View Point

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NEPAL COUNTRY REPORT

Cardiac Society of Nepal (CSN) and World Heart Federation (WHF) Cardiovascular Diseases Scorecard Project

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Abstract

Cardiac Society of Nepal in coordination with World Heart Federation created this scorecard or Cardiovascular profile for identification of different markers for the incidence and prevalence of heart disease in Nepal. The objective of the scorecard was to understand and assess national CVD action from a civil society perspective in an effort to complement and support official government surveillance, monitoring and reporting on CVD.

Keywords: Cardiac Society of Nepal; Cardiovascular Diseases Scorecard Project; World Heart Federation.

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Introduction

Cardiovascular Disease (CVD) profile serves as an important tool for identification of different markers for the incidence and prevalence of heart disease in a country. Following consultation with the World Heard Federation (WHF), the authors who represent Cardiac Society of Nepal coordinated a data collection to create a CVD profile or scorecard for Nepal. The objective of the scorecard was to understand and assess national CVD action from a civil society perspective in an effort to complement and support official government surveillance, monitoring and reporting on CVD. This comprehensive overview of both the burden of CVD and the policies and services can affect a change by prioritization of the policies, mapping progress, and being accountable for action to promote better heart health outcomes in our country.[1]

This scorecard project aims to assess and visualize the state of national CVD prevention and management programs; highlight progress on the path to achieve Sustainable Development Goal (SDG) Target 3.4[2] and motivate countries to take action; identify key policy gaps and create a sense of urgency for action needed at the national and global levels; help prioritize specific policies or programs to better align resources to areas of need. Using a core set of indicators provided by the World Heart Foundation November 2020 version, the scorecard project seeks to provide a global picture, which can be used to draw comparisons between countries and regions, as well as analyze markers of success.[3]

Part A: Demographics

According to the 2019 World Bank Data, Nepal belongs to a Lower-middle income country and the life expectancy at birth is 68.9 years for males and 72.7 years for females. In 2018, 79% of the population were living in rural areas, whereas 21% of the population were living in urban areas. In 2020, the country's gross domestic product (GDP) per capita was US$1155.1, and the general health expenditure was 6% of the GDP in 2018. According to the 2010 World Bank Open Data, 15% of people were living below the US$ 1.9-a-day ratio.[4]

Part B: National cardiovascular Disease Epidemic

Premature mortality due to CVD that is death during 30-70 years of age was 10% according to the 2012 WHF CVD World Monitor[5] According to the 2019 Institute for Health Metrics and Evaluation (IHME) Global Burden of Disease Results Tool, total mortality due to CVD was 24.04% (26.79% for males and 20.73% for females) which was lower than global data of 32.84% and South Asian data of 27.54%. [6] However, it was higher compared to Pakistan (22.73%) but lower than Bhutan (28.45%), Bangladesh (38.22%), and India (27.40%). The percentage of DALYs due to cardiovascular diseases was 11.89% (14.28% for males and 9.41% for females) lower than global data of 15.5%; the prevalence of Atrial Fibrillation and Atrial Flutter was 0.47% (0.53% for males and 0.41% for female) lower than the global data of 0.8%; the prevalence of Rheumatic Heart Disease was 0.57% (0.5% for male and 0.62% for female) higher than global data of 0.54%, and total mortality due to Rheumatic Heart Disease was 1.45% (1.34% for male and 1.59% for female) higher than the global data of 0.54%.[6] (Table 1)

WHO Global Health Observatory Data Repository 2018 demonstrated the prevalence of adult tobacco use among >15 years old was 48.6% for males and 15.3% for females.[7] The prevalence of tobacco use among 13-15 years old was 9.5 % in males and 4.8% in females in 2015.[7] Estimated direct healthcare-related cost of tobacco use in our population is not available. The proportion of premature CVD mortality attributable to tobacco was 9% according to the 2004 World Health Organization (WHO) Global Report.[8] Recorded alcohol consumption per capita among >15 years in liters of pure alcohol (three-year average) was 0.6 according to 2019 WHO Global Health Observatory Data Repository data.[7]

2015 WHO Global Health Observatory Data Repository revealed the percentage of the population with raised blood pressure (SBP≥140 OR DBP≥90) was 29.4% (29.7% for males and 29.5% for females), higher than global data of 22.1%.[9] According to the 2019 WHO STEPwise approach to surveillance (STEPS) survey, the percentage of the population with raised total cholesterol (≥5.0 mmol/L) was 11.1% (7.8% for males and 14.0% for females).[10] According to the 2019 IHME Global Burden of Disease Results Tool, the percentage of Disability-Adjusted Life Years (DALYs) due to hypertension was 0.51% (0.44% for males and 0.58% for females) and mortality due to hypertensive heart disease was 1.26 % (0.97 % for males and 1.61 % for female), both of which were lower than the global data of 0.85% and 2.05% respectively.[6]

According to 2016 WHO Global Health Observatory Data Repository, the percentage of adolescents (ages 11-17) who are insufficiently active that is less than 60 minutes of moderate- to vigorous-intensity physical activity daily was 83.5% (81.8% for males and 85.3% for female)[11] and age-standardized estimate percentage of adults who are insufficiently active that is less than 150 minutes of moderate-intensity physical activity per week, or less than 75 minutes of vigorous-intensity physical activity per week was 13.4% (12.0% for male and 14.6% for female), which is lower than global data of 27.5%.[12]

WHO Global Health Observatory Data Repository 2016 data revealed the percentage of adults who are overweight (Body Mass Index (BMI) of 25 kg/m^2 or higher) was 21.0% (19.1% for males and 22.8% for females),[13] which is lower than global data of 38.9%. Similarly, the prevalence of obesity (BMI) of 30 kg/m^2 or higher) was 4.1% (2.7% for males and 5.4% for females), lower than global data of 13.1%.[14]

Percentage of age-standardized defined population with fasting glucose ≥126 mg/dl (7.0 mmol/l) or on medication for raised blood glucose was 9.1% (10.5% for males and 7.9% for females), higher than the global data of 8.5% according to 2014 WHO Global Health Observatory Data Repository.[15] According to the 2019 International Diabetes Federation Atlas, the prevalence of diabetes among ages 20-79 was 9.16% for males and 6.73% for females, however, the prevalence of diabetes in 2021 was 8.7%, lower than global data of 9.8%.[16]

Table 1: Cardiovascular disease indicators for Nepal.

Indicators	Male	Female	Total	Global Data	Year	Source
Status of the National CVD Epidemic						
Premature CVD mortality (30-70 years of age) (% deaths)	NA	NA	10%	-	2012	WHF CVD World Monitor
Total CVD mortality (% of deaths)	26.79%	20.73%	24.04%	32.84%	2019	IHME Global Burden of Disease Results Tool
Percentage of DALYs due to cardiovascular diseases (%)	14.28%	9.41%	11.89%	15.5%	2019	IHME Global Burden of Disease Results Tool
Prevalence of Atrial Fibrillation and Atrial Flutter (%)	0.53%	0.41%	0.47%	0.80%	2019	IHME Global Burden of Disease Results Tool
Prevalence of Rheumatic Heart Disease (%)	0.5%	0.62%	0.57%	0.54%	2019	IHME Global Burden of Disease Results Tool
Total mortality due to Rheumatic Heart Disease (% of deaths)	1.34%	1.59%	1.45%	0.54%	2019	IHME Global Burden of Disease Results Tool
Tobacco and alcohol						
Prevalence of adult tobacco use (%) (15+ years old) (%)	48.6%	15.3%	31.9%	23.58%	2018	WHO Global Health Observatory Data Repository - Tobacco Use
Prevalence of youth (13-15 year olds) tobacco use (%)	9.5 %	4.8%	-	-	2015	WHO Global Health Observatory Data Repository - Tobacco Use
Estimated direct (e.g. health care-related) cost of tobacco use in our population in current USD	-	-	-	-	-	Not available
Proportion of premature CVD mortality attributable to tobacco (%)	-	-	9%	-	2004	WHO Global Report: Mortality attributable to Tobacco

Recorded alcohol consumption per capita (15+ years) (in litres of pure alcohol) (three-year average)	-	-	0.6	-	2019	WHO Global Health Observatory Data Repository - Alcohol Consumption
Raised blood pressure and cholesterol						
Percentage of population with raised blood pressure (SBP≥140 OR DBP≥90) (%)	29.7%	29.5%	29.4%	22.1%	2015	WHO Global Health Observatory Data Repository - Raised Blood Pressure
Percentage of population with raised total cholesterol (≥5.0 mmol/L) (%)	7.8%	14.0%	11.1%	-	-	2019, STEPS Survey
Percentage of DALYs due to hypertension (%)	0.44%	0.58%	0.51%	0.85%	2019	IHME Global Burden of Disease Results Tool
Mortality due to hypertensive heart disease (% of deaths)	0.97 %	1.61 %	1.26 %	2.05%	2019	IHME Global Burden of Disease Results Tool
Physical Activity						
Percentage of adolescents (ages 11-17) who are insufficiently active (less than 60 minutes of moderate- to vigorous intensity physical activity daily)	81.8%	85.3%	83.5%	-	2016	WHO Global Health Observatory Data Repository - Insufficient Activity (Adolescents)
Percentage of adults (age-standardized estimate) who are insufficiently active (less than 150 minutes of moderate intensity physical activity per week, or less than 75 minutes of vigorous-intensity physical activity per week)	12.0%	14.6%	13.4%	27.5%	2016	WHO Global Health Observatory Data Repository - Insufficient Activity (Adults)
Overweight and Obesity						
Percentage of adults who are overweight (body mass index (BMI) of 25 kg/m2 or higher): (Age standardized estimate)	19.1%	22.8%	21.0%	38.9%	2016	WHO Global Health Observatory Data Repository - Overweight
Prevalence of obesity (body mass index (BMI) of 30 kg/m2 or higher) (%)	2.7%	5.4%	4.1%	13.1%	2016	WHO Global Health Observatory Data Repository - Obesity
Diabetes						
Percentage of defined population with fasting glucose ≥126 mg/dl (7.0 mmol/l) or on medication for raised blood glucose (age standardized) (%)	10.5%	7.9%	9.1%	8.5%	2014	WHO Global Health Observatory Data Repository - Raised fasting glucose
Prevalence of diabetes (ages 20-79) (%)	9.16% (2019)	6.73% (2019)	8.7%	9.8%	2021	International Diabetes Federation Atlas

WHF: World Heart Federation
WHO: World Health Organization
IHME: Institute for Health Metrics and Evaluation
STEPS survey: STEPwise approach to surveillance survey

Part C: Clinical Practice and guidelines

Health system capacity

Number of physicians per 1,000 population was 0.8091 and Number of nurses per 1,000 population was 3.3047 according to the 2019 WHO Global Health Observatory Data Repository.[7] Similarly, Hospital beds per 10,000 people were 3.0 according to the 2012 WHO GHO Data Repository data.[17]

Locally relevant (national or subnational level) clinical tool to assess CVD risk with Cardiovascular guidelines, Diabetes guidelines, and chronic respiratory disease guidelines exists in the form of Package of Essential Non-communicable Diseases (PEN) Protocol for Primary Health Care Centre(PHCC).[18] Locally-relevant (national or subnational level) clinical guidelines for CVD prevention within the last 5 years, national guidelines for the treatment of tobacco dependence, national or subnational locally-relevant clinical guidelines for the detection and management of Atrial Fibrillation, and national or subnational locally-relevant clinical guidelines for the management of Pharyngitis, Acute Rheumatic Fever (RHF), Rheumatic Heart Disease (RHD) are all lacking.

Clinical registries of people with a history of Rheumatic Fever and Rheumatic Heart Disease were partially implemented.[19] However, a system to measure the quality of care provided to people who have suffered acute cardiac events does not exist.

Essential medicines and interventions

According to the 2017 WHO Global Health Observatory Data Repository, Angiotensin-converting enzyme inhibitors (ACEI) ACEI, Aspirin, Beta-blockers, Statin, and Metformin are listed in essential medicines whereas insulin, warfarin, and Clopidogrel are not listed in the essential medicine lists.[20] According to the 2019 WHO Global Health Observatory Data Repository, total cholesterol measurement is generally available at the primary health care level but priority CVD risk stratification is not available in 50% or more of primary health care facilities.[21] Data is not available regarding more than 50% of public sector health facilities having provisions for secondary prevention of rheumatic fever and rheumatic heart disease.

Secondary prevention and management

Data is not available regarding the percentage of high-risk patients with atrial fibrillation being treated with oral anticoagulants and the percentage of hypertensive patients receiving medical treatment. Similarly, the percentage of people with a history of CVD who are taking aspirin, statin, and at least one anti-hypertensive is not known.

Part D: Cardiovascular governance

A national strategy or plan that addresses CVDs and their risk factors specifically exists in the form of the 2015 Multisectoral Action Plan:2014-2020,[22] however, there is no data regarding a dedicated budget for its implementation. A national strategy or plan that addresses Non Communicable Diseases (NCDs) and their risk factors are in place according to 2015 WHO NCD Document Repository data.[23] No data or information is available regarding a national strategy or plan that addresses RHD prevention and control as a priority. STEPs survey is conducted regularly as a surveillance system for CVD risk factors, however, national surveillance system that includes CVDs is lacking. According to 2020 WHO Framework Convention on Tobacco Control (FCTC) Implementation Database, a national tobacco control plan and a national multisector coordination mechanism for tobacco control exist in Nepal.[24] However, collaborative projects between the Ministry of Health and non-health ministries for CVD interventions do not exist. According to Shrestha et al, 0.19% of total annual government expenditure is on cardiovascular healthcare,[25] however, the benefits of CVD prevention and control for population health and the economy has not been modeled.

Assessment of policy response

No data or information is available regarding legislation that mandates health financing for CVDs, legislation that mandates essential CVD medicines at affordable prices, and judicial orders protecting patients' rights and mandating improved CVD interventions, facilities, health system procedures or resources. According to the 2020 WHO FCTC Implementation Database, there exists national legislation banning smoking in indoor workplaces, public transport, indoor public places, and other public places; legislation mandating clear and visible warnings on at least half of the principal display areas of tobacco packs; and legislation banning all forms of tobacco advertising, promotion and sponsorship.[24] However, no data or information is available regarding measures to protect tobacco control policies from tobacco industry interference; policies that ensure equitable nationwide access to health care professionals and facilities; policies that ensure screening of individuals at high risk of CVDs; sustainable funding for CVD (e.g. from taxation of tobacco and/or other "sin" products); and taxes on unhealthy foods or sugar-sweetened beverages. According to the 2020 WHO FCTC Implementation Database, 27% is the excise tax of the final consumer price of tobacco products.[24] No data is available regarding the percentage of excise tax of the final consumer price of alcohol products. Similarly, no data or information is available regarding legislation banning the marketing of unhealthy foods to minors; legislation mandating clear and visible warnings on foods that are high in calories/sugar/saturated fats; policy interventions that promote a diet that reduces cardiovascular disease risk; and policy interventions that facilitate physical activity.

Stakeholder action

No data/information is available regarding Non Government Organizations (NGO) advocacy for CVD policies and programs; advocacy champions and/or patient engagement groups for Rheumatic Heart Disease; involvement of civil society in the development and implementation of a national tobacco control plan; involvement of civil society in the development and implementation of a national CVD prevention and control plan; and involvement of civil society in the national multi sectoral coordination mechanism for NCDs/CVDs. Active involvement of patient organizations in advocacy for CVD prevention and management is lacking; however, few patient organizations exists but are not in a very active state.[26] Similarly, no specific activities have been carried out till date by Cardiology professional associations that are aimed at a 25% reduction in premature CVD mortality by 2025, and no Hypertension screening has been conducted by businesses at workplaces other than May measurement month blood pressure screening programs.[27]

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

Strengths

With the formation of Multisectoral Action Plan: 2014-2020 in 2015, a national plan that addressed NCDs, assessment of the cardiovascular diseases and their risk factors took momentum in our country.[22] STEPS survey 2013 and 2019,[10,28] and Nepal Non-communicable Diseases and Injuries (NCDI) poverty commission report 2018[29] addressed the different data regarding NCDs. The findings from these reports will be useful for further incorporation in the National NCD Strategic Plan resulting in the formulation of sustainable strategic plans for preventing and tackling different NCDs including CVDs. Besides, Nepal has already implemented PEN protocol in many primary health care centers which will help in assessing CVD risks and management. This recent focus on CVDs and the recently organized interventions under the new federal structure with the involvement of the local level will play a major role in managing different CVDs in our country.

The above scorecard data demonstrates the low prevalence of obesity and diabetes in our population compared to the global data,

WORLD HEART FEDERATION

Cardiac Society of Nepal
Estd.: 1998

Cardiovascular Disease Scorecards – Nepal

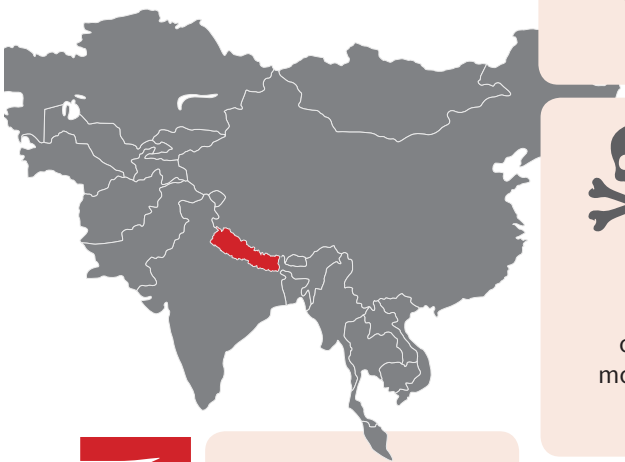
NEPAL – NOVEMBER 2020

Status of Cardiovascular Disease (CVD) and Non-communicable diseases (NCD)

Country Demographics

World Bank Classification
Lower-Middle income

79%
of population living in rural areas
65% (South Asia)



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24.04%
of **deaths** caused by CVD
Global data: **32.84%**

0.57%
Prevalence of rheumatic heart disease **(RHD)**
Global data: **0.54%**

1.45%
of total mortality caused by **RHD**
Global data: **0.54%**

MALE **48.6** % **15.3** **FEMALE**
Prevalence of **tobacco** use **age ≥15**
Global data: **38.64%**(male) **8.53%**(female)

9%
of premature CVD mortality attributable to **tobacco**
Global data: **10%**

29.7% **29.5%**
MALE **FEMALE**
of population with raised **blood pressure** (SBP ≥140 or DBP ≥90)
Global data: **24.1%** (male) **20.1%** (female)

4.1%
Prevalence of obese adults (BMI of ≥30 kg/m2)
Global data: **13.1%**

1.26%
of deaths caused by **hypertensive heart disease**
Global data: **2.05%**

11.1%
of population with raised total **cholesterol** (≥5.0 mmol/L)
Global data: **38.9%**

8.7%
Prevalence of diabetes **(ages 20-79)**
9.8% (Global)

WORLD HEART FEDERATION

Cardiac Society of Nepal
Estd.: 1998

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Health System Capacity

0.8091
Number of physicians (per 1,000 population)

3.3047
Number of nurses (per 1,000 population)

3.0
Number of hospital beads (per 10,000 people)

KEY: No data | Not in place | In process/ partially implemented | In place

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Clinical Practice and Guidelines

Locally-relevant (national or subnational level):

- Clinical tool to assess CVD risk
- Guidelines for treatment of tobacco dependence

Clinical Guidelines for:

- The detection and management of atrial fibrillation
- The detection and management of acute rheumatic fever
- The detection and management of rheumatic heart disease
- CVD prevention (within the last 5 years)
- A system to measure the quality of care provided to people who have suffered acute cardiac events

Cardiovascular Disease Governance

A national strategy or plan that addresses:

- CVDs and their specific risk factors
- NCDs and their risk factors
- Rheumatic heart disease prevention and control as a priority
- A national surveillance system that includes CVDs and their risk factors

Stakeholder action

- Non-governmental organizations' advocacy for CVD policies and programmes
- Civil society involved in developing and implementing of national CVD prevention and control plan

For more information, please email info@worldheart.org

Source References: Global Health Data Exchange; WHO Global Health Observatory data repository; WHO NCD Document repository; Country specific publications.

also the lower prevalence of total mortality due to CVD compared to global and South Asian data including South Asian countries. The existence of a national tobacco control plan along with multi sectoral coordination, legislation banning advertisement, promotion and sponsorship, and smoking in indoor and public places, and legislation mandating clear and visible warnings in the packages will further help in decreasing the prevalence of tobacco use. Better implementation of such laws will help minimize CVD risk factors caused by smoking. We hope the publication of this scorecard will also play a major role in improving our CVD and its risk factors profile in our country.

Threats

According to the National Health Accounts data 2016,[30] out-of-pocket expenditure for NCDI services was 56.2%, which is comparatively high leading to a decrease in the use of CVD diagnosis and treatment facilities. Similarly, the above-mentioned data reflects that there is a high prevalence of RHD, RHD-related mortality, and tobacco use. In the population, the prevalence of raised blood pressure is higher compared to the global data. This increase in the risk factors will further increase CVD and CVD-related mortality. Lack of national and subnational locally relevant clinical guidelines for detection and management of different CVDs, lack of legislations needed for CVD prevention and screening, along with the absence of stakeholder action for its implementation has further deteriorated CVD management in the country. The recent COVID pandemic has shifted the focus back to communicable diseases, and an unstable political system in the country will hamper every aspect of policy and law formulation and its implementation in the future.

Weaknesses

There exists a major focus on treatment of CVD rather than on its prevention in the country. Further, the allocation of only 6.4% of total government expenditure to health, reflects the limited resources for tackling NCD.[31] Besides, we also lack registries and properly conducted research data in the country. Another significant factor remains that most of the CVD-related health facilities are concentrated in urban areas of the country. This is in a large part due to deranged access resulting from difficult geographical terrain, decreased human resources and infrastructure in the rural areas. There is also dire need for the development and implementation of a National CVD prevention and control plan with a National and International multi sectoral coordination mechanism. Involvement of different stakeholders in different phases of CVD related activities like policy development, its implementation and feedback mechanisms are lacking in our context.

Priorities

We need a more rigorous and comprehensive approach to address CVD with proven health interventions. Similarly, more government budgeting, investment and appropriate monitoring and evaluation of CVD management are needed. Potential revenue can be collected from taxation on unhealthy foods or sugar-sweetened beverages. Further, more engagement of provincial and local government along with all the possible stakeholders in the management strategies with disease-specific policies and programs for decentralized and integrated CVD services will further strengthen the CVD management. There is also a need for disease-specific national registries and CVD-related health facilities surveys which can help in further evaluation and assessment of CVD programs resulting in better CVD-related health outcomes.

Conclusion

This scorecard of Nepal reflects the current status of national CVD in our country, its prevention and management strategies. The key policies gaps and specific policies and programs that need prioritizing have also been highlighted. We hope this scorecard will be helpful to achieve sustainable development goal (SDG) target 3.4 of reducing pre-mature mortality from non-communicable diseases (NCDs) especially CVD by one-third by 2030 through prevention and treatment and promoting mental health and wellbeing.

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