



**AMERICAN
PSYCHOLOGICAL
ASSOCIATION**
SERVICES, INC.

June 17, 2024

Mauricio Rangel-Gomez, PhD
National Institute of Mental Health
Re: NOT-MH-24-190

Dear Dr. Rangel-Gomez:

On behalf of the American Psychological Association (APA), I appreciate your flexibility in the timing and mode of response to this Request for Information (RFI), “Improving research frameworks to enable rigorous study of the effects of racism on brain and behavioral health across the lifespan.” I am pleased to respond on behalf of the APA, the nation’s largest scientific and professional nonprofit organization representing the discipline and profession of psychology, comprised of over 157,000 members and affiliates who are clinicians, researchers, educators, consultants, and students in psychological science.

That there exists a strong and impressive body of literature on the health effects of racism is a testament to NIH’s commitment to improve health for all. This association is grateful for NIH’s many research and training activities to expand and diversify the scientific workforce as well as to understand and ameliorate the specific chronic and acute harms to people of color who experience racial hostility and discrimination. Our comments are organized below in the form requested.

Comments may address, but are not limited to the bulleted topics below:

- *Distinct mechanisms of structural racism vs. other structural factors in brain and behavioral health.*
- *The impacts of structural racism at the individual, interpersonal, and community levels on brain and behavioral health of people in marginalized communities and public health, overall.*
- *Neurobiological mechanisms of how structural racism impacts brain and behavioral health.*

David Williams’ (2018)¹ article “Stress and the Mental Health of Populations of Color: Advancing our understanding of race-related stressors, is representative of a robust body of scholarship demonstrating that stress and stress pathways (he calls them “stress proliferation processes”) are probable mechanisms through which the experiences of racism get under the skin to influence health. Using imaging and other techniques, recent scholars have honed in on those and other pathways and measured the effects of racism on inflammatory markers, genetic markers, brain tissue volume and circuitry.

Jorgensen et al. (2022) measured the effects of neighborhood disadvantage, race/ethnicity and neural sensitivity related to social threat and reward among adolescents, showing differences in threat detection and reward sensitivity among racial groups.²

Muscatell et al. (2022) describe the possible neural and inflammatory mechanisms linking racism and health. They hypothesize that “racism influences neural activity and connectivity in the salience and default mode networks of the brain and disrupts interactions between these networks and the executive control network. This pattern of neural functioning in turn leads to greater sympathetic nervous system signaling,

¹ Williams, D. R. (2018). Stress and the mental health of copulations of Color: Advancing our understanding of race-related stressors. *Journal of Health and Social Behavior*, 59(4), 466-485. <https://doi.org/10.1177/0022146518814251>

² Jorgensen, N. A., Muscatell, K. A., McCormick, E. M., Prinstein, M. J., Lindquist, K. A., & Telzer, E. H. (2022). Neighborhood disadvantage, race/ethnicity and neural sensitivity to social threat and reward among adolescents. *Social Cognitive and Affective Neuroscience*, 18(1). <https://doi.org/10.1093/scan/nsac053>

APA.ORG

APASERVICES.ORG

Advocating for APA members and psychology

750 First Street, NE

Washington, DC 20002-4242

202.336.5800

202.336.6123 TDD

hypothalamic–pituitary–adrenal axis activation, and increased expression of genes involved in inflammation, ultimately leading to higher levels of proinflammatory cytokines in the body and brain.”³

Research shows the increasing precision of the search for mechanisms and pathways. Fani et al. (2021) found that US Black women who report more racial discrimination experiences tend to show greater response in brain regions associated with threat vigilance and regulation of threat response. They concluded that frequent racism experienced by Black individuals may increase brain responses to trauma-relevant stressors, which may represent a neurobiological pathway for race-related health disparities.⁴

Fani et al. (2022) also found that black women who reported more racial discrimination experiences tended to show lower cortical thickness in the left rostral anterior cingulate cortex, caudal anterior cingulate cortex, and posterior cingulate cortex—brain areas associated with threat and fear responses. These findings suggest that racial discrimination might increase vulnerability for brain health problems via cingulate cortex alterations.⁵

Fani et al. (2023) further found indirect effects of racial discrimination on health outcomes through prefrontal cortical white matter. Women who experienced more racial discrimination displayed lower fatty acids in brain regions including the anterior cingulum bundle and the corpus callosum, which connects the two hemispheres of the brain. They found the structural integrity of these two specific tracts mediated the relationship between racial discrimination and medical disorders in these women.⁶

Some investigators have focused more specifically on the experience of discrimination as trauma. Bird, et al. (2021) found that discrimination is associated with acute posttraumatic stress symptoms and predicts future posttraumatic stress disorder symptom severity in trauma-exposed Black adults in the United States.⁷

Raffington et al. (2023) found that children raised in socioeconomically disadvantaged environments and children from marginalized racial/ethnic groups had epigenetic profiles that indicate higher chronic inflammation, lower cognitive functioning, and a faster pace of biological aging. The children’s epigenetic profiles were also associated with their cognitive and academic skills. The authors contend that epigenetic profiles reflect how social inequalities become embedded in the body and impact the mind.⁸

³ Muscatell, K. A., Alvarez, G. M., Bonar, A. S., Cardenas, M. N., Galvan, M. J., Merritt, C. C., & Starks, M. D. (2022). Brain–body pathways linking racism and health. *American Psychologist*, 77(9), 1049–1060. <https://doi.org/10.1037/amp0001084>

⁴ Fani, N., Carter, S. E., Harnett, N. G., Ressler, K. J., & Bradley, B. (2021). Association of racial discrimination with neural response to threat in Black women in the US exposed to trauma. *JAMA Psychiatry*, 78(9), 1005–1012. doi:10.1001/jamapsychiatry.2021.1480

⁵ Fani, N., Eghbalzad, L., Harnett, N. G., Carter, S. E., Price, M., Stevens, J. S., Ressler, K. J., van Rooij, S. J. H., & Bradley, B. (2022). Racial discrimination associates with lower cingulate cortex thickness in trauma-exposed Black women. *Neuropsychopharmacology*, 47(13), 2230–2237 <https://doi.org/10.1038/s41386-022-01445-8>

⁶ Okeke O, Elbasheir A, Carter SE, Powers A, Mekawi Y, Gillespie CF, Schwartz AC, Bradley B, Fani N.

[Indirect effects of racial discrimination on health outcomes through prefrontal cortical white matter integrity](#). *Biological Psychiatry, Cognitive Neuroscience and Neuroimaging*. 2023 Jul;8(7):741-749. doi: 10.1016/j.bpsc.2022.05.004.

⁷ Bird, C. M., Webb, E. K., Schramm, A. T., Torres, L., Larson, C., & deRoon-Cassini, T. A. (2021). Racial discrimination is associated with acute posttraumatic stress symptoms and predicts future posttraumatic stress disorder symptom severity in trauma-exposed Black adults in the United States. *Journal of Traumatic Stress*, 34, 995–1004. doi:10.1080/15374416.2020.1860066

⁸ Raffington, L., Tanksley, P. T., Sabhlok, A., Vinnik, L., Mallard, T., King, L. S., Goosby, B., Harden, K. P., & Tucker-Drob, E. M. (2023). Socially stratified epigenetic profiles are associated with cognitive functioning in children and adolescents. *Psychological Science*, 34(2), 170-185. <https://doi.org/10.1177/09567976221122760>

Research shows that in general, African American (AA) and Hispanic/Latine individuals face heightened risk for cognitive decline due to prevalent cardiovascular and cerebrovascular risk factors such as hypertension and diabetes, compounded by stressors associated with racial identity. These risk factors predispose racial and ethnic minority patients across the U.S. to high risk of diagnosis of mild neurocognitive disorder and/or dementia. Recent studies have proposed a relationship between race-based stress and hypertension, a major risk factor for cerebrovascular disease and coronary heart disease, both risk factors for non-normative cognitive decline in the aging population. In addition, for older AA adults, higher levels of perceived discrimination were associated with higher measurements of and diastolic blood pressure. Evidence suggests that institutional and interpersonal racism likely contributes to the development of hypertension although multiple mechanisms and trajectories may be involved. Individual-level racism, and potentially internalized racism, may act in part by increasing the frequency, magnitude, duration and psychophysiological effects of stress exposure.^{9, 10}

Regarding memory and the impact of racism in minoritized people, McDonough et al. (2023) studied ways in which Black Americans in later life buffer their experience of racism. They tested whether Black Americans aged 50 and older would show different trajectories of episodic memory depending on their reported experiences of discrimination (every day and major lifetime) and resilience resources. Those with lower baseline memory reported experiencing more everyday discrimination and had fewer resilience resources compared to those with high baseline performance. Greater social resilience resources were associated with maintained episodic memory over time.¹¹

Improving measures of environmental phenomena is as important as developing more precise measures of internal/biological impact. Several recent measures have been developed for child/adolescent research. These include the National Survey of Children's Health¹², which measures Adverse Childhood Events (ACEs) to provide more information about racism and discrimination. The National Scientific Council on the Developing Child¹³ describes two innovations, *The Child Opportunity Index* (for factors in healthy neighborhoods)¹⁴ and *The Index of Concentration at the Extremes* (for factors in racialized economic segregation).¹⁵

Regarding interventions for racial trauma, Anderson (2018) et al. developed a program called Engaging, Managing, and Bonding through Race (EMBRace) to help families and other groups better process and heal from racial trauma.¹⁶ Brown et al. (2019) consider the challenges of intervention and write, "To tackle health disadvantage and gradients in populations, researchers must build the scientific base for multisector stakeholder engagement; extend beyond individual outcomes to community and system-level outcomes; expand methods for implementing, evaluating, and disseminating multilayered, multifaceted interventions;

⁹Brondolo E, Love EE, Pencille M, Schoenthaler A, Ogedegbe G. Racism and hypertension: a review of the empirical evidence and implications for clinical practice. *American Journal of Hypertension*, 2011 May;24(5):518-29. doi: 10.1038/ajh.2011.9..

¹⁰ Ellison, Rachael, personal communication, June 10, 2024.

¹¹ McDonough, I. M., Byrd, D., & Choi, S. L. (2023). Resilience resources may buffer some middle-aged and older Black Americans from memory decline despite experiencing discrimination. *Social Science & Medicine*, 316, 1-12.

¹² *National Survey of Children's Health*. <https://www.childhealthdata.org/learn-about-the-nsch/survey-instruments>

¹³ National Scientific Council on the Developing Child. (2023). *Place Matters: The Environment We Create Shapes the Foundations of Healthy Development: Working Paper No. 16*. Retrieved from www.developingchild.harvard.edu

¹⁴ Diversitydatakids.org (2023). *Child Opportunity Index 2.0 Database*.

<https://data.diversitydatakids.org/dataset/coi20-child-opportunity-index-2-0-database?external=True>

¹⁵ Sonderland, L.A., Charifson, M., Charifson, M., Schoenthaler, A., Carson, T., Williams, N.. / (2022) Racialized economic segregation and health outcomes: A systematic review of studies that use the Index of Concentration at the Extremes for race, income, and their interaction. *PLoS ONE*, 17(1): e0262962. <https://doi.org/10.1371/journal.pone.0262962>

¹⁶ Riana E. Anderson, McKenny, M.C., Stevenson, H.C. EMBRace: Developing a racial socialization intervention to reduce racial stress and enhance racial coping among black parents and adolescents. *Family Process*, Vol.58:1 (2019).

First published: 15 December 2018 <https://doi.org/10.1111/famp.12412>

support the data science and infrastructure for more robust evaluations of social and health indicators; and prioritize funding for well-designed structural interventions and rigorous evaluations.”¹⁷

- *Recommended approaches to understand and remedy the influence of racism on current research designs and methodologies.*
- *Cultural differences in the perception of ‘normal’ or ‘healthy’ neurocognitive function and behavior.*
- *Gaining cultural humility and scholarship in neurocognitive research through effective community collaboration and partnership, and diverse research teams.*

Buchanan et al. (2021) offer examples of how epistemic oppression exists within psychological science, including in how science is conducted, reported, reviewed, and disseminated, with recommendations for different stakeholders, including those involved in the production, reporting, and gatekeeping of science as well as consumers of science. Additionally, a discussion of accountability steps is offered with strategies to measure outcomes, stimulate progress, promote dialogue and action, challenge inequity, and upend the influence of white supremacy in psychological science.¹⁸

Noting that almost all research data in a leading psychological science journal relied on Western samples and used the data in an unreflective way to make psychological science more representative, Rad et al. (2018) offer recommendations for authors, editors and reviewers, including required reporting of sample characteristics, and establishment of diversity targets.¹⁹

Choy et al. (2022) detail bias in neuroscience research. For example, electroencephalography (EEG) requires that electrodes adhere to the scalp to measure brain activity. Because factors such as hair type and hairstyle affect EEG data quality, there is a systemic lack of data from Black American participants, rendering research findings less generalizable. Bioengineers have been working to address this problem.²⁰

Forscher et al. (2020) suggest that an emphasis on big-team science can help address challenges concerning science generalizability, among other issues (e.g., replicability). Big-team science allows researchers to pool their resources together, but academic science’s current incentives, infrastructure, and institutions have developed under the assumption that science is conducted by solo principal investigators and their dependent trainees. The authors consider potential risks of big-team science, including the potential for big-team-science organizations to be co-opted by unaccountable leaders, become overly conservative, and make mistakes at a grand scale.²¹

¹⁷ Brown AF, Ma GX, Miranda J, Eng E, Castille D, Brockie T, Jones P, Airhihenbuwa CO, Farhat T, Zhu L, Trinh-Shevrin C. Structural interventions to reduce and eliminate health disparities. *American Journal of Public Health*. 2019;109:S72-S8. doi: 10.2105/ajph.2018.304844.

¹⁸ Buchanan, N. T., Perez, M., Prinstein, M. J., & Thurston, I. B. (2021). Upending racism in psychological science: Strategies to change how science is conducted, reported, reviewed, and disseminated. *The American Psychologist*, 76(7), 1097–1112. <https://doi.org/10.1037/amp0000905>

¹⁹ Rad, M. S., Martingano, A. J., & Ginges, J. (2018). Toward a psychology of *Homo sapiens*: Making psychological science more representative of the human population. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, 115(45), 11401–11405. doi:10.1073/pnas.1721165115

²⁰ Choy, T., Baker, E., & Stavropoulos, K. (2022). Systemic racism in EEG research: Considerations and potential solutions. *Affective Science*, 3, 14–20. doi:10.1007/s42761-021-00050-0

²¹ Forscher, P. S., Wagenmakers, E. J., Coles, N. A., Silan, M. A., Dutra, N., Basnight-Brown, D., & IJzerman, H. (2023). The benefits, barriers, and risks of big-team science. *Perspectives on Psychological Science*, 18(3), 607-623.

<https://doi.org/10.31234/osf.io/2mdxh>

On behalf of APA, I am grateful to you and your NIH colleagues for developing this RFI and for the activities that will likely result from it. The association is eager to partner and be of assistance. Please do not hesitate to contact me (mprinstein@apa.org) or Angela Sharpe (asharpe@apa.org) if we may help in any way.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Mitch Prinstein".

Mitch Prinstein, PhD
Chief Science Officer