



COMMENTARY

Confronting health disparities: Lessons from the USA

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Reducing health disparities, generically referring to any measurable aspect of health that varies across individuals or social groups, has been positioned as a cornerstone of health care improvement and a priority for safety. Disparities in mortality, a fundamental manifestation of health inequality, pose complex challenges to the USA and China,¹⁻³ two of the largest health systems worldwide. In the USA, mortality disparities substantially exist across races, locations, and causes of death. Similarly, in China, these disparities are critical and vary remarkably across different sociodemographic contexts. The observed health disparities could be attributed to multiple determinants,⁴ such as health care access, socioeconomic status, and environmental exposure. Identifying disparities through a sophisticated surveillance system for incident diseases and mortality and deciphering potential causes are indispensable prerequisites for promoting health equity.

In a recent issue of the *Lancet*, the GBD US Health Disparities Collaborators conducted a county-level time-series analysis of racial-ethnic disparities in mortality in the USA.⁵ Utilizing the unique data acquired from the US National Vital Statistics death certificates and the US National Center for Health Statistics, the authors estimated age-standardized mortality from 2000 to 2019 by racial-ethnic group and county, describing the intersections between racial-ethnic and location-based disparities in mortality. The findings offer insights for future actions. First, they elucidated the temporal dynamic transitions of all-cause and cause-specific mortality in about two decades, providing a holistic insight into the evolving landscape of the mortality spectrum. This facilitates policymakers in navigating transitions in the primary goals of economic and health care policies with greater precision. Second, the non-Latino and non-Hispanic American Indian or Alaska Native (AIAN) and Black

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populations manifested higher mortality than the White populations across most causes of morbidity, which was attributable to the role of systemic racism on health and an increased risk of premature death. This racial disparity is evident in the socioeconomic status of minoritized individuals and populations. It is also reflected through various pathways, such as residential segregation, high rate of incarceration, chronic stress, and discrimination in health care, among other factors. In contrast, the Asian and Latino populations had lower mortality rates across most causes than the other racial-ethnic groups. It is well known that the USA stands as a prominent destination for immigrants, solidifying its position as one of the world's largest immigrant nations. With a staggering population of over 45 million foreign-born individuals, immigrants constitute a significant 13.6% of the country's total population. Undeniably, the Asian immigrant cohort may exhibit a notable phenomenon known as the "healthy immigrant effect," wherein a substantial proportion consists of individuals with higher income levels and educational attainments. These immigrants often possess favorable health profiles at the time of migration, meeting the stringent health requirements for immigration and possessing adequate financial resources and knowledge to prioritize and maintain their health status. Consequently, the disparities across distinct racial groups highlight the role of socioeconomic factors in shaping health status. Third, racial and ethnic disparities in mortality are widespread, manifesting across various causes of death and geographic locations. This trend highlights the complex intersections between racial-ethnic and geographical disparities in mortality in the USA, underscoring the need for precise, localized, and up-to-date data to pinpoint specific community needs and guide action plans.

In general, this work showcases a high level of innovation, primarily owing to the adequate utilization of representative national mortality data, with a distinctive emphasis on three crucial elements: racial-ethnic identity, geographical locations, and causes of death. This investigation sets a precedent for future studies on this topic. As the authors emphasized in their article, these efforts enable the examination of geographical variation in racial-ethnic mortality disparities and comparisons across causes of death. In addition, the findings provide valuable insights for health policies, indicating common underlying factors and the substantial negative impact of systemic racism on health. The in-depth, cause-specific assessments of mortality disparities based on race ethnicity and geography provide an opportunity for understanding the underlying drivers contributing to these disparities. This includes exploring how systemic racism and social determinants of health act distinctively across different causes of death and geographical locations. Beneath the surface of this thought-provoking phenomenon, other issues warrant more attention in future explorations. First, using two key elements, geographical location and racial-ethnic factors, to explain the disparities is persuasive but may not be comprehensive. It is essential to acknowledge that other determinants, such as genetic heterogeneity among different races, varying levels of environmental exposure resulting from diverse geographical locations, different lifestyles, and other socioeconomic factors, may also contribute to this pattern.⁶

Despite not being the primary focus of the current study, these elements should not be overlooked. In addition, the main determinants for different causes of death are distinctive, calling for a more comprehensive investigation of mortality disparities among populations in different contexts. Second, although the study has provided a detailed landscape of mortality distributions, facilitating the identification of high-risk populations for different causes, further efforts are needed to verify the predominant risk factors of different causes and their potential underlying connections. This, in turn, will provide more insightful suggestions for promoting health equity.

Undoubtedly, the insightful discoveries of the study provide profound implications for the advancement of Chinese health policy optimization and the refinement of the health care system in several aspects. First, the unique nationally representative data they utilized suggests an urgent need to consummate a more sophisticated and unified national monitoring and tracking system that extends to surveillance of county-wide death and incident disease. Such a real-time surveillance system would provide crucial information for policymakers to formulate evidence-based strategies. By capturing the holistic disease and mortality burden across the country, this system would further facilitate the identification of high-risk populations and the development of targeted health intervention strategies. This, in turn, would contribute to fostering health equity by ensuring that resources are allocated where they are most needed. Despite China's persistent efforts to refine disease and mortality registration systems (i.e., the China Chronic Disease and Risk Factor Surveillance,⁷ China's Disease Surveillance Points system⁸), the standardization and integration of heterogeneous regional datasets continue to pose challenges in constructing a unified "Digital China" and fostering a "Healthy China." To overcome these challenges, it is imperative to use advanced methods (such as big data integration platforms and artificial intelligence) to further promote data integration and standardization, ultimately formulating an organic and unified system. The unified system will facilitate synergistic advancements across multiple dimensions, encompassing the identification of perilous factors, surveillance of diseases, injuries, and mortality rates, assessment of intervention efficacy, optimal allocation of health care resources, refinement of policies, personnel capacity building training, as well as robust supervision and evaluation.

Second, we observed a discernible shift in the spectrum of cause-specific deaths in the USA over the past two decades. This shift is manifested as a remarkable decline in cardiovascular-caused mortality, accompanied by a further reduction in premature mortality resulting from the other three major chronic illnesses, including cancer, chronic respiratory diseases, and diabetes. In contrast, cardiovascular diseases remain the primary threat to premature mortality in China and other low- and middle-income Countries (LMICs).⁹ To address this disparity and achieve the Sustainable Development Goals set for 2030, it is crucial for China to rely on high-quality health data to tackle the formidable challenges faced by contemporary public health policies and eliminate potential risk factors contributing to the prevalence of chronic diseases. Simultaneously, there is an urgent need to promote and genuinely implement the

service system that encompasses primary care as the initial point of contact, two-way referrals, and graded health care. Additionally, there is a requirement to enhance and refine community-based surveillance of elderly health and provide home-to-community treatment and rehabilitation guidance for prevalent conditions such as stroke and age-related neurodegenerative diseases. These proactive steps are essential for effectively addressing the escalating challenges presented by the dramatic population aging.

Third, previous studies have highlighted racial-ethnic disparities in cause-specific mortalities in the USA. These disparities may be attributed to the combined contributions of diverse determinants rooted in the unique historical background of the country. However, a significant distinction exists in the racial-ethnic compositions between China and the USA. In the USA, Caucasians account for more than 60% of the population, while African Americans, Latinos, Asians, and other racial groups make up the remaining 40%. In contrast, in China, the Han ethnicity represents over 90% of the population, while other minority ethnic groups constitute less than 10% of the total population and are more geographically concentrated, despite the country's complex ethnic compositions. These unique ethnic compositions and geographically concentrated characteristics facilitate further explorations into the topic of disease and death burden among different populations in China, especially ethnic minority groups. Additionally, previous studies also observed the racial disparities in death rates and death incidences in some regional eras of China, partially attributed to the combined effects of several determinants including the "healthy migrant" scenario, geographical clustering, and exposure risk.¹⁰ Fortunately, despite the existence of racial health disparities in China, there are no discernible policy-induced differences in the equity and accessibility of health care services. National policies consistently underscore and drive efforts to narrow or eradicate these gaps. We are confident that these proactive measures and strategic plans will yield even more substantial outcomes in the future.

Fourth, the current study also elucidated mortality disparities resulting from the geographic location, which may serve as a template for capturing a more comprehensive landscape of regional disease burdens and mortality patterns in China. Previous research has indicated remarkable divergences in life expectancy across and within different regions, provinces, and even urban-rural areas,¹¹ characterized by a gradual decline from east to west, with economically underdeveloped areas manifesting lower life expectancies compared to their developed counterparts. The primary drivers for these disparities encompass China's ongoing urbanization process, acceleration of the aging society, interregional economic differentials, and variations in health care coverage. A comprehensive understanding of this spatiotemporal heterogeneity in mortality will pinpoint the necessity of refining the rational allocation of medical resources, promoting sustainable social and economic development to narrow down income-educational disparities, as well as propelling substantive health care reforms, ultimately ensuring health equity. Notably, the "Healthy China" initiative is vigorously promoting the decentralization of health care services and the allocation of resources to

underserved areas. This includes implementing effective measures to elevate health care coverage for the rural poor and bolster health care service capabilities in impoverished regions, thus facilitating a transformative evolution in health care delivery in these areas.

Fifth, despite not being a major immigration destination, China is still witnessing a substantial domestic population migration. Simultaneously, China is actively promoting a series of reform and opening-up initiatives such as the "Belt and Road," which will inevitably result in more extensive population movement. While inter-state migration in the USA mitigates baseline geographical disparity in mortality outcomes,¹² the impact of such migration and population movement on health burden and health disparities in China is less known and will be a new research direction for China in the future. This study may provide a reference for the field of Chinese immigration research.

Sixth, embracing a proactive stance towards unforeseen public health crises, such as the COVID-19 and SARS pandemic, is indispensable. As the study has pointed out, understanding their reverberating consequences on disease and mortality patterns catalyzes fortifying a more refined infectious disease prevention ecosystem. Through comparative study, we aspire to gain insights from the current health care conditions in the USA. Considering the crucial role of a favorable health care system in enhancing a country's life expectancy, these insights can provide valuable reflections on the areas that require additional attention and efforts in China's future health care development.¹³ As the Chinese proverb goes, "Taking lessons from history allows us to gain a better understanding of the rise and fall" ("以史为鉴可以知兴替"). Ultimately, analyzing the mortality disparities in the USA will facilitate the reduction of mortality disparities and contribute to the realization of health equity in China.

AUTHOR CONTRIBUTIONS

Zuyun Liu conceptualized the manuscript; Liming Zhang, Zhenyu Sun, Xueqing Jia, and Ciyun Zhao did the literature search and wrote the manuscript draft. Jiening Yu, Xinwei Lyu, Joseph Tak Fai LAU, Na Li, Dongfu Qian, Zhihui Wang, Xi Chen, and Zuyun Liu critically revised the manuscript draft. Xi Chen and Zuyun Liu took responsibility for the content of the article. All authors read and approved the final version of the manuscript.

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CONFLICT OF INTEREST STATEMENT

The authors declare that no competing interests exist.

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