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Global assessment of healthcare policies and socioeconomic impact of the rapid rising of non-communicable diseases in LMICs: Case study, Cameroon

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Abstract

Background: The rapid transition from communicable diseases (CDs) to non-communicable diseases (NCDs) in low- and middle-income countries (LMICs) presents a global health challenge, impacting healthcare policies and socioeconomic dynamics. Our study assesses how the prevalence of NCDs influences health and economic indicators, like, quality of life and productivity by conducting a comprehensive global assessment of the role of healthcare policies in addressing this disease transition with a specific focus on Cameroon.

Methodology: The study examined the literature from a range of sources, such as Science Direct, PubMed, and official reports, in order to analyse both global and Cameroonian healthcare policies and highlight opportunities and problems with effectively managing NCDs.

Results: The socioeconomic impact of the rising NCDs is core concern, as they impose substantial economic burdens on both individuals and healthcare systems. Sub-Saharan countries, Cameroon inclusive, stand to suffer most if it is not addressed early enough. Moreover, by understanding the socioeconomic implications of NCDs, strategies can be developed to mitigate their adverse effects and improve the overall well-being of populations in LMICs.

Conclusion: The increasing prevalence of NCDs poses a significant risk to the well-being of the younger generation, jeopardizing their quality of life. Thus, a thorough analysis of healthcare policies and socioeconomic consequences is essential. It highlights the pressing necessity of a multifaceted strategy to tackle this health transition and underscores the importance of customized approaches to address the unique challenges encountered by countries such as Cameroon.

Keywords: Non-communicable diseases; Health policy; Disease trend; Cameroon; Sub-Saharan Africa

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1. Introduction

For decades, the world grappled with the burden of communicable diseases but recently there have been significant shifts in the disease burden trends with non-communicable diseases (NCDs) such as cardiovascular diseases, cancer, diabetes, and respiratory illnesses taking the lead and posing a threat to the global health care system. The majority of people, especially those in African regions already struggling with fragile healthcare systems and infrastructure, are the most negatively impacted by these disease shifts in terms of health and wellbeing. This article delves into this significant disease shift, examining the factors driving the NCD burden, its impact on the quality of life of people especially those in the African region with Cameroon as case study, and the urgent need for innovative and tactical strategies to curb the tide and ensure a healthier future for all.

2. Definition of terms CDs and NCDs

Communicable diseases (CDs) often known as Infectious diseases, those diseases which are brought on by microorganisms including bacteria, viruses, parasites, and fungi that can be transferred from one person to another either directly or indirectly (1). HIV, hepatitis A, B, and C, measles, salmonella, typhoid, cholera, onchocerciasis, dengue fever, are a few examples of the most common communicable diseases. Faecal-oral transmission, food transmission, sexual contact, insect bites, contact with contaminated fomites, droplets, or skin contact are the most typical modes of transmission (2).

Malaria according to some school of thoughts is considered as a communicable disease though other literature consider it a non-communicable disease. For this paper we will be agreeing with the World Health Organization (WHO) classification of malaria as a communicable disease (3). According to WHO reports 2023, nearly half of the world's population was susceptible to malaria in 2021 and globally, there were reportedly 247 million cases of malaria in that year with over 619 000 deaths. A disproportionately large amount of the worldwide malaria burden is placed on the WHO African Region with 95% of malaria cases and 96% of malaria deaths occurring in this region and roughly 80% of all malaria deaths were in children under the age of five (4).

On the other hand, non-communicable diseases (NCDs) are those diseases that are often brought on by bad behaviours rather than through infection or contact with other individuals. They are the greatest cause of death globally and pose a serious danger to development and health, especially in low- and middle-income nations (5).

According to WHO, non-communicable diseases sometimes referred to as chronic diseases, are conditions that develop over an extended period of time as a result of a combination of genetic, physiological, environmental, and behavioural variables and the four primary categories of NCDs are diabetes, cancer, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma), and cardiovascular disorders (including heart attacks and stroke). The five primary risk factors for NCDs are cigarette use, physical inactivity, hazardous alcohol use, poor diets, and air pollution and these illnesses are fuelled by variables such as population aging, increased unplanned urbanization, and globalization of bad lifestyles (6).

There may be metabolic or modifiable risk factors for NCDs. The modifiable risk factors include smoking, being inactive, eating poorly, and abusing alcohol. Raised blood pressure, obesity, hyperglycaemia (high blood glucose levels), and hyperlipidaemia (high levels of fat in the blood) are all metabolic risk factors. High blood pressure, which is responsible for 19% of all fatalities worldwide, is the primary metabolic risk factor in the world, followed by high blood sugar, being overweight, and obesity (7).

There have been substantial efforts to control and prevent noncommunicable diseases (NCDs), and new studies have linked mental health disorders to NCDs. Cancer, diabetes, cardiovascular, and respiratory illnesses have all been related to poor mental health. More lives can be benefited if mental illness and other NCDs are taken into consideration jointly. When NCDs are discussed or treated separately from other diseases, mental health might occasionally be forgotten. But it's important to consider the connections between all NCDs and mental health (8). Critically looking at it, most people's social and environmental situations, as well as their exposure to risk factors, frequently affect their mental health. Numerous of the above discussed modifiable risk factors, such as bad eating habits, lack of exercise, and alcohol and drug use, also have an impact on mental health and alter the risk that a person will develop significant physical NCDs (cancer, diabetes, cardiovascular disease, and respiratory diseases).

Mental health must be incorporated into the response to NCDs in accordance with target 3.4 of the Sustainable Development Goals (SDGs), "by 2030, reduce by one third premature mortality from noncommunicable diseases

through prevention and treatment and promote mental health and well-being (9)". Having established the crucial relationship between mental health and NCDs, it is therefore imperative to integrate mental health into all NCD drafted programs both at local and international levels.

3. Global Disease Trends and Shifts

Over recent years, the world has experienced significant shift in disease trends globally and in Low and Middle Incomed Countries (LMICs). Sometimes, critically analysing situations, what hurts you won't always be what kills you. While the world has made great strides in the fight against terminal illnesses, particularly those caused by infectious diseases, we now have more pressing health issues that are aching, limit our mobility, and impair our ability to see, hear, and think effectively. Dr. Christopher Murray, Director of IHME and one of the creators of the Global Burden of Disease, stated that "We're finding that very few people are walking around with perfect health and that, as people age, they accumulate health conditions ". At a personal level, this means that we need to reevaluate how our lives will be in our 70s and 80s (10).

Over the years, researchers have studied disease changes across the globe and across continents and have also been able to predict future disease trends especially when it comes to the shift from CDs to NCDs. The figure 1 below clearly demonstrates the increase in NCDs from 1990 to 2010. More importantly, the prediction shows the future steep rise in the number of deaths related to NCDs especially in the lower and middle income countries (11). Such predictions are very important and should serve as timely reminders that the time to act is now. Research findings as such are meant to serve as eye openers to all health stakeholders from caregivers to policy makers.

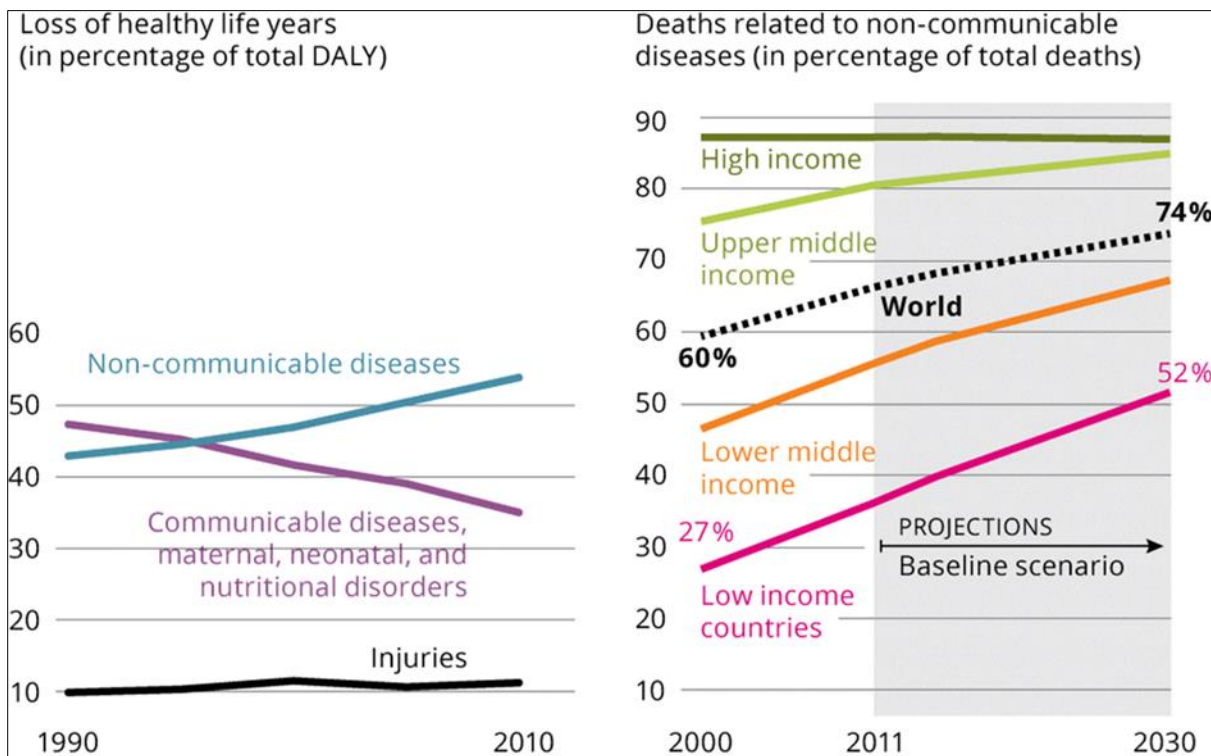


Figure 1 Shift from communicable to non-communicable diseases globally (left panel) with the (future) development of non-communicable diseases across world income regions (11)

4. Global Health Policies by WHO to Curb the Spread of NCDs

In an attempt to curb the prevalence of NCDs, there are many options that are plausible and may seem effective. However, the strongest evidence for effectiveness and impact currently available are those interventions targeted at reducing the frequency of the primary risk factors especially NCDs that include cardiovascular disease. More than 170 nations have ratified the WHO Framework Convention on Tobacco Control (FCTC) of 2003 which states that NCDs can be greatly controlled if we can reduce demand for tobacco products by using strategies such as; increasing tobacco taxes, enacting legislation requiring health warnings, implementing smoke-free workplaces and public places, and

outlawing all forms of tobacco promotion (12). Other useful interventions which have been suggested way back in a bit to limit the rise of NCDs include; limiting the amount of salt per product, promoting healthy diet, reducing harmful consumption of alcohol and exercising and improving access to essential medications (13).

Another paper released by the Lancet in 2022 (14) revealed that majority of middle- and low-income nations are not on track to meet SDG target 3.4 to end NCD mortality especially after the COVID-19 outbreak and thus provided a framework for NCD investment to assist nations in getting back on track. This framework is built on a sample package of interventions such as governments increasing funds allocated to combatting NCD. In order to reduce mortality from a number of specific NCDs, particularly cardiovascular illnesses, by a third or more by 2030, it is also necessary to pass laws increasing taxes on the production of alcohol and tobacco, reduce sodium intake, and implement feasible community and hospital reforms. These measures can also serve as the cornerstone of national NCD policies. A detailed list of the 21 proposed interventions can be seen in table 1 below;

Table 1 High-priority intervention options for reducing mortality from NCDs, Adapted from (14)

Countdown cause groups	
Intersectoral policies	
Alcohol excise taxes	All
Alcohol regulations	All
Tobacco excise taxes	All
Smoking regulations and information, education, and communication	All
Sodium reduction measures	Ischaemic heart disease, ischaemic stroke, haemorrhagic stroke, all other cardiovascular diseases
Trans fat bans	Ischaemic heart disease
Community platform	
Pulmonary rehabilitation	Chronic respiratory diseases
Health centre platform	
Primary prevention for cardiovascular disease	Ischaemic heart disease, ischaemic stroke, haemorrhagic stroke, all other cardiovascular diseases
Secondary prevention for cardiovascular disease	Ischaemic heart disease, ischaemic stroke, all other cardiovascular diseases
Aspirin for suspected acute coronary syndrome	Ischaemic heart disease
Chronic treatment for heart failure	Ischaemic heart disease, all other cardiovascular diseases
Chronic treatment for asthma and COPD	Chronic respiratory diseases
Diabetes screening and treatment	Diabetes
First-level hospital platform	
Medical management of acute coronary syndrome	Ischaemic heart disease
Acute treatment for heart failure	Ischaemic heart disease, all other cardiovascular diseases
Early-stage cervical cancer screening and treatment	Cervix uteri cancer
Acute treatment for asthma and COPD	Chronic respiratory diseases
Referral and specialised hospital platform	
Percutaneous coronary intervention for acute coronary syndrome	Ischaemic heart disease
Management of acute ventilatory failure	Chronic respiratory diseases

Treatment of early-stage breast cancer	Breast cancer
Treatment of early-stage colorectal cancer	Colon cancer and rectum cancer

The WHO's 25 x 25 first plan on 2011 (15), however, was not without flaws as mental health was not included in any of the global health programs aimed at NCDs. Depression and other mental health disorders are significant risk factors for early mortality not just in industrialized nations but more importantly in low- and middle-income nations (16). Most importantly, health problems like cancer and cardiovascular disease that are linked to mental health problems significantly raise the chance of mortality when combined (17).

Interestingly, due to increasing research in the domain of mental health and its important association with NCDs which together increase mortality rates and reduce the years of healthy life lost, the recent WHO report on communicable and non-communicable diseases in Africa in 2021/22 included mental health programs aimed at tackling NCDs (18).

5. Trends in Communicable and Non-Communicable Diseases in Low and Middle Incomed Countries (LMICs) with focus on Cameroon

Approximately 132 countries are considered by the World Bank as low- or middle-income countries (LMICs) if their 2018 per capita gross national income was less than US\$12,375 (19).

In contrast to high income countries where NCDs like cancer and heart disease were more prevalent, CDs, especially in sub-Saharan Africa (SSA), were a perfect example of poor health. Although it accounts for 7 out of 10 fatalities in LMICs, the rate of NCDs is constantly on the rise. This threatens the years of healthy life that most people are expected to live (20). People under 60 years of age make up about 26% of NCD-related mortality, compared to 13% in high-income nations. A literature review revealed that people between the ages of 30 and 69 account for half of all cardiovascular fatalities in Sub-Saharan Africa and people under 60 years old account for one-quarter of all NCD-related deaths (21). These provide clear evidence that NCDs are becoming more prevalent among the poorer population affecting especially the active working population and poses a high risk and potential for a poverty if this isn't addressed.

In addition, applying International Mortality data, we can demonstrate that NCDs are likely to cause more deaths at middle and low income tropical and sub-Saharan African countries as opposed to high income western countries (22). According to WHO global estimates, world bank 2020 income classification on the leading causes of death from 2000 to 2019 in LMICs, of the top 3 leading causes of death (ischaemic heart disease, stroke and neonatal conditions), 2 of them were NCDs and their prevalence continues to increase over the years. (23)

Just the same like LMICs, sub-Saharan Africa is also witnessing a steady rise in NCDs over the last two decades due to pollution, unhealthy dietary changes, reduced physical activity levels, urbanization, and increased tobacco and alcohol consumption, affecting the active population thereby threatening to not only reduce the productivity of people in this region but also increase poverty levels (24).

6. Disease Trends and Shift in Cameroon

Cameroon is both a LMIC and a sub-Saharan country located in Central Africa also called "Africa in Miniature" due to almost 90% of the African ecosystems represented. It is situated in the Gulf of Guinea, extending from the Atlantic Ocean in the south to Lake Chad in the north. Cameroon is a lower-middle-income country with a population of over 29 million (25).

The Cameroonian national health system is run primarily by the Ministry of Public Health (MoPH) which consists of both public and private entities, institutions, and not for profit organizations that provide health services, under the regulation of the Ministry of Public Health. The system is a pyramid with three levels: central (strategic), intermediary (technical) and peripheral (operational). The country has at most 178 health districts, with 162 district hospitals with only 154 fully operational. Additionally, Cameroon has 2,043 public medical structures, mainly concentrated in urban zones. Cameroon, as most developing countries, has extensively used public resources to support the health system. However, because of the recessions in the 1980s and early 1990s, there was a decline in the resources available for financing publicly provided services, including health. This is reflected in the health workforce (26). The health system is plagued with challenges such as shortage of skilled health personnel, lack of equipped health infrastructures,

unequitable distribution of health resources, very high out-of-pocket health expenses and over-dependence on foreign aid (27).

Just like most countries in sub-Saharan Africa and LMICs, the epidemiologic profile of Cameroon is dominated by CDs, subsequently, leading causes of death in Cameroon included: HIV/AIDS, lower respiratory infections, malaria, diarrheal diseases, perinatal conditions. However, the prevalence of non-communicable disease and in particular cardiovascular diseases (CVD) has been on the rise since 2011. In 2013, NCDs made up 14.2% of the global disease burden in Cameroon with Cardio vascular disorders accounting for 4.7% of all deaths (28). However, the fast pace of urbanization in Cameroon and the instantaneous embracing of a Western lifestyle by Cameroonians are intensifying the already increasing burden of NCDs. Fast forward to the 2018 NCD profile report for Cameroon, 35% of all deaths were caused by NCDs with 12% attributed to cardiovascular diseases, 5% cancer related and 2% due to diabetes (29). This is almost a 7.3% rise in number of deaths due to cardiovascular diseases within the space of just 5 years.

Although noncommunicable diseases (NCDs) like diabetes and cardiovascular disease have long been seen as issues in wealthy nations, evidence suggests that this perception is out of date, with more Africans dying from such diseases than anywhere else. The majority of NCD patients in Africa pass away before the age of 70 years whereas just less than a third of NCD sufferers in Europe pass away that young (30). This is alarming as despite truthful research-based evidence reveals how dangerous NCDs are to people in these LMICs, Cameroon inclusive, most people still do not seem to be hearing the warning bells. This growing prevalence of NCDs in Cameroon highlights the urgent need to implement a new national program targeting risk factors and community awareness; though it's noteworthy to mention the accomplishments of the Shisong cardiac centre in fighting against cardiovascular mortality, with a high number of cardiovascular surgical interventions in Cameroon (31) and works of Non-profit organizations like the HappyMe Health Association focused on free early diagnosis in rural setups as seen in the figure 2 below during one of their community free hypertension screening.



Figure 2 Founder of HappyMe Health Association, Limbe, Cameroon, doing free hypertension screening in the Bova community, 2023

7. NCD policies in Cameroon

Like most sub-Saharan African countries and LMICs, the governments have tried to put in place several measures to address this fast-rising NCD crisis. Based on existing literature, the top seven countries in the sub-Saharan African region that have made significant progress in drafting and implementing policies to reduce NCDs are South Africa, Senegal, Cabo Verde, Kenya, Mali, Mauritius and Tunisia (32).

The Cameroon government however over the years has put in place some health policies relevant to chronic diseases management, especially tackling the risk factors. One of which is the Twelve of Cameroon's 19 tobacco use and prevention laws specifically mention the WHO "best buy" programs aimed at enforcing smoke-free zones, increasing taxes on tobacco products just to name a few (33).

Another intervention was the putting up of posters to spread the word about cutting back on salt use in Cameroon. The use of mass media was also used to raise public awareness of decreased salt consumption in food and the use of polyunsaturated fat in place of trans fat in diets. But there is no evidence of any actual drafted laws or policies to enforce this (34).

Physical inactivity is another major risk factor for NCDs and the Cameroon government has several policies relating physical activity to NCDs some of which date as far back as 1974. Of the many policies existing, the only policy that specifically addresses NCDs with respect to physical activity to date is the National Integrated and Multi-sector Strategic Plan for the Control of Chronic NCD (NIMSPC-CNCD) of 2011-2015 (Cameroon Ministry of Health, 2010) where physical activity is primarily targeted via physical education, exercise, and sport but no mention of the value of physical activity and health advantages especially in combatting NCDs was mentioned (35).

When it comes to alcohol consumption, the Cameroonian government has implemented measures and laws to discourage binge drinking, particularly among young people by increasing tax on alcoholic beverages and also written policy prohibiting sales to adolescents. There is still a very high alcohol consumption rate among young people which may be due to the absence of a nationwide legal minimum age for the selling of alcoholic beverages both on and off-premises (36). Furthermore, a study carried out by (37) revealed that not only do the Cameroon's national alcohol policies not comply with the Global Strategy document standards but that there is also no alcohol policy which addresses NCDs.

Last but not the least, the recently launched phase 1 Universal Health Coverage plan reduced the price of dialysis from 480,000FCFA (~\$785) per year to 15,000FCFA (~\$25) per year in all of the ten regions of Cameroon. This is good news as most patients will now be able to afford dialysis without having to necessarily travel to certain regions and also at a reduced cost (38).

Recommendations

It is no doubt that if the aggressive and rapid actions are not taken to curb the spread of NCDs in LMICs such as Cameroon, not only is there a risk of increasing deaths and disability but there is also a risk of an increasing levels of poverty in these countries already battling with poverty and fragile health systems. The following recommendations will go a long way in fighting NCDs especially in Cameroon:

- Promoting the provision of health foods to the general public while also implementing nutrition components in school curriculum; Creating more institutions to train nutritionists and dieticians; Developing policy measures that encourage food producers to utilize healthy agricultural products and limit the use of organic fertilizers; Increasing taxes on unhealthy food products in circulation while providing incentives and subsidies to food producers for better crop yields.
- Conducting evidence-informed fitness campaigns through mass media, social media platforms etc to inform and motivate young people on the benefits of physical activity in other to prevent chronic illnesses ; Creating cost reduced or free gyms and open air work spaces; Strengthening the current implementation of physical education in school curriculum; revisiting national and subnational urban planning and transport policies to improve accessibility, acceptability, safety of and supportive infrastructure for walking and cycling.
- Imposing legal sanctions to minors who consume alcohol and also to those who sell alcohol to them. Creating and integrating alcohol abuse management and rehabilitation at all levels including the community, healthcare system and workplace. Drafting an official policy to address harmful effects of alcohol abuse and its relationship with NCDs.

- Strengthening health systems by ensuring every health area in Cameroon communities has a health centre, capacitated enough to run awareness raising campaigns on NCDs. Building the capacity of community health workers by empowering them with information and skills to educate the population on predisposing factors to these NCDs will foster the adoption of healthy practices at community level.
- Encouraging multisectoral collaborations between NGOs, civil society organizations and the government to effectively address NCDs

8. Conclusion

This paper therefore emphasizes how the global burden of disease has significantly shifted from communicable to non-communicable diseases (NCDs). Healthcare systems particularly those in LMICs such as Cameroon, face a great deal of challenge as a result of this shift, which calls for a reassessment of tactics and resource allocation. In order to empower communities, encourage lifestyle modifications, and guarantee access to healthcare services, the call to action highlights the necessity of cooperation between governments, healthcare providers, and international organizations to provide country-specific feasible policies and strategies to combat NCDs.

Compliance with ethical standards

Disclosure of conflict of interest

'The authors declare that they have no competing interests'.

Author's contribution

- Conception, design and writing of the work: Adanze Nge Cynthia
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- Final approval of the version to be submitted - all named authors should approve the paper prior to submission: Adanze Nge Cynthia, Sally Tabe Njoh, Bülent Kılıç, Cyprian Ekwilli Kebbi Chinje

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