

STEMBoost Newsletter



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Considering Race and Ethnicity in Health Science

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Although it is well established that race is not biologically real, it has become socially meaningful in reality, shaping health and healthcare for individuals and groups. Social experiences intertwine with biological realities, making race a powerful illusion and a complex dimension to consider in scientific research.

Although inherent biological differences do not result in racial differences, these differences do exist and must be considered to provide healthcare without inequity. A history of science searching for these supposed racial “differences” has encouraged racism and systemic oppression, but a “color-blind” approach to science also has not worked in an imperfect world with very real consequences of racial inequity. Race is currently used as a proxy or “surrogate marker” for biologic and social factors that are not well scientifically understood. Such surrogate markers are common in science; for example, cholesterol is a surrogate marker for heart disease. Race and ethnicity serve as surrogate markers for lifelong social experience, and many scientists use race to assess genetic markers because of the lack of data for genetic ancestry.

Genetic factors and social factors are both important in understanding the health of different racial groups. For example, people of color are more likely to be infected with COVID because of the increased likelihood of exposure due to their job and housing opportunities, which is due to systemic racism. They are also more likely to die of COVID because of chronic disease, which is also a result of systemic racism in their environment and lack of access to healthcare.

Many screening assessments and other algorithms used in healthcare exacerbate racism by changing results for people of color, which can prevent them from receiving needed treatment. In 2019, a study found that an algorithm used nationwide used health costs to evaluate health needs, and since the healthcare expenditures for white people were higher, the health needs of the black population were underestimated. Race and ethnicity must be reconsidered in health science in order to acknowledge the impact of systemic racism and other social factors to better understand the science and provide equity in healthcare.

While ethnicity is also primarily a sociocultural term, it is intertwined with biological precursors, parameters, and consequences for both individuals and groups that remain important to scrutinize. Ethnicity takes in components such as historical, linguistic, and psychological factors, each of which can be examined for possible biological correlations. A person's first language has been shown to influence brain physiology, which shapes their interpretation and behavior. Ideologies reflect languages and the social and cultural systems they belong to. Thus ethnic groups, which are otherwise biologically diverse, can have greater consistency in their social experience.

Racial and ethnic minorities are also underrepresented in clinical research, raising a concern because of the possibly different reactions of different races and ethnicities. A myriad of components in ethnicity can influence an individual's reaction to medication or biology in general. One detrimental social factor is a phenomenon called "weathering." Just as water erodes rock over time, systemic racism creates a chronic stress that breaks down the bodies and health of minority populations. This water trickles into the very scientific research that could help them, creating a loop of exclusion that pushes minority population further into lower qualities of life and access to healthcare. People of color often experience diabetes, heart disease, and metabolic diseases at earlier ages compared to white populations, excluding them from longitudinal studies. These studies aim to observe disease onset with age over time and often select the healthiest participants in order to see results. This exclusion of those who already have the condition being studied harms not only people of color but everyone impacted by scientific research. This and other forms of selection bias are important but often overlooked, making it crucial for scientists to not only re-evaluate old studies but also think more about their current study designs.

Sources Used:

<https://pubmed.ncbi.nlm.nih.gov/1467750/>

<https://www.science.org/content/article/how-racism-skewed-estimates-heart-disease-women>

<https://www.fda.gov/consumers/minority-health-and-health-equity/clinical-trial-diversity>

<https://magazine.ucsf.edu/whats-wrong-and-right-race-medicine>

<https://www.scientificamerican-com.rpa.sccl.org/article/racism-in-medical-tests/>