Nigeria Country Report

PASCAR and WHF Cardiovascular Diseases Scorecard project

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Abstract

Data collected for the World Heart Federation's Scorecard project regarding the current state of cardiovascular disease prevention, control and management, along with related non-communicable diseases in Nigeria are presented. Furthermore, the strengths, threats, weaknesses and priorities identified from these data are highlighted in concurrence with related sections in the attached infographic. Information was collected using open-source datasets available online and other relevant government publications.

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On behalf of the World Heart Federation (WHF), the Pan-African Society of Cardiology (PASCAR) co-ordinated data collection and reporting for the country-level Cardiovascular Diseases Scorecard to be used in Africa.[1,2] The Nigerian Cardiac Society, along with the PASCAR assistant secretary general – western region, assisted the team in collating and verifying data for Nigeria as one of the participating countries. The Non-Communicable Disease Control Division of the Federal Ministry of Health in Abuja, Nigeria also contributed. Dedicated assistance during the data-collection phase was provided by a Nigerian student at Gettysburg College in Gettysburg, Pennsylvania, USA.

Based on the data collected, we summarise the strengths, threats, weaknesses and priorities identified, which need to be considered in conjunction with the associated sections provided in the infographic published with this report. Datasets used included open-source data from the World Bank, the World Health Organization (WHO), Institute for Health Metrics and Evaluation, the International Diabetes Federation, Nigeria's Federal Ministry of Health, Abuja, Nigeria, and other government publications.

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Part A: Demographics

According to the World Bank (2018), Nigeria is a lower-middle-income country with 50% of its people living in rural areas.[3] In 2009, 53.5% of the population was living below the US$1.9-a-day ratio, with most recent data indicating little change projected at 50%.[4] Life expectancy at birth in 2018, was 53 and 55 years for men and women, respectively. The general government health expenditure was 0.53% of the gross domestic product (GDP) in 2017, while the country GDP per capita was US$2028.2 in 2018.[5]

Part B: National cardiovascular disease epidemic

The national burden of cardiovascular disease (CVD) and non-communicable diseases (NCD) risk factors

The overall probability of dying between the ages of 30 and 70 years from the major NCD in Nigeria was 22% in 2016.[6] However, the risk of premature deaths attributable to CVD (age 30–70 years) in 2012 was similar to its neighbouring country, Cameroon at 12%.[7] In 2017, the age-standardised total CVD death rate was 7.73%, which is the lowest of all African countries included in this project.[8] The percentage of disability-adjusted life years (DALYs) resulting from CVD for men was about 2.5%, and 2.8% for women. The prevalence of atrial fibrillation (AF) and atrial flutter was 0.13%, while that of rheumatic heart disease (RHD) was 0.75%. The total RHD mortality rate was 0.11% of all deaths (Table 1).[8]

Tobacco and alcohol

The prevalence of tobacco use in adult men and women (≥ 15 years old) was 11 and 1%, respectively, in 2016.[6] Data available for 13-15-year-olds indicated that 18.6% of these adolescents used tobacco.[9] In the Global Youth Tobacco Survey, similar results were described in an earlier report.[10,11] Tobacco was estimated to kill over 16 100 persons annually.[12] The estimated annual direct cost of tobacco use in Nigeria is not known, while the premature CVD mortality rate attributable to tobacco is 2% of that of the total death rate (Table 1).[13] The three-year (2016–18) average recorded alcohol consumption per capita (≥ 15 years) was 7.8 litres (Table 1).[5]

Raised blood pressure and cholesterol

In 2015, the percentage of men and women with raised blood pressure (BP) (systolic BP ≥ 140 mmHg or diastolic BP ≥ 90 mmHg) was 22.7 and 25%, respectively.[5] Country data for raised total cholesterol level (≥ 5.0 mmol/l) in 2008 was 16.8%.[5] The percentage of DALYs lost because of hypertension was 1.6%, whereas mortality rate caused by hypertensive heart disease was 0.36% in 2017, which is much lower than the global figure of 1.65% (Table 1).[8]

Physical activity

In a study among adolescents, 62.6% were found to be insufficiently active [< 60 minutes of moderate- to vigorous-intensity physical activity (PA) daily].[14] In 2016, the age-standardised estimate for adults who were insufficiently active (< 150 minutes of moderate-intensity PA per week or < 75 minutes of vigorous-intensity PA per week) was 27.1%. This figure corresponds to that of the global data at 27.5% (Table 1).[5]

Overweight and obesity

In adults 25 years and older, the prevalence of overweight [body mass index (BMI) ≥ 25–< 30 kg/m^2] and obesity (BMI ≥ 30 kg/m^2) was 28.9 and 8.9%, respectively in 2016 (Table 1).[5]

Table 1: Cardiovascular disease indicators for Nigeria

Indicators	*Male*	*Female*	*Total*	*Year*
Status of the national CVD epidemic				
Premature CVD mortality (30–70 years old) (% deaths)	-	-	12	2012
Total CVD mortality (% of deaths)	7.05	8.51	7.73 (31.8)*	2017
Total RHD mortality (% of deaths)	0.1	0.13	0.11 (0.5)*	2017
DALYs attributable to CVD (%)	2.47	2.78	2.61 (14.7)*	2017
AF and atrial flutter (%)	0.15	0.11	0.13 (0.5)*	2017
Prevalence of RHD (%)	0.66	0.83	0.75 (0.5)*	2017
Tobacco and alcohol				
Prevalence of adult tobacco use (≥ 15 years old) (%)	11.0 (36.1)**	1.0 (6.8)**	-	2016
Prevalence of youth (13-15-year-olds) tobacco use (%)	-	-		2016
Estimated direct (healthcare-related) cost of tobacco use in your population (current US$)			-	2018
Proportion of premature CVD mortality attributable to tobacco (%)	-	-	2 (10)**	2004
Recorded alcohol consumption per capita (≥ 15 years old) (litres of pure alcohol) (three-year average)			7.8	2016–18
Raised blood pressure and cholesterol				
Population with raised blood pressure (SBP ≥ 140 mmHg or DBP ≥ 90 mmHg) (%)	22.7 (24.1)**	25.0 (20.1)**	-	2015
Population with raised total cholesterol (≥ 5.0 mmol/l) (%)	14.0	19.4	16.8 (38.9)**	2008
DALYs attributable to hypertension (%)	1.5	1.73	1.61 (8.7)*	2017
Mortality caused by hypertensive heart disease (% of deaths)	0.18	0.56	0.36 (1.7)*	2017
Physical activity				
Adolescents (11–17 years old) who are insufficiently active (< 60 minutes of moderate- to vigorous-intensity PA daily) (%)	-	-	62.2 (80.7)**	2016
Adults (age-standardised estimate) who are insufficiently active (< 150 minutes of moderate-intensity PA per week, or < 75 minutes of vigorous-intensity PA per week) (%)	24.7	29.6	27.1 (27.5)**	2016
Overweight and obesity				
Adults who are overweight (BMI ≥ 25–< 30 kg/m^2) (%)	21.7	36.1	28.9 (38.9)**	2016
Prevalence of obesity (BMI ≥ 30 kg/m^2) (%)	4.6	13.1	8.9 (13.1)**	2016
Diabetes				
Defined population with fasting glucose ≥ 126 mg/dl (7.0 mmol/l) or on medication for raised blood glucose (age-standardised) (%)	6.3 (9)*	6.0 (8)*	-	2014
Prevalence of diabetes (20–79 years old) (%)	-	-	3.1 (9.3)#	2019

CVD, cardiovascular disease; RHD, rheumatic heart disease; DALYs, disability-adjusted life years; AF, atrial fibrillation; SBP, systolic blood pressure; DBP, diastolic blood pressure; PA, physical activity; BMI, body mass index.
*IHME Global Health Data Exchange[8]
**WHO Global data[5]
#IDF *Diabetes Atlas*.[15]

More women were respectively overweight or obese (36.1, 13.1%) than men (21.7, 4.6%).

Diabetes

The percentage of the population defined with a fasting glucose level ≥ 7.0 mmol/l or on medication for raised blood glucose (age-standardised) in 2014 was 6.3% for men and 6% for women.[5] In 2019, the prevalence of age-adjusted (adults 20–79 years) diabetes was 3.1%,[15] which is lower than the 4% documented for 2014[6] or the global prevalence of 9.3% (Table 1).[15]

Part C: Clinical practice and guidelines

Health system capacity

The country had an average of 3.8 physicians and 11.8 nurses per 10 000 of the population in 2013 and 2018, respectively. The number of hospital beds per 10 000 people was five in 2008.[5]

In 2013, Nigeria had partially developed a locally relevant clinical tool to assess CVD risk along with guidelines for its prevention.[16] Through efforts by the Nigerian Cardiac Society task force on Rheumatic Heart Disease, locally relevant clinical guidelines on the management of pharyngitis, acute rheumatic fever (ARF) and RHD have also been partially implemented. However, no guidelines for the detection and management of AF or the treatment of tobacco dependence are available.

Nigeria participated in the REMEDY study, a prospective, international, multi-centre, hospital-based registry that provides all-inclusive up-to-date data on patients with RHD and will assist in developing preventative and management strategies.[17] In a prospective registry, the RE-LY AF (Randomized Evaluation of Long-Term Anticoagulation Therapy), Nigeria provided significant data as part of the African leg that enrolled 1 137 patients presenting to emergency units with AF.[18] RHD was present in 21.5% of participants from the nine African countries.[18] The country is also part of the INVICTUS trial (INVestIgation of rheumatiC AF Treatment Using vitamin K antagonists, rivaroxaban or aspirin Studies), which is a clinical trial investigating the safety and efficacy novel oral anticoagulants.[19,20] A system to measure the quality of care provided to people who have suffered acute cardiac events has not been implemented. However, diabetes guidelines were introduced by the Diabetes Association of Nigeria in 2013.[21]

Essential medicines and interventions

Although the Essential Medicine List includes at least seven of the eight essential CVD/NCD medicines, not all of these are available at the primary healthcare level.[22] In 2019, only aspirin was available at primary care facilities in the public health sector.[5] No data were available for CVD risk stratification in primary healthcare facilities, total cholesterol measurement or secondary prevention of ARF and RHD in public sector health facilities.[5]

Secondary prevention and management

In 2011, 23.07% of high-risk patients with AF were on oral anticoagulant treatment.[23] Through a global initiative of the International Society of Hypertension in 2017, 12.9% of people were receiving treatment for high blood pressure.[24] However, no data are available on people with a history of CVD taking aspirin, statin and at least one antihypertensive agent.

Part D: Cardiovascular disease governance

In 2019, Nigeria launched its first national multi-sectoral action plan (NMSAP) for the prevention and control of NCD, 2019–2025, with targets and a roadmap for its implementation.[25] As an immediate gain, a specialised package for essential NCD intervention as well as national hypertension treatment protocol was developed for implementation at the primary healthcare level.[26] The NMSAP will address CVD and the risk factors through Nigeria's Federal Ministry of Health (FMoH) in partnership with other key stakeholders, such as the National Primary Healthcare Development Agency.[25] The budget allocation for such implementation was previously reported to be less than the 15% minimum recommended by the WHO, possibly because of the recession, among other factors.[27] A focal unit has been identified at the Federal and State Ministry of Health that is responsible for implementing and controlling NCD and the associated risk factors.[16,28]

According to the National Policy and Strategic Plan of 2013, RHD prevention and control is being addressed as a priority.[16] Furthermore, a national surveillance and monitoring system has been implemented that includes CVD and their risk factors, in conjunction with relevant agencies/organisations.[29,30] Various organisations advocated for the enactment of the Tobacco Control Act, which was passed in 2015.[28,31]

Collaborative CVD intervention projects have been implemented between the Ministry of Health and non-health ministries, such as the Federal and States Ministries of Education and Information,[32] and other stakeholders.[25] The percentage of total annual government expenditure on cardiovascular healthcare is unknown. In 2003, Hutubessy *et al*. reported data for Nigeria, whereby the benefits of CVD prevention and control for population health and the economy had been modelled.[33]

Assessment of policy response

Legislation was recently signed as part of the National Health Bill mandating health financing and essential medicines at affordable prices for CVD. The bill was named, Senate Bill 278, with the title, National Health Insurance Act, 2003 (Repeal and Re-enactment) Bill 2019.[34]

The following legislation and policies regarding tobacco control[35,36] are in use:

- banning of smoking in all public places (indoor and outdoor) including public transport
- clear and visible text warnings on at least half of the principal display areas of tobacco packs. Implementation of text and graphic health warnings were reported in 2014
- banning all forms of tobacco advertising, promotion and sponsorship
- gradual raising of excise tax on tobacco products
- measures to protect tobacco control policies from tobacco industry interference.

Sustainable funding for CVD from 'sin' tax is not available. The percentage of excise tax of the final consumer price of tobacco products is 20.63%,[35] and 60% for alcohol products.[37] Although access to healthcare professionals and facilities,[38] and screening of individuals at high risk of CVD are available, there has not been any active follow up to ensure these services are implemented.[39]

Taxes on unhealthy foods or sugar-sweetened beverages have been instituted,[5] and a draft document was tabled banning the marketing of unhealthy foods to minors in 2018.[40] Legislation mandating clear and visible warnings on foods that are high in calories, sugar or saturated fats is functional.[41] Policy interventions that promote a diet to reduce CVD risk and facilitate PA have also been implemented.[36]

Stakeholder action

In 2018, advocacy for CVD policies and programmes by non-government organisations (NGO) and those for CVD/NCD prevention and management through the active involvement of patients' organisations had been implemented.[42] Advocacy champions and patient engagement were reported for RHD in 2014.[43] Various civil societies were involved in the development and implementation of a national tobacco control plan[35] and a CVD prevention and control plan.[44] Civil society was also involved in the national multi-sectoral co-ordination mechanism for NCD/CVD.[36]

Nigeria is one of the few African countries that reported specific activities by cardiology professional associations, which aim at a 25% reduction in the premature CVD mortality rate by 2025.[45] Screening for medical conditions, including hypertension, was reported in a study in 2018.[46]

As part of the data gathered for Nigeria, the following strengths, weaknesses, threats and priorities are summarised.

Strengths

The National Policy and NMSAP for the Prevention and Control of Non-Communicable Diseases were developed to ensure that policies are implemented that will prompt and guarantee a healthy lifestyle and quality health for all Nigerians.[16,25] As a member state of the WHO, Nigeria is a signatory to the resolution and conventions that were adopted at the World Health Assembly and other related NCD meetings.[16] The National Health Insurance Scheme (NHIS) was established to include all NCD and ensure that everybody has access to sound healthcare services.[38]

As part of the RE-LY AF, REMEDY and INVICTUS studies, Nigeria has clinical registers of people with a history of AF, rheumatic fever and RHD available.[17-19] The Nigerian Cardiac Society has completed registries on acute and chronic heart failure (HF), acute coronary syndromes and peripartum cardiomyopathy.[47,48] The country contributed over 40% of data towards the THESUS-HF (sub-Saharan African Survey of Heart Failure, a multi-centre African registry of acute HF) survey.[49] Nigeria, as one of five African countries, participated in the International Congestive Heart Failure study (INTER-CHF) and the ongoing global HF registry.[50] In another multi-centre, randomised, controlled trial of an influenza vaccine to reduce adverse vascular events (IVVE) in patients with heart failure, Nigeria is actively participating and had enrolled 1 011 patients by January 2019.[51] A national surveillance system that includes CVD and their risk factors also exists.[30] Evidence of stakeholder involvement and advocacy in the prevention and management of NCD, CVD and related risk factors is very much present in Nigeria.[42-44]

According to the WHO Framework Convention on Tobacco Control (FCTC) report of 2018, there was no national tobacco control plan. A national tobacco control committee, with members from ministries, departments and agencies, was inaugurated on 12 July 2016 as part of a tobacco control co-ordination mechanism but this is yet to be extended to the state level.[35] The implementation for such a plan was recommended in 2012,[32] with civil society involved in the development and implementation of a national tobacco control plan.[35] Legislation, however, was reported for the banning of smoking in indoor workplaces and all public places, as well as all forms of tobacco advertising, promotion and sponsorship.[35] Legislation regarding clear and visible warnings on at least half of the principal display areas of tobacco packs and measures to protect tobacco control policies from tobacco industry interference was also mandated.[35] Furthermore, Nigeria rendered excise tax on the final consumer price of tobacco and alcohol products.[37] Legislation mandating health financing for CVD, along with providing essential CVD medicines at affordable prices, has recently been implemented as part of the National Health bill signed in 2019.[34]

Threats

Along with globalisation, urbanisation and industrialisation, new lifestyles and risky behaviours have inflicted chronic diseases.[16] In Nigeria, CVD comprise the highest burden of NCD, with hypertension adding to cardiac failure and stroke. Therefore, one in four healthy Nigerians were at risk to develop coronary heart disease in 2010.[39] Alikor and Emem-Chioma[52] noted that a rising trend in the burden of CVD increased in the presence of clustering of risk factors, including socio-economic status in a rural population.

Along with diabetes, overweight and obesity, and a sedentary lifestyle, the resultant NCD are possibly the cause of the higher premature CVD mortality rate compared to most of the African countries in our project.[38] Nigeria's percentage of premature CVD mortality is similar to that of Namibia and its neighbouring country, Cameroon, at 12%, which is higher than most of the other African countries investigated.

Raised blood pressure among women (25%) is higher than the global figure of 20.1%, while that for men (22.7%) is just below the global 24.1%. Overweight and obesity tend to be a problem, as in most African countries, however, the prevalence in Nigeria is slightly lower than the global data of 38.9 and 13.1%, respectively (Table 1).

In 2014, Nigeria had a prevalence of 4% diabetes,[6] while in 2015, this was 2.8%, translating to 1:53 Nigerians suffering from diabetes.[53] However, in 2019 the IDF reported a 3.1% prevalence of diabetes.[15] By 2017, Nigeria had not yet conducted a WHO STEP survey, although the minister of health had envisaged planning one.[53] There is a rising trend in the cardiovascular disease burden in Nigeria, resulting from an increasing rural–urban migration and socio-economic

changes.[52] Furthermore, Nigeria is said to pose a threat to ending world poverty by 2030 and has overtaken India in having the poorest people in the world, which could affect people's health.[54,55]

Weaknesses

No relevant data are available on the estimated direct cost (in current US$) of tobacco use in the Nigerian population. Although there is a national Tobacco Control Act 2015, not all aspects have been implemented in Nigeria.[32] Various NGO played an active role in advocacy, however, a policy for the tobacco control plan took 10 years after approval of the FCTC before being passed because of constraints in funding and conflict of interest.

Most of the essential CVD medicines are not available in the public health sector, although they appear on the Essential Medicines List (EML).[5,22] In his foreword of the EML, the minister of health urged that essential medicines should be available to everyone throughout the country at all times as it expands its primary healthcare system.[22] Other services or interventions that are not widely used as a policy at public sector health facilities are CVD risk stratification, measurement of total cholesterol levels, and provisions for secondary prevention of rheumatic fever and RHD. These services, however, are available in many tertiary hospitals in the country. Efforts spearheaded by the Nigerian Cardiac Society task force on Rheumatic Heart Disease are in progress to implement locally relevant clinical guidelines for managing pharyngitis, ARF and RHD, however, no data are available regarding AF-related guidelines.

Although the availability, affordability and accessibility of healthcare along with sustainability were available, deficiencies were present in all of these aspects.[38]

No data regarding judicial orders protecting patients' rights and mandating improved CVD interventions, facilities, health system procedures or resources are available. The same applies to sustainable funding for CVD and taxes on unhealthy foods or sugar-sweetened beverages.

Priorities

At a meeting held in Abuja, Nigeria in August 2017, it was recommended that government and other relevant organisations join hands to prevent and control NCD.[53] Funds should be increased for healthcare, and access to affordable and effective medicines ensured to meet the WHO recommendations. NCD risk factors, including a sedentary lifestyle, unhealthy diet, overweight, and tobacco and alcohol use should be addressed via legislation, health education and advocacy. Integration of prevention and control strategies for NCD should also be encouraged and intensified.[53]

At a consensus summit in 2016, researchers suggested Nigeria's FMoH should provide guidelines for acceptable dietary lipids along with commissioning research and a nationwide survey on NCD.[30]

Not all the tobacco control policies in Nigeria instil the principles of multi-sectoral actions or best-buy strategies in their formulation. Therefore, an urgent need exists to address these neglected areas that may hamper tobacco control efforts.[31,32]

To achieve the global target of a 25% reduction in premature death by 2025, the president of the Nigerian NCD Alliance, Dr Sunny F Kuku, said this would be challenging and recommended that prevention of NCD be targeted early. Therefore, awareness and management of NCD would need determined efforts to prevent these diseases and their risk factors effectively.[45]

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