The Use of Race in Clinical Algorithms: How the Use of a Socially Constructed Phenomenon Can Wrongly Affect Patient Care

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Abstract

Race is a poorly defined and often misused term, with varying definitions among users.[1] Because the meaning of race lacks standardization and its improper use can impact health outcomes, the goal of the project is to assess student and clinician perceptions and understanding of race-based algorithms. By utilizing a participatory design methodology that takes into account the perspectives of both faculty and students, we are working to create an online compendium of peer-reviewed information that highlights the role of race-based decision-making in clinical medicine and provides educational resources to address this complex topic. With this resource guide, we strive to raise awareness and inform medical students and clinical educators of the potential dangers of including race as a variable in diagnostic algorithms.

Introduction

- **Race is a politically-charged social construct**, used to govern individuals on the basis of their physical appearance.
- The Human Genome Project shows that 99.9% of genetic material are identical; the remaining 0.1% variability is not explained by race. Therefore, **racial categories do not account for genetic differences** between individuals.[2] Rather, the concept of race as a biological category falsely reinforces its meaning in genomic science and medicine.
- While attributing geographic differences to race is convenient, it is an inaccurate and **harmful proxy for clinical measures**, as it justifies treating Black, Asian, White, Latino, American Indian, etc. patients differently.[3]
- Focus on innate racial differences not only misguides clinical decision making, but also **redirects attention and resources from social determinants and structural inequalities that lead to racial gaps in health.** Examples include: food deserts, exposure to environmental toxins, lack of access to care, high rates of incarceration, and stress of racial discrimination.[4]
- Race is a social category that has overwhelming biological ramifications due to the impact of social inequality on health.[5]

Resource Guide

- We are developing an online compendium of peer-reviewed information in the form of a website that includes the following information:
  - Clinical algorithms and calculators.
  - Analysis of literature explaining the research that established each algorithm, its clinical use, and further applications of the algorithm that questions the algorithm's use of race.
  - Online form for users to submit pertinent research and/or race-based algorithms and educational resources.

Methods

Participatory Design Model: Soliciting feedback from stakeholders on the purpose and structure of the online resource guide.

Group 1: Clinical Medical Students

Participants: Medical students who have completed the didactic portion of the curriculum and have spent at least one year in clinical education.

Aims:
- To elucidate how frequently students have experienced race being used as part of the clinical decision-making process.
- To identify whether students will utilize the resource if this topic comes up as a discussion point with a patient or on teaching rounds.

Group 2: Clinical Educators

Participants: Clerkship directors who oversee medical students during clinical rotations and are involved in implementing the clinical curriculum.

Aims:
- To identify baseline awareness and use of race-based algorithms in clinical practice.
- To assess the effectiveness and value of this resource guide in promoting dialogue and discussion around the subject of racism in clinical tools.

Needs Assessment Survey

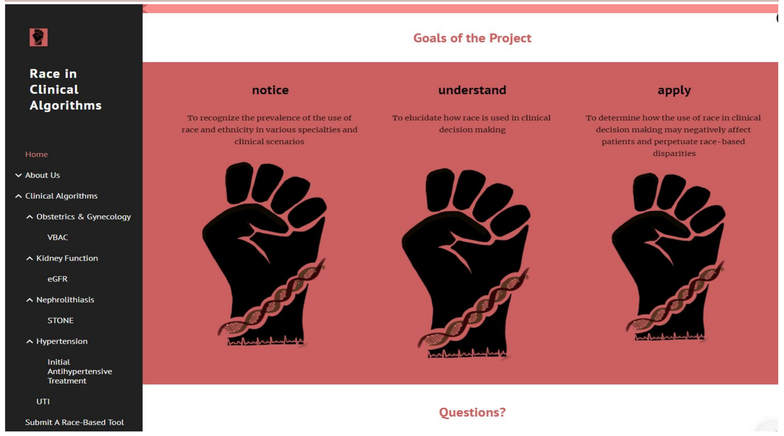
The structure of the survey will have three components:

1. A set of statements that measure the participants' level of awareness of existing race-based algorithms, as well as their level of comfort in discussing the role of race in medical algorithms with colleagues and educators*. Responses will be scored on a Likert Scale, from strongly disagree (1) to strongly agree (5).
2. A set of hypothetical scenarios where participants will report how they would respond to certain situations in which the use of race-based algorithms are indicated (i.e., referenced in lectures/rounds).
3. Feedback on the resource guide, regarding its usability, relevance, and whether it would alter approaches to future conversations and medical practice about the use of race in clinical decision-making.

Clinical Significance

- Legitimizing the improper use of race in clinical medicine, particularly in medical algorithms, maintains the **false notion of race as a genetic classification**.
- Physicians utilize medical algorithms to assess individual risk and to guide clinical decision-making for patients' management and treatment. This **subtle inclusion of race to adjust healthcare outcomes perpetuates race-based medicine** and has the power to **amplify race-based health inequalities**.
- For example, race adjustments in the **eGFR calculator** yield a higher value for individuals who identify as Black, implying Black patients have better kidney function than other races when all other variables are kept the same.
  - Higher estimates of kidney function may delay transplantation or referral for specialist care, steering attention and resources away from from minorities.[5]

Figure 1. Example of Online Online Resource Guide Blueprint



Next Steps

- This work is in its early stages; an IRB is currently in process of submission.
- The online compendium is under continuous development.
- After completion of the surveys, virtual interviews will be conducted with interested participants to obtain a deeper understanding of their responses.

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