




# Vicarious Racism and Vigilance During the COVID-19 Pandemic: Mental Health Implications Among Asian and Black Americans

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## Abstract

**Objectives:** Experiences of vicarious racism—hearing about racism directed toward one’s racial group or racist acts committed against other racial group members—and vigilance about racial discrimination have been salient during the COVID-19 pandemic. This study examined vicarious racism and vigilance in relation to symptoms of depression and anxiety among Asian and Black Americans.

**Methods:** We used data from a cross-sectional study of 604 Asian American and 844 Black American adults aged  $\geq 18$  in the United States recruited from 5 US cities from May 21 through July 15, 2020. Multivariable linear regression models examined levels of depression and anxiety by self-reported vicarious racism and vigilance.

**Results:** Controlling for sociodemographic characteristics, among both Asian and Black Americans, greater self-reported vicarious racism was associated with more symptoms of depression (Asian:  $\beta = 1.92$  [95% CI, 0.97-2.87]; Black:  $\beta = 1.72$  [95% CI, 0.95-2.49]) and anxiety (Asian:  $\beta = 2.40$  [95% CI, 1.48-3.32]; Black:  $\beta = 1.98$  [95% CI, 1.17-2.78]). Vigilance was also positively related to symptoms of depression (Asian:  $\beta = 1.54$  [95% CI, 0.58-2.50]; Black:  $\beta = 0.90$  [95% CI, 0.12-1.67]) and anxiety (Asian:  $\beta = 1.98$  [95% CI, 1.05-2.91]; Black:  $\beta = 1.64$  [95% CI, 0.82-2.45]).

**Conclusions:** Mental health problems are a pressing concern during the COVID-19 pandemic. Results from our study suggest that heightened racist sentiment, harassment, and violence against Asian and Black Americans contribute to increased risk of depression and anxiety via vicarious racism and vigilance. Public health efforts during this period should address endemic racism as well as COVID-19.

## Keywords

vicarious racism, vigilance, depression, anxiety, COVID-19

The COVID-19 pandemic has revealed and widened racial health and social inequities, traceable to structural inequities stemming from a legacy of legally sanctioned racism and contemporary forms of racial discrimination.<sup>1-8</sup> Racism has caused excess deaths in communities of color during the pandemic, from COVID-19 and other sources.<sup>1,2,9</sup> Clear instances include the racially motivated murders of Black people and police brutality. Notable examples include the killings of Ahmaud Arbery, Breonna Taylor, George Floyd, and Rayshard Brooks in 2020. Other health hazards include rising instances of racial insults, harassment, and attacks on Asian American people, driven largely from stigmatizing

language by elected officials.<sup>10-13</sup> This volatile period is a historically important point of global reckoning with systemic racism and the multiple ways it surfaces.<sup>9,14</sup>

Acts of racism against Asian and Black Americans have been salient during the COVID-19 pandemic and have become increasingly visible via social media and news coverage.<sup>15-17</sup> Videos of George Floyd’s killing were widely

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shared and sparked widespread protest.<sup>18</sup> A video of a White woman who called the police after a Black man asked her to leash her dog went viral.<sup>19</sup> Racial harassment and xenophobic taunts against Asian Americans have also been publicized through news outlets.<sup>20-22</sup> Acts of anti-Asian violence have risen, such as attacks on elderly Asian Americans and, most recently, the killing of 6 Asian American women in Atlanta, Georgia.<sup>23,24</sup>

Social media also serves as a forum for expressing racist sentiment.<sup>25</sup> For example, analysis of race-related tweets demonstrated a 68.4% rise in negative tweets about Asians (from 9.8% in November 2019 to 16.5% in March 2020).<sup>26</sup> Other studies of trends in Twitter and Google data indicate an increased use of racist slurs during the COVID-19 pandemic.<sup>22,27-31</sup> Research suggests that increased anti-Asian sentiment during this period is associated with politicians and conservative news outlets blaming China for the pandemic and racializing the disease as the “China virus.”<sup>22,32,33</sup>

### *Vicarious Racism*

Racially motivated attacks and other racial injustices have broad adverse population-level health implications.<sup>34-36</sup> In contrast to direct interpersonal discrimination, vicarious racism is experienced indirectly, by hearing about or seeing racist acts committed against other members of one’s racial group, such as those of friends or family members, and witnessing acts of racism, either personally or on the news.<sup>37-40</sup> Vicarious racism also includes hearing about or seeing racism that is not necessarily directed toward an individual but, rather, the entire racial group, such as racist rhetoric from public figures or racist posts on social media.

Such experiences may constitute a source of personal threat even for people not being directly targeted. Social identity theory posits that individuals derive self-image from values attached to their social groups.<sup>41,42</sup> Collective self-esteem includes not only how individuals personally evaluate their groups but also their beliefs about perceptions that people outside their group have of them (public regard).<sup>43</sup> According to this framework, actions that devalue or stigmatize entire groups may negatively affect self-concept and result in low self-esteem and poor mental health.<sup>44,45</sup>

Other frameworks, such as “linked lives” and “common fate,” suggest that injustices committed against other members of the same social group are collectively shared and can be personally stressful.<sup>40,46-48</sup> Neuroscience-based models

suggest that experiences of racism directed at other individuals of the same racial group mirror the effects of social threats to the self and activate regions of the brain associated with direct experiences of ostracism, exclusion, and rejection.<sup>49-51</sup> Accordingly, experiences of what some researchers have termed “secondhand racism” (analogous to “secondhand smoke”) can have potential spillover effects, precipitating physical, behavioral, and mental health responses beyond the immediate victim.<sup>37</sup> Racist events can trigger population-level changes in health, particularly among members of targeted groups.<sup>52-56</sup> For example, surges in symptoms of depression and anxiety were found among Black Americans after the killing of George Floyd.<sup>57,58</sup> These findings are consistent with research suggesting broader mental health consequences of police killings of unarmed Black people.<sup>59</sup> Chinese and Vietnamese Americans who witnessed friends experience racial discrimination were at greater risk of past-year psychiatric disorder compared with people who did not experience this form of vicarious racism.<sup>60</sup> As a source of psychosocial stress, vicarious racism may also elicit maladaptive coping behaviors, such as alcohol and substance use.<sup>35,61</sup> Other research has found dysregulated physiologic responses to stress during periods of racism-related unrest.<sup>62</sup>

### *Racial Discrimination Vigilance*

Repeated exposure to racism may lead to efforts to brace for personal victimization, preemptive efforts to avoid being discriminated against, and learned hypervigilance.<sup>63-66</sup> Vigilance to racial discrimination involves physical, behavioral, cognitive, and emotional attentiveness to the environment in anticipation of experiencing racism.<sup>64,66,67</sup> Vigilant coping responses include being tense or feeling worried about being the target of racial discrimination, persistent monitoring, and avoiding places where racial discrimination may occur. Qualitative reports suggest that vigilance has increased during the COVID-19 pandemic among Asian and Black Americans. For example, Asian Americans have reported leaving the house only when necessary and exercising particular caution when going outside.<sup>20,21</sup> Black Americans have also described “having to constantly be on high alert” during the COVID-19 pandemic; such vigilance “adds extra anxiety, and it’s always hard, but right now, it’s an exhausting task to even leave the house.”<sup>68</sup> This anecdotal evidence is supported by data indicating that more than one-quarter of Asian Americans and one-fifth of Black Americans feared

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being threatened or physically attacked during the COVID-19 pandemic.<sup>17</sup> Perseverative thoughts and emotions about being the target of racial discrimination may drain coping resources, resulting in increased levels of depression and anxiety.<sup>69,70</sup>

### Current Study

Most research on racism and mental health has focused on the effects of directly experienced racial discrimination and prejudice.<sup>35,71-73</sup> Research on the mental health consequences of vicarious experiences and discrimination vigilance, which have become more salient during the COVID-19 pandemic among Asian and Black Americans, is limited.<sup>31</sup>

Qualitatively distinct expressions of racism during the COVID-19 pandemic result in mental health tolls.<sup>29,64,70</sup> Additional studies are needed on the health implications of vicarious racism and racial discrimination vigilance during the COVID-19 pandemic among Asian and Black Americans. More broadly, a need exists for research on health outcomes other than COVID-19 that also represent important public health concerns in these populations.

The objective of our investigation was to examine two understudied facets of racism—vicarious racism and racial discrimination vigilance—in relation to depression and anxiety among Asian and Black adults in the United States during the COVID-19 pandemic. We hypothesized that greater experiences of vicarious racism and racial discrimination vigilance would be associated with worse mental health among Asian and Black Americans during this unprecedented period.

### Methods

The Uncovering COVID-19 Experiences and Realities (UnCOVER) Study recruited adults aged  $\geq 18$  residing in Atlanta, Georgia; Chicago, Illinois; Los Angeles, California; New Orleans, Louisiana; and New York, New York, using Qualtrics Research Services, which randomly selected people who matched target criteria through their partnerships with market panel companies. We used quota sampling to achieve more even distribution of race groups. To help ensure data quality and integrity, we embedded attention checks throughout the survey, in the form of basic demographic questions that were asked early in the questionnaire and repeated later. We further evaluated entries with straight-line responding to multi-item measures (ie, providing the same response or non-differentiating responses to a series of questions), contradictory or highly improbable answers, outlying completion times, and other evidence of careless responding. The Institutional Review Board at Auburn University determined that study procedures and protocols were exempt from review. We collected data from May 21 through July 15, 2020. We restricted the current analysis to Asian ( $n = 604$ ) and Black ( $n = 844$ ) participants.

### Measures

**Vicarious Racism.** Seven items were used to measure the frequency of hearing about or seeing other people of the same racial group experiencing racism (1) in public or (2) in the news; hearing about experiences of racism of (3) current or past romantic partners or (4) friends and family members; hearing racist things said by (5) politicians and (6) other public figures; and (7) seeing racist posts on social media during the COVID-19 pandemic.<sup>38</sup> We measured items on a 6-point Likert scale (0 = never, 1 = about once a month, 2 = a few times a month, 3 = once a week, 4 = a few times a week, and 5 = every day; Asian:  $\alpha = 0.92$ ; Black:  $\alpha = 0.87$ ).

We weighted the mean frequency score by using 3 items that assessed a participant's response to experiencing vicarious racism: (1) the degree to which participants "thought about" these experiences (range, 0 = never to 4 = always) and (2) how "distressed" and (3) "concerned" they were about these experiences (range, 0 = not at all to 4 = extremely; Asian American:  $\alpha = 0.89$ ; Black American:  $\alpha = 0.86$ ). We calculated the mean score by dividing by 4 to create an impact weight variable (range, 0-1), which we then multiplied by the frequency score to obtain an overall score, an approach used in other self-reported racism measures.<sup>74,75</sup>

For descriptive purposes, a single item assessed whether experiences of vicarious racism during the COVID-19 pandemic were "more than usual," "less than usual," or "about the same." An additional parallel item assessed changes in respondents' own experiences of "discrimination or being treated unfairly because of your race."

**Racial Discrimination–Related Vigilance.** We measured racial discrimination–related vigilance as the mean of 4 items that assessed: (1) avoiding going to places, (2) feeling on guard, (3) being vigilant, and (4) being fearful "during the COVID-19 or coronavirus pandemic" because of the possibility of being discriminated against because of race. We adapted response options from previous measures of racism-related vigilance and measured on a 6-point Likert scale (0 = never, 1 = about once a month, 2 = a few times a month, 3 = once a week, 4 = a few times a week, and 5 = every day; Asian American:  $\alpha = 0.95$ ; Black American:  $\alpha = 0.89$ ).<sup>76,77</sup>

**Depression and Anxiety.** We used the Patient-Reported Outcomes Measurement Information System (PROMIS) 4-item Short Forms to assess the frequency of symptoms of depression and anxiety "during the COVID-19 or coronavirus pandemic." Responses for each ranged from 1 = never to 5 = always (range, 4-20;  $\alpha = 0.89-0.94$ ).<sup>78,79</sup> We converted scores to *T* scores standardized to the general

US population (mean [SD], 50 [10]) to aid in the interpretation of results.

### Covariates

Sociodemographic controls were age (in years), gender (man, woman), nativity (US-born, non-US-born), city (Atlanta, Chicago, Los Angeles, New Orleans, New York), relationship status (married/partnered, romantic relationship, single, separated/widowed/divorced), education ( $\leq$ high school, some college/associate's degree, bachelor's degree, graduate degree), work status (employed full-time, employed part-time, unemployed, out of labor force), ratio of annual household income to poverty threshold (\$5000 increments ranging from  $<$ \$10 000 to  $\geq$ \$100 000), and health insurance (private, public, other, none). We used the 5-item Social Desirability Response Scale to adjust for potential personality bias in responding to sensitive questions.<sup>80</sup> Example items included "I am always courteous even to people who are disagreeable" and "There have been occasions when I took advantage of someone" (range, 1 = definitely false to 5 = definitely true). We multiplied the total number of items endorsed with an extreme response in the direction of greater social desirability by 20 (range, 0-100).<sup>80</sup>

### Analyses

We excluded participants with missing data on any variable (Asian American:  $n = 3$ ; Black American:  $n = 2$ ), resulting in an analytic sample size of 604 Asian participants and 844 Black participants. We stratified analyses by race given the qualitatively unique sources and experiences of racism experienced by Asian and Black Americans during the COVID-19 pandemic. We used multivariable linear regression to examine depression and anxiety in relation to vicarious racism and vigilance, first separately and then together, controlling for covariates. We evaluated multiplicative effects of vicarious racism and vigilance by adding the corresponding interaction term. We standardized vicarious racism and racism vigilance within each race group and estimated standardized  $\beta$  coefficients for the main study variables. We conducted analyses using SAS version 9.4 (SAS Institute, Inc).

### Results

Mean (SD) levels of depression and anxiety were 55.0 (10.2) and 58.5 (10.2), respectively, among Asian participants and 54.1 (10.6) and 57.0 (10.9), respectively, among Black participants (Table 1). Most (91.9%) Asian and (98.1%) Black participants reported experiencing any vicarious racism. About half (51.0%) of Asian participants and 61.6% of Black participants reported that experiences of vicarious racism during the COVID-19 pandemic were "more than usual." Most participants reported that their personal experiences of racial discrimination were "the same" (62.3% and 63.7%

**Table 1.** Characteristics of Asian and Black participants in the Uncovering COVID-19 Experiences and Realities (UnCOVER) Study, May 21–July 15, 2020<sup>a</sup>

Characteristics	Black	
	Asian American (n = 604)	American (n = 844)
Mental health <sup>b</sup>		
Depression, mean (SD)	55.0 (10.2)	54.1 (10.6)
Anxiety, mean (SD)	58.5 (10.2)	57.0 (10.9)
Racism <sup>c</sup>		
Vicarious racism, mean (SD)	1.0 (1.0)	2.0 (1.4)
Racial discrimination vigilance, mean (SD)	2.7 (1.7)	3.5 (1.8)
City of residence, no. (%)		
Atlanta, Georgia	49 (8.1)	268 (31.8)
Chicago, Illinois	147 (24.3)	195 (23.1)
Los Angeles, California	197 (32.6)	147 (17.4)
New Orleans, Louisiana	15 (2.5)	43 (5.1)
New York, New York	196 (32.5)	191 (22.6)
Age, mean (SD), y	38.6 (17.1)	41.6 (17.9)
Gender, no. (%)		
Men	211 (34.9)	267 (31.6)
Women	393 (65.1)	577 (68.4)
Nativity, no. (%)		
US-born	356 (58.9)	783 (92.8)
Non-US-born	248 (41.1)	61 (7.2)
Relationship status, no. (%)		
Married/partnered	267 (44.2)	212 (25.1)
Romantic relationship	63 (10.4)	99 (11.7)
Single	241 (39.9)	411 (48.7)
Separated/widowed/divorced	33 (5.5)	122 (14.5)
Children, no. (%)		
0	380 (62.9)	566 (67.1)
1	137 (22.7)	135 (16.0)
2	71 (11.8)	87 (10.3)
$\geq 3$	16 (2.6)	56 (6.6)
Ratio of annual household income to poverty threshold, mean (SD)	4.3 (3.3)	3.1 (3.1)
Education, no. (%)		
$\leq$ High school	101 (16.7)	213 (25.2)
Some college or associate's degree	140 (23.2)	317 (37.6)
Bachelor's degree	226 (37.4)	196 (23.2)
Graduate degree	137 (22.7)	118 (14.0)
Work status, no. (%)		
Employed full-time	213 (35.3)	281 (33.3)
Employed part-time	101 (16.7)	140 (16.6)
Unemployed	138 (22.8)	186 (22.0)
Out of labor force	152 (25.2)	237 (28.1)
Health insurance status, no. (%)		

(continued)



**Table 1.** (continued)

Characteristics	Black	
	Asian American (n = 604)	American (n = 844)
Private	350 (57.9)	333 (39.5)
Public	172 (28.5)	349 (41.4)
Other	17 (2.8)	21 (2.5)
Uninsured	65 (10.8)	141 (16.7)
Social desirability, mean (SD) <sup>d</sup>	20.3 (25.1)	35.0 (31.5)

<sup>a</sup>Participants were from Atlanta, Georgia; Chicago, Illinois; Los Angeles, California; New Orleans, Louisiana; and New York, New York.

<sup>b</sup>Depression and anxiety were calculated as *T* scores in reference to the general US population, which has a mean of 50 and SD of 10.

<sup>c</sup>Vicarious racism was measured as the mean of 7 items measuring frequency of witnessing or hearing about members of the same racial group experiencing racism during the COVID-19 pandemic on a scale from 0 to 5 (0 = never, 1 = about once a month, 2 = a few times a month, 3 = once a week, 4 = a few times a week, and 5 = every day) weighted by their response (how often participants “thought about” these experiences, and how “distressed” and “concerned” they were about these experiences). Racial discrimination vigilance was measured as the mean of 4 items assessing frequency of efforts to prepare for, anticipate, or avoid being the target of racial discrimination during the COVID-19 pandemic on a scale from 0 to 5 (0 = never, 1 = about once a month, 2 = a few times a month, 3 = once a week, 4 = a few times a week, and 5 = every day).

<sup>d</sup>Potential personality bias when responding to sensitive questions (range, 0-100, with higher values indicating greater social desirability).

among Asian and Black participants, respectively) or “less than usual” (11.9% and 15.9% among Asian and Black participants, respectively) during the COVID-19 pandemic.

The mean (SD) frequency of vicarious racism experiences was 1.7 (1.3) among Asian participants, or experiencing each item between “once a month” and “a few times a month” on average. Among Black participants, the mean (SD) frequency of vicarious racism was 2.8 (1.3), or experiencing each item on average between “a few times a month” and “once a week.”

Among Asian participants reporting any vicarious racism, 72.8% reported thinking about these experiences at least “sometimes” (mean [SD] = 2.0 [1.0]), 89.6% said they were at least “somewhat” distressed (mean [SD] = 2.0 [1.1]), and 68.7% said they were concerned about these experiences “somewhat” or more (mean [SD] = 2.2 [1.2]). Corresponding numbers for Black participants were 87.2% (2.7 [1.1]), 91.2% (2.4 [1.3]), and 85.1% (2.8 [1.2]) for the same levels of thinking about experiences, feeling distressed, and being concerned, respectively. The overall effect of vicarious racism, calculated as the mean (SD) frequency multiplied by the response weight, was 1.0 (1.0) for Asian participants and 2.0 (1.4) for Black participants (Table 1).

Asian and Black participants were also vigilant about being the target of racial discrimination during the COVID-19 pandemic. Forty percent of Asian participants and 67.1% of Black participants reported experiencing at least one

form of vigilance “about once a week” or more. The vigilance item with the highest mean frequency was “I fear that I will be discriminated against because I am [race]” among both Asian (mean [SD] = 2.8 [1.8]) and Black (3.8 [2.0]) participants. The overall mean (SD) vigilance score was 2.7 (1.7) among Asian participants, or experiencing each vigilance item between “a few times a month” and “once a week.” Among Black participants, the mean (SD) was 3.5 (1.8), or between “once a week” and “a few times a week” (Table 1).

In linear regression analyses, when examined separately, vicarious racism (Model 1) and vigilance (Model 2) showed positive bivariate relationships with symptoms of depression and anxiety among Asian participants ( $\beta = 3.75$  [95% CI, 2.97-4.52] and  $\beta = 3.67$  [95% CI, 2.90-4.44], respectively) and Black participants ( $\beta = 2.92$  [95% CI, 2.23-3.62] and  $\beta = 2.78$  [95% CI, 2.09-3.48], respectively) (Table 2). Examining vicarious racism and vigilance together attenuated effect estimates (Model 3), but both remained significantly associated with symptoms of depression and anxiety. Controlling for sociodemographic covariates did not result in substantively different conclusions (Model 4). In this model, each SD increase in vicarious racism was associated with a 1.92-point increase in depressive symptoms and a 2.40-point increase in symptoms of anxiety among Asian participants; each SD increase in vigilance was associated with a 1.54-point increase in depressive symptoms and a 1.98-point increase in symptoms of anxiety in this group. Among Black participants, corresponding values for symptoms of depression and anxiety associated with vicarious racism were 1.72 and 1.98 and for vigilance were 0.90 and 1.64, respectively. We did not find evidence of significant interactions between vicarious racism and vigilance for Asian or Black participants in any of the models.

## Discussion

Numerous examples in US history demonstrate how acts of racism traumatize entire communities. Lynchings were part of a campaign of terror intended to spread fear, segregate, and suppress the advancement of Black Americans.<sup>81</sup> The Chinese Exclusion Act (1882)—the only major federal legislation focused on a nationality group—effectively prohibited all immigration from China.<sup>82</sup> Large-scale massacres of Chinese Americans ensued in subsequent years.<sup>83</sup> Modern instances of racism and xenophobia, including during the COVID-19 pandemic, also have collective injurious consequences.

Results from our study suggest that vicarious racism has been salient, being more frequent during (vs before) the COVID-19 pandemic among Asian and Black Americans. Such experiences were commonly thought about and considered to be sources of distress and concern. Large segments of Asian and Black Americans were also vigilant about being

**Table 2.** Association among vicarious racism, racial discrimination vigilance, and mental health among Asian and Black participants aged  $\geq 18$  in the Uncovering COVID-19 Experiences and Realities (UnCOVER) Study, May 21–July 15, 2020<sup>a</sup>

Model	Asian American (n = 604)		Black American (n = 844)	
	Depression $\beta$ (95% CI)	Anxiety $\beta$ (95% CI)	Depression $\beta$ (95% CI)	Anxiety $\beta$ (95% CI)
Model 1: Vicarious racism	3.75 (2.97-4.52)	4.45 (3.71-5.20)	2.92 (2.23-3.62)	3.56 (2.86-4.26)
Model 2: Racial discrimination vigilance	3.67 (2.90-4.44)	4.39 (3.64-5.13)	2.78 (2.09-3.48)	3.49 (2.79-4.19)
Model 3				
Vicarious racism	2.32 (1.30-3.33)	2.72 (1.74-3.69)	1.96 (1.11-2.82)	2.30 (1.44-3.16)
Racism discrimination vigilance	2.15 (1.14-3.16)	2.60 (1.63-3.57)	1.61 (0.76-2.47)	2.12 (1.26-2.98)
Model 4 <sup>b</sup>				
Vicarious racism	1.92 (0.97-2.87)	2.40 (1.48-3.32)	1.72 (0.95-2.49)	1.98 (1.17-2.78)
Racism discrimination vigilance	1.54 (0.58-2.50)	1.98 (1.05-2.91)	0.90 (0.12-1.67)	1.64 (0.82-2.45)

<sup>a</sup>Vicarious racism refers to witnessing or hearing about members of the same racial group experiencing racism during the COVID-19 pandemic. Racial discrimination vigilance refers to efforts to prepare for, anticipate, or avoid being the target of racial discrimination during the COVID-19 pandemic. Vicarious racism and racial discrimination vigilance are standardized within each race group (mean [SD] = 0 [1]). Participants were from Atlanta, Georgia; Chicago, Illinois; Los Angeles, California; New Orleans, Louisiana; and New York, New York.

<sup>b</sup>Adjusting for age, gender, nativity, city, relationship status, education, work status, ratio of annual household income to poverty threshold, health insurance, and social desirability response bias.

the target of racial discrimination during the COVID-19 pandemic.

Mental health problems constitute an important public health concern during the COVID-19 pandemic. One study estimated a 3-fold increase in the prevalence of depressive symptoms in the United States during (vs before) the COVID-19 pandemic.<sup>84</sup> Depressive symptoms among Asian American people increased more than 5-fold, from 4.4% to 23.1%. The US Census Household Pulse Survey consistently indicates that Black Americans have had the highest prevalence of depression and anxiety symptoms during the COVID-19 pandemic.<sup>57,58</sup> Our study indicates that experiences of vicarious racism and racism-related vigilance may contribute to increased mental health problems among both Asian and Black Americans. Increases in symptoms of depression and anxiety among Black Americans after the killing of George Floyd may be the result of vicarious racism and heightened vigilance.<sup>57</sup> Ruminative distress in response to witnessing racism and heightened attentiveness to avoid or prepare for personal victimization are psychologically demanding coping responses that increase the risk of depression and anxiety.<sup>65,70,85</sup>

### Limitations

This study had several limitations. First, the cross-sectional study design limited our ability to draw causal conclusions or infer directionality. For example, poorer mental health may have resulted in greater attentiveness to racism. Unmeasured confounders, such as economic trends, increased unemployment, and rises in racially charged violence, could have driven observed associations. Second, the data collection period was also characterized by increasing

numbers of COVID-19 cases, hospitalizations, and deaths and widening racial health inequities, which co-occurred with increases in vicarious racism and racial discrimination vigilance; these unmeasured confounders could have driven the associations we found with mental health. Third, the generalizability of our findings is limited by a focus on only 5 US cities and the self-selected nature of participants and sampling. However, this limitation was counterbalanced by the large sample size and the relatively short recruitment period, which enabled us to obtain a snapshot of how people's experiences during the COVID-19 pandemic were shaped by race and how racism-related experiences during this moment were related to mental health. Fourth, we did not assess clinically significant depression or anxiety but, rather, symptom levels, thereby limiting inferences about diagnostic risk. Regardless, the PROMIS short-form measures of depression and anxiety are valid and reliable across diverse populations and perform similarly to diagnostic interviews.<sup>79</sup> Fifth, we did not assess parameters of vigilance other than frequency, such as chronicity, duration, severity, or appraisal, which may be conceptually important moderators. Finally, our measures of vicarious racism and vigilance, although based on previously developed scales, have not been widely tested, and their validity and reliability have not been established.<sup>86,87</sup>

### Conclusions

Our findings are largely concordant with previous research and consistent with experimental studies that have manipulated exposure related to viewing racist events.<sup>37,49,59,88</sup> Taken together, these studies point to the negative health

consequences of vicarious racism. Our findings are also aligned with studies that found that racism-related vigilance is psychologically taxing and may result in depression and anxiety.<sup>64,70</sup> Future studies may expand this research to a wider range of mental health outcomes, such as posttraumatic stress disorder, and examine associations in other groups susceptible to racism during the COVID-19 pandemic. Our study contributes to evidence that racism during the COVID-19 pandemic led to increased levels of depression and anxiety in Asian and Black communities.<sup>31,57,89,90</sup> This research highlights racism as a social toxin that has widespread adverse health effects. Leadership at various levels, institutions, and settings should address traumatic racist events, including their implications for mental health. Antiracism policies and practices should be implemented across institutional settings, as a social and moral imperative, and as part of a public health strategy.<sup>91,92</sup>

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### References

- Bailey ZD, Moon JR. Racism and the political economy of COVID-19: will we continue to resurrect the past? *J Health Polit Policy Law*. 2020;45(6):937-950. doi:10.1215/03616878-8641481
- Gravlee CC. Systemic racism, chronic health inequities, and COVID-19: a syndemic in the making? *Am J Hum Biol*. 2020;32(5):e23482. doi:10.1002/ajhb.23482
- Milner A, Franz B, Braddock JH. We need to talk about racism—in all of its forms—to understand COVID-19 disparities. *Health Equity*. 2020;4(1):397-402. doi:10.1089/heap.2020.0069
- Poteat T, Millett GA, Nelson LE, Beyrer C. Understanding COVID-19 risks and vulnerabilities among Black communities in America: the lethal force of syndemics. *Ann Epidemiol*. 2020;47:1-3. doi:10.1016/j.annepidem.2020.05.004
- Garcia MA, Homan PA, García C, Brown TH. The color of COVID-19: structural racism and the disproportionate impact of the pandemic on older Black and Latinx adults. *J Gerontol B Psychol Sci Soc Sci*. 2021;76(3):e75-e80. doi:10.1093/geronb/gbaa114
- Laster Pirtle WN. Racial capitalism: a fundamental cause of novel coronavirus (COVID-19) pandemic inequities in the United States. *Health Educ Behav*. 2020;47(4):504-508. doi:10.1177/1090198120922942
- McClure ES, Vasudevan P, Bailey Z, Patel S, Robinson WR. Racial capitalism within public health—how occupational settings drive COVID-19 disparities. *Am J Epidemiol*. 2020;189(11):1244-1253. doi:10.1093/aje/kwaa126
- Egede LE, Walker RJ. Structural racism, social risk factors, and COVID-19—a dangerous convergence for Black Americans. *N Engl J Med*. 2020;383(12):e77. doi:10.1056/NEJMp2023616
- Krieger N. Enough: COVID-19, structural racism, police brutality, plutocracy, climate change—and time for health justice, democratic governance, and an equitable, sustainable future. *Am J Public Health*. 2020;110(11):1620-1623. doi:10.2105/AJPH.2020.305886
- Wang D, Gee GC, Bahiru E, Yang EH, Hsu JJ. Asian-Americans and Pacific Islanders in COVID-19: emerging disparities amid discrimination. *J Gen Intern Med*. 2020;35(12):3685-3688. doi:10.1007/s11606-020-06264-5
- Dhanani LY, Franz B. Unexpected public health consequences of the COVID-19 pandemic: a national survey examining anti-Asian attitudes in the USA. *Int J Public Health*. 2020;65(6):747-754. doi:10.1007/s00038-020-01440-0
- Stop the coronavirus stigma now. *Nature*. 2020;580(7802):165. doi:10.1038/d41586-020-01009-0
- Reny TT, Barreto MA. Xenophobia in the time of pandemic: othering, anti-Asian attitudes, and COVID-19. Published online May 28, 2020. *Polit Groups Identities*. doi:10.1080/21565503.2020.1769693
- Barber S. Silence is no longer an option: reflections on racism and resistance in the midst of coronavirus disease 2019 pandemic. *Epidemiology*. 2021;32(1):133-134. doi:10.1097/EDE.0000000000001285
- Borja M, Jeung R, Yellow Horse A, et al. *Anti-Chinese Rhetoric Tied to Racism Against Asian Americans: Stop AAPI Hate Report*. Asian Pacific Policy & Planning Council; 2020. Accessed October 24, 2020. [http://www.asianpacificpolicyandplanningcouncil.org/wp-content/uploads/Anti-China\\_Rhetoric\\_Report\\_6\\_17\\_20.pdf](http://www.asianpacificpolicyandplanningcouncil.org/wp-content/uploads/Anti-China_Rhetoric_Report_6_17_20.pdf)
- Jeung R, Nham K. *Incidents of Coronavirus-Related Discrimination*. Asian Pacific Policy & Planning Council; 2020. Accessed October 24, 2020. [http://www.asianpacificpolicyandplanningcouncil.org/wp-content/uploads/STOP\\_AAPI\\_HATE\\_MONTHLY\\_REPORT\\_4\\_23\\_20.pdf](http://www.asianpacificpolicyandplanningcouncil.org/wp-content/uploads/STOP_AAPI_HATE_MONTHLY_REPORT_4_23_20.pdf)
- Ruiz NG, Horowitz JM, Tamir C. Many Black and Asian Americans say they have experienced discrimination amid the COVID-19 outbreak. Pew Research Center. July 1, 2020. Accessed October 24, 2020. <https://www.pewsocialtrends.org/2020/07/01/many-black-and-asian-americans-say-they-have-experienced-discrimination-amid-the-covid-19-outbreak>
- What to know about George Floyd's death. *The New York Times*. September 8, 2020. Updated April 18, 2021. Accessed October 21, 2020. <https://www.nytimes.com/article/george-floyd.html>
- Ransom J. Amy Cooper faces charges after calling police on Black bird-watcher. *The New York Times*. July 6, 2020. Accessed October 21, 2020. <https://www.nytimes.com/2020/07/06/nyregion/amy-cooper-false-report-charge.html>

20. Han Y. The contagion of anti-Asian discrimination. *NY City Lens*. May 4, 2020. Accessed October 13, 2020. <https://nycitylens.com/the-contagion-of-anti-asian-discrimination/>
21. Ao B. Asian Americans already face a mental health crisis. Coronavirus racism could make it worse. *Philadelphia Inquirer*. April 22, 2020. Accessed October 13, 2020. <https://www.inquirer.com/health/coronavirus/coronavirus-racism-asian-americans-mental-health-20200422.html>
22. Darling-Hammond S, Michaels EK, Allen AM, et al. After “the China virus” went viral: racially charged coronavirus coverage and trends in bias against Asian Americans. *Health Educ Behav*. 2020;47(6):870-879. doi:10.1177/1090198120957949
23. Fausset R, Bogel-Burroughs N, Fazio M. 8 Dead in Atlanta spa shootings, with fears of anti-Asian bias. *The New York Times*. March 19, 2021. Accessed March 23, 2021. <https://www.nytimes.com/live/2021/03/17/us/shooting-atlanta-acworth>
24. Brantley-Jones K, Chen S. Violent attacks on elderly Asian Americans in Bay Area leaves community members “traumatized.” *ABC News*. February 11, 2021. Accessed March 24, 2021. <https://abcnews.go.com/US/violent-attacks-elderly-asian-americans-bay-area-leaves/story?id=75759713>
25. Criss S, Michaels EK, Solomon K, Allen AM, Nguyen TT. Twitter fingers and echo chambers: exploring expressions and experiences of online racism using Twitter. Published online October 15, 2020. *J Racial Ethn Health Disparities*. doi:10.1007/s40615-020-00894-5
26. Nguyen TT, Criss S, Dwivedi P, et al. Exploring U.S. shifts in Anti-Asian sentiment with the emergence of COVID-19. *Int J Environ Res Public Health*. 2020;17(19):7032. doi:10.3390/ijerph17197032
27. Ziems C, He B, Soni S, Kumar S. Racism is a virus: anti-Asian hate and counterhate in social media during the COVID-19 crisis. Preprint. Posted online May 25, 2020. *ArXiv*.
28. Budhwani H, Sun R. Creating COVID-19 stigma by referencing the novel coronavirus as the “Chinese virus” on Twitter: quantitative analysis of social media data. *J Med Internet Res*. 2020;22(5):e19301. doi:10.2196/19301
29. Lu R, Sheng Y. From fear to hate: how the COVID-19 pandemic sparks racial animus in the United States. Posted online July 3, 2020. *SSRN Electron J*. doi:10.2139/ssrn.3646880
30. Dubey AD. The resurgence of cyber racism during the COVID-19 pandemic and its aftereffects: analysis of sentiments and emotions in tweets. *JMIR Public Health Surveill*. 2020;6(4):e19833. doi:10.2196/19833
31. Misra S, Le PD, Goldmann E, Yang LH. Psychological impact of anti-Asian stigma due to the COVID-19 pandemic: a call for research, practice, and policy responses. *Psychol Trauma*. 2020;12(5):461-464. doi:10.1037/tra0000821
32. Wen J, Aston J, Liu X, Ying T. Effects of misleading media coverage on public health crisis: a case of the 2019 novel coronavirus outbreak in China. *Anatolia*. 2020;31(2):331-336. doi:10.1080/13032917.2020.1730621
33. Hswen Y, Xu X, Hing A, Hawkins JB, Brownstein JS, Gee GC. Association of “#covid19” versus “#chinesevirus” with Anti-Asian sentiments on Twitter: March 9-23, 2020. *Am J Public Health*. 2021;111(5):956-964. doi:10.2105/AJPH.2021.306154
34. Williams DR, Medlock MM. Health effects of dramatic societal events—ramifications of the recent presidential election. *N Engl J Med*. 2017;376(23):2295-2299. doi:10.1056/NEJMms1702111
35. Williams DR, Lawrence JA, Davis BA. Racism and health: evidence and needed research. *Annu Rev Public Health*. 2019;40:105-125. doi:10.1146/annurev-publhealth-040218-043750
36. Boyd RW. Police violence and the built harm of structural racism. *Lancet*. 2018;392(10144):258-259. doi:10.1016/S0140-6736(18)31374-6
37. Heard-Garris NJ, Cale M, Camaj L, Hamati MC, Dominguez TP. Transmitting trauma: a systematic review of vicarious racism and child health. *Soc Sci Med*. 2018;199:230-240. doi:10.1016/j.socscimed.2017.04.018
38. Martz CD, Allen AM, Fuller-Rowell TE, et al. Vicarious racism stress and disease activity: the Black Women’s Experiences Living with Lupus (BeWELL) study. *J Racial Ethn Health Disparities*. 2019;6(5):1044-1051. doi:10.1007/s40615-019-00606-8
39. 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
40. Gee GC, Walsemann KM, Brondolo E. A life course perspective on how racism may be related to health inequities. *Am J Public Health*. 2012;102(5):967-974. doi:10.2105/AJPH.2012.300666
41. Tajfel H, Turner J. An integrative theory of intergroup conflict. In: Hatch MJ, Schultz M, eds. *Organizational Identity: A Reader*. Oxford University Press; 1979:33-47.
42. Turner JC. Towards a cognitive redefinition of the social group. *Soc Identity Intergroup Relat*. 1982;1(2):15-40.
43. Crocker J, Major B. Social stigma and self-esteem: the self-protective properties of stigma. *Psychol Rev*. 1989;96(4):608-630. doi:10.1037/0033-295X.96.4.608
44. Crocker J, Luhtanen R, Blaine B, Broadnax S. Collective self-esteem and psychological well-being among White, Black, and Asian college students. *Pers Soc Psychol Bull*. 1994;20(5):503-513. doi:10.1177/0146167294205007
45. Liang CTH, Fassinger RE. The role of collective self-esteem for Asian Americans experiencing racism-related stress: a test of moderator and mediator hypotheses. *Cultur Divers Ethnic Minor Psychol*. 2008;14(1):19-28. doi:10.1037/1099-9809.14.1.19
46. Elder GH Jr, Johnson MK, Crosnoe R. The emergence and development of life course theory. In: Mortimer JT, Shanahan MJ, eds. *Handbook of the Life Course*. Springer; 2003:3-19.
47. Cruwys T, Haslam SA, Dingle GA, Haslam C, Jetten J. Depression and social identity: an integrative review. *Pers Soc Psychol Rev*. 2014;18(3):215-238. doi:10.1177/1088868314523839
48. Umaña-Taylor AJ, Quintana SM, Lee RM, et al. Ethnic and racial identity during adolescence and into young adulthood:



- an integrated conceptualization. *Child Dev.* 2014;85(1):21-39. doi:10.1111/cdev.12196
49. Berger M, Samyay Z. “More than skin deep”: stress neurobiology and mental health consequences of racial discrimination. *Stress.* 2015;18(1):1-10. doi:10.3109/10253890.2014.989204
  50. Masten CL, Eisenberger NI, Pfeifer JH, Dapretto M. Neural responses to witnessing peer rejection after being socially excluded: fMRI as a window into adolescents’ emotional processing. *Dev Sci.* 2013;16(5):743-759. doi:10.1111/desc.12056
  51. Masten CL, Telzer EH, Eisenberger NI. An fMRI investigation of attributing negative social treatment to racial discrimination. *J Cogn Neurosci.* 2011;23(5):1042-1051. doi:10.1162/jocn.2010.21520
  52. Padela AI, Heisler M. The association of perceived abuse and discrimination after September 11, 2001, with psychological distress, level of happiness, and health status among Arab Americans. *Am J Public Health.* 2010;100(2):284-291. doi:10.2105/AJPH.2009.164954
  53. Tynes BM, Willis HA, Stewart AM, Hamilton MW. Race-related traumatic events online and mental health among adolescents of color. *J Adolesc Health.* 2019;65(3):371-377. doi:10.1016/j.jadohealth.2019.03.006
  54. Gemmill A, Catalano R, Casey JA, et al. Association of preterm births among US Latina women with the 2016 presidential election. *JAMA Netw Open.* 2019;2(7):e197084. doi:10.1001/jamanetworkopen.2019.7084
  55. Sewell AA, Feldman JM, Ray R, Gilbert KL, Jefferson KA, Lee H. Illness spillovers of lethal police violence: the significance of gendered marginalization. *Ethn Racial Stud.* 2021;44(7):1089-1114. doi:10.1080/01419870.2020.1781913
  56. Novak NL, Geronimus AT, Martinez-Cardoso AM. Change in birth outcomes among infants born to Latina mothers after a major immigration raid. *Int J Epidemiol.* 2017;46(3):839-849. doi:10.1093/ije/dyw346
  57. Fowers A, Wan W. Depression and anxiety spiked among Black Americans after George Floyd’s death. *The Washington Post.* June 12, 2020. Accessed October 21, 2020. <https://www.washingtonpost.com/health/2020/06/12/mental-health-george-floyd-census/?arc404=true>
  58. US Census Bureau. Measuring household experience during the coronavirus pandemic: the Household Pulse Survey. 2020. Accessed October 24, 2020. <https://www.census.gov/data/experimental-data-products/household-pulse-survey.html>
  59. Bor J, Venkataramani AS, Williams DR, Tsai AC. Police killings and their spillover effects on the mental health of Black Americans: a population-based, quasi-experimental study. *Lancet.* 2018;392(10144):302-310. doi:10.1016/S0140-6736(18)31130-9
  60. Li M. Discrimination and psychiatric disorder among Asian American immigrants: a national analysis by subgroups. *J Immigr Minor Health.* 2014;16(6):1157-1166. doi:10.1007/s10903-013-9920-7
  61. Williams DR, Lawrence JA, Davis BA, Vu C. Understanding how discrimination can affect health. *Health Serv Res.* 2019;54(suppl 2):1374-1388. doi:10.1111/1475-6773.13222
  62. Richman LS, Jonassaint C. The effects of race-related stress on cortisol reactivity in the laboratory: implications of the Duke lacrosse scandal. *Ann Behav Med.* 2008;35(1):105-110. doi:10.1007/s12160-007-9013-8
  63. Williams DR. Stress and the mental health of populations of color: advancing our understanding of race-related stressors. *J Health Soc Behav.* 2018;59(4):466-485. doi:10.1177/0022146518814251
  64. Sawyer PJ, Major B, Casad BJ, Townsend SSM, Mendes WB. Discrimination and the stress response: psychological and physiological consequences of anticipating prejudice in interethnic interactions. *Am J Public Health.* 2012;102(5):1020-1026. doi:10.2105/AJPH.2011.300620
  65. Himmelstein MS, Young DM, Sanchez DT, Jackson JS. Vigilance in the discrimination–stress model for Black Americans. *Psychol Health.* 2015;30(3):253-267. doi:10.1080/08870446.2014.966104
  66. Lewis TT, Cogburn CD, Williams DR. Self-reported experiences of discrimination and health: scientific advances, ongoing controversies, and emerging issues. *Annu Rev Clin Psychol.* 2015;11(1):407-440. doi:10.1146/annurev-clinpsy-032814-112728
  67. Williams DR, Lavizzo-Mourey R, Warren RC. The concept of race and health status in America. *Public Health Rep.* 1994;109(1):26-41.
  68. Mzezewa T. 2020 is the summer of the road trip. Unless you’re Black. *The New York Times.* June 26, 2020. Accessed October 13, 2020. <https://www.nytimes.com/2020/06/10/travel/road-trip-black.html>
  69. Brosschot JF, Gerin W, Thayer JF. The perseverative cognition hypothesis: a review of worry, prolonged stress-related physiological activation, and health. *J Psychosom Res.* 2006;60(2):113-124. doi:10.1016/j.jpsychores.2005.06.074
  70. LaVeist TA, Thorpe RJ Jr, Pierre G, Mance GA, Williams DR. The relationships among vigilant coping style, race, and depression. *J Soc Issues.* 2014;70(2):241-255. doi:10.1111/josi.12058
  71. Krieger N. Discrimination and health inequities. *Int J Health Serv.* 2014;44(4):643-710. doi:10.2190/HS.44.4.b
  72. Paradies Y, Ben J, Denson N, et al. Racism as a determinant of health: a systematic review and meta-analysis. *PLoS One.* 2015;10(9):e0138511. doi:10.1371/journal.pone.0138511
  73. Neblett EW. Racism and health: challenges and future directions in behavioral and psychological research. *Cultur Divers Ethnic Minor Psychol.* 2019;25(1):12-20. doi:10.1037/cdp0000253
  74. Landrine H, Klonoff EA. The schedule of racist events: a measure of racial discrimination and a study of its negative physical and mental health consequences. *J Black Psychol.* 1996;22(2):144-168. doi:10.1177/00957984960222002
  75. Utsey SO, Ponterotto JG. Development and validation of the Index of Race-Related Stress (IRRS). *J Couns Psychol.* 1996;43(4):490-501. doi:10.1037/0022-0167.43.4.490
  76. Clark R, Benkert RA, Flack JM. Large arterial elasticity varies as a function of gender and racism-related vigilance in Black youth. *J Adolesc Health.* 2006;39(4):562-569. doi:10.1016/j.jadohealth.2006.02.012

77. Hicken MT, Lee H, Ailshire J, Burgard SA, Williams DR. "Every shut eye, ain't sleep": the role of racism-related vigilance in racial/ethnic disparities in sleep difficulty. *Race Soc Probl.* 2013;5(2):100-112. doi:10.1007/s12552-013-9095-9
78. Pilkonis PA, Choi SW, Reise SP, et al. Item banks for measuring emotional distress from the Patient-Reported Outcomes Measurement Information System (PROMIS®): depression, anxiety, and anger. *Assessment.* 2011;18(3):263-283. doi:10.1177/1073191111411667
79. Pilkonis PA, Yu L, Dodds NE, Johnston KL, Maihoefer CC, Lawrence SM. Validation of the depression item bank from the Patient-Reported Outcomes Measurement Information System (PROMIS) in a three-month observational study. *J Psychiatr Res.* 2014;56:112-119. doi:10.1016/j.jpsychires.2014.05.010
80. Hays RD, Hayashi T, Stewart AL. A five-item measure of socially desirable response set. *Educ Psychol Meas.* 1989;49(3):629-636. doi:10.1177/001316448904900315
81. Blee KM. Racial violence in the United States. *Ethn Racial Stud.* 2005;28(4):599-619. doi:10.1080/01419870500092423
82. Lee E. The Chinese exclusion example: race, immigration, and American gatekeeping, 1882-1924. *J Am Ethn Hist.* 2002;21(3):36-62.
83. Pfaelzer J. *Driven Out: The Forgotten War Against Chinese Americans.* Random House; 2007.
84. Ettman CK, Abdalla SM, Cohen GH, Sampson L, Vivier PM, Galea S. Prevalence of depression symptoms in US adults before and during the COVID-19 pandemic. *JAMA Netw Open.* 2020;3(9):e2019686. doi:10.1001/jamanetworkopen.2020.19686
85. Miranda R, Polanco-Roman L, Tsypes A, Valderrama J. Perceived discrimination, ruminative subtypes, and risk for depressive symptoms in emerging adulthood. *Cultur Divers Ethnic Minor Psychol.* 2013;19(4):395-403. doi:10.1037/a0033504
86. Atkins R. Instruments measuring perceived racism/racial discrimination: review and critique of factor analytic techniques. *Int J Health Serv.* 2014;44(4):711-734. doi:10.2190/HS.44.4.c
87. Hicken MT, Lee H, Hing AK. The weight of racism: vigilance and racial inequalities in weight-related measures. *Soc Sci Med.* 2018;199:157-166. doi:10.1016/j.socscimed.2017.03.058
88. Huynh VW, Huynh Q-L, Stein M-P. Not just sticks and stones: indirect ethnic discrimination leads to greater physiological reactivity. *Cultur Divers Ethnic Minor Psychol.* 2017;23(3):425-434. doi:10.1037/cdp0000138
89. Cheah CSL, Wang C, Ren H, Zong X, Cho HS, Xue X. COVID-19 racism and mental health in Chinese American families. *Pediatrics.* 2020;146(5):e2020021816. doi:10.1542/peds.2020-021816
90. Liu SR, Modir S. The outbreak that was always here: racial trauma in the context of COVID-19 and implications for mental health providers. *Psychol Trauma.* 2020;12(5):439-442. doi:10.1037/tra0000784
91. Krishnan L, Ogunwole SM, Cooper LA. Historical insights on coronavirus disease 2019 (COVID-19), the 1918 influenza pandemic, and racial disparities: illuminating a path forward. *Ann Intern Med.* 2020;173(6):474-481. doi:10.7326/M20-2223
92. Johnson-Agbakwu CE, Ali NS, Oxford CM, Wingo S, Manin E, Coonrod DV. Racism, COVID-19, and health inequity in the USA: a call to action. Published online November 16, 2020. *J Racial Ethn Health Disparities.* doi:10.1007/s40615-020-00928-y