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Addressing Cancer Health Disparities Using a Global Biopsychosocial Approach

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The Center for Research on Minority Health has translated the biopsychosocial framework to address global cancer health disparities through the integration of biological (eg, endogenous steroids, genetic susceptibility, and pesticide levels) and behavioral (eg, dietary interventions) determinants, along with community-based research (eg, comprehensive involvement of community advisory boards) and educational approaches (eg, kindergarten through postgraduate training). Evidence of successful implementation of this framework includes health disparities training for >2000 individuals ranging from elementary to the postgraduate level, and conducting transdisciplinary projects that incorporate traditional and nontraditional health professionals to examine associations between biological and nonbiological determinants of health. Examples and recommendations for implementation of the biopsychosocial approach as it applies to cancer health disparities research are described. *Cancer* 2010;116:264–9. © 2010 American Cancer Society.

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In 2000, the Centers for Disease Control and Prevention developed objectives focused on disparities in disease mortality, screening, and risk factors to achieve the Healthy People 2010 initiative.¹ More recently, the Institute of Medicine convened roundtable discussions to advance the goal of eliminating health disparities. Their overall recommendations were to more efficiently share information regarding successful programs and implement them on a larger scale.² Likewise, the National Institutes of Health convened a national summit on the science of eliminating health disparities. The summit offered examples of evidence-based efforts targeting the complexities of health disparities research.³ In this article, we highlight ongoing health disparities projects and how we use a biopsychosocial approach to conduct transdisciplinary cancer disparities research in local and global settings.

Frameworks to address health disparities have included several approaches, such as the health-risk behavioral approach,⁴ cultural competency,^{5,6} and organizational quality improvement models.⁷ Although previous approaches have been well intentioned, and studies using such frameworks have examined many of the determinants of the unequal burden of disease shared by ethnic minorities and underserved populations, health disparities persist.⁸ In the case of cancer, overall cancer rates have decreased, but cancer incidence, morbidity, and mortality among ethnic minority groups have increased.^{9–11} The focus on the health-risk behavioral approach helped reduce incidence and prevalence of cancer risk factors at the population level,⁴ and cultural competency has afforded healthcare workers the opportunity to better assess the needs of an increasingly diverse population.^{5,6} Moreover, organizational quality improvement models have improved the efficiency of healthcare organizations in the provision of healthcare services.⁷ However, because previous approaches have not adequately addressed the complexity of health disparities,^{12,13} they have failed to significantly reduce disparities in

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cancer, indicating the need to improve strategies and methodologies for reducing and ultimately eliminating disparities in cancer prevention, diagnosis, and treatment.

Changing the Paradigm

Health disparities exist at multiple levels¹⁴ and must be addressed through a multilevel transdisciplinary approach. To enhance progress toward addressing global cancer health disparities, we have transformed a multidisciplinary perspective into a biopsychosocial approach that incorporates 3 principles that stem from environmental justice movements. These principles include improving the science base, involving the affected populations, and communicating the findings to all stakeholders, particularly community members, institutions, and governmental agencies.¹⁵

Established in 1999, the Center for Research on Minority Health at The University of Texas M. D. Anderson Cancer Center remains the only congressionally mandated center focused on minority health research. Its mission is to reduce the prevalence of cancer in ethnic minorities and medically underserved populations using effective integrated programs in prevention, patient care, research, and education. For the past 10 years, the Center for Research on Minority Health has addressed health disparities by using an enhanced biopsychosocial, multifactorial approach that incorporates the community and policymakers in addressing local and global health disparities. Our biopsychosocial approach integrates biological, behavioral, and community-based research with educational opportunities to prepare future researchers and healthcare professionals. Other studies have incorporated the biopsychosocial approach, which originated with programs aimed at extending physicians' psychosocial skills beyond the biomedical model.^{16,17} Recognizing the effectiveness of a collaborative biopsychosocial approach, we have expanded it to incorporate community input throughout the entire research process. By including a community advisory board as a core element of all research projects, we aim to overcome the inequalities often observed in health status through research participation.¹⁸ Community partnership and trust are essential to addressing the unequal burden of disease that impacts people of color, as well as rural and poor individuals.¹⁸ These elements of injustice are not unique to the United States, but are observed globally.¹⁹ Therefore, the task of reversing unequal burdens of disease can only be accomplished through collaborative, coordinated efforts and international linkages.¹⁹

The faculty and staff of the Center for Research on Minority Health integrate the diversity of their training and research, along with their racial and ethnic identities to address cancer health disparities across the entire cancer spectrum, from primary prevention and treatment to supportive and palliative care. To effectively implement the biopsychosocial approach, the Center for Research on Minority Health has developed the Community Relations, Educational, Clinical, and Research core units, which work collaboratively in incorporating the community in research projects aimed at understanding the underlying determinants of health disparities.

The Community Relations Core plays an integral part in developing and sustaining relationships with community members. Community outreach is a critical component of the Center for Research on Minority Health's research endeavors. To ameliorate cancer disparities among ethnic minorities, members of the respective communities are included in identifying, prioritizing, and addressing health concerns. Since its inception, the Center for Research on Minority Health has partnered with community members who serve on community advisory boards to inform the research agenda and the design and implementation of research and educational projects. Staff members of the Community Relations Core are prominent members of their respective communities who currently or previously held leadership positions in the local African American, Asian American, Latino, and Native American Health Coalitions. Sustained relationships achieved through community outreach and involvements are integral to the success of local and international cancer research projects.

The Educational Core provides opportunities for science education and training to individuals from kindergarten to the postgraduate level, focusing on health disparities research and linking trainees to existing programs and resources. The SCIENCE (Science Center Inquiry-based Educational Activities iN Collaborating Elementary Classrooms) Project targets kindergarten through fifth grade students and makes up the initial phase of the PIPELINE Scientific Training Program, which was formally established to target students in high school. The goal of these projects is not only to improve health literacy, but also to increase the number of minorities that pursue careers in biomedical science and health disparities research. In the last decade, the Center for Research on Minority Health has successfully mentored >2000 students. In addition to the annual Summer Workshop on Health Disparities²⁰ and a semester-long health disparities course entitled "Disparities in Health in America:

Working Toward Social Justice,” a key element of the Educational Core is the Health Disparities Education, Awareness, Research, and Training Consortium, which presently consists of over 30 local, national, and international academic and health institutions, was created to foster the training of minority scientists and health disparities researchers, and provides a basis for multidisciplinary institutional collaboration and support for research and education. The Health Disparities Education, Awareness, Research, and Training consortium also serves as a postdoctoral research training and mentoring resource for the Kellogg Health Scholars Program. The Center for Research on Minority Health has also hosted several visiting scientists from Sri Lanka, Vietnam, and Egypt, who observed how the Center for Research on Minority Health uses the biopsychosocial approach, thus expanding the application of this approach globally.

The Clinical Core conducts research related to the prevention and treatment of cancer in minority or medically underserved populations and assists in navigating community members to points of care. Project FAROS (Facilitated Assistance, Research & Outreach Services) is a 4-year randomized Cancer Prevention and Treatment Demonstration Project funded by the Centers for Medicare and Medicaid Services. The Center for Research on Minority Health is 1 of 6 sites determining whether patient navigation services reduce costs and mortality of Medicare beneficiaries by decreasing barriers to screening, promoting timely diagnosis through enhanced follow-up on positive test results, and enhancing access to treatment of cancers of the breast, cervix, colon, prostate, and lung. Project FAROS targets older Latino Medicare beneficiaries from the greater Houston area and directs participants recruited in partnership with the Community Relations Core to clinical services. Participants are enrolled and randomized into: 1) intervention groups that provide either facilitated screening or treatment services via a trained patient navigator, or 2) comparison groups that provide standard or usual cancer prevention or treatment care. To date, >1100 participants have enrolled in Project FAROS. Findings from Project FAROS will inform policymakers about potential positive impacts of patient navigation services.

The Research Core integrates all 4 Center for Research on Minority Health cores and focuses on studies related to the environment, nutrition, and access to healthcare, informed decision making, and palliative care. The overarching goal of the Research Core is to design and conduct research that is comprehensive, informative,

and culturally appropriate. Many factors influence cancer development, morbidity, and mortality. Researchers at the Center for Research on Minority Health examine how differences in biological and nonbiological factors contribute to an increased risk of cancer.

The Biopsychosocial Approach in Praxis

Praxis is advanced when critical theory and approaches intersect with research and practice.²¹ Although each of the Center for Research on Minority Health cores has succinct objectives, they also act as integrated components to facilitate and enhance research and practice of the biopsychosocial approach to address health disparities. Examples of Center for Research on Minority Health research projects conducted locally and internationally that incorporate the biopsychosocial approach include Project FAROS, the Asian American Health Needs Assessment, the Mexican-American Children's Gastric Cancer Risk Study, the Texas Nigeria Sisters Taking Action to Reduce Risk Project, and additional efforts to address equitable access to palliative care in diverse cultures.

Members of the Center for Research on Minority Health's Community Relations Core were instrumental in conducting the Asian American Health Needs Assessment project, which collected baseline health risk information on the rapidly growing Asian American population in the Houston area.^{22,23} The Asian American population in Houston was dramatically affected in 2005 after Hurricanes Katrina and Rita. A large percentage of the estimated 15,000 Asian American evacuees that arrived in Houston after the hurricanes found significant cultural and language barriers to accessing services. Through community outreach efforts and in partnership with the HOPE Clinic, a federally qualified community health center look-alike coordinated by Houston's Asian American Health Coalition, the Center for Research on Minority Health was able to review and compile data from the medical records of members of this displaced population to identify their health needs. Results from the Asian American Health Needs Assessment study and the chart review of the Asian hurricane evacuees demonstrated that there was a great need for improved access to primary care and cancer screening. Therefore, the Center for Research on Minority Health partnered with community-based organizations, such as the HOPE Clinic, to secure additional funds needed to address the health of this underserved population.

The Mexican Gastric Cancer Study was designed to examine potential biological and nonbiological risk

factors for gastric cancer in Mexican American children residing in urban and agricultural areas in Texas (Baytown in the Houston metropolitan area and La Joya in the Texas-Mexico border region). Interviews are being conducted to assess environmental and cultural risk factors via a structured epidemiological questionnaire with 500 Mexican American mothers and children. In addition, in collaboration with Mexican researchers, we are conducting assessments of folate-vitamin B-12 and homocysteine levels and evaluating potential variants in a gene linked to DNA hypomethylation in gastric cancer. The children of Baytown and La Joya are also offered the opportunity to become part of the SCIENCE and PIPELINE Projects conducted by the Educational Core. In addition, local teachers can participate in a professional development opportunity provided by the Environmental Health Sciences Summer Institute.²⁴ Moreover, the Clinical Core provides assistance with referrals for cancer screening and treatment for members of these communities.

The Center for Research on Minority Health coordinated the first educational cancer conference in Abuja, Nigeria focused on identifying areas of need in the diagnosis and treatment of cancer in Nigeria and the African continent.²⁵ The conference led to the development of collaborative cancer prevention efforts through the Center for Research on Minority Health's Clinical Core that include timely health education resources and training opportunities for Nigerian physicians and scientists. An international project between researchers at the Center for Research on Minority Health and those in Ibadan, Nigeria is the Texas Nigeria Sisters Taking Action to Reduce Risk Project. This collaborative biopsychosocial study will assess a potential link between hormones and breast cancer risk among distinctly different, yet genetically similar groups of women. Three groups of pregnant women, aged 16 to 37 years, are being recruited into this study, including African Americans living in Houston, West Africans living in Houston, and West Africans living in Ibadan, Nigeria. The participants are being followed from early pregnancy to delivery, and data on demographic characteristics, and dietary, cultural, and behavioral practices are being collected. In addition, the study will assess the overall health of the participants, as well as serum hormone levels before and during pregnancy and on delivery. These data will provide clues to understanding why these women experience increased risk of aggressive, early onset breast cancer and poor outcomes.

The Center for Research on Minority Health also collaborates on international and local efforts that pro-

mote the development of and equitable access to quality palliative care. In collaboration with M. D. Anderson's Department of Palliative Care and Rehabilitation Medicine, the Center for Research on Minority Health is conducting a National Cancer Institute-funded study entitled "Caregiver Assessments of the Quality of Home Hospice Care: A Comparison Across 3 Ethnic Groups" in the Houston area to address an understudied area in cancer health disparities research. In addition, the Center for Research on Minority Health and the Department of Palliative Care and Rehabilitation Medicine are collaboratively developing 2 new studies on parenteral hydration at the end of life in Latin America. Results of these efforts are shared with Latin American colleagues at the biennial Latin American Congress on Palliative Care and have included findings from the first international study on advanced-cancer care conducted in Latin America.^{26,27} The Center for Research on Minority Health is also represented in the Latin American Association of Palliative Care Research Commission.

These projects illustrate how we exemplify praxis through the implementation of the biopsychosocial approach to more comprehensively and effectively address cancer health disparities. On the basis of our experiences, we offer 4 key recommendations for implementing the biopsychosocial approach to address global cancer health disparities.

Recommendation 1

An individual's perceptions greatly influence their health and well-being. Therefore, research that is guided and framed by the perceptions of the target populations rather than the researcher is likely to be more informative. Community members should be considered valued collaborators that contribute to the design and implementation of research and interpretation of findings. Furthermore, effective translation of research challenges into solutions should occur through the lens of the community and involve community partners in disseminating research findings.

Recommendation 2

A transdisciplinary perspective that integrates multiple individuals, communities, and institutions will likely enhance success in eliminating cancer health disparities. Modifiable behavioral risk factors and genetic profiles of individuals to accurately tailor cancer prevention methods or treatment are important individual level components. This perspective, accompanied by engagement at a

community level, which includes partnering with community-based organizations and local health departments and creating dedicated community-focused staff positions, will garner trust with the targeted communities. Institutions should recognize risk factors that are unique to specific populations, while also providing personalized quality healthcare.

Recommendation 3

To improve the science base, researchers should take on the burden of demonstrating the relevance of their studies and findings toward the overall goal of reducing cancer health disparities. What is publishable may not be relevant, but what is relevant can always be made publishable. If community-driven research is prioritized over researcher-driven research, then the findings are more likely to be relevant, generalizable, and publishable.

Recommendation 4

Policymakers should be perceived as stakeholders in research and members of the affected community. Effective communication of relevant study findings directly to policymakers will ensure that research results will inform policies and lead to relevant funding mechanisms and solutions.

CONFLICT OF INTEREST DISCLOSURES

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