A Way Forward

New Vision Research and the Charleston Conference on Alzheimer's Disease work toward a brighter future for medical research by supporting risk taking, innovation and collaboration. We believe diversity in ideas leads to better medical research, and to achieve this, it is important to identify and address individual, community and institutional challenges scientists face that hold us back as a community. *A Way Forward* is a four-part series dedicated to sharing these challenges with the CCAD community, along with ways to help address them and contribute to their resolution. **If you would like to contribute an idea or an article to *A Way Forward*, please visit www.charlestonconferences.org/contact-us and indicate your interest.**

Disparities and Racial Underrepresentation in Research

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Disparities and racial underrepresentation are apparent at all levels of scientific research. In Alzheimer's Disease (AD), for example, Hispanic and Black individuals are 1.5x and 2x times more likely to be diagnosed with AD than the white population. Additionally, professionals in STEM fields are overwhelmingly white or Asian [1,2], and only 5% of all Ph.D. holders in the United States are Black despite Black people comprising 13-16% of the population.

For Black, Indigenous and nonwhite Hispanic and/or Latinx scholars and their intersecting identities, a lack of representation often persists from childhood all the way to faculty or industry positions. UMass Amherst, where I am currently a graduate student, accepted their first Black faculty member only 73 years ago. A significant number of Black students (128) joined our campus only after Black faculty members formed the Committee for the Collegiate Education of Black Students and threatened to quit amid opposition from white faculty and administration only 54 years ago [3,4,5]. Homogeneous academic environments can have devastating impacts on underrepresented scholars' self-confidence, decrease one's sense of belonging and serve as an unchecked reservoir of intentional or unintentional microaggressions – further deterring underrepresented scholars from pursuing or continuing in STEM fields.

I would be remiss not to mention the role of science and medical research in racism and oppression. From colonialism and Eugenics to present-day racial discrimination found in health care algorithms and medical treatment, STEM fields have contributed to racist, ableist, transphobic and other oppressive rhetoric and practices, exclude many from participating. As part of the scientific community, it is essential to understand this historical context, how it informs our collective present and how we will contribute to positive change, especially for our most marginalized and underrepresented populations.

As a biracial Black Ph.D. student, my time is split between my research and efforts to support underrepresented scholars in STEM fields. While my work focuses on disparities between and among the sexes in animal models and cell culture, we must consider these and other disparities contributing to the disproportionate impact of cognitive decline and racial underrepresentation in research and academia.

Moving Forward

Despite some efforts, racial representation in academia and particularly in STEM fields has been stagnant over the past decade. Additionally, underrepresented students and faculty have disproportionately been involved in diversity, equity and inclusion efforts [6]. Their labor is overwhelmingly unpaid, under-resourced and unappreciated in the context of hiring for academic positions [7]. For efforts to improve racial representation in academia to be successful, they must be recognized, compensated, supported and participated in by the broader academic community and institutions as a whole.

Another method to address the lack of support and representation for underrepresented scholars is through mentorship [8,9]. After reviewing research on the benefits of both representation and mentorship for minority scholars, I founded MUSE (Mentorship of Underrepresented STEM Enthusiasts), a 501(c)3 organization. Since its inception, MUSE has created a community of underrepresented mentors who virtually mentor underrepresented scholars across the United States. We fundraise continuously to pay all mentors for their service, and have received over $25,000 donated as scholarship funds to help underrepresented scholars overcome financial barriers in academia (e.g. unpaid internships, GRE or other testing, and relocating for college or graduate school). We have already observed that representative mentorship is increasing the confidence of underrepresented mentees in STEM fields (unpublished data), and we continue to collect data to measure the efficacy of our work.

Additionally, studies often assume or focus on cisgender white participants. Future studies must be more inclusive and specific in their language in order to recognize and record different identities, and contribute more comprehensive demographic information of their participants, including (but not limited to) race, gender, disability and sexuality, for better analysis.

In Conclusion

Despite the difficulties myself and other underrepresented scholars face in STEM fields, science has consistently been one of the most joyful and exciting aspects of my life. I hope everyone, particularly those who are least represented, can more readily see themselves in STEM fields and be supported in pursuing these career paths. To this end, I hope to see our academic landscapes become less homogeneous at the student, staff and tenured faculty level, and am working toward this personally through MUSE. Our biggest questions in science desperately need diverse talent, and that talent needs mentorship and support to succeed. One day, I hope our science will truly thrive because the diverse scientists behind it are thriving, too.

About The Author

Mélise is a second year Ph.D. student in the Neuroscience and Behavior program at the University of Massachusetts at Amherst. Her research uses animal models and induced pluripotent stem cells to investigate sex differences, disparities between and within sexes, and the role of hormones, such as estrogens, in cognition and cognitive decline. Mélise is also the founder of the nonprofit organization MUSE (Mentorship for Underrepresented STEM Enthusiasts) and is passionate about removing barriers to higher education for racially underrepresented students and their intersecting identities. She is also a nationally sponsored rock climbing athlete and enjoys reading, dancing, singing and playing with her dog.

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