



# Prevention Science for Reducing Health Disparities

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## Abstract

This article is a commentary on the publication titled, *Strategic Directions in Prevention Intervention Research to Advance Health Equity*, by R. C. Boyd et al.

**Keywords** Health Disparities

In 1985, the Department of Health and Human Services (HHS) Secretary Margaret Heckler commissioned a report on minority health to examine the health status of Americans by race. The Task Force on Black and Minority Health, chaired by the then National Institutes of Health (NIH) Deputy Director Thomas Malone, PhD, produced the influential Heckler Report on Black and Minority Health, which identified gaps in disease rates, mortality, and other outcomes among the Black, compared to White, population (Heckler, 1985). The report provided a foundation for the scientific field of minority health research and stimulated the examination of race and ethnicity as social constructs in health-related research. At the time, the public health paradigm was to evaluate health differences, and access to care, in populations from a socio-economic perspective on the assumption that these were the main drivers of health outcome differences. At a national level, the Heckler Report introduced the notion that race, and subsequently ethnicity, may be independent contributors to health outcomes, for which they merited scientific study and targeted intervention programs.

The Office of Minority Programs was founded at the NIH in 1990 and through congressional legislation, the office was transformed into the National Center on Minority Health and Health Disparities in 2000, and to the National Institute on Minority Health and Health Disparities (NIMHD)

in 2010 (National Institute on Minority Health & Health Disparities, 2023a). Today, NIMHD has a budget of \$524 million and is charged with overall NIH strategic planning for a research agenda on minority health and health disparities. The COVID-19 pandemic has shone a bright light on these health disparities, especially those generated by social and structural factors associated with both race/ethnicity and socioeconomic factors. The dramatic increased risk of infection, hospitalization, and death has led to an examination of structural factors underlying most of these health disparities (Webb Hooper et al., 2020). Furthermore, the social unrest resulting from the murder of George Floyd served as a lightning rod for embarking on the challenging task of research on structural racism and discrimination. NIMHD launched an initiative that led to funding 38 new research projects across 14 institutes at NIH for over \$30 million in fiscal year 2022. Continuing a systematic scientific approach to understanding and mitigating structural racism and discrimination is an urgent mandate for NIMHD and NIH.

## Interventions to Reduce Health Disparities

As more researchers in recent years have decided to prioritize the long-running and unaddressed health disparities in their fields, the view among established researchers in the field of how to address these has evolved. Initially viewed as too difficult to conduct and nearly impossible to change, structural-level interventions are now seen as necessary to effect deep and lasting change for populations who have been systematically discriminated against and excluded. These populations have also been underserved in health care, underrepresented in the scientific and clinical workforce, and understudied by researchers. Generally, populations with health disparities are subjected to “adapted” interventions that are initially designed for White, more

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educated, or better-insured populations. Investigators do not usually engage these communities in advance in order to properly tailor or develop *de novo* approaches to intervention components. Among those who do not speak English well, interventions are often only translated without cultural adaptation. When discussing strategic directions for future prevention science intervention research to bring about health equity, this paradigm needs to shift as no population deserves to be subjected to an intervention that was not designed for them from the onset, founded on the principles of community engagement, and substantively tailored to meet that community's needs.

Tailoring interventions to target populations carries the risk of becoming over-specific and hard to generalize to broader populations outside of that area. The issue is finding the right balance of efficacy, fidelity, and appropriateness. This has been most clear in the development of behavioral interventions for smoking cessation, increased physical activity, or nutritional changes where cultural paradigms, community values, and communication messages, and messengers will vary across the demographic spectrum (Webb Hooper et al., 2017). The transcreation model defines a process of planning and delivering interventions to reduce health disparities so that these resonate with an affected target community while achieving the intended health outcomes (Napoles & Stewart, 2018). This model was successfully implemented using a randomized trial design to improve the emotional well-being of 153 Latina women after diagnosis of breast cancer and reflects an elegant approach that incorporated tailored components to the intervention based on community-engaged research (Napoles et al., 2020).

## Prevention Sciences and Health Disparities

The article by Boyd and colleagues, commissioned by the Society for Prevention Research, focuses on strategic directions in prevention intervention research (Boyd et al., 2022). The authors describe strategies for research to reduce health inequities and promote health equity as well as propose an ecosystemic framework for planning, designing, and analyzing equity-focused, evidence-based interventions. The ecosystemic framework is informed by methods leveraging logic models and intervention mapping and highlight the role of intersectionality and the goal of social justice. These goals are laudable and this paper is an important contribution to advancing the field of prevention sciences.

However, across the theories and models presented, a contextual framework is needed to understand how such theories and models can be applied to areas of scientific study in minority health and health disparities research. To this end, researchers should consider the use of the NIMHD





Minority Health and Health Disparities Research Framework (Fig. 1) as the starting point. This multi-dimensional model (National Institute on Minority Health & Health Disparities, 2023b) “reflects an evolving conceptualization of factors relevant to the understanding and promotion of minority health and to the understanding and reduction of health disparities.” The NIMHD Research Framework shows that health outcomes can be influenced by multiple levels (Individual, Interpersonal, Community, Societal) across multiple domains (Biological, Behavioral, Physical/Built Environment, Sociocultural Environment, Health Care System), while keeping in mind a life course perspective of these relationships. By providing an organizational structure but not being exhaustive, the framework highlights the complexity of minority health and health disparities research and allows both a researcher or program to place their work on a spectrum that facilitates analyses to assess progress, gaps, and opportunities (National Institute on Minority Health & Health Disparities, 2023b).

Listed as one of the domains in the NIMHD Research Framework, the health care system is an integral part of maintaining health and as such must be considered when developing strategic directions for future prevention science intervention research. Half of US adults have a chronic condition and an estimated 27% have more than one chronic disease, with the majority having the need to see a clinician for management of these conditions on a regular basis (Boersma et al., 2020). Thus, it is a major omission to not mention the health care system when considering prevention interventions to reduce health disparities. Social and behavioral science researchers need to engage the health care system and work with clinical and translational researchers as they plan to conduct prevention research. The medical model includes proven prevention interventions such as screening for the precursors of disease (e.g., detection of cervical neoplasia), pharmacological therapy of asymptomatic conditions (e.g., hypertension), and even preventing morbidity or mortality through surgical treatment (e.g., extreme obesity). Community-engaged prevention interventions will always need a health care outlet that is accessible and of high quality. Medical tests will need to be conducted for those with subclinical disease and treatment will need to be prescribed to those with common, easy-to-treat conditions to prevent unnecessary progression of disease. Prevention scientists need to work in multi-disciplinary teams that involve the clinical setting.

## Health Disparities or Health Equity

The terminology used in research changes over time and terms related to health disparities research have certainly evolved and expanded over the past 20 years. However,

# National Institute on Minority Health and Health Disparities Research Framework

		Levels of Influence*			
		Individual	Interpersonal	Community	Societal
Domains of Influence (Over the Lifecourse)	Biological	Biological Vulnerability and Mechanisms	Caregiver–Child Interaction Family Microbiome	Community Illness Exposure Herd Immunity	Sanitation Immunization Pathogen Exposure
	Behavioral	Health Behaviors Coping Strategies	Family Functioning School/Work Functioning	Community Functioning	Policies and Laws
	Physical/Built Environment	Personal Environment	Household Environment School/Work Environment	Community Environment Community Resources	Societal Structure
	Sociocultural Environment	Sociodemographics Limited English Cultural Identity Response to Discrimination	Social Networks Family/Peer Norms Interpersonal Discrimination	Community Norms Local Structural Discrimination	Social Norms Societal Structural Discrimination
	Health Care System	Insurance Coverage Health Literacy Treatment Preferences	Patient–Clinician Relationship Medical Decision-Making	Availability of Services Safety Net Services	Quality of Care Health Care Policies
Health Outcomes		 Individual Health	 Family/ Organizational Health	 Community Health	 Population Health

National Institute on Minority Health and Health Disparities, 2018  
\*Health Disparity Populations: Race/Ethnicity, Low SES, Rural, Sexual/Gender Minority  
Other Fundamental Characteristics: Sex/Gender, Disability, Geographic Region

**Fig. 1** NIMHD Minority Health and Health Disparities Research Framework

in their article (Boyd et al., 2022), the terms used deviate from NIH standards and are somewhat arbitrary. The implication that the term *health disparities* is no longer used or that the term *health equity* is being used ubiquitously is not supported by the evidence or by NIMHD (National Institutes on Minority Health and Health Disparities, 2023c). Aside from the institute's name itself, NIMHD has defined a *health disparity* as “a health difference that adversely affects disadvantaged populations, based on one or more health outcomes,” (National Institute on Minority Health and Health Disparities, 2023d). The outcomes are defined as a higher prevalence or incidence of conditions and earlier onset of disease; premature or excessive mortality from diseases where population rates differ; higher rates of condition-specific symptoms, reduced global daily functioning, or self-reported health-related quality of life; higher prevalence of risk factors, unhealthy behaviors, or well-established clinical measures that mediate chronic conditions; and greater global burden of disease using models and standardized metrics (National Institute on Minority Health and Health Disparities, 2023d). These are concrete definitions, measurable in

nature, and allow for change, which can be used to hold organizations and scientists accountable.

NIH defines the populations with health disparities as racial and/or ethnic minority population groups identified in the US Census, persons of any race or ethnicity who are socioeconomically disadvantaged, underserved rural residents, and sexual and gender minorities. Unifying factors in these populations is that all, on average, are socially disadvantaged due in part to being subject to discriminatory acts and being underserved in health care (National Institute on Minority Health & Health Disparities, 2023b). Numerous health determinants influence outcomes, which may generate disparities. Although social determinants of health and behavioral factors may be predominant in the causal pathway, these are not always the main drivers of inequities. Individual behaviors, adaptive lifestyles, and social or biological responses to chronic stress may interact with environmental factors to trigger biological processes, changes in epigenetics, or behavioral changes that lead to adverse health outcomes over many years. The effects of the built environment, level of environmental pollution, and access to positive sociocultural human interactions in households

and communities are also important to consider. Finally, the onset of major clinical events may at times be inevitable or reflect the interactions with the health care system and an individual's ability to adhere to medications or follow-up medical care. Used collectively, these definitions consider the existence of health inequities that have resulted from differences in death and disease, which have been systemically imposed (Boyd et al., 2022). Health equity would then best be categorized as an aspirational goal that encapsulates everyone's potential maximum health. However, this goal has not been defined with methodology that would facilitate monitoring and accountability. With respect to terminology, it does not replace the standard use and definition of health disparities in our view.

### Examples of Prevention Interventions

Research in prevention interventions has had a rich history of NIH funding. The National Heart, Lung, and Blood Institute funded the Stanford Five-City Project, which targeted the leading risk factors contributing to heart disease in communities that, at the time, were majority White and middle class. These efforts were successfully applied and evolved to include the growing Latino population of the area (Farquhar et al., 1990; Fortmann & Varady, 2000). The National Cancer Institute supported community-engaged interventions (Perez-Stable et al., 1993) to decrease tobacco use in Latino communities, which led to an Internet-based randomized trial, supported by the California Tobacco Control Program, to promote cessation and manage depressive symptoms (Munoz et al., 2009). Finally, the NIH-funded Diabetes Prevention Study showed that intensive lifestyle modifications were superior, for most participants, to pharmacological therapy in preventing the onset of diabetes in an at-risk, diverse sample (Knowler et al., 2002).

Prevention science intervention researchers would be strategic to keep in mind the funding efforts that NIH is making to achieve health equity through a major commitment of the Common Fund. The goals of the Community Partnerships to Advance Science for Society (ComPASS) program are to “1) develop, share, and evaluate community-led health equity structural interventions that leverage partnerships across multiple sectors to reduce health disparities and 2) develop a new health equity research model for community-led, multisectoral structural intervention research” (Office of Strategic Coordination—The Common Fund & National Institutes of Health, n.d). Although Boyd et al. suggest that adding a health equity statement to a research project would advance health equity research in their field, designing prevention intervention research from the onset based on community engagement, community priorities, and multi-sector partnerships would go further and be more fruitful in

benefiting populations with health disparities. To this end, prevention science intervention research that addresses the goals of the ComPASS program has the potential to kick start transformative change in the pursuit of achieving health equity in research.

### What Can Science Do to Promote Health Equity and Decrease Health Disparities?

In the pursuit to reduce health disparities and promote health equity, prevention science intervention research would do well to consider the following five action areas. First, scientists need to use standardized measures of demographic factors and social determinants that affect health. With that goal in mind, NIMHD launched an effort in 2020 to create common data elements that all researchers can use in their projects, which can be found in the NIH-funded PhenX Toolkit (*Social Determinants of Health Collections, PhenX Toolkit*, n.d). If more investigators used the same measures and agreed to data sharing, we would advance our ability to compare research findings across studies and fields. Second, researchers need to cultivate engagement with target communities prior to conducting interventions or any research. These efforts will go a long way to develop trust, re-establish trust where it has been lost, and sustain relationships beyond any single study to benefit the entire research enterprise. We must end the practice of “helicopter researchers” and strengthen ongoing relationships with the most affected communities.

Third, we know what works to prevent morbidity and mortality related to many health outcomes, but these interventions are often not equitably implemented in the most affected populations. If researchers worked to study the implementation of such effective approaches in populations with health disparities, we would make progress toward achieving health equity. Fourth, prevention science needs to be an engine for promoting diversity in the scientific and clinical workforce. This means to not only promote diversity at student and trainee levels, but at investigator and leadership levels where diversity is lacking the most in scientific fields. Public health and social and behavioral sciences have similar proportions of underrepresented scientists as is reported for clinicians and biomedical scientists. It is widely accepted that diverse research teams not only help address this social injustice but also usually produce better quality science. Finally, the field of data science must be emphasized as a research tool to advance our opportunities for discovery that would have otherwise been too costly or improbable to find with primary data collection methods. Leveraging the immense data available through electronic health records and linkage of individual data to available population datasets through geolocation methods have great promise in health disparities research.



## Conclusion

The COVID-19 pandemic brought about an unprecedented public health crisis during our lifetime, which has empowered scientists and communities to adopt new approaches and find ways to collaborate. Research funders like NIMHD specifically, and NIH in general, have created frameworks, resources, and opportunities for prevention science intervention researchers to consider in their pursuit to reduce health disparities and achieve health equity. Previous interventions, which have been informed by community engagement and tailored to meet community needs, should be consulted as examples on which to build the next generation of intervention research. Appropriate terminology, whether it be *health disparities* or *health equity*, is important to the extent that definitions are agreed upon and accepted given the evidence base. We remain optimistic that greater health equity can be achieved for the most affected populations with a systematic, scientific approach that addresses health disparities.

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## Declarations

**Research Involving Human Participants and/or Animals** Not applicable.

**Informed Consent** Not applicable.

**Conflict of Interest** The authors declare no competing interests.

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