Int J Cardiovasc Sci. 2024; 37:e20240002

EDITORIAL

Challenges and Perspectives for Cardiology in the Developing World: Joint Views from Africa and Latin America

Mauer A. A. Gonçalves,[1] Humberto Morais,[1,2] Gláucia Maria Moraes de Oliveira,[3] Cláudio Tinoco Mesquita[4]

Centro de Estudos Avançados em Educação e Formação Médica, Faculdade de Medicina da Universidade Agostinho Neto,[1] Luanda – Angola
Hospital Militar Principal, Instituto Superior,[2] Luanda – Angola
Faculdade de Medicina, Universidade Federal do Rio de Janeiro,[3] Rio de Janeiro, RJ – Brazil
Faculdade de Medicina, Universidade Federal Fluminense, [4] Niterói, RJ – Brazil

"***Health cannot be a question of income; it is a fundamental human right.***"

Nelson Mandela

Cardiovascular health in developing countries, notably in the regions of Africa and Latin America, poses unique challenges that warrant in-depth analysis and an interdisciplinary approach. The medical landscape in these contexts is marked by a complex intersection of factors, including structural limitations, restricted financial resources, and a diversity of cultural and socioeconomic conditions.[1] This editorial aims to explore the pressing challenges and promising prospects for Cardiology in these two continents, providing a joint perspective that seeks to highlight similarities, disparities, and opportunities to improve cardiovascular health in communities at different stages of development.

Africa has the poorest countries in a single continent. Of the top 30 poorest countries in the world, 23 are in Africa, representing 76.6% of the total countries on the list, with almost 1.1 billion people in poverty, as per the report of the 2023 Multidimensional Poverty Index (MPI), which measures the acute deprivations in health, education, and living standards that people face simultaneously.[2] Africa, the least developed continent, faces a complex intersection of economic and public health challenges. Despite modest economic growth, the highest proportion of the world's poor, 54.8%, are from Africa, which holds significant inequalities and vulnerabilities.[1,3] Poverty disproportionately affects low-income countries and regions, 57.3% and 639 million people, and Sub-Saharan Africa has a higher average poverty rate, 41.1%, than Latin America and the Caribbean, 37.9%. Also, endemic diseases such as malaria, HIV/AIDS, and tuberculosis persist, while noncommunicable diseases, such as cardiovascular disease (CVD), are growing as public health concerns in Africa and Latin America.

It is essential to mention that the leading causes of age-standardized deaths worldwide were the same from 1990 to 2019: ischemic heart disease, stroke, chronic obstructive pulmonary disease, and lower respiratory infection, in descending order. However, in 2021, COVID-19 replaced stroke as the second leading standardized cause of death. In 2021, the highest age-standardized death rates from COVID-19 occurred in Sub-Saharan Africa, Latin America, and the Caribbean, and mortality from COVID-19 exceeded deaths from CVD in these regions. Few countries had MPI data consolidated during the COVID-19 pandemic, and the impacts of the COVID-19 pandemic on poverty and inequalities will likely be more significant in the coming years. There will likely be a substantial reduction in life expectancy in these regions in subsequent years, interrupting the cycle of incremental gains observed previously (Figure 1).[4]

There is a significant intersection between the COVID-19 pandemic and CVD globally, especially in Latin America, the Caribbean, North Africa, and Sub-Saharan Africa. It is worth highlighting the impact of SARS-CoV-2 on the cardiovascular system and patients with CVD, the competition for health resources, and mitigation policies that compromised CVD care, partially

Keywords

Healthcare Disparities; Cardiovascular Diseases; Access to Cardiovascular Care; Africa; Latin America

Mailing Address: Claudio Tinoco Mesquita
Health, Science & Education Lab, Hospital Universitário Antônio Pedro/EBSERH, Universidade Federal Fluminense. Av. Marques do Paraná, 303. Postal code: 24033-900. Centro, Niterói, RJ – Brazil.
E-mail: claudiotinocomesquita@id.uff.br

DOI: https://doi.org/10.36660/ijcs.20240002

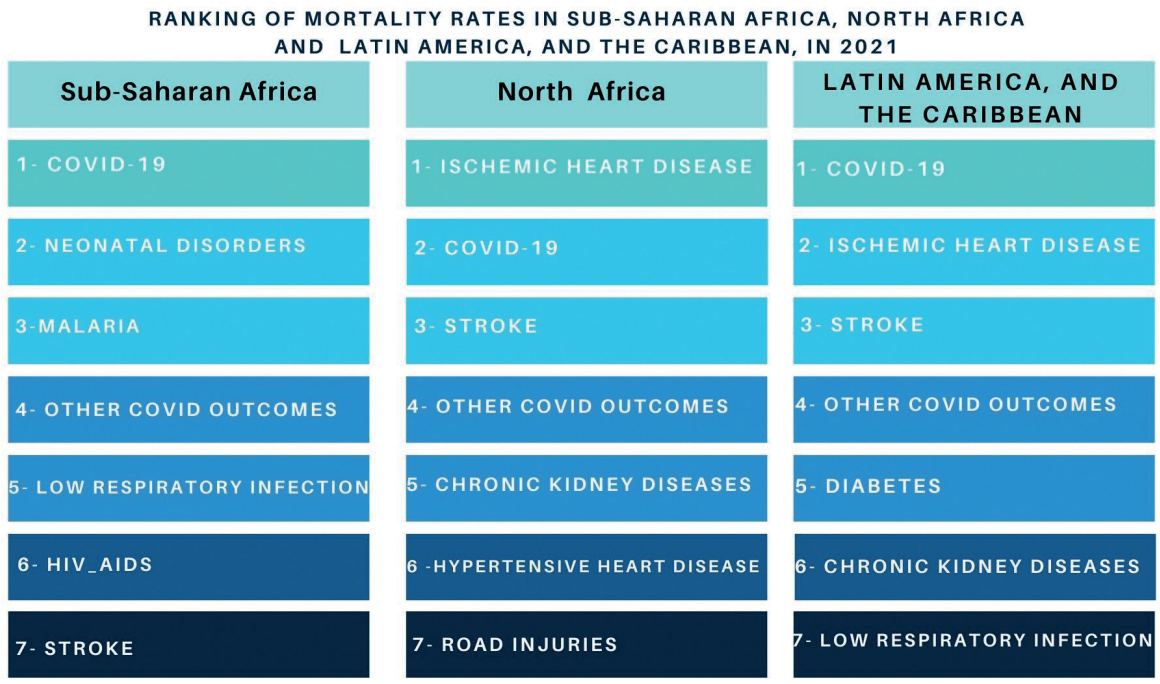

Figure 1 – Ranking of mortality rates, per 100,000 inhabitants, of both sexes and all ages, in 2021 — adapted from GBD 2021 Study.[4]

attenuated using vaccines and prevention measures. This interrelationship between the pandemic and CVD will undoubtedly have repercussions in the long term, not only due to the cardiovascular sequelae of COVID-19, but also the consequences of the delay in CVD treatment during the pandemic, making it a significant challenge to be faced in countries in Sub-Saharan Africa, Latin America, and the Caribbean. North Africa and the Middle East had the majority of deaths due to CVD and COVID-19 diseases, also showing the importance of this association (Figure 1).[5]

Taking Brazil as an example, the age-standardized mortality rate due to ischemic heart disease was 67.1 (95% II, 60.9-71.0) per 100,000 inhabitants in the year 2021, according to data from GBD 2021.[4] The COVID-19 pandemic significantly impacted the treatment of ischemic heart disease in Brazil. Data from the Brazilian Unified Health System (SUS) showed that hospital admissions for chronic and acute coronary syndrome reduced by 12.8% (95% CI, 12.5%-13.2%) and 13.6% (95% CI, 13.3%-13.9%), respectively, when compared with the average values from previous years, 2017 to 2019.[4–6] Hospital mortality and the proportion of home deaths related to ischemic heart disease also increased during the pandemic. The perspective is that in the coming years, we will see a significant increase in ischemic heart disease complications that were not treated during this period.[7,8]

How to face challenges and promote improvements?

In 2017, a survey revealed that 18% of the 33 participating African countries had no registered cardiologists.[9,10] Across Africa, there are approximately 2000 registered cardiologists for a population of 1.2 billion inhabitants.[11] There is a scarcity of cardiac surgery and interventional cardiology services, with around 22 cardiothoracic centers in Africa, and 30% of African countries lack artificial cardiac stimulation therapies and cardiac electrophysiology.[11–13] The lack of qualified human resources is a critical obstacle. The region faces a shortage of health professionals equipped to handle CVD. The specialized training process is lengthy and inadequate, contributing to this gap.[9,11] Compared to Africa, Latin America has a great number of estimated cardiologists: 25000 to 30000. According to the 2023 Brazilian Medical Demographics study, the cardiology

field has 20324 licensed professionals.[14] Angola, an African low- to middle-income country with an estimated population of 34.0 million inhabitants, has made notable efforts in training specialists in cardiology and cardiac surgery.[15] There are currently around 100 registered cardiologists, including 4 interventional cardiologists and 5 cardiologists who autonomously implant cardiac stimulation devices. There are also 10 cardiac surgeons, all of whom were trained abroad.

Reducing the burden of CVD in Latin America and Africa requires a multi-faceted approach that addresses various factors. For instance, collaboration with middle- and high-income countries plays a crucial role in establishing specialized centers and training professionals. However, the sustainability of these centers is challenged by economic fluctuations and political instabilities, affecting the continuity of these services.[9,11] Inclusive health policies are crucial to ensure equitable access to medical services and medications for CVD. Expanding health insurance coverage and providing accessible therapies are fundamental steps in this direction. Partnerships between countries, both North-South and South-South, are essential to strengthen specialized workforces and improve cardiovascular care.[9,12,16]

Meanwhile, Africa and Latin America are seeking to expand their cardiology resources. Intensive training programs and cooperation agreements with more developed countries have been fundamental. However, the journey is long and challenging, especially with the post-pandemic economic constraints, making the maintenance of these high-complexity services a daunting task.

Investing in research on the causes and prevention of CVD in Latin America and Africa is critical to change this landscape, as is research on genetic, environmental, and social determinants of CVD. The development and testing of new interventions and technologies for CVD prevention and treatment are also important.

The challenge lies not only in training specialists, but also in establishing adequate medical infrastructure. The unequal distribution of diagnostic and therapeutic services in cardiology highlights the gap between urban and rural areas, exacerbating health disparities. International partnerships have played a crucial role in establishing specialized centers. However, maintaining these high-cost structures is challenging amid economic volatility.[17]

In conclusion, the collaboration between Latin American and African countries to reduce the burden of CVD is of paramount importance in fostering global health equity. Both regions face common challenges, such as rapidly changing lifestyles, limited healthcare infrastructure, and socioeconomic disparities, that contribute to the rising prevalence of CVD. By pooling their resources, sharing best practices, and engaging in joint research initiatives, these regions can develop targeted and culturally sensitive interventions (Figure 2).

Collaborative efforts will not only enhance the understanding of region-specific factors influencing CVD, but also facilitate the implementation of effective preventive measures and treatment strategies. Moreover, shared experiences in addressing CVD can strengthen the overall resilience of health systems and contribute to a more equitable distribution of healthcare resources. Recognizing the interconnectedness of health challenges, a unified approach will empower Latin American and African countries to navigate the complexities of cardiovascular health, ultimately promoting a healthier future for their populations and fostering a global environment where the benefits of progress in cardiovascular health are shared by all.

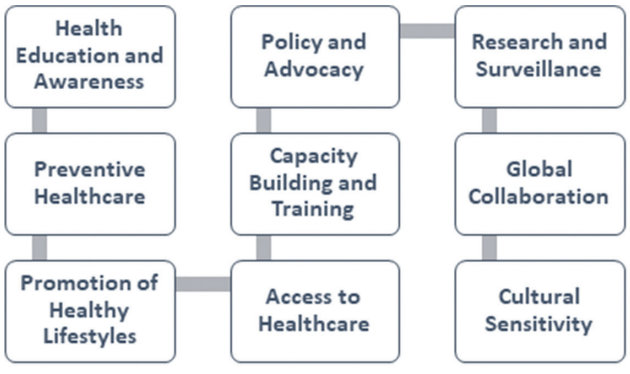

Figure 2 – Shared strategies for promoting improvement in CVDs in Latin America and Africa.

References

1. International Monetary Fund. Regional Economic Outlook for Sub-Saharan Africa, October 2023 [Internet]. Washington: International Monetary Fund; 2023 [cited 2024 Jan 30]. Available from: https://www.imf.org/en/Publications/REO/SSA.
2. United Nations. 2023 Global Multidimensional Poverty Index (MPI): Unstacking global poverty: Data for high impact action [Internet]. New York: United Nations; 2023 [cited 2024 Jan 30]. Available from: https://hdr.undp.org/content/2023-global-multidimensional-poverty-index-mpi#/indicies/MPI.
3. World Health Organization. Acompanhamento da Cobertura Universal de Saúde - Relatório de 2021 sobre a monitorização mundial [Internet]. Geneva: World Health Organization; 2021 [cited 2024 Jan 30]. Available from: https://www.who.int/world-health-day/world-health-day-2019/fact-sheets/details/universal-health-coverage-(uhc).
4. Lindstrom M, De Cleene N, Dorsey H, Fuster V, Johnson CO, LeGrand KE, et al. Global Burden of Cardiovascular Diseases and Risks Collaboration, 1990-2021. J Am Coll Cardiol. 2022;80(25):2372-425. doi: 10.1016/j.jacc.2022.11.001.
5. Oliveira GMM, Brant LCC, Polanczyk CA, Malta DC, Biolo A, Nascimento BR, et al. Cardiovascular Statistics - Brazil 2021. Arq Bras Cardiol. 2022;118(1):115-373. doi: 10.36660/abc.20211012.
6. Brasil. Ministério da Saúde. Sistema de Informações Hospitalares do Sistema Único de Saúde (SIH/SUS) [Internet]. Brasília: Ministério da Saúde; 2023 [cited 2024 Jan 30]. Available from: http://sihd.datasus.gov.br/principal/index.php.
7. Brant LCC, Nascimento BR, Teixeira RA, Lopes MACQ, Malta DC, Oliveira GMM, et al. Excess of Cardiovascular Deaths During the COVID-19 Pandemic in Brazilian Capital Cities. Heart. 2020;106(24):1898-905. doi: 10.1136/heartjnl-2020-317663.
8. Brant LCC, Pinheiro PC, Passaglia LG, Souza MFM, Malta DC, Banerjee A, et al. Cardiovascular Mortality in Brazil During the COVID-19 Pandemic: A Comparison between Underlying and Multiple Causes of Death. Public Health. 2023;224:131-9. doi: 10.1016/j.puhe.2023.08.027.
9. Yuyun MF, Sliwa K, Kengne AP, Mocumbi AO, Bukhman G. Cardiovascular Diseases in Sub-Saharan Africa Compared to High-Income Countries: An Epidemiological Perspective. Glob Heart. 2020;15(1):15. doi: 10.5334/gh.403.
10. Talle MA, Bonny A, Scholtz W, Chin A, Nel G, Karaye KM, et al. Status of Cardiac Arrhythmia Services in Africa in 2018: A PASCAR Sudden Cardiac Death Task Force report. Cardiovasc J Afr. 2018;29(2):115-21. doi: 10.5830/CVJA-2018-027.
11. Ozkan J. A Snapshot of Cardiology in Africa. Eur Heart J. 2018;39(23):2128-9. doi: 10.1093/eurheartj/ehy263.
12. Mocumbi AO. Lack of Focus on Cardiovascular Disease in Sub-Saharan Africa. Cardiovasc Diagn Ther. 2012;2(1):74-7. doi: 10.3978/j.issn.2223-3652.2012.01.03.
13. Bonny A, Ngantcha M, Jeilan M, Okello E, Kaviraj B, Talle MA, et al. Statistics on the Use of Cardiac Electronic Devices and Interventional Electrophysiological Procedures in Africa from 2011 to 2016: Report of the Pan African Society of Cardiology (PASCAR) Cardiac Arrhythmias and Pacing Task Forces. Europace. 2018;20(9):1513-26. doi: 10.1093/europace/eux353.
14. SCHEFFER M, editor. Demografia Médica no Brasil 2023 [Internet]. São Paulo: FMUSP, AMB; 2023 [cited 2024 Jan 30]. Available from: Available from: https://www.fm.usp.br/fmusp/conteudo/estudo_demografico_FMUSP_AMB.pdf.
15. Angola. Instituto Nacional de Estatística. Estatísticas sociais. Projeção da População [Internet]. Luanda: Instituto Nacional de Estatística; 2018 [cited 2024 Jan 30].. Available from: https://www.ine.gov.ao/inicio/estatisticas.
16. Keates AK, Mocumbi AO, Ntsekhe M, Sliwa K, Stewart S. Cardiovascular Disease in Africa: Epidemiological Profile and Challenges. Nat Rev Cardiol. 2017;14(5):273-93. doi: 10.1038/nrcardio.2017.19.
17. Nunes MAS, Magalhães MP, Uva MS, Heitor P, Henriques A, Manuel V, et al. A Multinational and Multidisciplinary Approach to Treat CHD in Paediatric Age in Angola: Initial Experience of a Medical-Surgical Centre for Children with Heart Disease in Angola. Cardiol Young. 2017;27(9):1755-63. doi: 10.1017/S1047951117001202.