

Recommendations from Cardiovascular Disease Research in Sub-Saharan Africa; A Literature Review

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Abstract

Cardiovascular diseases (CVDs) in sub-Saharan Africa (SSA) have been a major challenge over the past decade. This has increased the mortality rate amongst the indigenous people of the sub-region. It is expected that this constant CVDs increase could result in an eminent epidemic and lead to high regional burdens due to the high number of Low-middle income countries in the SSA. Despite this, there is, however a low level of literature and research focus on CVDs in SSA, and this has created difficulty in advancing knowledge in this field and hence policy makers and the scientific community are less informed in their quest to fight against CVDs in SSA. This study is aimed at reviewing selected publications on CVDs in SSA to identify important trends and recommendations that could guide stake holders in properly developing the right strategies in reducing CVDs in SSA. The study identified an eminent epidemic of CVDs in SSA and recommends that all stake holders come on board the fight against CVDs. It is expected that the information provided in this review can serve as a guide for future research towards improved management of CVDs.

Keywords: Africa, Cardio diseases, Health, Non-communicable.

Introduction

Cardiovascular diseases (CVDs) represent a group of disorders relating to the heart and blood vessels of the body. These disorders include notable diseases such as coronary heart disease, rheumatic heart disease, congenital heart disease, and cerebrovascular disease [1]. CVDs have been at the helm of a severe global burden, with a resounding number of 523 million cases and about 18.6 million deaths in 2019 only [2]. In sub-Saharan Africa, Non-communicable diseases (NCDs) are considered as the second most common cause of death, accounting for 35% of all deaths. Amongst these deaths, 13%-37% are caused by CVDs, especially hypertension and stroke [3]. These numbers have indicated how the trend of global CVD distributions has changed to show that low-income countries are no more exempted from the

widespread distribution of CVDs due to westernization and urbanization. The CVDs of high occurrence in sub-Saharan Africa differ from the rest of the world, which shows the need to monitor closely the trends and transitional distributions of CVDs in sub-Saharan Africa [3]. Despite these alarming numbers, there is a knowledge gap of studies and research on CVDs in sub-Saharan Africa due to inadequate local expertise and poor funding which has created knowledge gaps and difficulties in studying the trends of CVDs [4].

Small indications of changing trends and transitional distributions of CVDs [3] suggest the need for scientists and health policy makers to become abreast with CVDs dynamics in sub-Saharan Africa to take effective decisions and embark on efficient control programs. This, however, has been hampered due to lack of focus

of research on CVDs because of low level of local expertise, poor funding [4] and the low number of informative publications. This has consequently created gaps of knowledge in CVDs literature in sub-Saharan Africa. Therefore, reviewing renowned publications on CVDs in sub-Saharan Africa to identify important trends and markers that will point health policy makers and scientists in the right direction in the fight against CVDs in sub-Saharan Africa is imperative. This review is based on the hypothesis that an intensive review of publications concerning CVDs in sub-Saharan Africa will help identify important trends and recommendations to aid health policy makers and scientists in sub-Saharan Africa to enhance their control strategies and programs. This study was aimed at reviewing renowned publications on CVDs in sub-Saharan Africa to identify important trends and markers that will guide health policy makers and scientists to the right direction in the fight against CVDs in sub-Saharan Africa.

Methods

The main research method for this study was the use of a literature review to assess useful trends and recommendations from published literature. This approach is effective and required in research fronts where there are interspersed publications and a high level of variety in focus and interest, and this facilitates theory development and creates a foundation for knowledge building [6].

Article Screening and Selection Criteria

The search for articles was conducted from two primary databases, namely “Google Scholar” and “PubMed”. These were used mainly because they are accredited for accurate information retrieval as their database is entered into in a uniform and structured way and are carefully monitored.

The search was limited to only publications from the year 2005 to 2021. In the search entry, two Boolean operators were employed, namely “AND” and “OR” to allow the exhaustive combination of search terms such as cardiovascular diseases, sub-Saharan Africa, prevalence, trends, and distribution. This in turn, expanded the scope of the search. After obtaining the articles, they were put through screening and eligibility scrutiny by employing the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, and the breakdown can be observed in Figure:1. The screening processes to remove non-eligible articles was done with various techniques such as removing repeated articles, screening titles and abstracts for articles without the key terms and finally limiting the search articles to those about sub-Saharan Africa (SSA). This aided the researcher in arriving at 10 eligible articles which were taken through the review process.

Procedure for the Review

Each publication was read through to get abridged with all information provided by the publisher. The main points and ideas presented in the article were further highlighted and properly allocated according to relevance and existing knowledge. This was achieved by comparisons with other minor publications to bring out the true message presented by the publisher. Recommendations made by each article on the way forward in combating CVDs in sub-Saharan Africa were carefully identified and hence compiled for informative purposes. Each of the ten publications were taken through this process as seen in the Discussion/ Literature review section seen below. After all the scrutiny, repeating points and information were identified and classified to highlight important trends. Also, all recommendations were compiled and summarized.

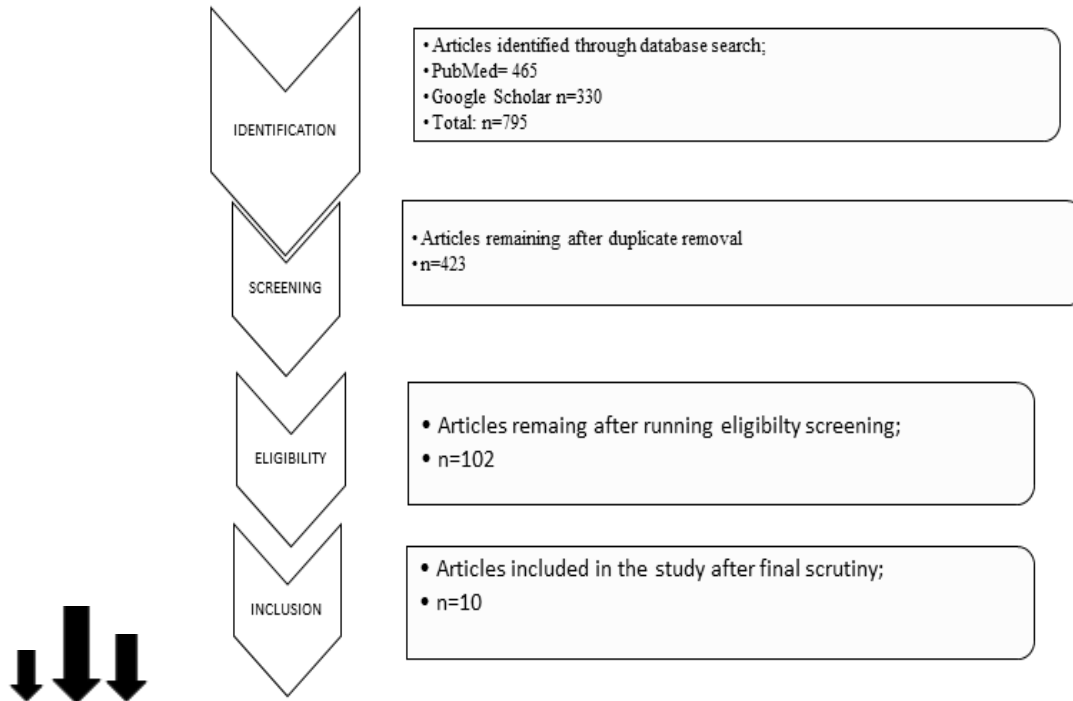


Figure 1. Flow Diagram of the Article Screening Process using the PRISMA Guidelines

Results and Discussion

A Scope Review of Cardiovascular Disease Healthcare Utilization in Sub-Saharan Africa

Cardiovascular diseases are on the rise in sub-Saharan Africa (SSA) owing to increased risk factors on the fronts of economic, nutritional, demographic, and epidemiological transitions [5]. This, consequently, is expected to lead to increased utilization of healthcare in SSA. It is, however feared that such an increase in utilization could lead to a surge of mortality, as the quality and availability of healthcare facilities in the SSA is quite poor. The increase of CVDs is related to; the enhanced fight against infectious diseases in SSA, which in turn has increased life expectancy for people in SSA and increased the population of the elderly who are more prone to non-communicable diseases such as CVDs. The evident rise in CVDs in SSA has also been confirmed in a publication by [3].

Another risk factor is lifestyle changes and urbanization which have forced young adults to develop CVDs at very young ages. The issue of urbanization being a major risk factor for CVDs

increase in SSA had earlier been reported by [7] and later by [8] and [3]. This indicates a trend that has lingered for more than a decade in SSA. The main objectives of the publication by [5] were to assess how the rise of CVDs affects the utilization of healthcare and how these healthcare systems in SSA could be effected if the CVDs keep rising. The findings from this study consequently identified a sparse number of available literatures about CVDs in general.

This is largely due to poor knowledge and education as well as the unavailability of effective healthcare systems. To conclude, the publication recommended that preventive care and strategies should be shifted from infectious diseases to CVD control to cope with the rising burden of CVDs.

Cardiovascular Disease and Hypertension in Sub-Saharan Africa: Burden, Risk, and Interventions

The speculation by [9] opens up with the creation of awareness about the ever-rising incidence of CVDs in SSA, a region of countries described as being dominated by Low- and middle-income countries (LMIC). This is a

confirmation for what [5] and [3] have already been reported to postulate. [9] highlighted important trends and findings on the burden, Interventions, and Risk of CVDs and Hypertension in SSA. According to [9], the highest and most common risk condition for CVDs in SSA is hypertension and its consequent burden and mortality rate in SSA is almost comparable to that of high-income countries. An additional affirmation made by this publication is to confirm the concern made by [5] on the inability of healthcare facilities and systems to meet the demands and burden created by the rise of CVDs in SSA.

It was emphasized that the bulk of risk factors comes because of poor health conditions in the agreement with [5] and due to urbanization and westernization as already established by [3]. It was also highlighted that the ability to monitor these trends has been made difficult mainly because of the scarcity of publications on CVDs in SSA agreement with the postulates of [4] and [5]. This indicates that policy makers in SSA are to promptly enhance control strategies to curb the growing incidence of CVDs.

Cardiovascular Medicine and Researching Sub-Saharan Africa: Challenges and Opportunities

Sub-Saharan Africa has been at the brink of a CVD epidemic and this is due to several risk factors already mentioned by other public, urbanization, globalization, and Socio-economic factors. [10] also highlighted the characteristic existence of poor healthcare systems that may be a detriment to SSA if CVDs cases keep rising. It further supported the trend of Hypertension being the leading CVD risk condition with the highest occurrence in SSA as already postulated by [9].

The limited number of research and publication regarding CVDs in SSA has caused the retardation in the therapeutic industries in SSA in the fight against CVDs. it is therefore recommended that policy makers and scientists

in SSA should be more diligent and proactive in their response to the rise of CVDs in SSA [10].

Trends in Cardiovascular Diseases and Associated Risks in Sub-Saharan Africa

There is an epidemiological shift from infectious diseases to chronic diseases such as CVDs in SSA, yet the focus of research and policies have been sparse regarding the latter. This will limit the formulation of data-driven regional policies against CVDs in SSA [11]. As stated by the previously reviewed publications, [11] provided evidence to prove that there is indeed a higher-than-usual prevalence of CVDs in SSA. Moreover, to support what other studies have established is the fact that ischemic heart diseases and stroke are the leading CVDs in SSA [11]. [11] concluded by recommending to all policy makers and research scientists to shift attentions toward CVDs control and build proper control strategies as well as enhance available literature, which will give the SSA region a better fighting chance against CVDs.

Primary Care in the Prevention, Treatment, and Control of Cardiovascular Disease in Sub-Saharan Africa

[12] affirms that CVDs are on a high in SSA indicating an epidemiological shift from Infectious diseases. The study also highlights the fact that among the CVDs trends in SSA, Ischemic Heart Disease (IHD) and Stroke are the most common and at the helm of most CVD mortalities in SSA as also affirmed by [12]. [12] further postulates that the contrasting focus between CVDs control and Infectious diseases in SSA will overstretch healthcare systems as CVDs continue to rise. The stretch will be as a result of low availability of healthcare facilities and a declined expertise. As a recommendation, [12] suggests that the enhancement of primary healthcare would help stop the spread of CVDs. This publication suggests that a holistic approach is needed in this regard by employing the expertise of non-physicians and training

them to gain the skills to identify markers of CVDs such as increased blood cholesterol, tachycardia, and even acute hypertension. [12] also suggests that making quality healthcare available to all people will also be very vital in the fight against the spread of CVDs in SSA.

Tackling the Growing Burden of Cardiovascular Diseases in Sub-Saharan Africa. Need for Dietary Guidelines

The study by [13] also confirmed the eminent CVDs epidemic in the SSA. This study provides evidence by indicating the global distribution of the burden of age-standardized Disability Adjusted Life Years (DALYs) attributable to

CVDs in males and females shown in Figure: 2. Moreover, the epidemic is as a result of urbanization, globalization, and open world market, which influenced lifestyle changes, especially in nutrition. There is now a consequent shift of dietary interest from local diets to western fast-food diets termed “JUNK”. [13] recommends that the way forward for SSA is the introduction and enforcement of Food-Based dietary guidelines (FBDGs) and enhanced primary healthcare systems in the various SSA countries. [13] therefore called on NGOs, WHO, governments, and policy makers in SSA to make this their priority.

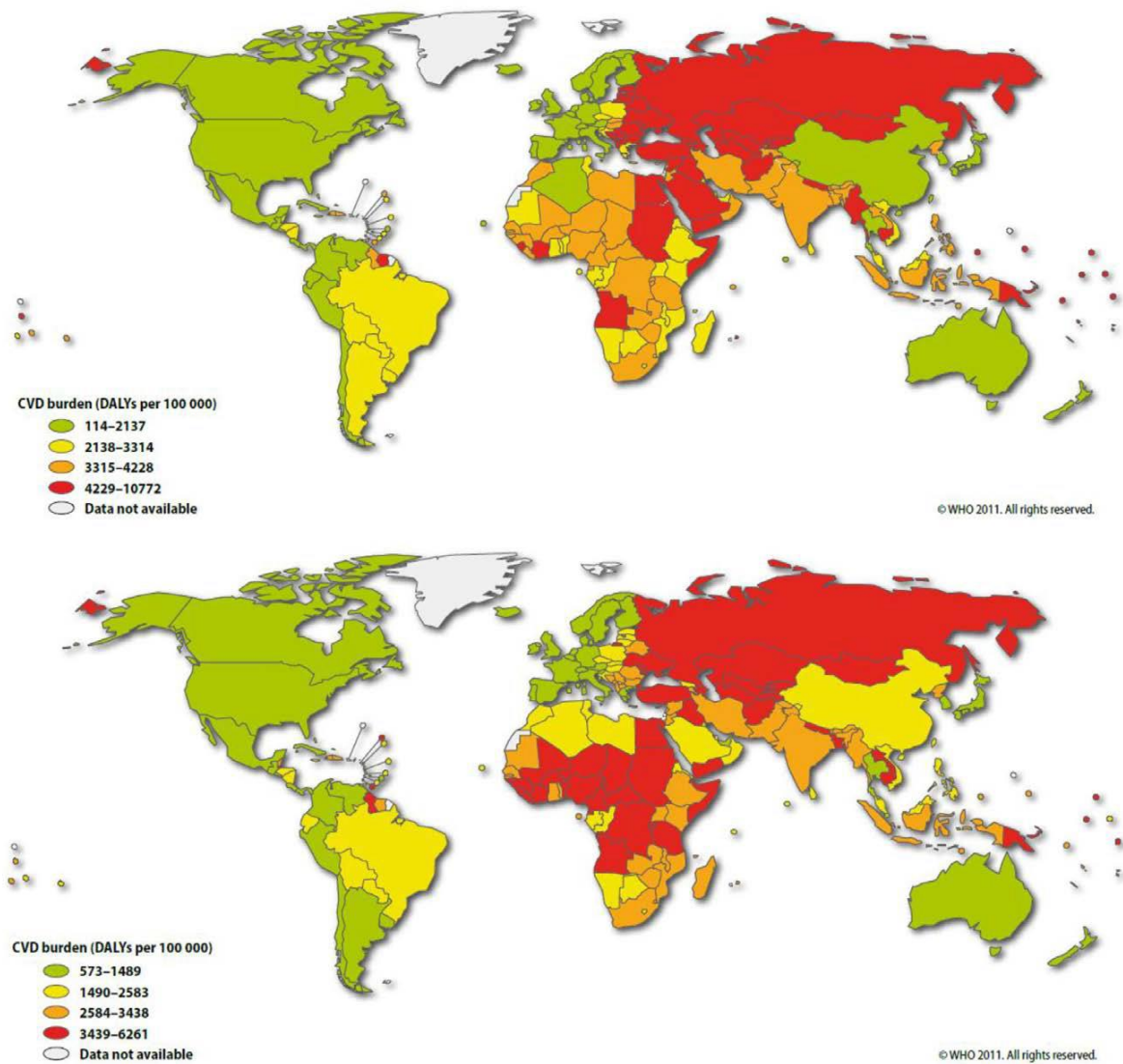


Figure 1. Global Distribution of the Burden of Age Standardized DALYs Attributable to CVDs in Males (Top) and Females (Bottom)

Patterns of International Collaboration in Cardiovascular Research in Sub-Saharan Africa

A report by [14] affirms the existence of increased CVDs in SSA and the epidemiological shift from infectious diseases to non-communicable diseases such as CVDs. [13] attributed this rise to the inability of local researchers to make an impact in innovations and knowledge enhancement on CVDs in SSA. The study identified low levels of research and international collaborations and advised that that should be the priority of policy makers and the various governments going forward.

Mortality from Cardiovascular Diseases in Sub-Saharan Africa, 1990–2013

The study by [15, 16] provides the same information that emphasizes the existence of an epidemic and affirm the alarming rate of mortality increase by CVDs in SSA. Both publications relate the rise in mortality rate to low levels of research and interventions and urbanizations. [15, 16] recommend that swift interventions be taken to stop the growing mortality rate of CVDs in its tracks. [13] intimated that in 2013, an estimated 1 million deaths were attributable to CVD in SSA, constituting 5.5% of all global CVD-related deaths and 11.3% of all deaths in Africa. 1 Between 1990 and 2013, SSA remained the only geographical region of the world where CVD-related deaths increased. The CVD burden in SSA has been projected to double by 2030

Epidemiology of Cardiovascular Diseases Related Admissions in A Referral Hospital in The Southwest Region of Cameroon: A Cross-Sectional Study in Sub-Saharan Africa

This report by [17] generally provides evidence for the increased incidence of CVDs in SSA by providing statistical results that proves that CVDs dominate most hospital admissions in SSA especially Cameroon. The following were the findings; for the patients admitted, 15.9%

had CVD. There were 60.9% females. The mean age was 42.5 – 74.9 years. There was no significant age difference between men and women. The most affected age group was those aged 50-59 years comprising 22%. Heart failure (38.5%), stroke (33.3%), and uncontrolled hypertension (22.4%) were the most prevalent CVDs. The length of hospital stay ranged from 1 to 37 days, with a median length of hospital stay of 7 days. In-hospital case fatality was 15.8%. Mortality was higher in women compared to men.

Conclusion

As already established, trends were identified from the review conducted by highlighting points and information that were repeatedly reported from most of the reviewed publications. The present review shows that Sub-Saharan Africa (SSA) is in danger of an eminent CVDs epidemic owing to the fast-rising incidence of cases over a period of more than a decade. Moreover, the eminent epidemic is an indication of a gradual epidemiological shift from infectious diseases to non-communicable diseases such as CVDs. This has resulted in a high and constantly rising mortality rate. Amongst all the types of CVDs in SSA, IHD and stroke are the most dominant, and hypertension is affirmed as the leading risk condition. Most importantly, the rampant increase in CVDs in SSA is because of specific risk factors. Notable ones include urbanization and globalization, poor healthcare systems, and lack of focus of research and policies on CVDs. The observed characteristic lack of research and intervention regarding CVDs in SSA has created difficulty in advancing knowledge and formulating data driven control strategies. The trends in cardiovascular diseases in sub-Saharan Africa have been duly identified, and it is expected that going forward, all stake holders will use this study as an informative tool to join the fight against CVDs in the SSA. It is recommended that all stakeholders such as NGOs, WHO, and Governments of SSA countries react proactively

to enhance the available data on CVDs in SSA, primary healthcare, the introduction of FBDGs, international collaborations, and finally, control programs.

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Conflict of Interest Declaration

The Authors declare that there is no conflict of interest.

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