

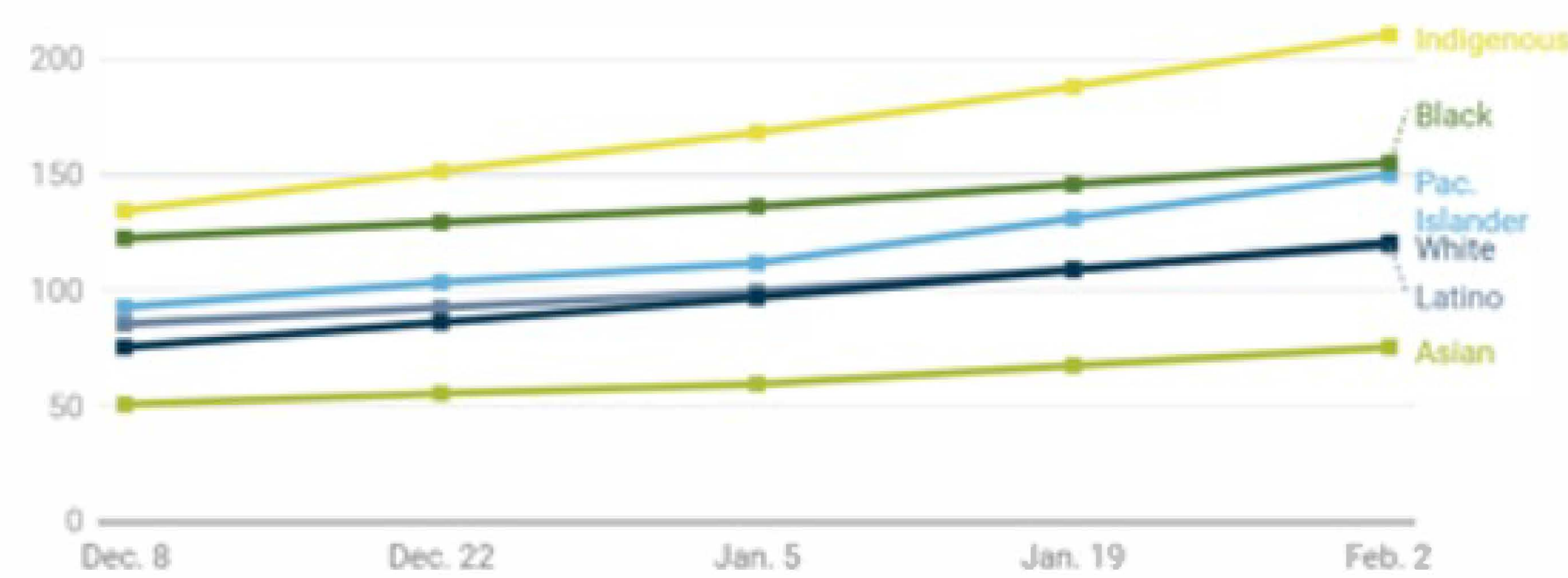
Embodied Injustices: COVID-19, Race, and Epigenetics

Maria Encinosa • University of North Florida • College of Arts and Sciences and Hicks Honors College
Dr. Anne Pfister, Mentor

INTRODUCTION

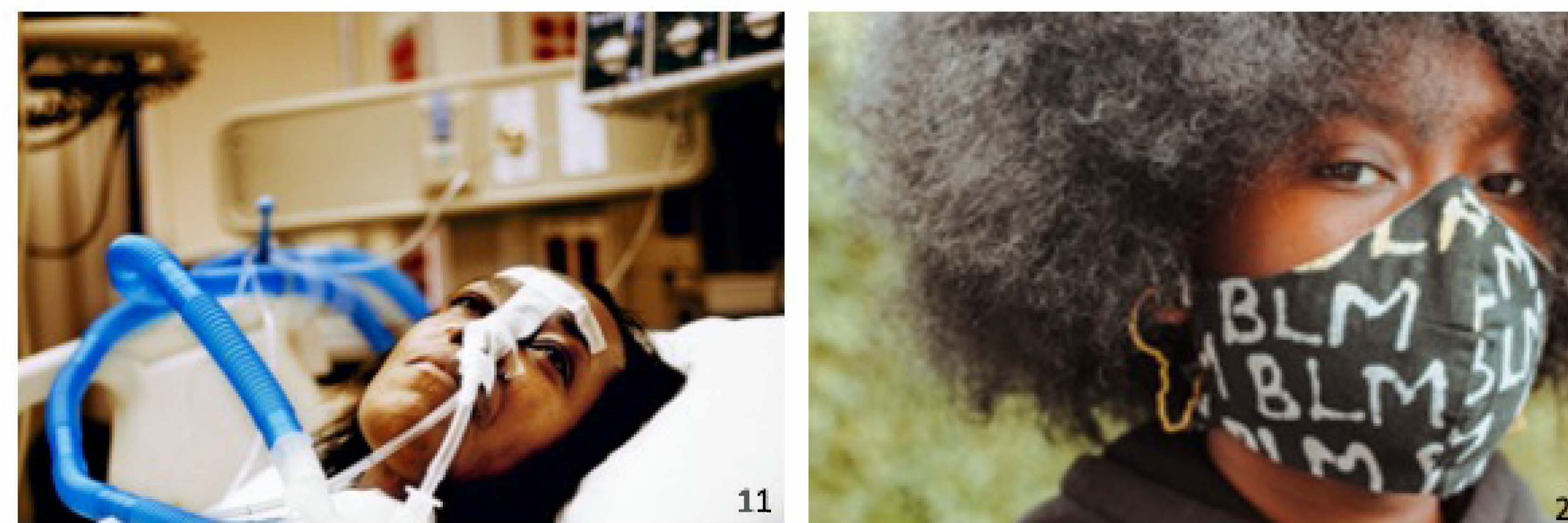
COVID-19 has disproportionately affected minorities, reflecting long-standing racial disparities in health. Rather than acknowledging the impact of systemic marginalization, poor minority health is often attributed to innate biological differences between racial groups, including genetic difference.

Cumulative actual (crude) COVID-19 mortality rates per 100,000, by race and ethnicity, Dec. 8, 2020-Feb. 2, 2021¹



Racial categories have little genetic significance. Although genetic variation exists between populations separated by time and geography, these differences do not line up neatly with subjective characteristics associated with race such as skin color or hair texture⁵. In fact, there is more genetic variation within racial categories than between them¹⁴.

THESIS



Since minorities are more likely to be exposed to environmental stressors, I argue that epigenetic research has the potential to operationalize the embodiment of racialized social experiences as comorbidities that enhance vulnerability to COVID-19.

THEORY

Embodiment suggests we incorporate aspects of our material and social worlds into our biology⁸. Discourse around embodiment has mostly focused on bodily manifestations of our environments within an individual's lifetime. However, embodied traits may be heritable.

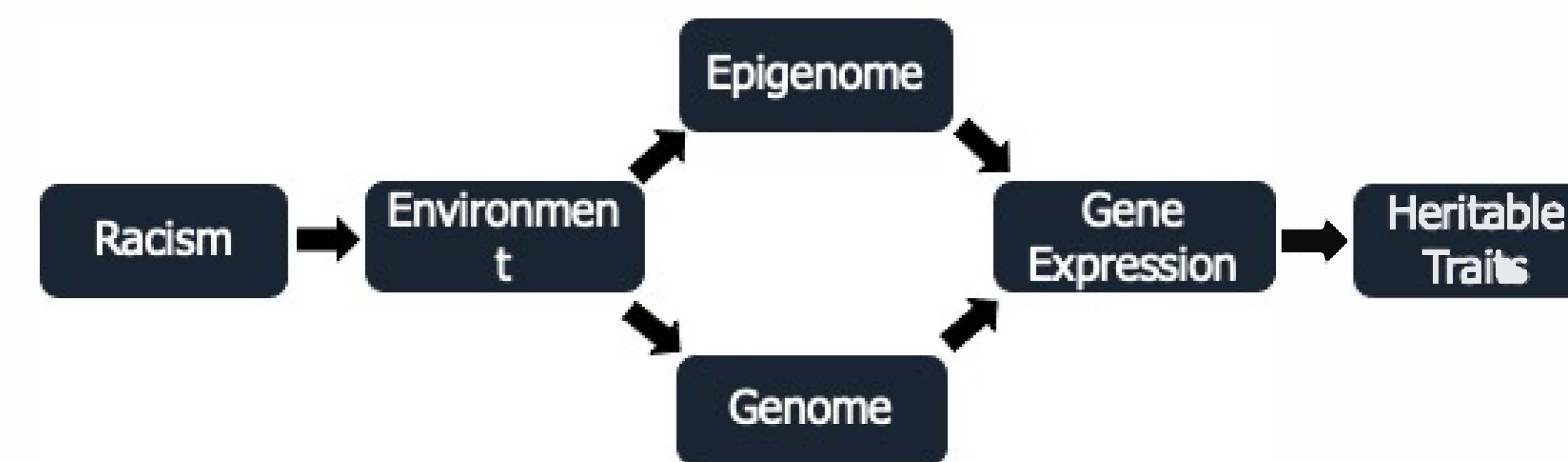


Figure 1. A racialized environment impacts gene expression through epigenetics.

Epigenetics is the study of changes beyond the nucleotide sequence of DNA that affect gene expression¹⁰. Common epigenetic modifications involve the addition of chemical groups that alter the accessibility and expression of genes. Our epigenomes are porous to environmental influences like nutrition, stress, and pollutants; modifications can be passed on intergenerationally⁵.

METHODS

Although my research was conducted under the mentorship of medical anthropologist Dr. Anne Pfister, traditional in-person ethnographic methods were unavailable due to social distancing concerns. Instead, I wrote a research article based off the experiences and narratives unfolding in popular media, webinars, and a literature review of sources ranging from the biomedical sciences to sociology.

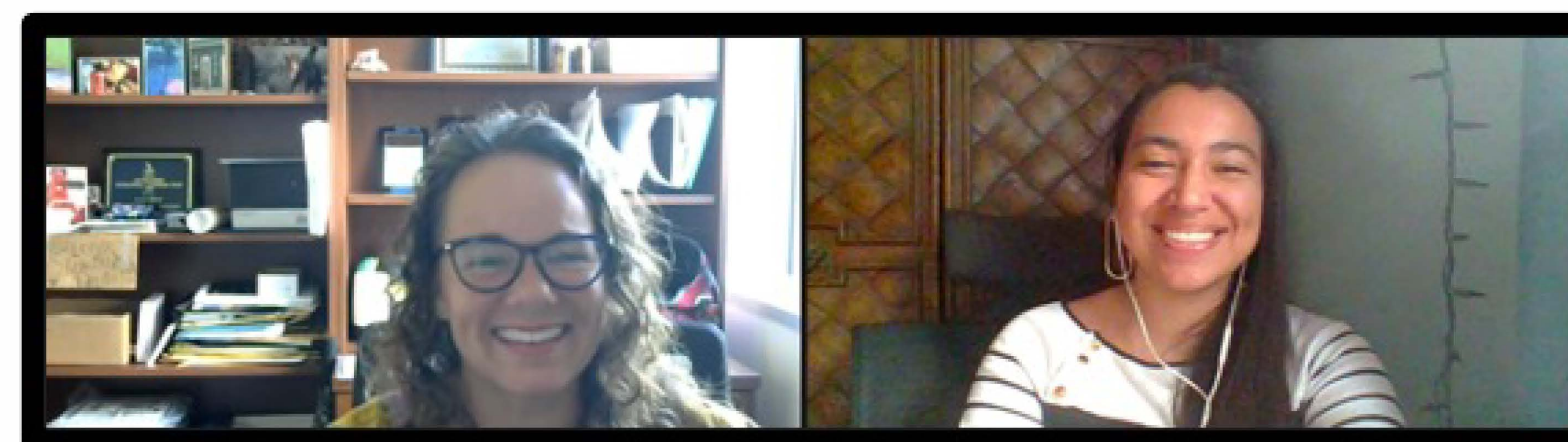


Figure 2. Pandemic conditions required a physical distancing from my university and mentor; video-chat discussions bridged the gap.

FINDINGS

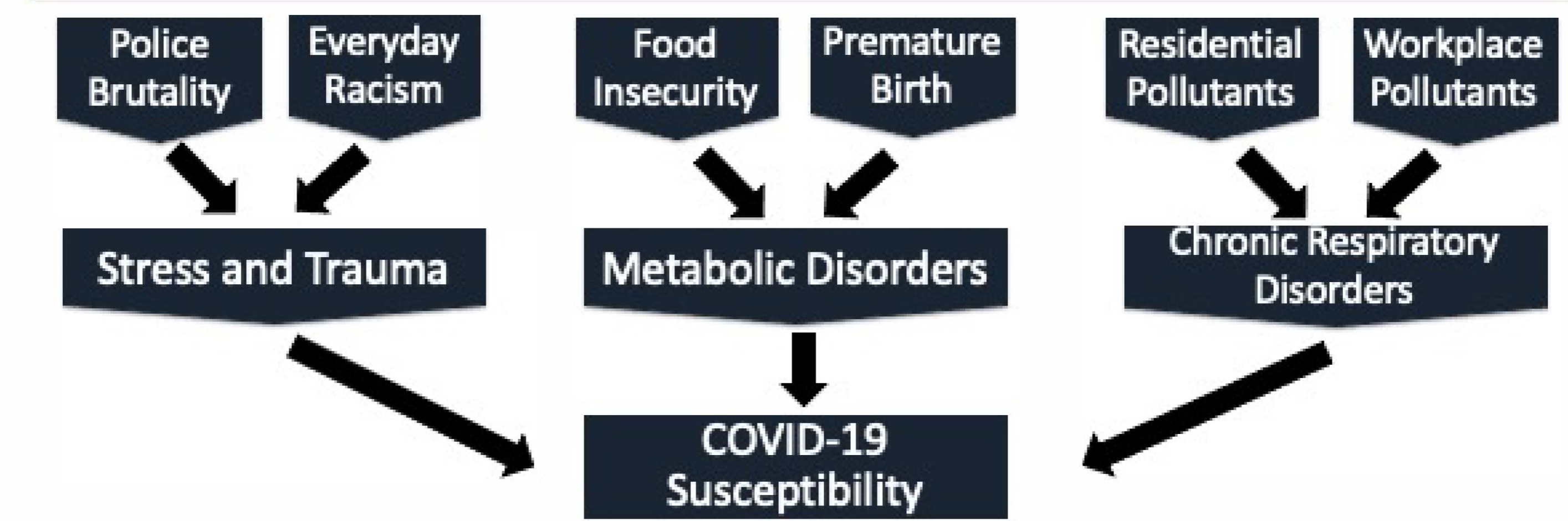


Figure 3. Racialized social determinants of health share epigenetic links to comorbidities that increase the risk of severe illness from COVID-19.

- Exposure to stress hormones and Post-Traumatic Stress Disorder are linked to epigenetic modifications to genes that regulate the stress response^{17,18}.
- Malnutrition is linked to increased fat tissue and epigenetic modification of the Insulin Growth Factor 2 gene, a possible trigger for type 2 diabetes^{13,16}.
- Environmental pollutants induce epigenetic modifications that are associated with Chronic Obstructive Pulmonary Disease (COPD) and asthma^{6,9}.

CONCLUSIONS



Although our genome might not differ significantly by race, our epigenome might. Epigenetic modifications provide an avenue by which our racialized environments become embodied vulnerabilities to COVID-19. In contrast to previous narratives of racial difference, these modifications are not inherently permanent. Our epigenome is highly plastic. The longevity of epigenetic modifications paired with this plasticity strengthens the urgency of healthcare reforms targeted at eliminating disparities in the social determinants of health.

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