

Book Review

Health Outcomes in a Foreign Land: A Role for Epigenomic and Environmental Interaction

Dolapo R Raji*

Research Assistant, University of Michigan, USA

***Corresponding Author:** Dolapo R Raji, Research Assistant, University of Michigan, USA

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Health is a complex phenomenon that is determined or affected by several underlying factors. Even more importantly, diverse minority population groups experience disparities in their outcomes due to interactions between disadvantaged environment and genetic make-up. Kwabi-Addo's Health Outcomes in a Foreign Land: A Role for Epigenomic and Environmental Interaction contributes to understanding the complicated relationships between genetic and environmental factors in a bid to foster health equity and addresses the health disparities of African Americans from multiple levels throughout the life course of an individual or population. Without doubt, African Americans experience disproportionately poor health outcomes, ranging from communicable to non-communicable diseases, compared to their White counterparts and other racial categories. Behaviors are shaped by social and physical environment which ultimately determines

the wellbeing of an individual or population, this book becomes vital for policy makers, health professionals, and scientists in understanding and exploring the interactions between genetics and environments as it relates to health equity.

Bernard Kwabi-Addo's Health Outcomes in a Foreign Land: A Role for Epigenomic and Environmental Interaction focuses on evidence-based research to explore the complex interactions between genetic and environmental factors that impact health outcomes and how these interactions can be addressed to eliminate health disparities and achieve health equity. This book is structured into three parts consisting of twelve chapters. While part I and II explained in detail, genetic and non-genetic factors respectively, part III explored the interactions between genetic and non-genetic factors (i.e., gene-environment) as it impacts health outcomes. The

content and organization of this book is clear and concise, the table of contents clearly outlines the parts and subsequent chapters. In a book as voluminous as this, such a succinct yet clear outlines becomes imperative in quickly finding purpose for the book by different intended users. Consequently, I particularly find it very useful that each chapter contains an abstract, this provides a high-level overview of the ensuing contents of the chapter.

Part I focuses on the genetic basis of human disease (chapter two) and the discovery of deoxyribonucleic acid (DNA). It further explained the role altered or mutated DNA molecule plays in abnormal biological functions and the development of disease. Genetic variation and epigenetic role in African and African American' health, a central core of this part, was explained in detail. By way of definition, epigenetics is the study that explains how behavior and environment causes changes that affect the way genes work. According to the author, genetic variations that occur as a result of human migration cause adaptation and influence genetic susceptibility to diseases. The role of epigenetics (chapter three) provides useful insights in the phenomenon of health disparities. The chapter highlights disparities in some cancer risks and development such as breast, prostate, and colorectal cancer. However, I did not expect that lung cancer will not make the list since African American men have the highest rates of lung cancer in the U.S. Epigenetic changes are caused by environmental and social factors such as diet, stress, environmental toxins etc. Epigenetics is not a commonly used term for an average reader however, the author did a phenomenal job providing background information in a pictorial representation to facilitate better comprehension. As stated by the author, limited studies have explored the role of differential epigenetic alterations as a cause of differences in

cancer susceptibility and disease progression in various ethnic and racial groups. Understanding the concept of epigenetics is vital for understanding and managing disease progression in African American.

Part II explores the non-genetic factors that causes health disparities such as economic factors, social determinants, etc. Limited economic resources in many minority neighborhoods aggravate health conditions. As described in chapter four, multi-generational cycle of limited wealth transfers compromises health outcomes in many generations of African American population. Several epidemiological studies have shown that there is a strong relationship between higher levels of socioeconomic status and health outcomes; chapter five further explores how the socioeconomic context in which an individual lives and works impacts health outcomes. These differences in socioeconomic status among racial minority groups account for substantial health disparities. Chapter five highlighted that adverse social determinants particularly in critical stages of development are vital for health outcomes in later years. On the other hand, chapter six and seven describes the role health information, behaviors and individual' choices – such as physical inactivity, tobacco and excessive alcohol use – play in the determinants of health outcomes. Of all the determinants of health outcomes, individual behavior account for 40% of premature death in USA. It then becomes imperative that behavioral intervention can largely reduce the risk of poor health outcomes. In addition, promoting health literacy leads to adherence to health-care advice which further increases the chances of better health outcomes. The final two chapters wraps part II up by explaining in detail how culture differences and psychological factors trigger health disparities. From my professional experience, culturally targeted care and intervention has proven

successful and sustainable among African American. I particularly appreciate the efforts of the author in covering this section in such a detailed manner.

Finally, part III focuses on the intricate relationships between gene and environment in determinants of health and disease disparities (chapter 10) as well as race as a biological or social concept (chapter 11). Chapter 10 discusses fetal genetic origins and environmental exposure in details to elucidate individuals who may be at risks of certain diseases. Understanding the causes of health disparities through the lens of interaction between genetic and environmental factors becomes expedient in promoting health equity for all individuals. In public health, the conversation around race and health (chapter 11) is controversial with respect to the individual lifestyle choices and behaviors versus social factors or determinants of health. The chapter evaluated racism at multiple levels such as racial segregation, inequities, and genetic component as it impacts vulnerability to diseases in minority groups. It proposes that race should not be used to categorize individual populations rather Ancestry Informative Markers (AIMs) provide better insights into ancestral genetic make-up and environmental interactions in diseases with differential rates among various population groups. The concluding chapter (chapter 12) posits that interventions to reduce or eliminate health disparities must be addressed from multiple dimensions which includes changing the conditions at the individual level (nutrition, safe environment),

community, state, and government levels with policies targeting affordable healthcare, desegregation, health education etc.

Health disparity has been a long-standing issue in the domain of clinical and public health interventions. In a multicultural American population with several healthcare stakeholders, the book serves as an excellent tool kit – for public health and community workers, students, physicians, and scientists alike – needed to understand the dynamic relationships that exist between genetics, individual behavior, socioeconomic status, the physical environment, discrimination, and health. Also, it is a powerful piece that could empower and stir stakeholders towards establishing policies that target desegregation of racial communities and provides safe environments to engage in healthy behaviors.

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Conflicts of interests

The author declare that there are no conflict of interests.

Data accessibility statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.



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