical manifestations of racism. Racism at the collective or group level, i.e., *collective racism*, does not involve personal experience or the witnessing of or hearing about any specific incident associated with identifiable individuals.<sup>12</sup> We examined perceived *collective racism* in the forms of health-related Sinophobia, where the Chinese are considered a health threat to American society, and the media's role in perpetuating Sinophobia, both of which are relevant during the COVID-19 pandemic.

To summarize, we examined the following racism and racial discrimination experiences of Chinese American parents and youth due to COVID-19: (1) online direct; (2) online vicarious; (3) in-person direct; and (4) in-person vicarious; and their perceptions of (5) health-related Sinophobia; and (6) Sinophobia in the media. We next assessed associations between these experiences and mental health indices in Chinese American parents (psychological well-being, generalized anxiety symptoms, and depressive symptoms) and youth (psychological well-being, generalized anxiety symptoms, and internalization and externalizing problems).

## Methods

### Participants and Procedures

Parents who identified as ethnically-Chinese residing in the United States with at least one 4- to 18-year-old child were eligible to participate. From this convenience sample, the 10- to 18-year-olds completed their own surveys, resulting in a subsample of 230 parent-child dyads. Participants were recruited through phone calls and distribution of flyers via e-mail, Facebook and WeChat. This recruitment strategy was necessary because we targeted a specific minority group within a short period, and social distancing regulations did not allow community-based data collection. The research protocol was approved by [Blinded] institutional review board. Parents consented for themselves and their children, whose online assent was obtained separately. The surveys were hosted on the *Qualtrics* online platform between March 14<sup>th</sup> to May 31<sup>st</sup>, 2020. Measures were available in English, simplified, or traditional Chinese using the back-translation method.<sup>16</sup> Parents and youth received e-gift cards (\$20 and \$10, respectively) as compensation.

## Measures

Parents reported on their demographic characteristics. Parents and youth self-reported on their own perceptions of six types of racial discrimination due to COVID-19 and their mental health. We adapted existing validated measures to ensure that we captured perceived COVID-19-related racial discrimination experiences that were culturally relevant and due to their racial-ethnic heritage (see Additional Materials). The psychometric properties presented here pertain to the current sample.

*Online direct and vicarious racial discrimination* were measured using items adapted from the Online Victimization Scale for Adolescents.<sup>17</sup> *Online direct* forms was assessed using four items (e.g., “Due to COVID-19, people have said mean or rude things about me because of my race or ethnic group online;” parent  $\alpha=.91$  for, youth  $\alpha=.85$ ). *Online vicarious* forms were

assessed using three items (e.g., “Due to COVID-19, people have cracked jokes about people of my race or ethnic group online;” parent  $\alpha=.93$ , youth  $\alpha=.92$ ). Respondents rated how often they experienced each incident on a 6-point scale ranging from 1 (*never*) to 6 (*everyday*).

*In-person direct racial discrimination* was assessed using items adapted from the Racial and Ethnic Microaggressions Scale.<sup>18</sup> Five items were used for the parent survey and four items were used for the youth survey (e.g., “Some people were unfriendly or unwelcoming toward me because of my Chinese background;” parent  $\alpha=.95$ , youth  $\alpha=.84$ ). Respondents rated how often they experienced each incident because of COVID-19 on a 6-point scale ranging from 1 (*never*) to 6 (*everyday*).

*In-person vicarious racial discrimination* was measured using four items adapted from the Asian American Racism-Related Stress Inventory<sup>19</sup> (e.g., “Someone said something negative about Chinese people [for example, their diet] related to the COVID-19 outbreak;” parent  $\alpha=.86$ , youth  $\alpha=.84$ ). Respondents rated how often they experienced each incident on a 6-point scale ranging from 1 (*never*) to 6 (*everyday*).

*Sinophobia* was assessed using items adapted from the Perceived Islamophobia Scale.<sup>20</sup> *Health-related Sinophobia* was assessed using three items (e.g., “A lot of Americans consider Chinese people as a threat to public health in America;” parent  $\alpha=.71$ , youth  $\alpha=.66$ ). *Sinophobia in the media* was assessed using five items (e.g., “U.S. media presents Chinese people as dangerous;” parent  $\alpha=.95$ , youth  $\alpha=.95$ ). Respondents indicated their agreement with each item using a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

*Psychological well-being* was measured using Ryff’s 18-item Psychological Well-Being Scale.<sup>21</sup> Respondents rated the items (e.g., “When I look at the story of my life, I am pleased

with how things have turned out;” parent  $\alpha=.86$ , youth  $\alpha=.83$ ) on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

*Generalized anxiety symptoms* were assessed using the 7-item Generalized Anxiety Disorder Screener.<sup>22</sup> Respondents rated how often they had been bothered by each symptom over the past 2 weeks (parents  $\alpha=.94$ , youth  $\alpha=.89$ ) on a 4-point scale ranging from 0 (*not at all sure*) to 3 (*nearly every day*).

*Depressive symptoms* in parents were measured using the 21-item Beck Depression Inventory-II.<sup>23</sup> Parents rated the presence and severity of their depressive symptoms during the past 2 weeks ( $\alpha=.93$ ) on a 4-point scale from 0 to 3.

*Internalizing and externalizing problems* in youth were assessed using the Strengths and Difficulties Questionnaire (SDQ).<sup>24</sup> Youth rated 20 items assessing internalizing (emotional symptoms and peer relationships) and externalizing (hyperactivity and conduct) difficulties since January 2020 ( $\alpha=.73$  for internalizing problems,  $\alpha=.76$  for externalizing problems) on a 3-point scale ranging from 0 (*not true*) to 2 (*certainly true*).

## Analyses

Parents’ and youth’s rates of racial discrimination were computed separately. Respondents’ highest score reported among all items was used to represent the highest frequency of each type of racial discrimination. The percentages of respondents’ highest frequencies of experiencing each type of racial discrimination were then computed. For health-related Sinophobia and Sinophobia in the media, respondents’ average scores across the items were computed to create three categories: (1) “Disagree” (scores below 3); (2) “Agree” (scores between 3-4); and (3) “Strongly Agree” (scores above 4). We then calculated the percentages of respondents’ level of agreement with each type of Sinophobia.

Next, three sets of associations were estimated using regressions (SPSS 26.0): (1) parents' perceived racial discrimination and their own mental health; (2) parents' perceived racial discrimination and their children's self-reported mental health; and (3) youth's perceived racial discrimination and their own mental health. Associations between the mean score of each type of racial discrimination and each mental health outcome were examined in separate regression models, with types of racial discrimination as predictors and mental health variables as outcomes. Covariates included parents' and youth's age, gender, nativity, region, and parent socio-economic status, which was coded using the Hollingshead Four-Factor Index of Social Status-Revised.<sup>25</sup> Confidence intervals were obtained using bootstrapping method of 2000 resampling replications. We used a threshold of 2-sided  $p < .05$  to define statistical significance.

## Results

The final sample included 543 Chinese American parents and a subsample of 230 of their children (10- to 18-year-olds). Response rate information was unavailable due to the convenience sampling design. Table 1 presents the sample's demographic characteristics and descriptive statistics for all study variables. Parent reporters were mostly mothers, foreign-born, residing in the Southern region of the United States, well-employed, and college-educated. On average, parents were in their 40s and had lived in the United States for more than 16 years.

Most youth were U.S.-born, and about equal numbers identified as female versus male.

For the youth SDQ, 12.61% ( $N=29$ ) of parents and 17.39% ( $N=40$ ) of youth reported scores for youth (14–19) that indicate a slightly elevated risk of clinically significant problems, and 6.09% ( $N=14$ ) of parents and 6.52% ( $N=15$ ) of youth reported scores for youth (20 or above), that indicate a substantial risk of clinically significant problems. Regarding the youth GAD-7, 8.26% ( $N=19$ ) reported moderate levels of anxiety symptoms (10-14), indicating a

moderate risk of anxiety disorder, and 3.04% ( $N=7$ ) reported high levels of anxiety symptoms (15 or above), indicating a high risk of anxiety disorder.

Figure 1 presents the percentages of perceived racial discrimination due to COVID-19. 31.7% of parents and 45.7% of youth reported experiencing direct racial discrimination at least once online with higher reported in-person rates (parents: 50.9%, children: 50.2%). Most parents and youth indicated witnessing vicarious racial discrimination at least once online (parents: 76.8%, children: 76.5%) and in person (parents: 88.5%, children: 91.9%); about one-fourth of both parents and youth experienced both types of vicarious racial discrimination almost every day. Participants' perceptions of Sinophobia in America are shown in Figure 2. A higher percentage of youth (71.1%) versus parents (49.1%) agreed or strongly agreed that health-related Sinophobia was present in America. More youth (26.3%) also endorsed strong agreement than parents (15.9%). One in two parents (50.4%) and youth (56.0%) agreed that the media perpetuated Sinophobia; approximately 20% strongly agreed.

Table 2 presents the statistics for associations between racial discrimination and parents' and youths' mental health. For parents, psychological well-being was negatively associated with online direct discrimination ( $b=-0.18, p<0.001, CI[-0.24, -0.11]$ ), in-person direct discrimination ( $b=-0.23, p<0.001, CI[-0.30, -0.16]$ ), health-related Sinophobia ( $b=-0.12, p<0.001, CI[-0.18, -.05]$ ), and media Sinophobia ( $b=-0.10, p=0.003, CI[-0.17, -0.03]$ ), but not associated with online vicarious discrimination ( $b=0.03, p=0.33, CI[-0.03, 0.10]$ ) and in-person vicarious discrimination ( $b=-0.04, p=0.22, CI[-0.11, 0.03]$ ). Anxiety and depressive symptoms were positively associated with all types of racial discrimination and Sinophobia ( $b$  ranging from 0.06 to 0.24, all  $p<.01$ ). For youth, psychological well-being was negatively associated with online direct discrimination ( $b=-0.16, p=0.002, CI[-0.26, -0.06]$ ), online vicarious discrimination ( $b=-$

0.11,  $p=0.04$ , CI[-0.22, -0.00]), in-person direct discrimination ( $b=-0.19$ ,  $p<0.001$ , CI[-0.29, -0.09]), health-related Sinophobia ( $b=-0.12$ ,  $p=0.03$ , CI[-0.23, -0.01]), and media Sinophobia ( $b=-0.13$ ,  $p=0.02$ , CI[-0.23, -0.02]), but not associated with in-person vicarious discrimination ( $b=-0.07$ ,  $p=0.21$ , CI[-0.18, 0.04]). Anxiety symptoms and internalizing problems were positively associated with all types of racial discrimination and Sinophobia ( $b$  ranging from 0.05 to 0.22, all  $p$ 's $<.01$ ). Externalizing problems were only positively associated with health-related Sinophobia ( $b=0.08$ ,  $p<0.001$ , CI[0.04, 0.13]) and media Sinophobia ( $b=0.08$ ,  $p<0.001$ , CI[0.03, 0.12]).

Parents' discrimination experiences were also significantly associated with their children's self-reported mental health. Parental in-person direct racial discrimination was negatively associated with youth-reported psychological well-being ( $b=-0.19$ ,  $p=0.004$ , CI[-0.30, -0.08]) and positively associated with youth-reported anxiety symptoms ( $b=0.19$ ,  $p<0.001$ , CI[0.10, 0.27]) and internalizing problems ( $b=0.07$ ,  $p=0.006$ , CI[0.03, 0.12]). Parental in-person vicarious racial discrimination was positively associated with youth-reported anxiety symptoms ( $b=0.08$ ,  $p=0.05$ , CI[0.00, 0.17]). Moreover, parental online direct racial discrimination was positively associated with youth-reported anxiety symptoms ( $b=0.11$ ,  $p=0.02$ , CI[0.02, 0.19]) and internalizing problems ( $b=0.07$ ,  $p=0.005$ , CI[0.03, 0.12]). Finally, parental perceptions of media Sinophobia were positively associated with youth-reported internalizing ( $b=0.06$ ,  $p=0.01$ , CI[0.01, 0.10]) and externalizing problems ( $b=0.04$ ,  $p=0.05$ , CI[0.00, 0.09]).

## Discussion

This study revealed that a high percentage of both Chinese American parents and their children personally experienced or witnessed anti-Chinese/Asian racial discrimination both online and in-person due to the COVID-19 pandemic. One in four parents and youth reported

vicarious racial discrimination almost every day and most respondents reported directly experiencing or witnessing racial discrimination targeting other Chinese or Asian individuals due to COVID-19 at least once. These numbers are highly concerning and support the calls for attention to the issue of racism during the COVID-19 pandemic.<sup>1,2</sup> We also assessed parents' and youth's perceptions of collective racism towards their racial-ethnic group (Sinophobia) and found that participants, especially youth, perceived that many Americans consider Chinese people and culture to be a threat to public health in the United States. More than half of parents and youth also believed that this fear and/or dislike of China, Chinese people, or culture were presented and promoted by the media. These findings likely reflect the source of the outbreak, and the use of terms the "China/Chinese Virus" or "Kung Flu" by government officials and the media.<sup>26</sup>

We found that COVID-19-experiences of racial discrimination were associated with higher levels of reported generalized anxiety and depressive symptoms, consistent with previous studies on daily discrimination.<sup>27,28</sup> Racial discrimination experiences can threaten individuals' identity and sense-of-control, and thus foster hopelessness and the internalization of negative attitudes from the dominant group.<sup>11</sup> Being the direct target of racial discrimination, both in-person and on-line, and perceptions of Sinophobia were also associated with poorer psychological well-being in adults, indicating that direct experiences may have additional detrimental effects on positive functioning.<sup>29</sup> The patterns of associations between racial discrimination and mental health were also similar for youth. However, witnessing others in their racial-ethnic group being victimized was associated with poorer psychological well-being only among youth, implying their greater vulnerability to vicarious racial discrimination likely due to developing social-cognitive and identity processes during this period.<sup>30</sup> Interestingly,

externalizing problems in youth were only associated with their perceptions of Sinophobia. Collective racism, such as Sinophobia, is directed against the group rather than individuals, and may be more evocative of tendencies to act out in youth because it is seen as a consistent and widespread prejudice that is less within their control.<sup>31</sup>

Unfortunately, Chinese American parents' perceptions of being direct victims of racial discrimination both online and in-person were associated with their children's self-reported anxiety and internalizing problems. Moreover, parents' perceptions of Sinophobia were associated with their children's self-reported externalizing problems, again highlighting the links between collective racism and externalizing problems in youth. Parents' own racial victimization experiences might impact their children's mental health either directly or indirectly through increased stress, a hostile family environment, and/or more negative parenting.<sup>28</sup> Pediatricians should pay greater attention to address youth's experiences within the family system.

Our results suggest that 18.7 to 23.91% of the youth had a slightly elevated to substantial risk of clinically significant mental health problems; these percentages are higher than the U.S. norm, where 10.9% of 15- to 17-year-olds and 14.3% of 11- to 14-year-olds have similar scores.<sup>32,33</sup> Also, a similar percentage of youth in our sample (11.3%) reported anxiety symptoms suggesting moderate to severe levels ( $\geq 10$ ) as Chinese youth during the COVID-19 outbreak in China (10.4%).<sup>34</sup> Thus, during well visits throughout this pandemic, pediatricians should be sensitive to the potential mental health needs of Chinese American youth and their parents related to various forms of racism in addition to other stressors as the foundations for perceptions of racial-ethnic discrimination and its consequences may be set during this period.<sup>30</sup> Screening tools (e.g., Child Depression Inventory (CDI-2), GAD, and SDQ) can be used to identify youth with mental health concerns and to facilitate referrals to mental health services using culturally

competent approaches that validate and normalize mental help-seeking behavior among Asian Americans.

### **Limitations**

These data were unique because of the timely focus on COVID-19 racial discrimination. However, future studies using more nationally representative Chinese American samples are warranted to increase the generalizability of our findings and to examine regional differences in discrimination experiences and their correlates.<sup>27</sup> Also, the use of self-reporting may be subject to social desirability bias,<sup>35</sup> which was not assessed. Statistical control for social desirability bias and the inclusion of different reporters are recommended for future research.

Further, longitudinal studies have found that discrimination predicts mental health and not the other way.<sup>36,37</sup> However, no causal interpretations can be made as our data were cross-sectional. We focused on the experiences of Chinese Americans, but other Asian American groups have been targeted by racism during COVID-19.<sup>4</sup> Thus, study of the shared and unique experiences and effects of racism in other Asian American subgroups are necessary.<sup>27</sup>

### **Conclusions**

The racialization of disease is not a new phenomenon. The first Severe Acute Respiratory Syndrome also led to increased racism targeting Chinese and other Asians.<sup>38</sup> Chinese communities historically have been perceived as public health problems in Western societies.<sup>1</sup> Thus, racial discrimination experienced during the current COVID-19 pandemic must be understood within this historical context, as it has important health care implications .

The course of this pandemic remains unclear. As social distancing regulations relax and greater intergroup interactions occur, acts of discrimination will likely increase. Future research identifying protective factors to decrease and ameliorate the negative effects of these experiences

is imperative. These findings call for effective public health and educational strategies to decrease the stigmatization of and discrimination against Asian Americans<sup>1,2</sup> and increased attention to their mental health needs related to racism during the COVID-19 pandemic, particularly among pediatric populations. Culturally sensitive care provided by pediatricians with attention to the unique challenges of Asian American families during the COVID-19 pandemic can improve quality of care and decrease health disparities in this growing population.

### Acknowledgments

We are grateful to Dr. Gilbert Gee for his valuable feedback on this manuscript.

### References

1. Gee GC, Ro MJ, Rimoin AW. Seven reasons to care about racism and COVID-19 and seven things to do to stop it. *Am J Public Health*. 2020;110(7):954-956. doi:10.2105/AJPH.2020.305712
2. Earnshaw VA, Katz IT. Educate, amplify, and focus to address COVID-19 misinformation. *JAMA Heal Forum*. 2020;1(4):e200460-e200460. doi:10.1001/JAMAHEALTHFORUM.2020.0460
3. Castle B, Wendel M, Kerr J, Brooms D, Rollins A. Public health's approach to systemic racism: a systematic literature review. *J Racial Ethn Heal Disparities*. 2019;6(1):27-36. doi:10.1007/s40615-018-0494-x
4. Anti-Chinese rhetoric tied to racism against Asian Americans stop AAPI hate report – CAA. Accessed June 25, 2020. <https://caasf.org/2020/06/anti-chinese-rhetoric-tied-to-racism-against-asian-americans-stop-aapi-hate-report/>
5. Huynh QL, Devos T, Smalarz L. Perpetual foreigner in one's own land: potential implications for identity and psychological adjustment. *J Soc Clin Psychol*. 2011;30(2):133-162. doi:10.1521/jscp.2011.30.2.133
6. Gee GC, Ro A, Shariff-Marco S, Chae D. Racial discrimination and health among Asian Americans: evidence, assessment, and directions for future research. *Epidemiol Rev*. 2009;31(1):130-151. doi:10.1093/epirev/mxp009

7. Nyland C, Forbes-Mewett H, Thomson SB. Sinophobia as corporate tactic and the response of host communities. *J Contemp Asia*. 2011;41(4):610-631. doi:10.1080/00472336.2011.610617
8. Schild L, Ling C, Blackburn J, Stringhini G, Zhang Y, Zannettou S. “Go eat a bat, chang!”: an early look on the emergence of sinophobic behavior on web communities in the face of COVID-19. Published 2020. Accessed June 25, 2020. <https://arxiv.org/abs/2004.04046>
9. Juang LP, Alvarez AA. Discrimination and adjustment among Chinese American adolescents: family conflict and family cohesion as vulnerability and protective factors. *Am J Public Health*. 2010;100(12):2403-2409. doi:10.2105/AJPH.2009.185959
10. Juang LP, Cookston JT. Acculturation, discrimination, and depressive symptoms among Chinese American adolescents: a longitudinal study. *J Prim Prev*. 2009;30(3-4):475-496. doi:10.1007/s10935-009-0177-9
11. Gee GC, Spencer M, Chen J, Yip T, Takeuchi DT. The association between self-reported racial discrimination and 12-month DSM-IV mental disorders among Asian Americans nationwide. *Soc Sci Med*. 2007;64(10):1984-1996.
12. Harrell SP. A multidimensional conceptualization of racism-related stress: implications for the well-being of people of color. *Am J Orthopsychiatry*. 2000;70(1):42-57. doi:10.1037/h0087722
13. Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans a biopsychosocial model conceptualizations of racism. *Am Psychol*. 1999;54(10):805-816. [http://hss.ucsf.edu/sites/hss.ucsf.edu/files/imported\\_pdf/clark\\_anderson\\_et\\_al\\_racism\\_as\\_stressor.pdf](http://hss.ucsf.edu/sites/hss.ucsf.edu/files/imported_pdf/clark_anderson_et_al_racism_as_stressor.pdf)
14. Seaton EK, Gee GC, Neblett E, Spanierman L. New directions for racial discrimination research as inspired by the integrative model. *Am Psychol*. 2018;73(6):768-780. doi:10.1037/amp0000315
15. Bliuc AM, Faulkner N, Jakubowicz A, McGarty C. Online networks of racial hate: a systematic review of 10 years of research on cyber-racism. *Comput Human Behav*. 2018;87(May):75-86. doi:10.1016/j.chb.2018.05.026
16. Pena ED. Lost in translation: methodological considerations in cross-cultural research. *Child Dev*. 2007;78(4):1255-1264.
17. Tynes BM, Rose CA, Williams DR. The development and validation of the online victimization scale for adolescents. *Cyberpsychology J Psychol Res Cybersp*. 2010;4(2):1-15. <http://cyberpsychology.eu/view.php?cisloclanku=2010112901&article=1>
18. Nadal KL. The racial and ethnic microaggressions scale (REMS): construction, reliability, and validity. *J Couns Psychol*. 2011;58(4):470-480. doi:10.1037/a0025193
19. Miller MJ, Kim J, Chen G, A. Alvarez AN. Exploratory and confirmatory factor analyses of the Asian American racism-related stress inventory. *Assessment*. 2011;19(1):53-64.

20. Kunst JR, Sam DL, Ulleberg P. Perceived islamophobia: scale development and validation. *Int J Intercult Relations*. 2013;37(2):225-237. doi:10.1016/j.ijintrel.2012.11.001
21. Ryff CD, Keyes CLM. The structure of psychological well-being revisited. *J Pers Soc Psychol*. 1995;69(4):719-727.
22. Spitzer RL, Kroenke K, Williams JBW, Lowe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med*. 2006;166(10):1092-1097.
23. Beck AT, Steer RA BG. Beck depression inventory-II. *San Antonio*. 1996;78(2):490-498.
24. Goodman R. The strengths and difficulties questionnaire: a research note. *J Child Psychol Psychiatry*. 1997;38(5):581-586.
25. Hollingshead AB. Hollingshead Four-Factor Index of Socio-Economic Status. *New Haven Yale Univ CT*. Published online 1979.
26. Schild L, Ling C, Blackburn J, Stringhini G, Zhang Y, Zannettou S. “Go eat a bat, Chang!”: An Early Look on the Emergence of Sinophobic Behavior on Web Communities in the Face of COVID-19. Published online April 8, 2020. <http://arxiv.org/abs/2004.04046>
27. Gee GC, Spencer MS, Chen J, Takeuchi D. A nationwide study of discrimination and chronic health conditions among Asian Americans. *Am J Public Health*. 2007;97(7):1275-1282. doi:10.2105/AJPH.2006.091827
28. Tran AGTT. Family contexts: parental experiences of discrimination and child mental health. *Am J Community Psychol*. 2014;53(1-2):37-46. doi:10.1007/s10464-013-9607-1
29. Tynes BM, Rose CA, Hiss S, Umaña-Taylor AJ, Mitchell K, Williams D. Virtual environments, online racial discrimination, and adjustment among a diverse, school-based sample of adolescents. *Int J Gaming Comput Simulations*. 2016;6(3):1-16.
30. Benner AD, Wang Y, Shen Y, Boyle AE, Polk R, Chenga Y-P. Racial/ethnic discrimination and well-being during adolescence: a meta-analytic review. *Am Psychol*. 2018;73(7):855-883.
31. Stevens GWJM, Thijs J. Perceived group discrimination and psychological well-being in ethnic minority adolescents. *J Appl Soc Psychol*. 2018;48(10):559-570. doi:10.1111/jasp.12547
32. SDQ frequency distribution for American 11-14 year olds. Accessed July 8, 2020. <https://www.sdqinfo.org/norms/USNorm5.pdf>
33. SDQ frequency distribution for American 15-17 year olds. Accessed July 8, 2020. <http://www.sdqinfo.org/norms/USNorm6.pdf>
34. Zhou SJ, Zhang LG, Wang LL, et al. Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19. *Eur Child Adolesc Psychiatry*. 2020;29(6):749-758. doi:10.1007/s00787-020-01541-4
35. Krieger N, Smith K, Naishadham D, Hartman C, Barbeau EM. Experiences of discrimination: validity and reliability of a self-report measure for population health

- research on racism and health building trust and value in health systems in low and middle income countries. *Soc Sci Med.* 2005;61(7):1576-1596.
36. Brody GH, Chen YF, Murry VMB, et al. Perceived discrimination and the adjustment of African American youths: a five-year longitudinal analysis with contextual moderation effects. *Child Dev.* 2006;77(5):1170-1189. doi:10.1111/j.1467-8624.2006.00927.x
  37. Kwate NOA, Goodman MS. Cross-sectional and longitudinal effects of racism on mental health among residents of Black neighborhoods in New York City. *Am J Public Health.* 2015;105(4):711-718. doi:10.2105/AJPH.2014.302243
  38. Person B, Sy F, Holton K, Govert B, Liang A, Sars N. Fear and stigma: the epidemic within the SARS outbreak bobbie. *Emerg Infect Dis.* 2004;10(2):358-363.

**Table 1.** *Statistics of demographic characteristics and variables of interest in the two samples*

	Parent Sample (N=543)		Dyad Sample (N=230)	
	Parent	Child	Parent	Child
<b>Demographic Characteristics</b>				
Age mean ( <i>SD</i> )	43.44 (6.47)	11.80 (4.04)	46.09 (5.14)	13.83 (2.53)
Age range	28 – 64	4 - 20	33-64	10 - 18
Years in the U.S. Mean ( <i>SD</i> )	16.80 (9.62)	10.26 (4.70)	18.52 (8.48)	12.33 (3.93)
Nativity				
	Foreign born	521 (95.9%)	130 (23.9%)	225 (97.8%)
	U.S. born	22 (4.1%)	413 (76.1%)	182 (79.1%)
Parent education				
	Less than high school graduate	39 (7.2%)	-	13 (5.7%)
	High school graduate	38 (7.0%)	-	14 (6.1%)
	Some college	28 (5.2%)	-	8 (3.5%)
	College graduate	113 (20.8%)	-	45 (19.6%)
	Graduate/Professional degree	325 (59.9%)	-	150 (65.2%)
Parent marital status				
	Married or remarried	489 (90.1%)	-	208 (90.4%)
	Divorced, separated, or widowed	54 (9.9%)	-	22 (9.6%)
Parent occupation				
	Administrators, professionals, and large business owners	288 (53.0%)	-	142 (61.7%)
	Technicians and small business owners	98 (18.0%)	-	32 (13.9%)
	Skilled workers	54 (9.9%)	-	21 (9.1%)
	Temporary workers	27 (5.0%)	-	10 (4.3%)
	Housewife or unemployed	76 (14.0%)	-	25 (10.9%)
Parent reporter				
	Mother	423 (77.9%)	-	183 (79.6%)
	Father	120 (22.1%)	-	47 (20.4%)
Child gender				
	Boys	-	288 (53.0%)	-
	Girls	-	255 (47.0%)	120 (52.1%)
				110 (47.9%)
Family region in the U.S. per U.S. Census Bureau				
	Region 1: Northeast	93 (17.1%)		20 (8.7%)
	Region 2: Midwest	31 (5.7%)		14 (6.1%)

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	Region 3: South	368 (67.8%)		179 (77.8%)
	Region 4: West	51 (9.4%)		17 (7.4%)
<b>COVID-19 Racial Discrimination Mean (SD)</b>				
Online direct	1.34 (0.76)	-	1.19 (0.55)	1.39 (0.81)
Online vicarious	2.30 (1.26)	-	2.25 (1.15)	2.34 (1.34)
In-person direct	1.58 (0.89)	-	1.45 (0.71)	1.48 (0.77)
In-person vicarious	2.49 (1.14)	-	2.44 (1.13)	2.65 (1.11)
Health Sinophobia	2.83 (0.94)	-	2.65 (0.89)	3.25 (0.84)
Media Sinophobia	2.81 (1.15)	-	2.67 (1.14)	2.88 (1.06)
<b>Mental Health Mean (SD)</b>				
Psychological well-being	5.18 (0.82)	-	5.31 (0.83)	4.98 (0.78)
Generalized anxiety	0.69 (0.68)	-	0.66 (0.70)	0.56 (0.61)
Depressive symptoms	0.36 (0.41)	-	0.32 (0.42)	-
Internalizing problems	-	-	-	0.51 (0.33)
Externalizing problems	-	-	-	0.55 (0.33)

*Note.*

Online direct and vicarious discrimination and in-person direct discrimination were measured on 6-point scales (1-6); In-person vicarious discrimination and health and media Sinophobia were measured on 5-point scales (1-5); Psychological well-being was measured on a 7-point scale (1-7); Generalized anxiety and depressive symptoms were measured on 4-point scales (0-3); Internalizing and externalizing problems were measured on 3-point scales (0-2).

**Table 2.** Results of the multiple regression models

Predictors: types of racial discriminat ion	<i>b</i> [95% CI] for parent sample (N=543)			<i>b</i> [95% CI] for parent-youth sample (N=230)			
	Parent psycholo gical well- being	Parent anxiety symptom s	Parent depressiv e symptom s	Youth psycholo gical well- being	Youth anxiety symptoms	Youth internaliz ing problems	Youth externaliz ing problems
Parent online direct	-0.18*** [-0.24, - 0.11]	0.18*** [0.12, 0.24]	0.14*** [0.10, 0.17]	-0.04 [-0.15, 0.08]	0.11* [0.02, 0.19]	0.07** [0.03, 0.12]	-0.02 [-0.07, 0.03]
Parent online vicarious	0.03 [-0.03, 0.10]	0.10*** [0.04, 0.16]	0.06*** [0.03, 0.10]	-0.01 [-0.12, 0.09]	0.03 [-0.05, 0.11]	0.02 [-0.02, 0.06]	-0.03 [-0.07, 0.02]
Parent in- person direct	-0.23*** [-0.30, - 0.16]	0.24*** [0.18, 0.30]	0.13*** [0.10, 0.17]	-0.19** [-0.30, - 0.08]	0.19*** [0.10, 0.27]	0.07** [0.03, 0.12]	-0.03 [-0.08, 0.02]
Parent in- person vicarious	-0.04 [-0.11, 0.03]	0.20*** [0.14, 0.25]	0.11*** [0.08, 0.15]	-0.04 [-0.15, 0.07]	0.08* [0.00, 0.17]	0.04 [-0.01, 0.09]	-0.03 [-0.08, 0.02]
Parent health Sinophobia	-0.12*** [-0.18, - 0.05]	0.16*** [0.11, 0.22]	0.07** [0.3, 0.11]	-0.07 [-0.18, 0.04]	0.06 [-0.02, 0.14]	0.03 [-0.01, 0.08]	0.04 [-0.01, 0.08]
Parent media Sinophobia	-0.10** [-0.17, - 0.03]	0.19*** [0.13, 0.25]	0.09*** [0.06, 0.13]	-0.06 [-0.16, 0.05]	0.06 [-0.02, 0.15]	0.06* [0.01, 0.10]	0.04* [0.00, 0.09]
Youth online direct				-0.16** [-0.26, - 0.06]	0.20*** [0.12, 0.27]	0.10*** [0.05, 0.14]	0.03 [-0.02, 0.08]
Youth online vicarious				-0.11* [-0.22, - 0.00]	0.13** [0.04, 0.21]	0.05* [0.01, 0.10]	0.01 [-0.04, 0.06]
Youth in- person direct				-0.19*** [-0.29, - 0.09]	0.22*** [0.14, 0.30]	0.12*** [0.08, 0.17]	0.03 [-0.01, 0.08]
Youth in- person vicarious				-0.07 [-0.18, 0.04]	0.18*** [0.10, 0.26]	0.06** [0.02, 0.11]	0.02 [-0.02, 0.07]
Youth health Sinophobia				-0.12* [-0.23, - 0.01]	0.13** [0.05, 0.22]	0.07** [0.02, 0.12]	0.08*** [0.04, 0.13]

Youth media Sinophobia	-0.13* [-0.23, - 0.02]	0.15** [0.07, 0.23]	0.08*** [0.03, 0.12]	0.08*** [0.03, 0.12]
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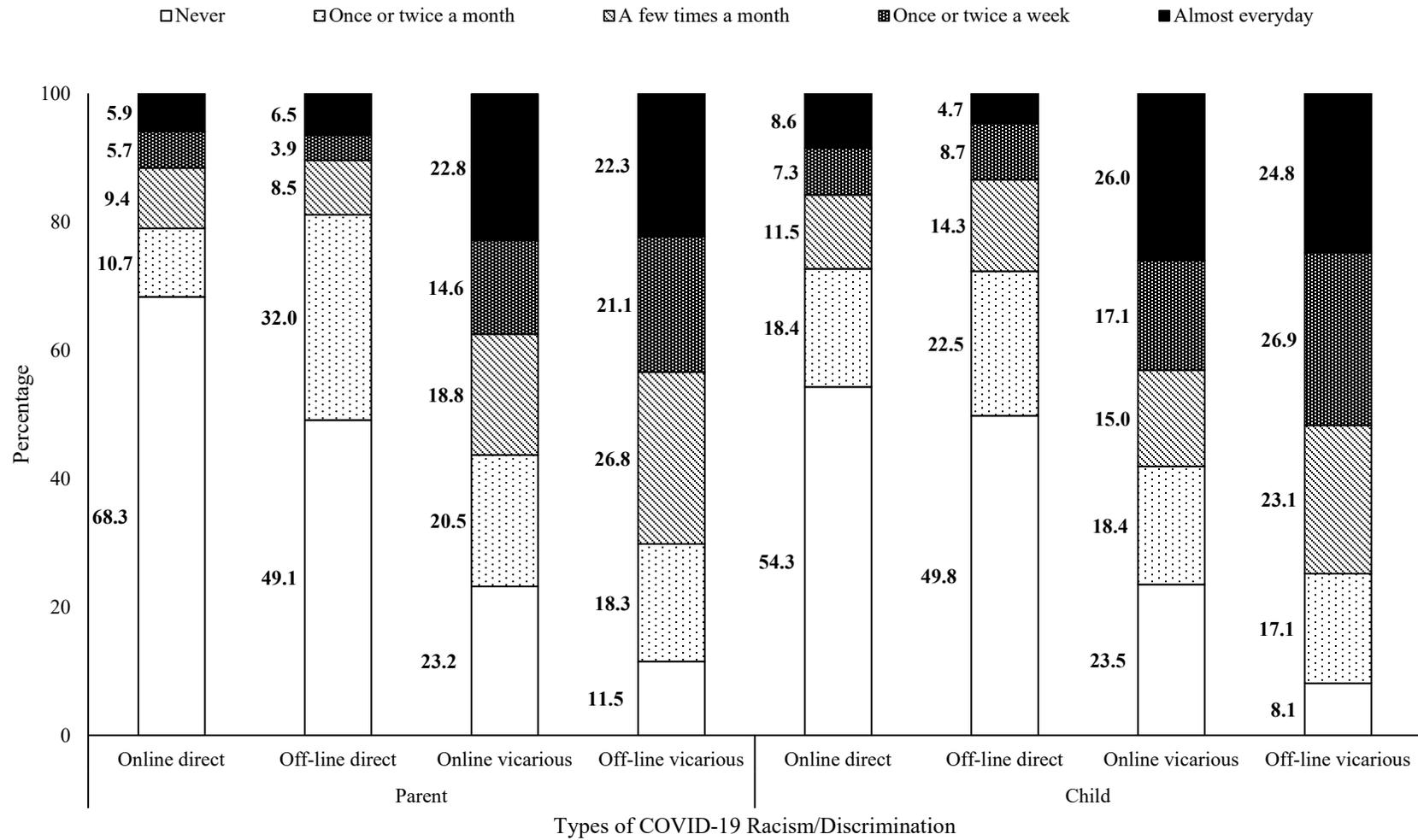
*Note.*

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Regression models were run separately for each pair of predictor and outcome. Standardized regression coefficients were reported.

Parent age, gender, nativity, household SES, and family region were controlled as covariates when parent racial discrimination and parent outcomes were analyzed in the models. Parent and youth age, gender, nativity, household SES, and family region were controlled as covariates when parent racial discrimination and youth adjustment were analyzed in the models. Youth age, gender, nativity, household SES, and family region were controlled as covariates when youth racial discrimination and youth adjustment were analyzed in the models.

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**Figure 1**

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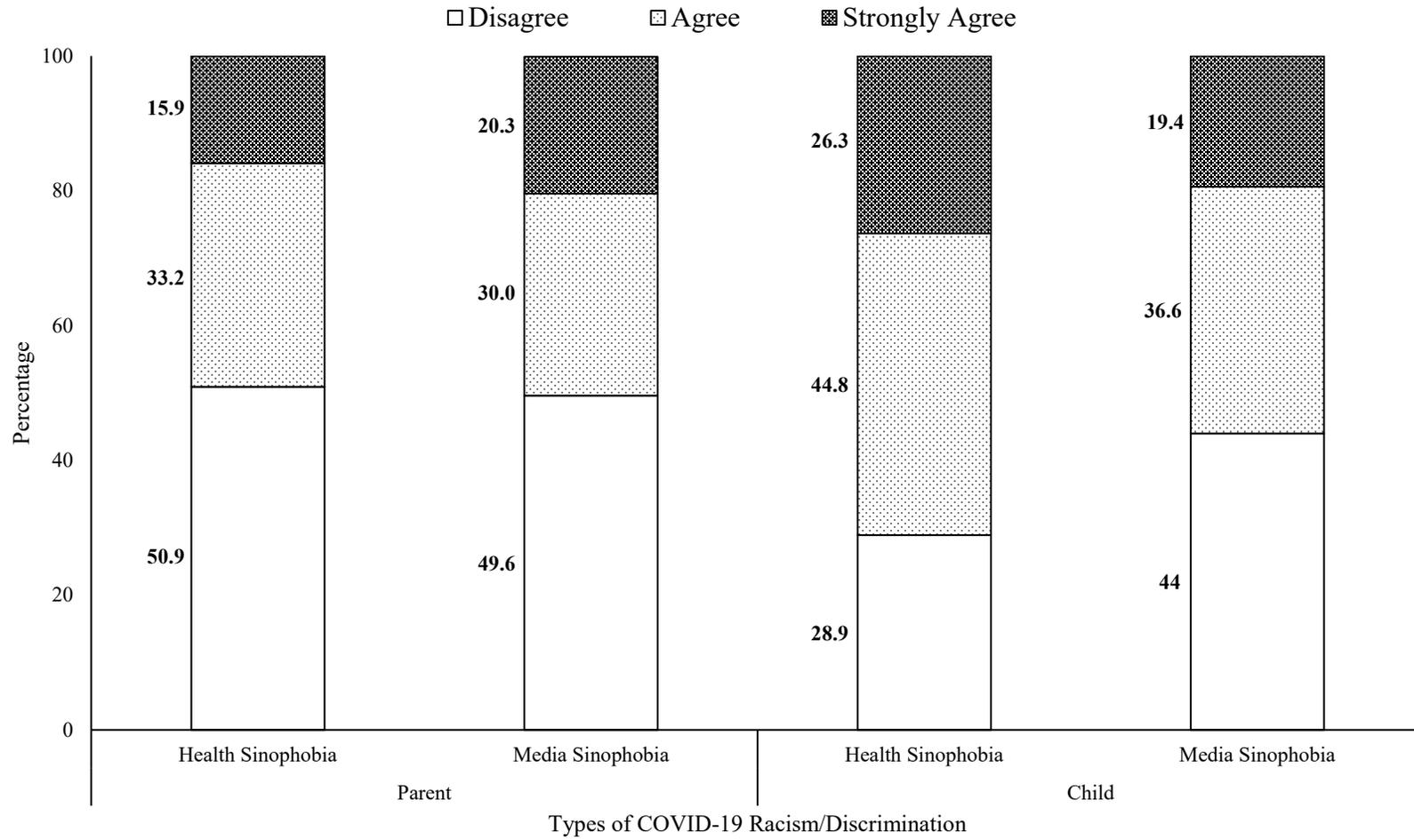


Figure 2

## Adapted Measures to Assess COVID-19 Racial Discrimination

### S1 Online Direct and Vicarious Racial Discrimination

Adapted from the Online Victimization Scale for Adolescents (Tynes, Rose, & Williams, 2010).

Have you experienced any of the incidents listed below because of the COVID-19 pandemic? Please indicate the frequency of each event.

Never 1	Once or twice a month 2	A few times a month 3	Once or twice a week 4	Multiple times a week 5	Every day 6
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<b>Online Direct Racial Discrimination</b>	1	2	3	4	5	6
1. People have said mean or rude things about me because of my race or ethnic group online.						
2. People have excluded me from a site because of my race or ethnic group online.						
3. People have threatened me online with violence because of my race or ethnic group.						
4. People have shown me a racist image online.						
<b>Online Vicarious Racial Discrimination</b>	1	2	3	4	5	6
1. People have cracked jokes about people of my race or ethnic group online.						
2. People have said things that were untrue about people in my race or ethnic group online.						
3. I have witnessed people saying mean or rude things about another Asian person online.						

**S2 In-person Direct Racial Discrimination**

Adapted from the Racial and Ethnic Microaggressions Scale (Nadal, 2011).

How often has these things happened because of the COVID-19 pandemic? Please rate your answer on a 6-point scale:

Never	Less than once a month	More than once a month	About once a week	Multiple times a week	Every day
1	2	3	4	5	6

	1	2	3	4	5	6
1. Some people were unfriendly or unwelcoming toward me because of my Chinese background.						
2. Some people don't want to be with me because of my Chinese background.						
3. Some people avoid me because of my Chinese background.						
4. Some people made fun of me or Chinese people.						
5. Some people were rude to me because of my Chinese background.						

**S3 In-person Vicarious Racial Discrimination**

Adapted from the Asian American Racism-Related Stress Inventory (Miller, Kim, Chen, & Alvarez, 2012).

How often have these things happened because of the COVID-19 pandemic?

Never	Less than once a month	More than once a month	About once a week	Multiple times a week	Every day
1	2	3	4	5	6

<b>In-person Vicarious Racial Discrimination</b>	1	2	3	4	5	6
1. Someone said something negative about Chinese people (for example, their diet) related to the COVID-19 outbreak.						
2. Someone said something about avoiding places with Chinese people because of the COVID-19 outbreak.						
3. Someone tried to find out if you or your family has been to China since the COVID-19 outbreak.						
4. People have said things that were untrue about Chinese people because of the COVID-19 outbreak.						

**S4 Sinophobia**

Adapted from the Perceived Islamophobia Scale (Kunst, Sam, & Ulleberg, 2013).

Please indicate your agreement with the following items during COVID-19 using this rating scale:

Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
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<b>Health Sinophobia</b>	1	2	3	4	5
1. A lot of Americans are afraid that Chinese people are going to make American sick.					
2. Many Americans fear a COVID-19 outbreak in America.					
3. A lot of Americans consider Chinese people as a threat to public health in America.					
<b>Media Sinophobia</b>	1	2	3	4	5
1. The U.S. media presents Chinese people as dangerous.					
2. Chinese people and culture are presented as a threat to American culture in the media.					
3. U.S. media spreads a lot of fear about China and Chinese people.					
4. U.S. media represents Chinese people as a threat to public health.					
5. Chinese people and culture are presented as a threat to American public health in the media.					

**References**

Kunst JR, Sam DL, Ulleberg P. Perceived islamophobia: scale development and validation. *Int J Intercult Relations*. 2013;37(2):225-237.  
doi:10.1016/j.ijintrel.2012.11.001

Miller MJ, Kim J, Chen G, A. Alvarez AN. Exploratory and confirmatory factor analyses of the Asian American racism-related stress inventory. *Assessment*. 2011;19(1):53-64.

Nadal KL. The racial and ethnic microaggressions scale (REMS): construction, reliability, and validity. *J Couns Psychol*. 2011;58(4):470-480.  
doi:10.1037/a0025193

Tynes BM, Rose CA, Williams DR. The development and validation of the online victimization scale for adolescents. *Cyberpsychology J Psychol Res Cybersp*. 2010;4(2):1-15.  
<http://cyberpsychology.eu/view.php?cisloclanku=2010112901&article=1>

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*Pediatrics* originally published online September 1, 2020;

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