



Non-Communicable Diseases (NCDs) A Global Burden in India: An Overview

Ajay Kumar Prajapati¹; Naresh Pal Singh²; Dhiraj Kumar Srivastava²; Pankaj Kumar Jain³;
Sandip Kumar⁴; Ruchi⁵

¹ Senior Resident, Department of Community Medicine, UPUMS, SAIFAI, Etawah, India

² Professor, Department of Community Medicine, UPUMS, SAIFAI, Etawah, India

³ Dean, Faculty of Medicine, UPUMS, SAIFAI, Etawah, India

⁴ Professor and Head, Department of Community Medicine, UPUMS, SAIFAI, Etawah, India

⁵ Doctor, Ayurveda, Chaudhary Brahm Prakash Ayurved Charak Sansthan, New Delhi, India

Email: ajayprajapati112@gmail.com

<http://dx.doi.org/10.47814/ijssrr.v5i11.616>

Abstract

Non-communicable diseases (NCDs) are a growing public health concern in India. These diseases have a high health-care demand and are costly, especially in low-resource settings. According to a WHO study, only 50% of chronic disease patients in developed countries follow treatment recommendations. The low compliance of patients with non-communicable diseases to treatment and medical advice is a major therapeutic challenge. The elderly is one of the most vulnerable and high-risk groups in terms of health. Physical inactivity, unhealthy diets, tobacco use, and harmful alcohol use are the main behavioural risk factors for NCDs. The objective of the study is to concentrate on the risk factors that contribute to non-communicable diseases like diabetes, hypertension, etc. and the necessary steps that must be taken before they have a negative effect on our health. Recommendation: A population-based strategy has been developed for the prevention, management, and screening of prevalent Non-Communicable Diseases (NCDs), such as diabetes, hypertension, and common malignancies. Increasing community awareness by use of print, electronic, and social media; promotion of a healthy lifestyle, and raising public awareness of NCDs.

Keywords: *Non-Communicable Diseases; NPCDCS; Physical Inactivity*

1. Introduction

Non-communicable diseases (NCDs) are the leading cause of death worldwide, killing 38 million people each year, with low-and middle-income countries accounting for nearly three-quarters of all deaths. NCDs are illnesses or medical problems that are not brought on by infectious pathogens. These are chronic diseases with slow progression that are caused by a combination of genetic, physiological, environmental, and behavioural factors.^[1] These illnesses develop slowly and do not show symptoms in the early stages. People's lifestyles and behavioural patterns are rapidly changing, which favours the onset of chronic diseases. The prevalence of chronic non-communicable diseases is becoming more common among adults in both developed and developing countries. In 2018, the global adult mortality rate from NCDs was 175.45 deaths per 1000 males and 121.19 deaths per 1000 females, while in India it was 204 deaths per 1000 males and 147 deaths per 1000 females.^[2]

1.1 WHO Reports on Non-Communicable Diseases (NCDs)

According to the World Health Organization (WHO), if timely interventions for NCDs prevention and control are not implemented, the total annual number of deaths from NCDs will rise to 55 million by 2030. It kills approximately 41 million people (71% of global deaths) each year, including 14 million people between the ages of 30 and 70 years. The vast majority of NCD-related deaths are avoidable.

Every year, nearly 5.8 million people (WHO report, 2015) die in India from NCDs (heart and lung diseases, stroke, cancer, and diabetes), implying that one in every four Indians is at risk of dying from an NCD before the age of 70.^[3] India accounts for more than two-thirds of all NCD deaths in WHO's South-East Asia Region (SEAR). Cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes account for the majority of NCD morbidity and mortality. Tobacco use, unhealthy diet, physical inactivity, and harmful alcohol use all contribute to a significant proportion of these diseases. Obesity, high blood pressure, high blood glucose, and high total cholesterol levels are major metabolic risk factors. Cardiovascular diseases (heart disease, stroke, and hypertension) account for 45% of all NCD deaths, followed by chronic respiratory diseases (22%), cancers (13%), and diabetes (3%).^[4] The probability of dying from four major NCDs between the ages of 30 and 70 years is 26%, which means that a 30-year-old individual has a one-fourth chance of dying from these diseases before the age of 70 years.

1.2 Prevalence of Non-Communicable Diseases (NCDs) in India

Although there has been a minor drop in the prevalence of tobacco use among men, this prevalence (23.6%) is still greater than the global prevalence of current tobacco use (22%). Tobacco use has been identified as the single most important risk factor for NCDs. Trends in the prevalence of obesity and overweight are also rapidly increasing. Over a four-year period, the age-standardized prevalence of obesity (BMI \geq 30) increased by 22%. (2010-2014). Every fourth person in India over the age of 18 years has high blood pressure (hypertension), and the prevalence has increased by 10% between 2010 and 2014. According to WHO standards, more than two-thirds of adolescents aged 11 to 17 years in India are physically inactive. Physical inactivity among adults is estimated to be around 13%.^[5] The prevalence of tobacco consumption in India is 44.5% in males and 6.8% in females. The incidence of tobacco use is 22% worldwide. According to NFHS 3 and 4, the consumption of pure alcohol (among those aged 15 and above) has decreased. Obesity and overweight are on the rise, with male obesity rates rising from 9.3% to 18.6% and female obesity rates rising from 12.6% to 20.7%. Between 2010 and 2014, the prevalence of hypertension increased by 10%. Physical inactivity among Indian adults is estimated to be around 13%.^[6]

1.3 Major Non-Communicable Diseases (NCDs) and their risk factors

Non-communicable diseases are frequently caused by unhealthy lifestyles and unfavourable physical and social environments. Cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes are the most common NCDs. The main behavioural risk factors for NCDs are physical inactivity, unhealthy diets (low in fruits, vegetables, and whole grains but high in salt and fat), tobacco use (smoking, second-hand smoke, and smokeless tobacco), and harmful alcohol use.

They contribute to high blood pressure (hypertension), diabetes, high and abnormal blood lipids (dyslipidaemia), and obesity. Air pollution is also a major risk factor for NCDs, both in terms of outdoor air pollution and household air pollution, which is primarily caused by the use of solid fuels in the home for cooking and heating. Although most NCD morbidity and mortality occur in adulthood, exposure to risk factors begins in childhood. NCDs and associated risk factors are therefore very important to young people. NCDs are rapidly spreading throughout the world and have reached epidemic proportions in many countries, owing largely to globalisation, industrialization, and rapid urbanisation, as well as demographic and lifestyle changes.^[7]

1.4 Status of Non-Communicable Diseases (NCDs) in India

The proportion of mortality caused by non-communicable diseases (NCDs) in India has increased from 37.9% in 1990 to 61.8% in 2016, according to the Indian Council of Medical Research (ICMR) study report "India: Health of the Nation's States"-The India State-Level Disease Burden Initiative.^[8] Cardiovascular diseases (CVDs), cancers, chronic respiratory diseases (CRDs), and diabetes are the four major NCDs, and they all share four behavioural risk factors: an unhealthy diet, a lack of physical activity, and the use of tobacco and alcohol.

2. India's Epidemiological Transition

India is undergoing a major epidemiological transition as a result of its rapid social and economic development. Over the last 26 years, the country's disease patterns have changed: mortality from communicable, maternal, neonatal, and nutritional diseases (CMNNDs) has decreased significantly, and India's population is living longer, which means that non-communicable diseases (NCDs) and injuries are increasingly contributing to the overall disease burden.

As a result, India's health-care system faces a double challenge. The absolute burden of diseases such as diarrhoea, lower respiratory infections, tuberculosis, and neonatal disorders is decreasing, but it remains high. At the same time, non-communicable diseases such as heart disease, stroke, and diabetes are increasing their contribution to health loss.^[9]

The Disability-Adjusted Life Year (DALY) is a measure of the overall disease burden that is expressed as the number of years lost due to illness, disability, or premature death. Table-1 shows the percentage change in DALYs for the leading individual causes of these NCDs among women from 1990 to 2016.^[10]

Table 1: Proportion changes in DALYs number of NCDs among women from 1990 to 2016

Name of NCDs	Proportion of changes in DALYs number	
	1990	2016
Cardiovascular diseases (IHD)	2.9%	6.6%
Chronic Respiratory Diseases (CRDs)	2.7%	4.4%
Diabetes	0.7%	2.2%
Cancer (Breast)	0.7%	0.9%

In 2016, India accounted for 33% of total DALYs due to communicable, maternal, neonatal, and nutritional diseases (CMNNDs), 55% due to NCDs, and 12% due to injuries. This was 61%, 30%, and 9% of DALYs in 1990, respectively. (Figure-1)

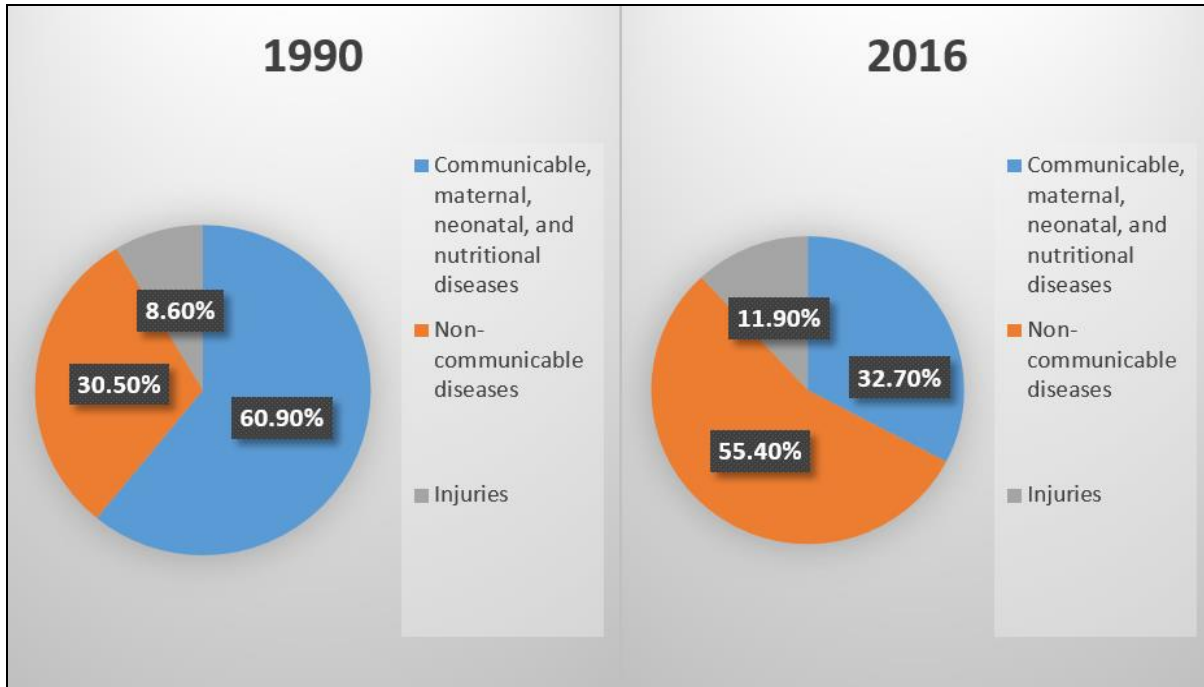


Figure 1: Contribution of major disease groups to total DALYs in India, 1990 and 2016.^[10]

In India, the proportion of all deaths due to communicable, maternal, neonatal, and nutritional diseases (CMNNDs) decreased from 53.6% in 1990 to 27.5% in 2016, while NCDs increased from 37.9% to 61.8% and injuries increased from 8.5% to 10.7%. (Figure-2)

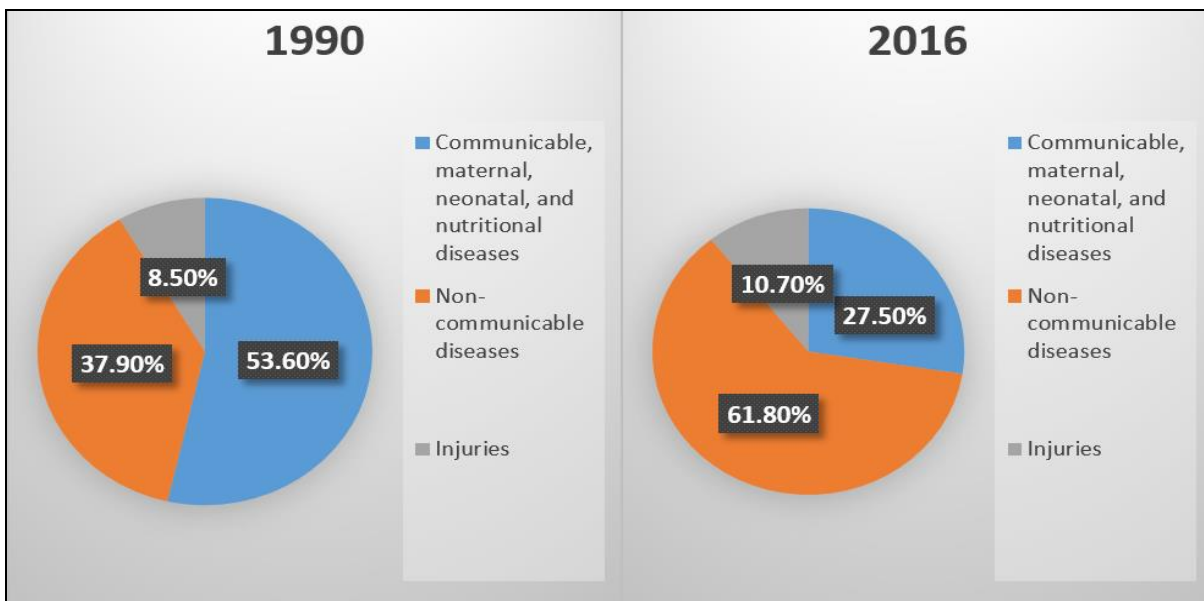


Figure 2: Contribution of major disease groups to total number of deaths in India, 1990 and 2016. [10]

3. Programme related to Non-Communicable Diseases (NCDs)

To prevent and control major NCDs, the government of India's Ministry of Health and Family Welfare provides technical and financial assistance to states/UTs through the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke (NPCDCS), which was launched in 2010 as part of the National Health Mission (NHM). The programme focuses on infrastructure development, human resource development, health promotion, and awareness generation for non-communicable disease prevention, early diagnosis, management, and referral to an appropriate level of healthcare facility for treatment of non-communicable diseases (NCDs).^[11] The National Programme for Health Care of the Elderly (NPHCE) was launched in 2010–11 to address various health issues among the elderly. The main goal of the programme is to provide preventive, curative, and rehabilitative services to the elderly at various levels of the country's healthcare delivery system.^[12]

Under NPCDCS, NCD-Cells are being established at the national, state, and district levels for programme management, and NCD-Clinics are being established at the district and community health centre levels to provide services for early diagnosis, treatment, and follow-up for common NCDs. The programme includes provisions for free diagnostic services and drugs for patients attending NCD clinics. Cardiac Care Units (CCU) are also being established in designated districts to provide emergency Cardiac Care. Day Care Centres are being established in the identified districts to provide cancer care services.

4. Actions to Combat Non-Communicable Diseases (NCDs)

The epidemic of NCDs cannot be halted simply by treating the sick; healthy people must be protected by addressing the root causes. The main focus of MoHFW in preventing NCD deaths is to reduce the major risk factors for NCDs. Addressing the risk factors will thus not only save lives but will also provide a significant boost to the country's economic development. The Ministry of Health and Family Welfare, Government of India, is already implementing the "National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease, and Stroke" (NPCDCS), with the goal of raising awareness about risk factors, establishing infrastructure (such as NCD clinics and cardiac care units), and conducting opportunistic screening at primary health care levels.

In response to the World Health Organization's Global Action Plan for the Prevention and Control of Non-Communicable Diseases 2013-2020, India is the first country to adopt a National Action Plan with specific national targets and indicators aimed at reducing the number of global premature deaths from NCDs by 25% by 2025. The global action plan suggests that countries set nine targets. However, India has taken the unprecedented step of establishing a tenth target to combat household air pollution. By 2025, India's National Monitoring Framework for NCD Prevention and Control has committed to a 50% relative reduction in household use of solid fuel and a 30% relative reduction in current tobacco use prevalence.^[13]

The integration of NPCDCS and the National Health Mission (NHM) resulted in increased infrastructure and human resources, particularly in the form of frontline workers such as the ANM and ASHA. The population-based periodic screening of hypertension, diabetes, and common cancers (oral, breast, and cervical cancers) is initiated with the active participation of these frontline workers to facilitate the early detection of common NCDs.^[14] The programme also considers the prevention and management of chronic obstructive pulmonary disease (COPD) and chronic kidney disease (CKD), as well as better management of co-morbidities such as diabetes and tuberculosis.

The integration of AYUSH and NPCDCS is another step toward encouraging healthy lifestyle changes in the population. Social media is also being used to raise awareness about NCD prevention and control, such as the use of mobile technology in applications such as **mDiabetes** for diabetes control, **mCessation** for tobacco cessation, and **no more tension** for mental stress management. ^[14]

References

1. WHO (2021): Non-communicable diseases-factsheets [Internet]. Available from: <https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases> [Accessed on 2 Aug 2022; 3:12 PM].
2. Baitha U, Deorari V, Kumar NK, Jorwal P. Role of surveillance and prevention in hospital acquired infection and mortality. *JMSCR*. Dec 2020; 8(12); 202-208. DOI: <https://dx.doi.org/10.18535/jmscr/v8i12.33>.
3. *National Health Portal: Non-communicable Diseases* [Internet]. Available from: <https://www.nhp.gov.in/healthyliving/ncd2019> [Accessed on 2 Aug 2022; 4:30 PM].
4. Al-Mawali A. Non-communicable diseases: Shining a light on cardiovascular disease, oman's biggest killer. *Oman Med J*. 2015 Jul; 30(4): 227-8.
5. Burden of NCDs and their risk factors in India [pdf]. Available from: http://www.searo.who.int/india/topics/noncommunicable_diseases/ncd_situation_global_report_ncds_2014 [Accessed on 3 Aug 2022; 10:33 AM].
6. Module for Multi-Purpose Workers (MPW) - Female/Male on prevention, screening and control of common non-communicable diseases [pdf]. Available from: https://main.mohfw.gov.in/sites/default/files/Module%20for%20MultiPurpose%20Workers%20%20Prevention%2C%20Screening%20and%20Control%20of%20Common%20NCDs_2 [Accessed on 3 Aug 2022; 11:45 AM].
7. Budreviciute A, Damiati S, Sabir DK, Onder K. Management and prevention strategies for non-communicable diseases (NCDs) and their risk factors. *Front Public Health*. 2020 Nov 26; 8: 574111. DOI: 10.3389/fpubh.2020.574111.
8. India: Health of the Nation's States the India state-level disease burden initiative [pdf]. Available from: https://www.healthdata.org/sites/default/files/files/policy_report/2017/India_Health_of_the_Nation%27s_States_Report_2017. [Accessed on 3 Aug 2022; 3:30 PM].
9. Disease Burden Trends in the States of India 1990 to 2016 [Internet]. Available from: <https://phfi.org/india-health-of-the-nations-states/> [Accessed on 3 Aug 2022; 7:10 PM].
10. Status of Non-Communicable Diseases (NCDs) in India (Feb 2022) [Internet]. Available from: <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1796435> [Accessed on 4 Aug 2022; 10:10 AM].
11. National Health Mission: NPCDCS [Internet]. Available from: <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=1048&lid=604>. [Accessed on 4 Aug 2022; 3:15 PM].
12. Ministry of Health & Family Welfare: NPHCHE [pdf]. Available from: <https://main.mohfw.gov.in/sites/default/files/Detailed%20Breif%20of%20NPHCE> [Accessed on 4 Aug 2022; 5:10 PM].
13. Health & Family Welfare Department: Non Communicable Diseases (NCD) [Internet]. Available from: <https://www.wbhealth.gov.in/NCD/#:~:text=In%20response%20to%20the%20E2%80%9CWHO,NCDs%20by%2025%25%20by%202025>. [Accessed on 5 Aug 2022; 11:00 AM].



14. Operational Guidelines on NPCDCS [pdf]. Available from: https://main.mohfw.gov.in/sites/default/files/Operational%20Guidelines%20of%20NPCDCS%20%28Revised%20-%202013-17%29_1 [Accessed on 6 Aug 2022; 10:00 AM].

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).