

Statement of Interest/Project Description

Research has demonstrated that Black Americans are at higher risk of developing cardiovascular disease relative to White Americans (van Dyke et al., 2018), and that frequent activation of the stress response is one factor that can increase the risk of cardiovascular and inflammatory diseases (Dimsdale, 2008; Wellen & Hotamisligil, 2005). Therefore, the question to be asked is: what common and constant stressor is present in the daily lives of Black Americans that could contribute to such high prevalence of these diseases? One such stressor might be repeated experiences of racial discrimination. However, the exact mechanisms through which psychological and physiological health are impacted due to racism are yet unknown. Dr. Lisa Shin and Dr. Sam Sommers of the Tufts Psychology department have recently won a Tufts Springboard award to help address this question.

The study at hand, set to begin in 2021, will investigate the impacts of racial discrimination on health by studying the physiological responses of participants upon recall of their own experiences with racism. More specifically, this study will include 40 Black participants who will undergo script-driven imagery, a trauma research paradigm in which individuals imagine and recall personal experiences of three different types: neutral, stressful, and racism-related. The study will use a within-subjects design in which all participants will recall personal events in each of these three conditions. In addition, the following physiological/nervous system responses will be measured: heart rate, blood pressure, skin conductance, respiration, heart rate variability, and respiratory sinus arrhythmia. Lastly, participants will also be asked to complete questionnaires assessing their stress, anxiety, depression, frequency of recollection, event severity, lifetime experience with discrimination, racial identity, functioning, and coping. After collecting this data, an analysis of variance will be run to examine how physiological responses differed between conditions. Additionally, correlational analyses will be used to relate physiological variables with self-reported outcome variables, such as stress and depression, and history of cardiovascular disease.

This project was developed in the summer of 2020, during which I worked as an undergraduate research assistant in Dr. Shin's PTSD Neuroimaging Lab. During the early stage of developing the study, I completed a literature review on different articles detailing experiences of racism and discrimination as traumatic stressors. In this process, I encountered literature about measures of daily discrimination, long-term health effects of experiences of racism, and the intersection between trauma and racism research. Though there has been more research in recent years on racism, there is still a large gap in the knowledge of how it specifically causes negative health effects. Since I was fortunate to be present for early discussions of the research at hand, and able to investigate existing research on racism as a traumatic stressor, I feel that I am qualified to assist with this research project. In addition, I have been working in Dr. Shin's lab since my freshman year at Tufts, and I feel that this time has allowed me to gain sufficient

exposure to trauma research to allow me to be helpful in contributing to this project. For example, I've had exposure to commonly used measures of stress and anxiety, as well as learned how to use Qualtrics. These two experiences from the lab would enable me to put together some of the self-report measures that will be used in the proposed study. This is just one example, but I believe that the skills and knowledge I've gained from over three semesters in Dr. Shin's lab will qualify me to take a more involved role in this research and to embody the leadership spirit of a Laidlaw Scholar.

I hope to have several take-aways from this specific project, as well as the overall research experience. First, through the racism as trauma project in particular, I have many lessons I am eager to learn. During my time in Dr. Shin's lab, I've been very fortunate to learn about PTSD research and study designs that are used to study trauma. Now, I hope to apply this knowledge of trauma research that I have gained to the specific traumatic stressor of racism. Especially in light of recent incidents of violence and discrimination against people of color (POC), it is absolutely imperative that research elucidates how these experiences affect and cause health problems. We know that numerous health issues disproportionately affect POC, and this fact is inextricably linked to the pervasive racism that these individuals experience on a daily basis. I hope that, once there is more research like this project to target the roots of these health disparities, better opportunities for intervention and treatment will be developed.

Lastly, through the overall research experience, I believe I can learn from my mentors how to refine my research skills and become a dedicated scientist like they are. This project is led by two incredibly experienced and accomplished members of the Tufts Psychology department, and will involve Tufts faculty from other departments—Community Health, Sociology, and Occupational Therapy—as well. As such, I hope to learn about the faculty members' experiences with the research process and how they bring their research questions to fruition in the form of a study. My goal is to attend graduate school to earn a PhD in clinical psychology, which guarantees there will be plenty of research in my future. I hope to enter graduate school well-prepared to work diligently on projects of great importance, such as this one. Though I have worked in a research lab for a few semesters now, I have so much more to learn about research. To this end, the Laidlaw Scholars experience will teach me to work more independently, and encourage me to take on leadership roles in future research experiences.

References

- Dimsdale, J. E. (2008). Psychological stress and cardiovascular disease. *Journal of the American College of Cardiology*, *51*, 1237-1246.
- van Dyke, M., Greer, S., Odom, E., et al. (2018). Heart disease death rates among Blacks and Whites ages 35 years – United States, 1968-2015. *MMWR Surveill Summ*, *67*(SS-5), 1-11.
- Wellen, K. E., & Hotamisligil, G. S. (2005). Inflammation, stress, and diabetes. *Journal of Clinical Investigation*, *115*, 1111-1119.