

11-9-2021

## **Racism, Posttraumatic Stress Symptoms, and Racial Disparity in the U.S. COVID-19 Syndemic**

Xiang Zhou

Viann N. Nguyen-Feng

Rachel Wamser-Nanney

Annett Lotzin

Follow this and additional works at: <https://docs.lib.purdue.edu/edstpubs>

---

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries.  
Please contact [epubs@purdue.edu](mailto:epubs@purdue.edu) for additional information.

**Racism, Posttraumatic Stress Symptoms, and Racial Disparity in the U.S. COVID-19**

**Syndemic**

Xiang Zhou, Ph.D., Purdue University, West Lafayette, IN  
Viann N. Nguyen-Feng, Ph.D., MPH, University of Minnesota, Duluth, MN  
Rachel Wamser-Nanney, Ph.D., University of Missouri, Saint Louis, MO  
Annett Lotzin, Ph.D., MAS, University Medical Center Hamburg-Eppendorf, Hamburg, Germany

**Author Note**

Correspondence should be addressed to Dr. Xiang Zhou, College of Education, Purdue University, 100 N University Street, 47907, West Lafayette, IN. Email: [xiangzhou@purdue.edu](mailto:xiangzhou@purdue.edu).

Xiang Zhou  <https://orcid.org/0000-0001-6221-8150>

Viann N. Nguyen-Feng  <https://orcid.org/0000-0001-5812-125X>

Rachel Wamser-Nanney  <https://orcid.org/0000-0002-8662-3959>

Annett Lotzin  <https://orcid.org/0000-0002-2834-8047>

**This is an Accepted Manuscript version of the following article, accepted for publication in Behavioral Medicine. It is deposited under the terms of the Creative Commons Attribution-Noncommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited.**

### **Abstract**

The COVID-19 syndemic, with a disproportionately higher adverse impact on communities of color (i.e., COVID-19 infection and death), will likely exacerbate the existing health disparities in trauma-related symptoms between people of color (POC) and White Americans. However, no studies have examined the racial disparity in posttraumatic stress symptoms (PTSS) during COVID-19. Grounded in ecological theory and racial trauma framework, we investigated racial disparity in PTSS and three possible mechanisms, 1) COVID stress, 2) direct racism, and 3) indirect racism, for these discrepancies using a large U.S. national sample. Results indicated that POC reported higher levels of PTSS than White Americans. The PTSS racial disparity was accounted more by direct and indirect racism than by the COVID-19-specific stressors, after controlling for age, gender, education, income, parent status, adverse childhood experiences (ACEs), and intimate partner violence (IPV). Additional fine-grained analyses for Hispanic/Latinx Americans, Black/African Americans, and Asian American and Pacific Islanders by and large corroborated the above findings. Our findings highlighted the deleterious impact of the ongoing racism pandemic on the POC community as a public health crisis in addition to the COVID-19 pandemic.

*Keywords:* COVID-19; disparity; trauma; racism; ethnic-racial minority

Word Count: 182

### **Racism, Posttraumatic Stress Symptoms, and Racial Disparity in the U.S. COVID-19 Syndemic**

Long-standing structural and institutional racism in the U.S. has exacerbated the physical and mental health sequelae of COVID-19, collectively giving rise to what has been described as a syndemic.<sup>1</sup> People of color (POC) bear a substantially higher burden of COVID-19 than White Americans.<sup>2,3</sup> The racist and xenophobia rhetoric (e.g., labeling COVID-19 as the “Chinese virus,” “Wuhan virus,” and “kung flu” by politicians) brought a resurgence of hate crimes directed towards Asian individuals in the U.S. and around the world.<sup>4-7</sup> In the unfolding process of COVID-19, the murder of George Floyd on May 25<sup>th</sup>, 2020 further exacerbated the collective wounds of American society, especially among Black communities<sup>8</sup>. Grounded in ecological theory<sup>9,10</sup> and racial trauma framework,<sup>11,12</sup> the objective of the current study was to understand the racial disparity and role of direct and indirect racism in the posttraumatic stress symptoms (PTSS) among a U.S. national sample during the COVID-19 syndemic.

The COVID-19 syndemic, or multiple concurrent epidemics, revealed the long-existing health disparity, particularly racial disparity in the United States.<sup>13,14</sup> POC had higher rates of infection, hospitalization, and deaths compared to their non-Hispanic White counterparts.<sup>2,3</sup> After controlling for sociodemographic factors and underlying health disparity issues (e.g., cardiovascular disease, obesity), POC still had a higher risk of hospitalization and deaths compared to White Americans among all COVID-19 positive patients, with patients of Asian descent having the highest relative risk.<sup>3</sup> Moreover, accumulating research has started to dismantle racial disparities in mental health including symptoms of depression, anxiety, stress, and grief.<sup>15,16</sup> However, little is known about the racial disparity of posttraumatic stress symptoms (PTSS) in the context of COVID-19, and no studies have investigated the mechanisms

## RACIAL DISPARITY AND TRAUMA

through which PTSS racial disparity may exist. Research has indicated high levels of PTSS by May 19<sup>th</sup>, 2020, about two months following the first shelter in place order in the United States, among U.S. young adults compared to pre-COVID-19 data.<sup>17</sup> It has been hypothesized that the COVID-19-specific stressors would trigger or exacerbate PTSS symptoms, particularly among those with prior trauma.<sup>18</sup> PTSS during the early months of the COVID-19 spread can be especially triggered by COVID-19 deaths, media coverage of the crisis, bereavement and grief, poor crisis management from the government, and fear of infection.<sup>17</sup> Thus, it is important to conceptualize the cascading effects of the COVID-19 syndemic as a collective trauma when considering COVID-19's long-term and systematic impact.<sup>18,19</sup>

More critically, PTSS needs to be studied from a racial disparity and racial trauma lens.<sup>11,12,20</sup> Racial disparity in trauma exposure and symptoms has been well-documented before the outbreak of COVID-19.<sup>20-23</sup> For example, although Black Americans have lower (or similar) prevalence on almost all psychiatric disorders (also referred to as Black-White mental health paradox), they were 38% more likely to report PTSD compared to White Americans.<sup>24</sup> Racial trauma theory has proposed trauma reactions to racial discrimination are the likely cause of the higher rates of trauma symptoms among POC.<sup>21</sup> In addition, a systematic review suggested the majority of the reviewed studies have documented a positive association between trauma symptoms and racial discrimination.<sup>25</sup> Thus, it is plausible that in examining the racial disparity of PTSS during the COVID-19 syndemic, racism and racial discrimination may also play an important role in addition to pandemic stressors.

Guided by an ecological framework that emphasizes layers of systemic factors that shape the racialized experiences of POC,<sup>9,10</sup> the current study investigated both direct racism (i.e., interpersonal racial discrimination) and indirect racism (i.e., witnessing or hearing about racial

## RACIAL DISPARITY AND TRAUMA

discrimination experienced by others). The value of the ecological model lies in its ability to bridge the psychological and the sociological phenomenon through identifying different levels of analysis.<sup>9,10</sup> Specifically, an understanding of structural racism involves identifying patterns at the macro-level and then considering their manifestations in the communities (e.g., indirect/vicarious racism at the meso-level) and daily interactions (e.g., direct racism at the micro-level). That is, even though patterns associated with institutional racism are socially structured at the macro level, they manifest themselves in the day-to-day lives of POC. Strong meta-analytical evidence has documented the harmful impact of direct racism.<sup>26</sup> Growing research also linked the harm of indirect or vicarious racism occurring prior to and during COVID-19 on the physical and mental health of POC.<sup>27-29</sup> Research comparing direct vs. indirect racism has suggested indirect racism may have an incremental impact in addition to direct racism.<sup>29</sup> In the context of COVID-19 home quarantine, studying indirect racism is especially warranted given POC may still be harmed by watching media coverage or hearing family and friends experiencing racial discrimination with or without experience direct racism in person. Moreover, the structural racism from the macrosystem may have trickled down and manifested at the microsystem as pandemic stressors during COVID-19. For instance, POC were more likely to experience structural inequalities, including access to healthcare and lack of health insurance coverage, having jobs that cannot be performed remotely (e.g., transit workers, grocery store clerks, nursing aides, construction workers, and household workers), and live in dense neighborhoods or crowded housing with fewer options to physically distance, all of which may have increased exposure to pandemic stressors (e.g., fear of their family members or themselves getting infected) and higher risk of PTSS.<sup>14</sup>

### **The Current Study**

## RACIAL DISPARITY AND TRAUMA

The objectives of the present study were to assess the racial disparity of PTSS from a U.S. national sample and examine the mediating role of pandemic stressors, as well as direct and indirect racism in accounting for such racial disparity in structural equational modeling (SEM). Consistent with past research pre-COVID-19, we hypothesized POC would report higher levels of PTSS compared to non-Hispanic Whites. Given past studies have documented interpersonal trauma produces more severe trauma reactions compared to non-interpersonal traumas such as natural disasters,<sup>30</sup> we hypothesized that interpersonal racial discrimination (i.e., direct racism) would explain more variances between race and PTSS (i.e., racial disparity) than COVID-19-specific stressor in the mediation models.

### Methods

#### Procedures

Data were drawn from the first wave of a U.S. longitudinal panel study to understand the psychological and social impacts of COVID-19. Participants were recruited through Qualtrics online panel service from July 2<sup>nd</sup>, 2020, to August 3<sup>rd</sup>, 2020. Qualtrics identified a sample stratified by and representative of the age, gender, race/ethnicity, and schooling according to the U.S. census. Participants were compensated \$3.90 for completing the first wave survey. Participants' responses were screened to meet the panel's data quality standards for valid entry, which resulted in a final sample of 2,019. All procedures were approved by respective authors' IRB.

#### Participants

The average age of 2,019 participants was 40.16 years ( $SD = 16.92$ ,  $Median = 36.00$   $Range = 18 - 99$ ), with about half of the sample identified as women (50.8%, 48.6% men, .4% other, .3% declined answering). Participants were from 50 states, Washington D.C. ( $n = 4$ ), and Puerto Rico ( $n = 2$ ). California ( $n = 231$ ), Florida ( $n = 189$ ), and Texas ( $n = 187$ ) as the three

## RACIAL DISPARITY AND TRAUMA

most frequently reported states. Ethnicity and race information was collected in the census format and recoded as Asian American Pacific Islanders ( $n = 123$ , 6.2%), Black/African Americans ( $n = 279$ , 14.1%), Hispanic/Latinx Americans ( $n = 283$ , 14.3%), Middle Eastern/Arab Americans ( $n = 4$ , .2%), Multiracial ( $n = 56$ , 2.8%), Native American and Alaska Native ( $n = 35$ , 1.8%), Non-Hispanic White/European Americans ( $n = 1180$ , 59.7%), Other ( $n = 17$ , .9%), and individuals declining answering ( $n = 42$ ). A total of 514 participants (25.4%) identified they have a child aged 18 and under. Annual family income was measured in eight categories: Below \$13K = 1 (9.2%), \$13K to \$26K = 2 (18.6%), \$26K to \$59K = 3 (31.9%), \$59K to \$75K = 4 (14.4%), \$75K to \$100K = 5 (11.6%), \$100K to \$150K = 6 (9.3%), and above \$150K = 7 (5.0%). In terms of educational attainment, 3.6% of the sample completed less than high school (= 1), 29.3% completed high school or an equivalent (= 2), 37.1% completed an Associate degree, technical school, or some college (= 3), and 30.0% (= 4) had a bachelor's (19.1%), master's (9.0%), or doctorate degree (1.8%). Overall, the sample closely mirrored the U.S. demographics in terms of residency, race, gender, income, and educational attainment.

### Measures

**Posttraumatic Stress Symptoms (PTSS).** The Primary Care-Posttraumatic Stress Disorder-5<sup>31</sup> was adapted to measure PTSS in the context of COVID-19. We excluded the initial question regarding the *DSM-5* requirement that traumatic events must involve actual/threatened death, serious injury, or sexual violence. Participants were instead asked to think about the “worst or most stressful event” that they had experienced due to COVID-19 in the past month and then indicate their level of PTSS via five *yes/no* PTSS screening questions (e.g., “have you felt guilty or unable to stop blaming yourself or others for the event or any problems the event may have caused?”). A sum score can be computed, ranging from 0 to 5, with a clinical cutoff of



## RACIAL DISPARITY AND TRAUMA

3 or higher.<sup>31</sup> The screener was previously validated by the National Center for Posttraumatic Stress Disorder,<sup>31</sup> and internal consistency  $\alpha$  was .79 in the present study.

**Pandemic Stressors.** Participants completed a COVID-related stress measure.<sup>32</sup> The three most frequently endorsed items were used as indicators for pandemic stress in the current study. These three items were “Uncertainty about duration and risks of the coronavirus pandemic,” “fear of getting infected with the coronavirus,” and “fear that loved ones get infected with the coronavirus.” Items were rated from 1 (*not at all stressed*) to 4 (*strongly stressed*) as well as “Does not apply to me.” Cronbach’s  $\alpha$  was .83 in the current study.

**Direct Racism.** Participants’ experiences of direct interpersonal racial discrimination were assessed by the 5-item shortened Everyday Discrimination Scale.<sup>33</sup> Participants were asked to rate on a 0 (*never*) to 5 (*almost every day*) frequency to the instruction “In your day-to-day life how often have any of the following things happened to you due to your race, ethnicity, or skin color?”<sup>29</sup> The shortened Everyday Discrimination scale (e.g., “you are threatened or harassed”) has demonstrated good reliability and validity among the U.S. ethnic-racial minorities.<sup>33</sup> Cronbach’s  $\alpha$  was .88 in the current study.

**Indirect Racism.** To assess participants’ stress in response to the indirect exposure to racism events during COVID-19, four items (e.g., “hearing people being the victims of racism in the news”) from past research<sup>29</sup> were administered. Participants were asked to rate their distress levels in the last three months on a 4-point scale from 0 (*not at all*) to 3 (*very much*). These items have demonstrated good reliability and incremental validity to direct racism.<sup>29</sup> Cronbach’s  $\alpha$  was .88 in the current study.

**Trauma Exposure.** Adverse childhood experiences (ACEs) and intimate partner violence (IPV) were included to control additional trauma exposure that may contribute to the

## RACIAL DISPARITY AND TRAUMA

PTSS.<sup>34</sup> ACEs were measured by the five items ( $\alpha = .78$ ) from the Adverse Childhood Experiences Questionnaire.<sup>35</sup> These items were rated on yes (= 1) or no (= 0) regarding whether participants directly experienced five different types of ACEs before age of 19 (emotional, physical, and sexual abuse; emotional and physical neglect).

IPV was measured by four HARK items.<sup>36</sup> These items were rated on yes (= 1) or no (= 0) over the past year (“humiliated or emotionally abused in other ways by your partner or your ex-partner,” “afraid of your partner or ex-partner,” “raped or forced to have any kind of sexual activity by your partner or ex-partner,” “kicked, hit, slapped or otherwise physically hurt by your partner or ex-partner”). The HARK scale has demonstrated good sensitivity and specificity, with a cutoff sum score of 1 (12% of the studied sample) indicating probable IPV<sup>36</sup>. Cronbach’s  $\alpha$  was .80 in the current study.

### **Analysis Plan**

Descriptive analyses and t-tests and Analysis of Variances (ANOVA) were conducted to examine the group differences on studied variables. Next, mediation analyses were conducted in *MPlus* 7<sup>37</sup> using structural equation modeling to examine a latent mediation model. Following Anderson and Gerbing’s two-step procedure,<sup>38</sup> we first tested a measurement model that estimated all focal latent constructs (i.e., PTSS, pandemic stressor, racism) by having their respective measurement items load on their corresponding latent factors as indicators.

In the second step, to test for mediation paths, the two indirect effects were estimated by creating 5,000 bootstraps with bias-corrected intervals. Race was included as an observed variable. For the main model, race was recoded as non-Hispanic White (= 0) and POC participants (= 1), which included Asian American Pacific Islanders (AAPI), Black/African Americans, Hispanic/Latinx Americans, Middle Eastern/Arab Americans, Multiracial, Native

## RACIAL DISPARITY AND TRAUMA

American and Alaska Native, and Other. Informed by increasing COVID-19 health disparities data,<sup>15,34,39</sup> additional covariates were added to the model, including age, gender (women = 0, men = 1), education, income, parent status (parents with children aged 18 and under = 1, others = 0), ACEs, and IPV.

Model fit was determined according to Hu and Bentler's<sup>40</sup> recommendations for the  $\chi^2$  statistic, root mean square error of approximation (RMSEA <.08 is acceptable), standardized root-mean-square residual (SRMR <.08 is acceptable), Tucker-Lewis index (TLI >.90 is acceptable), and comparative fit index (CFI >.90 is acceptable). The amount of missingness was low, ranging from 0 to 4%. Thus maximum likelihood (ML) estimation was employed to handle missingness in the latent mediation analysis.<sup>41</sup> All variables in the model were allowed to covary, including the error terms of latent variables.

## Results

### Preliminary Analyses

We present the composite means, standard deviations, and correlations of the studied variables in Table 1. PTSS, pandemic stressor, direct and indirect racism, ACEs, and cumulative IPV ( $r_s = .11$  to  $.45$ ) were all positively correlated with each other. Using independent  $t$ -tests, we found higher PTSS among POC ( $M = 1.83$ ,  $SD = 1.74$ ) compared to White Americans ( $M = 1.48$ ,  $SD = 1.66$ ),  $t(1523.22) = 4.41$ ,  $p < .001$ ,  $d = .21$ , higher pandemic stressor among POC ( $M = 2.03$ ,  $SD = .84$ ) than White Americans ( $M = 1.74$ ,  $SD = .92$ ),  $t(1689.40) = 7.12$ ,  $p < .001$ ,  $d = .32$ , higher direct racism among POC ( $M = 1.29$ ,  $SD = 1.22$ ) compared to White Americans ( $M = .71$ ,  $SD = 1.04$ ),  $t(1354.67) = 10.62$ ,  $p < .001$ ,  $d = .50$ , higher indirect racism among POC ( $M = 2.33$ ,  $SD = .77$ ) versus White Americans ( $M = 1.75$ ,  $SD = .98$ ),  $t(1833.93) = 14.56$ ,  $p < .001$ ,  $d = .64$ , and higher IPV among POC ( $M = .29$ ,  $SD = .83$ ) compared to White Americans ( $M = .21$ ,  $SD = .70$ ),

## RACIAL DISPARITY AND TRAUMA

$t(1358.13) = 2.26, p < .05, d = .11$ . Additional information on studied variables across Asian American Pacific Islanders, Black/African Americans, Hispanic/Latinx Americans, and White Americans were included in Supplemental Table 1.

### Mediational Effects

First, for the measurement model, the model fit indices were RMSEA = .045, CFI = .972, TLI = .967, SRMR = .033, indicating adequate fit (see Table 2 for item loadings in the measure model). Second, in fitting the latent mediation model (Figure 1), RMSEA = .043, CFI = .955, TLI = .943, SRMR = .033, which indicated good model fit. All unstandardized coefficients, standard errors, standardized coefficients, and  $p$ -values were displayed in Table 3. There were main effects of race in predicting pandemic stressor ( $\beta = .09, p = .001, R^2 = .09$ ), direct racism ( $\beta = .19, p < .001, R^2 = .27$ ), and indirect racism ( $\beta = .22, p < .001, R^2 = .17$ ). In turn, pandemic stressor ( $\beta = .39, p = .001$ ), direct racism ( $\beta = .21, p < .001$ ), and indirect racism ( $\beta = .07, p < .001$ ) all significantly predicted PTSS ( $R^2 = .49$ ). The direct effect of race on PTSS was significant ( $\beta = -.11, p < .001$ ). The indirect effects of race on PTSS, through pandemic stressor and racism, were all statistically significant. The bootstrapped mediated effects of race on PTSS were .035 (95% CI of .015 to .054) via pandemic stressor, .040 (95% CI of .025 to .057) via direct racism, and .015 (95% CI of .004 to .027) via indirect racism. These total indirect effects were estimated to be .089 (95% CI of .062 to .121). Additional information regarding control variables was included in Supplemental Table 2.

As post-hoc analyses, similar models were fitted for Hispanic/Latinx Americans ( $n = 283$ ), Black/African Americans ( $n = 279$ ), and Asian American Pacific Islanders ( $n = 123$ ). As illustrated in Supplemental Figure 1A, all the indirect effects via pandemic stressor (.042) and direct (.013) and indirect (.010) racism were significant, with the indirect effect via pandemic

## RACIAL DISPARITY AND TRAUMA

stressors accounted for the most variances of the PTSS disparities between Hispanic/Latinx Americans and White Americans. Only the indirect effect via direct racism (.051) was significant in accounting for the PTSS disparities between Black/African Americans and White Americans (Figure 1B); the indirect effects via pandemic stressor (.038) and direct racism (.035) accounted for similar levels of the PTSS disparities between Asian American Pacific Islanders and White Americans (Figure 1C).

### Discussion

The current study addresses a timely and important topic that contributes to our understanding of PTSS during the COVID-19 syndemic from a racial disparity lens. Integrating ecological theory and racial trauma framework, the main goal of the current study was to investigate racial disparities of PTSS and the mediating role of pandemic stressors as well as direct and indirect racism using a U.S. national sample collected in summer 2020.

Our findings indicated higher levels of PTSS among POC compared to White Americans, which was not surprising given pre-COVID-19 studies have found similar racial disparities.<sup>20–23</sup> Compared to past research, one strength in the current study is a more representative sampling (e.g., the inclusion of Asian American Pacific Islanders, socioeconomic status mirroring census trends) that may make these results more generalizable. Situated in the COVID-19 context, these findings highlight the disproportionate impact of the syndemic extends beyond the health domain<sup>3</sup> into the mental health domain.<sup>42</sup>

Given the PTSS racial disparity, we examined three possible mediators. We hypothesized that racism, particularly direct racism, would explain more variances of the PTSS racial disparity compared to COVID-19-specific stressors. To the best of our knowledge, no research (before or during COVID-19) has explicitly investigated these possible mechanisms contributing to the

## RACIAL DISPARITY AND TRAUMA

PTSS racial disparity. Indeed, we observed all indirect effects were significant. The mediation effect via direct racism stress was the largest, next to pandemic stress and indirect racism stress. These indirect effects persist even after controlling for the impact of age, gender, education, income, parent status, ACEs, and IPV. It is worth noting that in a hypothetical world, after statistically accounting for pandemic stressors, direct racism, indirect racism, and other control variables, POC would report less PTSS compared to White Americans. These preliminary findings imply that POC are particularly vulnerable populations during the COVID-19 syndemic, and post-disaster relief policies and interventions need to be tailored to prevent and reduce harm related to the additional burden of racism.

Our study contributes to the racial trauma literature, which underscores racial discrimination and racism as one of the most important causes of trauma symptoms among POC.<sup>21</sup> By July 2020, at the time of the data collection, the U.S. public has been well exposed to the racial disparity of COVID-19 infection, hospitalization, and deaths, with POC disproportionately experiencing and witnessing the impact of COVID-19 on their community. Stop AAPI Hate, an organization formed in 2020 in response to racist attacks on the Asian community, has received over 800 COVID-19 related discrimination and harassment in 3 months from California alone.<sup>43</sup> An estimated 15 to 26 million people have participated in the Black Lives Matter protests following the murder of George Floyd and others, making it the largest movement in U.S. history.<sup>44</sup> Thus, in the context of the COVID-19 syndemic, racial trauma may be triggered not only by increasingly visible racism at an interpersonal level from POC's microsystem, but also vicarious and systemic racism from their mesosystem such as exposure to the higher mortality rates among POC. This view is also consistent with the minority stress model,<sup>45</sup> which posits that the worse health outcomes among minoritized individuals (e.g.,

## RACIAL DISPARITY AND TRAUMA

sexual, racial) can be attributed to the additional stressors (e.g., discrimination) that their privileged counterparts do not experience. Our data indeed suggested that POC reported higher perceived stress with racism ( $d = .50$  to  $.64$ ) and the COVID-19 pandemic (e.g., POC are more fearful of getting infected with COVID-19;  $d = .32$ ) with small to moderate effect sizes. This implies the impact of racism and the COVID-19 pandemic are likely to be intertwined and impossible to separate in the context of a White supremacist society.

Regarding increasing research that underscored the importance to understand indirect/vicarious racism in addition to direct racism exposure,<sup>27-29,46</sup> our findings suggest the relatively weaker mediated effects of indirect racism ( $\beta = .015$ ), in comparison to direct racism ( $\beta = .040$ ), in explaining the PTSS racial disparity between White Americans and POC. Based upon our post-hoc analyses, the weak mediated effect of vicarious racism appears to be driven by: (1) the non-significant direct effect between AAPI and indirect racism; and (2) non-significant direct effect of indirect racism on PTSS (among Black/African Americans) and weak effects (for AAPI and Latinx Americans). The weaker effects of indirect racism may be partly explained by that White Americans would more likely be vicariously impacted by racism instead of directly experiencing racism. Vicissitudes of events in 2020 (e.g., murdering of Ahmaud Arbery, Breonna Taylor, and George Floyd) and 2021 (e.g., murdering of six Asian women in the Atlanta shooting) may have raised a new awakening among some White Americans. In this context, White Americans may also be vicariously impacted to experience guilt, stress, and anger, which was further amplified with prolonged home quarantine and exposure to media coverage. From a structural emphasis, both White Americans' and POC's mental health may be impacted by racism, although the nature of these impact can be qualitatively different.<sup>47</sup> Nonetheless, with a long-rooted U.S. history of interpersonal and institutional racism towards

## RACIAL DISPARITY AND TRAUMA

POC, it is not surprising that POC were more adversely impacted by indirect racism compared to White Americans from our results.

Lastly, it is crucial to note POC share similarities and significant heterogeneity in how racism and White supremacy impact respective communities and at times create conflicts among POC.<sup>47,48</sup> The usage of the POC terminology thus is to convey the shared, racialized experiences and impact of racism rather than to minimize these differences. With sample size limitations, our post-hoc, fine-grained analyses comparing four racial groups – Asian American Pacific Islanders (AAPI), Black/African Americans, Hispanic/Latinx Americans, and White Americans – provided a more nuanced understanding. All three POC groups reported a higher direct and indirect racism stress than their White counterparts (STable1). However, among these three POC groups, the mediating effect of direct racism seems to be most prominent in explaining the White-AAPI PTSS disparity (SFigure 1A). Although AAPI communities were exposed to indirect racism such as the racist and xenophobia rhetoric over media and hearing or witness family and friends' experiences of racism, the White-AAPI PTSS disparity may be more driven by the surge in anti-Asian hate crimes (e.g., verbal and physical assaults).<sup>4,5,7</sup> In contrast, the mediating effect of indirect racism seems to be most prominent in accounting for the White-Black PTSS disparity (SFigure 1B), highlighting the secondary trauma on African/Black Americans from constant/inescapable exposure to murdering of Black lives in media<sup>49</sup> at the time of the data collection. Lastly, the pandemic stressor seems to explain the most White-Latinx PTSS disparity (SFigure 1C), underscoring COVID-19 pandemic as the most salient stressor, perhaps due to their work and living conditions, on Hispanic/Latinx Americans.<sup>50</sup> Taken together, despite the need to recognize the ramification of structural racism in different minoritized communities, our findings point to the important role racism plays in understanding



## RACIAL DISPARITY AND TRAUMA

PTSS among POC collectively. For example, another study conducted from May to July 2020 found 91.9% Asian and 98.1% Black participants reported experiencing any vicarious racism, and 51.0% of Asian and 61.6% of Black participants indicated their experiences of vicarious racism during the COVID-19 pandemic were “more than usual.”<sup>51</sup>

### **Limitations**

Despite the strengths of our research (e.g., relatively large national sample, representative online sample, and theoretical grounding), limitations and directions for further study must clearly be noted. First, racial trauma is an emerging and evolving field of study. We did not specifically measure participants’ reaction to a racial discrimination event(s) or a COVID-specific event(s); PTSS was assessed using a universal screening form.<sup>31</sup> Scholars suggest race-based trauma symptoms may have different reactions (e.g., rumination about racism encounters) not captured in a traditional DSM framework.<sup>11</sup> Thus, further research is needed to examine these constructs with updated measurement tools.<sup>11</sup> In addition, although the Qualtrics panel seems demographically and politically representative,<sup>52</sup> all sampling methods may introduce their own biases (e.g., accessibility to the internet, non-response rates in our study). The study only included English speakers. The survey design itself may not intake consideration of emerging factors identified in the literature that could attribute to the participants experiences of racism, COVID-19, and PTSS, such as subgroup differences within racial/ethnic groups, geographic locations, nativity/immigrant status, or working conditions.<sup>15,51,53</sup> There may also be more ecologically valid measures to capture COVID-19 specific racism. Lastly, the cross-sectional data in the current study particularly caution against drawing causality. The follow-up waves from our longitudinal study may be able to offer further insights on, for example, how elevated PTSS may further sensitize one’s perception of and the impact of racism.

### **Conclusion**

Our findings add to the growing literature on mental health disparities during the U.S. COVID-19 syndemic. In applying the racial trauma and ecological framework to understand the racial disparity of PTSS, we examined the effects of three important mediators – pandemic stressors, direct racism, and indirect racism. An ecological framework is especially valuable that allows us to investigate the structural racism from the macro-level at a meso- and micro-level using psychological methods. Taken together, racial disparities in PTSS may not only be a result of experiences of interpersonal direct and indirect racism, but that these disparities are part of broader existing social, economic, and health disparities associated with increased susceptibility to COVID-19 and its consequences among POC. Our racial disparity approach in understanding COVID-19 PTSS has major policy and clinical implications: Racism and COVID-19 are interrelated public health crises as byproducts of structural racism that disproportionately impacted POC. It is crucial to consider the impact of racism, in addition to COVID-19-specific stressors, as a public health crisis.<sup>54</sup> Targeted prevention and intervention at both individual (e.g., address the impact of racial discrimination) and systemic (e.g., anti-racist policies) levels should be implemented for possible post-disaster relief.

**References**

1. Mendenhall E. The COVID-19 syndemic is not global: context matters. *The Lancet*. 2020;396(10264):1731. doi:10.1016/S0140-6736(20)32218-2
2. Centers for Disease Control and Prevention. *COVID-19 Hospitalization and Death by Race/Ethnicity*.; 2021. <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>
3. Rubin-Miller L, Alban C, Sep 16 SSP, 2020. COVID-19 Racial Disparities in Testing, Infection, Hospitalization, and Death: Analysis of Epic Patient Data. KFF. Published September 16, 2020. Accessed March 26, 2021. <https://www.kff.org/coronavirus-covid-19/issue-brief/covid-19-racial-disparities-testing-infection-hospitalization-death-analysis-epic-patient-data/>
4. Gover AR, Harper SB, Langton L. Anti-Asian Hate Crime During the COVID-19 Pandemic: Exploring the Reproduction of Inequality. *Am J Crim Justice*. 2020;45(4):647-667. doi:10.1007/s12103-020-09545-1
5. Ly D, B F. 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
6. Wang S, Chen X, Li Y, Lu C, Yan R, Madrisotti F. 'I'm more afraid of racism than of the virus!': racism awareness and resistance among Chinese migrants and their descendants in France during the Covid-19 pandemic. *Eur Soc*. 2021;23(sup1):S721-S742. doi:10.1080/14616696.2020.1836384
7. Yu N, Pan S, Yang C chen, Tsai JY. Exploring the Role of Media Sources on COVID-19–Related Discrimination Experiences and Concerns Among Asian People in the United States: Cross-Sectional Survey Study. *J Med Internet Res*. 2020;22(11). doi:10.2196/21684
8. Barbot O. George Floyd and Our Collective Moral Injury. *Am J Public Health*. 2020;110(9):1253-1253. doi:10.2105/AJPH.2020.305850
9. Bronfenbrenner U. Ecological models of human development. *Read Dev Child*. 1994;2(1):37-43.
10. Spencer MB, Dupree D, Hartmann T. A Phenomenological Variant of Ecological Systems Theory (PVEST): A self-organization perspective in context. *Dev Psychopathol*. 1997;9(4):817-833. doi:10.1017/S0954579497001454
11. Carter RT, Pieterse AL. *Measuring the Effects of Racism: Guidelines for the Assessment and Treatment of Race-Based Traumatic Stress Injury*. Columbia University Press; 2020.
12. Comas-Díaz L, Hall GN, Neville HA. Racial trauma: Theory, research, and healing: Introduction to the special issue. *Am Psychol*. 2019;74(1):1-5. doi:10.1037/amp0000442

## RACIAL DISPARITY AND TRAUMA

13. Azar KMJ, Shen Z, Romanelli RJ, et al. Disparities In Outcomes Among COVID-19 Patients In A Large Health Care System In California. *Health Aff (Millwood)*. 2020;39(7):1253-1262. doi:10.1377/hlthaff.2020.00598
14. Lopez L, Hart LH, Katz MH. Racial and Ethnic Health Disparities Related to COVID-19. *JAMA*. 2021;325(8):719. doi:10.1001/jama.2020.26443
15. Fitzpatrick KM, Harris C, Drawve G. Fear of COVID-19 and the mental health consequences in America. *Psychol Trauma Theory Res Pract Policy*. 2020;12(S1):S17-S21. doi:10.1037/tra0000924
16. Purtle J. COVID-19 and mental health equity in the United States. *Soc Psychiatry Psychiatr Epidemiol*. 2020;55(8):969-971. doi:10.1007/s00127-020-01896-8
17. Liu CH, Zhang E, Wong GTF, Hyun S, Hahm H “Chris.” Factors associated with depression, anxiety, and PTSD symptomatology during the COVID-19 pandemic: Clinical implications for U.S. young adult mental health. *Psychiatry Res*. 2020;290:113172. doi:10.1016/j.psychres.2020.113172
18. Masiero M, Mazzocco K, Harnois C, Cropley M, Pravettoni G. From Individual To Social Trauma: Sources Of Everyday Trauma In Italy, The US And UK During The Covid-19 Pandemic. *J Trauma Dissociation*. 2020;21(5):513-519. doi:10.1080/15299732.2020.1787296
19. Kendall-Tackett K. What I saw at the global pandemic. *Psychol Trauma Theory Res Pract Policy*. 2020;12(5):437-438. doi:10.1037/tra0000946
20. 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 Theory Res Pract Policy*. 2020;12(5):439-442. doi:10.1037/tra0000784
21. Carter RT, Kirkinis K, Johnson VE. Relationships between trauma symptoms and race-based traumatic stress. *Traumatology*. 2020;26(1):11-18. doi:10.1037/trm0000217
22. Roberts AL, Gilman SE, Breslau J, Breslau N, Koenen KC. Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psychol Med*. 2011;41(1):71-83. doi:10.1017/S0033291710000401
23. Sibrava NJ, Bjornsson AS, Pérez Benítez ACI, Moitra E, Weisberg RB, Keller MB. Posttraumatic stress disorder in African American and Latinx adults: Clinical course and the role of racial and ethnic discrimination. *Am Psychol*. 2019;74(1):101-116. doi:10.1037/amp0000339
24. Erving CL, Thomas CS, Frazier C. Is the Black-White mental health paradox consistent across gender and psychiatric disorders? *Am J Epidemiol*. 2019;188(2):314-322. doi:10.1093/aje/kwy224

## RACIAL DISPARITY AND TRAUMA

25. Kirkinis K, Pieterse AL, Martin C, Agiliga A, Brownell A. Racism, racial discrimination, and trauma: a systematic review of the social science literature. *Ethn Health*. 2018;0(0):1-21. doi:10.1080/13557858.2018.1514453
26. 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
27. 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). doi:10.1542/peds.2020-021816
28. 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
29. 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
30. Courtois CA. Complex trauma, complex reactions: Assessment and treatment. *Psychother Theory Res Pract Train*. 2004;41(4):412-425. doi:10.1037/0033-3204.41.4.412
31. Prins A, Bovin MJ, Kimerling R, et al. The Primary Care PTSD Screen for DSM-5 (PC-PTSD-5). Published online 2015.
32. Lotzin A, Ketelsen R, Zrnic I, Lueger-Schuster B, Böttche M, Schäfer I. *The Pandemic Stressor Scale – Factorial Validity and Reliability of a Measure of Stressors During a Pandemic*. In Review; 2021. doi:10.21203/rs.3.rs-555631/v1
33. Sternthal MJ, Slopen N, Williams DR. Racial disparities in health. *Bois Rev Soc Sci Res Race*. 2011;8(1):95-113. doi:10.1017/S1742058X11000087
34. Agüero JM. COVID-19 and the rise of intimate partner violence. *World Dev*. 2021;137:105217. doi:10.1016/j.worlddev.2020.105217
35. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults: The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14(4):245-258. doi:10.1016/S0749-3797(98)00017-8
36. Sohal H, Eldridge S, Feder G. The sensitivity and specificity of four questions (HARK) to identify intimate partner violence: a diagnostic accuracy study in general practice. *BMC Fam Pract*. 2007;8:49. doi:10.1186/1471-2296-8-49
37. Muthén LK, Muthén BO. Mplus user's guide. Eighth edition. *Los Angel CA Author*. Published online 2017 1998.

## RACIAL DISPARITY AND TRAUMA

38. Anderson JC, Gerbing DW. Structural equation modeling in practice: A review and recommended two-step approach. *Psychol Bull.* 1988;103(3):411-423. doi:10.1037/0033-2909.103.3.411
39. Wamser-Nanney R, Nguyen-Feng V, Lotzin A, Zhou X. Parenting amidst COVID-19: Pandemic-related stressors, inequities, and treatment utilization and perceptions. *Couple Fam Psychol Res Pract.* Published online August 19, 2021. doi:10.1037/cfp0000189
40. Hu L tze, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct Equ Model.* 1999;6(1):1-55. doi:10.1080/10705519909540118
41. Graham JW. Missing data analysis: Making it work in the real world. *Annu Rev Psychol.* 2009;60(1):549-576. doi:10.1146/annurev.psych.58.110405.085530
42. McKnight-Eily LR, Okoro CA, Strine TW, et al. Racial and Ethnic Disparities in the Prevalence of Stress and Worry, Mental Health Conditions, and Increased Substance Use Among Adults During the COVID-19 Pandemic — United States, April and May 2020. *Morb Mortal Wkly Rep.* 2021;70(5):162-166. doi:10.15585/mmwr.mm7005a3
43. Stop AAPI Hate. California Report: Over 800 Hate Incidents in 3 Months. Stop AAPI Hate. Published June 30, 2020. Accessed September 3, 2021. <https://stopaapihate.org/california-report/>
44. Buchanan L, Bui Q, Patel JK. Black Lives Matter May Be the Largest Movement in U.S. History. *The New York Times.* <https://www.nytimes.com/interactive/2020/07/03/us/george-floyd-protests-crowd-size.html>. Published July 3, 2020. Accessed September 3, 2021.
45. Meyer IH. Minority Stress and Mental Health in Gay Men. *J Health Soc Behav.* 1995;36(1):38. doi:10.2307/2137286
46. Zhou X, Shein B, Khalil A, Duncan R. Parent and Child Adjustment Dual-Trajectories at the Beginning of the COVID-19 Syndemic. *PsyArXiv.* Published online 2021. doi:10.31234/osf.io/pb2fs
47. Thompson CE, Neville HA. Racism, Mental Health, and Mental Health Practice. *Couns Psychol.* 1999;27(2):155-223. doi:10.1177/0011000099272001
48. Yi J, Todd NR. Internalized model minority myth among Asian Americans: Links to anti-Black attitudes and opposition to affirmative action. *Cultur Divers Ethnic Minor Psychol.* Published online February 11, 2021. doi:10.1037/cdp0000448
49. Price M. Opinion | Please Stop Showing the Video of George Floyd’s Death. *The New York Times.* <https://www.nytimes.com/2020/06/03/opinion/george-floyd-video-social-media.html>. Published June 3, 2020. Accessed May 13, 2021.

## RACIAL DISPARITY AND TRAUMA

50. Macias Gil R, Marcelin JR, Zuniga-Blanco B, Marquez C, Mathew T, Piggott DA. COVID-19 Pandemic: Disparate Health Impact on the Hispanic/Latinx Population in the United States. *J Infect Dis*. 2020;222(10):1592-1595. doi:10.1093/infdis/jiaa474
51. Chae DH, Yip T, Martz CD, et al. Vicarious racism and vigilance during the COVID-19 pandemic: Mental health implications among Asian and Black Americans. *Public Health Rep*. 2021;136(4):508-517. doi:10.1177/00333549211018675
52. Boas TC, Christenson DP, Glick DM. Recruiting large online samples in the United States and India: Facebook, Mechanical Turk, and Qualtrics. *Polit Sci Res Methods*. 2020;8(2):232-250. doi:10.1017/psrm.2018.28
53. Lu Y, Kaushal N, Huang X, Gaddis SM. Priming COVID-19 salience increases prejudice and discriminatory intent against Asians and Hispanics. *Proc Natl Acad Sci*. 2021;118(36). doi:10.1073/pnas.2105125118
54. Devakumar D, Selvarajah S, Shannon G, et al. Racism, the public health crisis we can no longer ignore. *The Lancet*. 2020;395(10242):e112-e113. doi:10.1016/S0140-6736(20)31371-4

RACIAL DISPARITY AND TRAUMA

**Table 1**  
*Mean, Standard Deviations, and Bivariate Zero-Order Correlations*

	1	2	3	4	5	6	7	8	9	10	11	12
1. PTSS	-											
2. Pandemic stressor	.45***	-										
3. Direct racism	.39***	.24***	-									
4. Indirect racism	.30***	.39***	.24***	-								
5. ACEs	.32***	.12***	.31***	.12***	-							
6. IPV	.31***	.11***	.33***	.11***	.40***	-						
7. Age	-.35***	-.23***	-.30***	-.26***	-.18***	-.21***	-					
8. Education	.01	.02	.08***	.07**	-.12***	-.02	.07**	-				
9. Income	-.03	-.01	-.01	.01	-.13***	-.02	.05*	.43***	-			
10. Gender	-.15***	-.16***	-.04	-.30***	-.11***	-.09***	.31***	.11***	.14***	-		
11. Parent status	-.05*	.01	-.05*	-.02	-.01	.01	.24***	-.02	.16***	-.01	-	
12. Race	.10***	.16***	.24***	.30***	.03	.05*	-.32***	.14***	-.03	-.28***	-.08***	-
Mean	1.61	1.84	.93	1.97	.93	.24	47.43	2.93	3.53	.49	.53	.38
SD	1.70	.90	1.14	.95	1.39	.75	17.63	.86	1.72	.50	.50	.49
Range	0-5	1-4	0-5	0-3	0-5	0-4	18-99	1-4	1-7	0,1	0,1	0,1
N	2,012	2,007	1,971	1,988	2,012	1,990	2,019	1,995	1,938	2,006	2,012	1,977

*Note.* PTSS = Posttraumatic Stress Symptoms; ACEs = Adverse Childhood Experiences; IPV = Intimate Partner Violence; Education (less than high school = 1, completed high school or an equivalent = 2, completed an Associate degree, technical school, or some college = 3, and had a bachelor’s, master’s, or doctorate degree =4); Annual family income (below \$13K = 1, \$13K to \$26K = 2, \$26K to \$59K = 3, \$59K to \$75K = 4, \$75K to \$100K = 5, \$100K to \$150K = 6, and above \$150K = 7); Gender (women = 0, men = 1); Parent status (parents with children aged 18 and under = 1, others = 0), Race (POC = 1, White Americans = 0); \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .



## RACIAL DISPARITY AND TRAUMA

**Table 2**

*Items loadings ( $\lambda$ ) of the measurement model*

Constructs	Items	$\lambda$
PTSS	had nightmares or thought about the event(s) when you did not want to	.688
	tried hard not to think about or went out of your way to avoid	.679
	been constantly on guard, watchful, or easily startled	.654
	felt numb or detached from people, activities, or your surroundings	.640
	felt guilty or unable to stop blaming yourself or others	.625
Pandemic Stressor	Uncertainty about duration and risks of the coronavirus pandemic	.698
	Fear of getting infected with the coronavirus	.833
	Fear that loved ones get infected with the coronavirus	.848
Direct Racism	You are treated with less courtesy or respect than other people	.846
	You receive poorer service than other people at stores	.864
	People act as if they think you are not smart	.813
	People act as if they are afraid of you	.715
	You are threatened or harassed	.750
Indirect Racism	hearing people being the victims of racism in the news	.859
	hearing about family members or friends who experienced racism	.803
	seeing other people in public being treated unfairly because of their race	.861
	seeing racism depicted in movies or television shows	.732

RACIAL DISPARITY AND TRAUMA

**Table 3**

*Effect estimates for the total sample.*

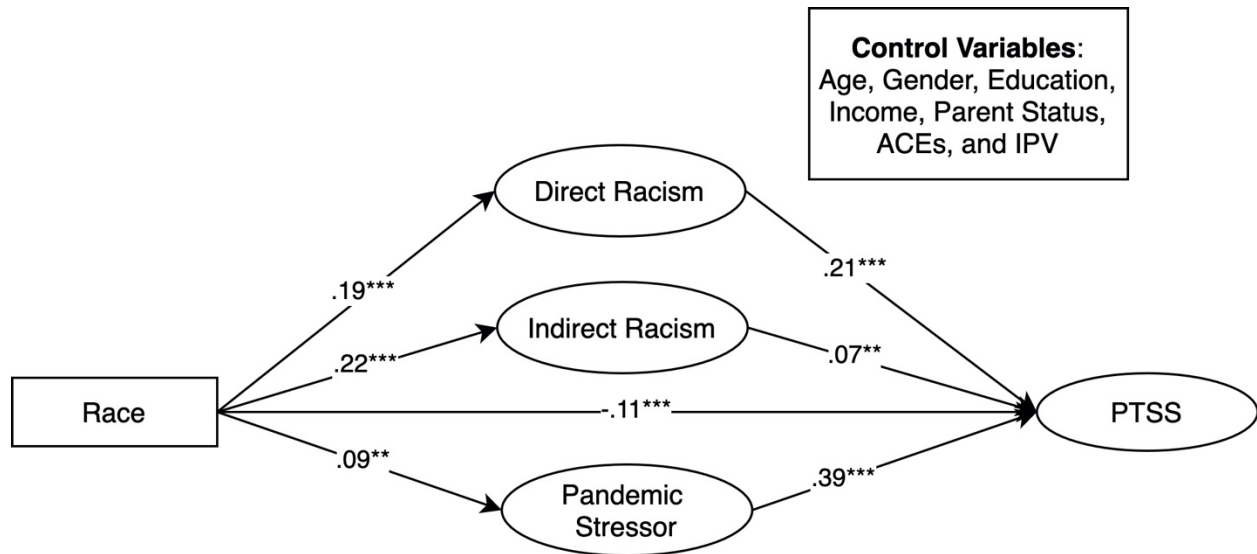
Structural paths	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
Race → Pandemic stressor	.127	0.038	0.089	0.001
Race → Direct racism	.477	0.064	0.193	<.001
Race → Indirect racism	.406	0.046	0.222	<.001
Race → PTSS	-.067	0.016	-0.108	<.001
Pandemic stressor → PTSS	.171	0.013	0.388	<.001
Direct stressor → PTSS	.052	0.008	0.206	<.001
Indirect stressor → PTSS	.023	0.009	0.067	0.009
Pandemic ↔ Direct racism	.178	0.026	0.122	<.001
Pandemic ↔ Indirect racism	.389	0.027	0.210	<.001
Direct ↔ Indirect racism	.163	0.024	0.138	<.001
<b>Indirect effects</b>	<i>Estimate</i>	<i>SE</i>	<i>CI</i>	<i>p</i>
Race → Pandemic stressor → PTSS	.035	.011	[.015, .054]	.001
Race → Direct racism → PTSS	.040	.008	[.025, .057]	<.001
Race → Indirect racism → PTSS	.015	.006	[.004, .027]	.013
Total indirect effects	.089	.015	[.062, .121]	<.001

*Note.* Race (POC = 1, White Americans = 0); PTSS = Posttraumatic Stress Symptoms; ACEs = Adverse Childhood Experiences; IPV = Intimate Partner Violence; CI = Confidence Interval.

# RACIAL DISPARITY AND TRAUMA

**Figure 1**

*Standardized path estimates for the total sample.*



*Note.* Race was recoded with POC = 1 ( $n = 797$ ), White = 0 ( $n = 1180$ ); PTSS = Posttraumatic Stress Symptoms; ACEs = Adverse Childhood Experiences; IPV = Intimate Partner Violence; Correlated paths among direct racism, indirect racism, and pandemic stressor were omitted for illustrative purposes. \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Supplemental Materials**

## RACIAL DISPARITY AND TRAUMA

**STable 1**

*Analysis of Variances (ANOVA) Results on Studied Variables Across AAPI, Black, Latinx, and White Americans*

	AAPI	Black	Latinx	White	<i>F</i>	$\eta^2$	Post Hoc Tests
PTSS	1.71 (1.75)	1.58 (1.68)	2.09 (1.72)	1.45 (1.66)	11.37***	.02	Latinx>Black, White
Pandemic Stressor	2.11 (.81)	1.85 (.88)	2.13 (.79)	1.73 (.92)	20.35***	.03	Latinx>Black, White; AAPI>Black, White
Direct Racism	1.26 (1.16)	1.43 (1.28)	1.13 (1.16)	.69 (1.02)	43.58***	.07	Black>Hispanic, White; Asian, Hispanic>White
Indirect Racism	2.08 (.83)	2.45 (.74)	2.35 (.76)	1.73 (.98)	70.27***	.10	Black>AAPI, White; Hispanic>AAPI, White AAPI>White
ACEs	.85 (1.31)	.90 (1.40)	1.18 (1.46)	.89 (1.39)	3.46*	.02	Latinx>White
IPV	.22 (.72)	.30 (.85)	.31 (.83)	.21 (.69)	1.96	-	-

*Note.* Data were presented for Asian American Pacific Islanders (AAPI;  $n = 123$ ), Black/African Americans ( $n = 279$ ), Hispanic/Latinx Americans ( $n = 283$ ), and non-Hispanic White/European Americans ( $n = 1180$ ). Bonferroni adjustments were utilized for post-hoc ANOVA analyses.

PTSS = Posttraumatic Stress Symptoms; ACEs = Adverse Childhood Experiences; IPV = Intimate Partner Violence; \*  $p < .05$ ; \*\*\*  $p < .001$ .

RACIAL DISPARITY AND TRAUMA

**STable 2**

*Unstandardized and standardized parameter estimates for control variables*

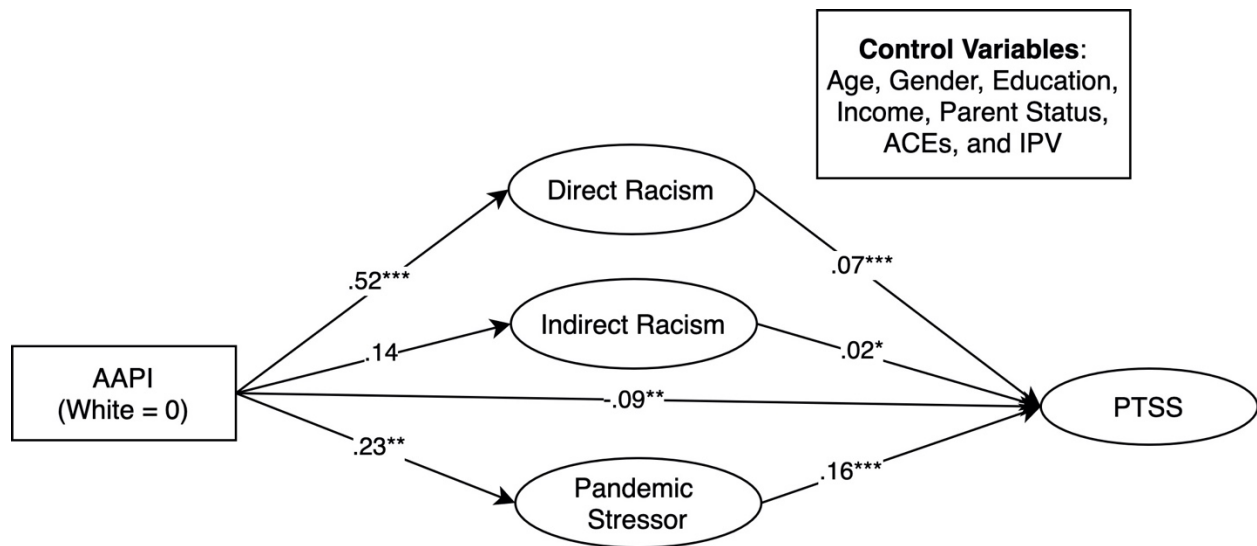
	<i>B</i>	<i>SE</i>	$\beta$	<i>p</i>
Age → Pandemic stressor	-0.008	0.001	-0.191	<.001
Age → Direct racism	-0.015	0.002	-0.218	<.001
Age → Indirect racism	-0.007	0.001	-0.133	<.001
Age → PTSS	-0.003	0.000	-0.185	<.001
Gender → Pandemic stressor	-0.083	0.032	-0.064	0.008
Gender → Direct racism	0.201	0.053	0.089	<.001
Gender → Indirect racism	-0.301	0.046	-0.181	<.001
Gender → PTSS	-0.002	0.014	-0.004	0.880
Education → Pandemic stressor	0.029	0.023	0.036	0.193
Education → Direct racism	0.134	0.033	0.094	<.001
Education → Indirect racism	0.079	0.028	0.075	0.005
Education → PTSS	0.015	0.009	0.043	0.080
Income → Pandemic stressor	-0.003	0.011	-0.007	0.797
Income → Direct racism	-0.005	0.017	-0.007	0.763
Income → Indirect racism	0.009	0.014	0.017	0.517
Income → PTSS	-0.002	0.004	-0.013	0.604
Parent Status → Pandemic stressor	0.089	0.036	0.064	0.013
Parent Status → Direct racism	0.070	0.056	0.029	0.210
Parent Status → Indirect racism	0.071	0.043	0.040	0.096
Parent Status → PTSS	-0.004	0.013	-0.006	0.776
ACEs → Pandemic stressor	0.041	0.014	0.082	0.004
ACEs → Direct racism	0.181	0.023	0.207	<.001
ACEs → Indirect racism	0.040	0.017	0.062	0.016
ACEs → PTSS	0.031	0.006	0.141	<.001
IPV → Pandemic stressor	0.027	0.024	0.029	0.261
IPV → Direct racism	0.343	0.049	0.215	<.001
IPV → Indirect racism	0.036	0.028	0.030	0.195
IPV → PTSS	0.059	0.010	0.147	<.001

*Note.* PTSS = Posttraumatic Stress Symptoms; ACEs = Adverse Childhood Experiences; IPV = Intimate Partner Violence.

RACIAL DISPARITY AND TRAUMA

**SFigure 1A.**

Standardized path estimates comparing Asian Americans and Pacific Islanders ( $N = 123$ ) to non-Hispanic White Americans ( $N = 1180$ ).

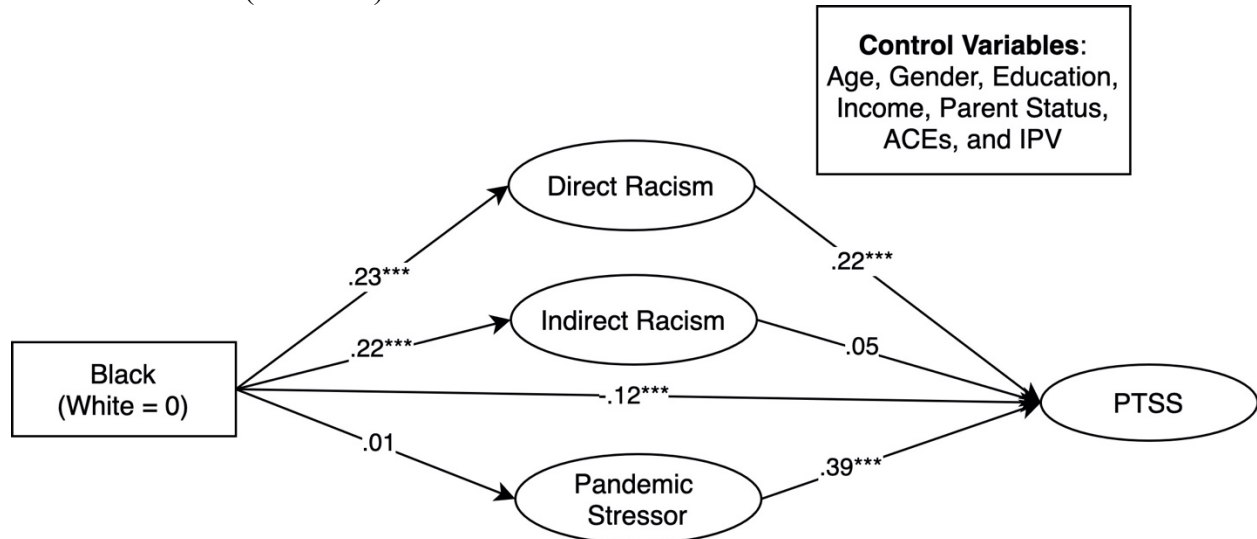


*Note.* PTSS = Posttraumatic Stress Symptoms; ACEs = Adverse Childhood Experiences; IPV = Intimate Partner Violence;  $** p < .01$ ,  $*** p < .001$ . RMSEA = .045, CFI = .951, TLI = .939, SRMR = .036.  $R^2_{\text{Pandemic Stressor}} = .08$ .  $R^2_{\text{Direct Racism}} = .27$ .  $R^2_{\text{Indirect Racism}} = .10$ .  $R^2_{\text{PTSS}} = .52$ . The bootstrapped mediated effects of race on PTSS were .038 (CI: .016 to .061) via pandemic stressor, .035 (CI: .018 to .055) direct racism, and .003 (CI: <.001 to .009) via indirect racism.

## RACIAL DISPARITY AND TRAUMA

### Figure 1B.

Standardized path estimates comparing Black/African Americans ( $N = 279$ ) to non-Hispanic White Americans ( $N = 1180$ ).



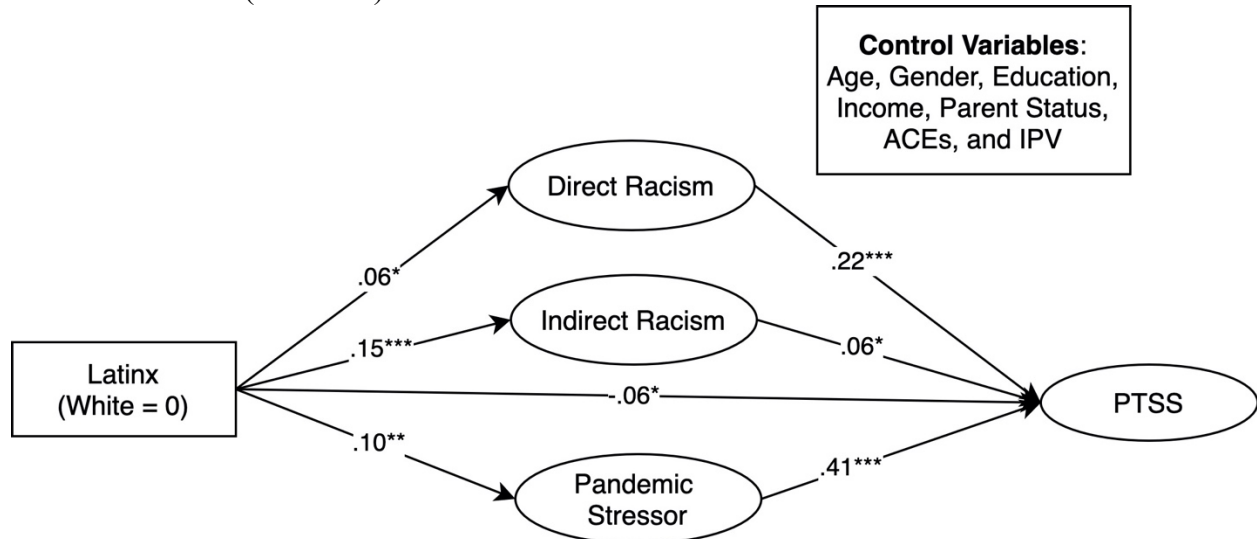
*Note.* PTSS = Posttraumatic Stress Symptoms; ACEs = Adverse Childhood Experiences; IPV = Intimate Partner Violence; \*\*  $p < .01$ , \*\*\*  $p < .001$ . RMSEA = .043, CFI = .955, TLI = .943, SRMR = .036.  $R^2_{\text{Pandemic Stressor}} = .06$ .  $R^2_{\text{Direct Racism}} = .29$ .  $R^2_{\text{Indirect Racism}} = .17$ .  $R^2_{\text{PTSS}} = .50$ . The bootstrapped mediated effects of race on PTSS were .006 (CI: -.018 to .027) via pandemic stressor, .051 (CI: .033 to .074) direct racism, and .011 (CI: -.002 to .026) via indirect racism.



RACIAL DISPARITY AND TRAUMA

**Figure 1C.**

Standardized path estimates comparing Hispanics/Latinx Americans ( $N = 283$ ) to non-Hispanic White Americans ( $N = 1180$ ).



*Note.* PTSS = Posttraumatic Stress Symptoms; ACEs = Adverse Childhood Experiences; IPV = Intimate Partner Violence; \*\*  $p < .01$ , \*\*\*  $p < .001$ . RMSEA = .045, CFI = .951, TLI = .939, SRMR = .036.  $R^2_{\text{Pandemic Stressor}} = .09$ .  $R^2_{\text{Direct Racism}} = .24$ .  $R^2_{\text{Indirect Racism}} = .15$ .  $R^2_{\text{PTSS}} = .51$ . The bootstrapped mediated effects of race on PTSS were .042 (CI: .017 to .066) via pandemic stressor, .013 (CI: .001 to .030) direct racism, and .010 (CI: .002 to .022) via indirect racism.