



The burden of Non-communicable Diseases in India: A Review

Khiumajuli Abonmai*, Sunil Kumar Dular, Deepa Mukherjee, Sameeksha

Department of Community Health Nursing, SGT University Gurugram, Haryana, 122505.

Email: ajuabonmai18@gmail.com*

ABSTRACT

Noncommunicable diseases (NCDs) are conditions that affect only a small percentage of the population and are caused by a mix of genetic, physiological, environmental, and behavioural factors. Diabetes, cancer, chronic respiratory illnesses like Asthma, COPD, cardiac disease and stroke are the four primary categories of NCD. Heart diseases, which account for 17.9 million NCD deceases annually, are the leading cause of death, next by cancers, which account for 9.3 million fatalities, respiratory disorders, which account for 4.1 million, and diabetes, which account for 1.5 million. We searched websites and online database. We included the articles that provide some information regarding how to conduct for review. We extracted some study summary and recommendations. In developing countries like India, non-communicable illnesses are becoming more and more common and burden due to low health care facilities. Risk factors for these illnesses include alcohol, tobacco, obesity, poor nutrition and no physical activity. The World Health Organization (WHO) and a number of other organisations and associations are pressuring decision-makers in the field of health to implement successful preventative measures in an effort to stop the rising tendency of NCDs over the control of risk factors. Developing nations dealing with NCDs pandemics must actively consider FCTC and other global policies.

Keywords: Noncommunicable diseases (NCDs), risk factors, diabetes, hypertension, Cardiovascular diseases.

Received 19.10.2022

Revised 18.10.2022

Accepted 21.11.2022

INTRODUCTION

Non-communicable illnesses are affecting the whole world, by rising a tendency in emerging nations where the change creates greater limits to cope with the double burden of infectious and Non-Infectious diseases in a deprived environment is defined by negative well-being structures [1]. The distribution of all-causes and non-communicable burden were more concentrated in low-HDI countries and there are pro-poor inequality [2].

Noncommunicable diseases (NCDs) (Fig-1) are conditions that affect only a small percentage of the population and are caused by a mix of genetic, physiological, environmental, and behavioural factors. Diabetes, cancer, chronic respiratory illnesses like Asthma, COPD, cardiac disease and stroke are the four primary categories of NCD. Seventy-seven percent of all NCDs demises happen in Low & Middle-income countries. Heart diseases, which account for 17.9 million NCD deceases annually, are the leading cause of death, next by cancers, which account for 9.3 million fatalities, respiratory disorders, which account for 4.1 million, and diabetes, which account for 1.5 million. In low- and middle-income countries, which are disproportionately impacted by NCDs, more than 75 percent of all NCD mortality worldwide—31.4 million—occur.

Non-communicable Diseases	
	Cardiovascular Diseases
	Diabetes
	Cancer
	Lung cancer
	Breast Cancer
	Carcinoma of the colon
	Gastric cancer
	Liver cancer
	Cervical cancer
	Cancers of the pancreas, endometrium, prostate, and kidney
	Chronic respiratory illness

Figure1: Non-communicable Diseases

Non-communicable Diseases in India

CVD

Heart and blood vessel illnesses collectively referred to as CVD. It includes coronary disease, high blood pressure, stroke, peripheral arterial disease, cardiac arrest, rheumatic heart disease, cardiomyopathies and congenital heart defects.

Each year, chronic illnesses, mainly heart attacks and strokes, claim the lives of an estimated 17 million individuals worldwide. CVDs, once only found in wealthy nations, are increasingly appearing or growing quickly in poorer nations. In fact, a third of all fatalities worldwide were caused by CVDs in 1999, with 78 percent of those deaths happening in low- and middle-income countries. During 1998, 86 percent of DALYs triggered by CVD. The tendency is moving in the direction that CVDs will overtake all other causes of mortality in emerging nations by the year 2010, as a result of routine modifications brought on through industrial development and urbanisation in developing countries experiencing socioeconomic transformation. Risk factors for CVDs include drinking alcohol, using cigarettes, not exercising, and eating poorly [3, 4].

Diabetes

In 2030, there will be 330 million cases of diabetes worldwide, up from 194 million cases in 2003, with three-quarters of cases occurring in developing nations. Additionally, the majority of diabetics in wealthy nations are above retirement age, but in developing nations, those afflicted most commonly are between the ages of 35 and 64, making the burden of DALYs greater in less developed nations. Diabetes is the primary cause of problems including blindness, amputations, and renal failure, and these burdens are made worse by the interference of CVDs, which account for between 50 and 80 percent of mortality among diabetics [5].

According to studies from various nations, diabetes is an expensive condition that accounts for between 2.5 and 15 percent of overall healthcare expenses [6].

Cancer

Only CVDs often outperform it in the developed world, but the worldwide trend of growing mortality rates is primarily attributable to emerging nations. Globally, more than 10 million new instances of cancer were diagnosed in 2000, and there were more than 7 million cancer deaths. 19.3 million new instances of cancer are expected to be diagnosed globally, compared to close to 10.0 million cancer deaths. In 2040, there will be 28.4 million new instances of cancer worldwide, up 47% from 2020. Transitioning countries will have the greatest growth (64–95%), compared to transitioned nations (32–56%) [7]. In India, cancer is thought to have contributed to 600 000–700 000 fatalities in 2012. This number is comparable to the mortality rate in high-income nations when expressed in age-standardized terms. Infections, cigarette smoking, and other preventable factors are linked to a large number of cancer incidences in India [8].

Lung cancer

People are now most affected by this type of cancer. Smoking causes more than 80% of these cancers in developed countries, and smoking often raises the risk by nearly 30 times, making Lung cancer a serious problematic in emerging nations where tobacco use is surging. Whereas the incidence of stomach cancer often declines after industrialization, pulmonary, intestinal, rectum, prostate and breast cancers frequently rise concurrently with economic expansion [9].

Breast cancer

The highest malignancy amongst women globally is breast cancer. Most dangerous kind of breast cancer among the several subtypes is Triple Negative Breast Cancer (TNBC), which is more common in young women. The percentage of TNBC varies among nations, ranging from 6.7% to 27.9%, with India reporting the highest prevalence overall, followed by Indonesia, Algeria, and Pakistan [10].

Carcinoma of the colon

This kind of cancer, which ranks third and has incidence rates 10 times higher in industrialised than in developing nations, is thought to be mostly caused by dietary variables, which can cause for up to 80 percent. For males in India, the annual incidence rates (AAR) for colon cancer is 4.4 per 100,000 and rectal cancer 4.1 per 100,000. Women had an AAR of 3.9 per 100,000 for colon cancer. Colon cancer is ranked eighth among males, and rectal cancer is ranked ninth [11].

Gastric cancer

This cancer used to be the most typical in the globe twenty years ago. It currently ranks as the quarter most widespread disease in the world, although it is the second most widespread in developing nations. Large amounts of some traditionally preserved, salted foods are thought to raise danger, whereas large amounts of fruits and vegetables are thought to reduce risk. In India, gastric cancer is the fifth greatest prevalent cancer in males and seventh greatest common Cancer in females [12].

Liver cancer

About 75% of cases, with rates that vary by 20 times between nations, take place in wealthy nations. In impoverished nations, eating tainted food and having an active hepatitis virus infection are both significant risk factors, but drinking alcohol is the primary diet-related risk factor globally. In India, the incidence rate of Hepatocellular Carcinoma (HCC) for males ranges from 0.7 - 7.5 and for females from 0.2 to 2.2 per 100,000 people per year, according to the statistics that are currently available. In India, the male to female HCC ratio is 4:1. The age of the presenter ranges from 40 to 70 years old [13].

Cervical cancer

A significant health issue, it accounts for 80% of new cases and fatalities in underdeveloped nations. Cervical cancer incidence and mortality have significantly decreased in developed countries as a result of screening programmes and early detection; however, in Low and Middle Income nations, this is either stable or growing due to a lack of resources for health care and the development of ineffective (or nonexistent) strategies as a result of their unfavourable health systems [14].

Cancers of the pancreas, endometrium, prostate, and kidney

In developed nations, certain cancers are more prevalent. However, given that being overweight or obese is a known risk factor, their prevalence is anticipated to rise in emerging nations undergoing socioeconomic transformation.

Chronic respiratory illness

The global health systems are heavily burdened by chronic respiratory disorders. The majority of developing countries lack standardised guidelines for identifying and treating chronic respiratory problems including asthma and chronic obstructive pulmonary disease. In these countries, people who are underprivileged, illiterate, and have little contact to healthcare facilities will die before they age 40. They make up 15 percent of a population in Latin America, 34 percent in the Arab, 45 percent in Sub-Saharan Africa, and 50% in Southeast Asia. [15]. 15% of all illnesses in the world are caused by respiratory conditions. 600 million individuals are thought to have COPD worldwide, and in 2000, these illnesses were blamed for 2.5 million fatalities.

DISCUSSION

Four categories of NCDs that is Cardiovascular disease, diabetes mellitus, cancers and Chronic respiratory Diseases were discussed in the sections that before this one. Despite certain variances within and between these classes, the risk factors serve as their common denominator. In fact, the four classifications of NCDs all identified Hypertension, diet, tobacco, liquor and bodily inactivity at varying heights as risk factors. Furthermore, it is believed that a rising number of people are being affected by these risk factors globally [16]. Through altering lifestyle variables, up to 80 percent of instances of cardio-vascular disease and up to 90 percent cases of Type II diabetes might possibly be prevented. A healthy diet, appropriate weight, and regular exercise throughout life might prevent one-third of malignancies. According to estimates, high-risk groups would have a 50% decrease in coronary heart disease deaths with an optimal fish intake of 40–60 grammes per day. It is advised to consume 400–500 grammes of fresh fruit and vegetables per day to lower the risk of Hypertension, stroke, and Coronary-Heart-Disease. However, the western way of life infiltrating emerging nations again prevents this [17-19]. Obesity and being overweight because harmful metabolic alterations include resistance to insulin, elevated BP, and elevated Cholesterol. As a result, they encourage CVD, Diabetes, and a variety of cancers. Prevalence can reach 60% in certain industrialised nations like the USA, but it can also be quite high in poor nations like Kuwait. Children who are overweight or obese are on the rise. The most striking phenomena, however, is the coexistence of overweight/obesity with malnutrition in poor nations, which adds to the mounting burden facing these nations [20]. A significant portion of the rise in alcohol use over the past few decades may be attributed to emerging nations. Nearly 2 million people died from alcohol-related causes worldwide in 2000, accounting for 4% of all disease-related fatalities. Additionally, it was shown that alcohol was responsible for 20 to 30% of oesophageal cancer cases, as well as liver illness, epilepsy, car accidents, and other dangers [21].

CONCLUSIONS

In developing countries like India, non-communicable illnesses are becoming more and more common. Risk factors for these illnesses include alcohol, tobacco, obesity, poor nutrition, and in-activity. World Health Organization (WHO) and a number of other organisations and associations are pressuring decision-makers in the field of health to embrace successful preventative measures in an effort to stop the increasing trend of Non-communicable Diseases Over the control of Certain risk factors. For instance, despite the fact that numerous developing nations have joined the Framework Convention on tobacco control (FCTC) and established legislation making it illegal to smoke in public places, these regulations are still in existence but not being followed. Developing nations dealing with NCDs pandemics must actively consider FCTC and other global policies.

REFERENCES

1. Boutayeb, A., Boutayeb, S. (2005). The burden of non communicable diseases in developing countries. *Int J Equity Health* 4, 2. <https://doi.org/10.1186/1475-9276-4-2>.
2. madi, M., Delavari, S. & Bayati, M. (2021). Global socioeconomic inequality in the burden of communicable and non-communicable diseases and injuries: an analysis on global burden of disease study 2019. *BMC Public Health* 21, 1771. <https://doi.org/10.1186/s12889-021-11793-7>.
3. Lenfant C. (2001). Can we prevent cardiovascular diseases in low-and middle-income countries?. *Bulletin of the world Health Organization*. 79:980-2.
4. Reddy KS. (2002). Cardiovascular diseases in the developing countries: dimensions, determinants, dynamics and directions for public health action. *Public health nutrition*. ;5(1a):231-7.
5. International Diabetes Federation (IDF): Action Now: A joint initiative WHO and IDF. Available at: <http://www.idf.org>
6. Boutayeb A, Twizell EH, Achouayb K, Chetouani A. (2004). A mathematical model for the burden of diabetes and its complications. *Biomedical engineering online*. ;3(1):1-8.
7. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F. (2021). Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin*. 71(3):209-249. doi: 10.3322/caac.21660. Epub 2021 Feb 4. PMID: 33538338.
8. Mohandas K Mallath, David G Taylor, Rajendra A Badwe, Goura K Rath, V Shanta, C S Pramesh, Raghunadharao Digumarti, Paul Sebastian, Bibhuti B Borthakur, Ashok Kalwar, Sanjay Kapoor, Shaleen Kumar, Jennifer L Gill, Moni A Kuriakose, Hemant Malhotra, Suresh C Sharma, Shilin Shukla, Lokesh Viswanath, Raju T Chacko, Jeremy L Pautu, Kenipakapatnam S Reddy, Kailash S Sharma, Arnie D Purushotham, Richard Sullivan. (2014). The growing burden of cancer in India: epidemiology and social context, *The Lancet Oncology*, Volume 15, Issue 6, Pages e205-e212, ISSN 1470-2045, [https://doi.org/10.1016/S1470-2045\(14\)70115-9](https://doi.org/10.1016/S1470-2045(14)70115-9).
9. World Health Organisation: (2003). Diet, Nutrition and the prevention of Chronic Diseases. Technical report Series 916. Geneva, World Health Organization.
10. Krishan K. Thakur, Devivasha Bordoloi, Ajaikumar B. Kunnumakkara, (2018). Alarming Burden of Triple-Negative Breast Cancer in India, *Clinical Breast Cancer*, Volume 18, Issue 3, Pages e393-e399, ISSN 1526-8209. <https://doi.org/10.1016/j.clbc.2017.07.013>.
11. Colorectal Cancer - Indian Council of Medical Research. Available at: <https://main.icmr.nic.in>
12. Sharma A, Radhakrishnan V. (2011). Gastric cancer in India. *Indian J Med Paediatr Oncol*. 32(1):12-6. doi: 10.4103/0971-5851.81884. PMID: 21731210; PMCID: PMC3124983.
13. Acharya SK. (2014). Epidemiology of hepatocellular carcinoma in India. *J Clin Exp Hepatol*. 4(Suppl 3):S27-33. doi: 10.1016/j.jceh.2014.05.013. Epub 2014 Jun 20. PMID: 25755607; PMCID: PMC4284206.
14. Sankaranarayanan R, Budukh AM, Rajkumar R. (2001). Effective screening programmes for cervical cancer in low-and middle-income developing countries. *Bulletin of the World Health Organization*. 79(10):954-62.
15. Ait-Khaled N, Enarson D, Bousquet J. (2001). Chronic respiratory diseases in developing countries: the burden and strategies for prevention and management. *Bulletin of the World Health Organization*. 79:971-9.
16. Alberti G. (2001). Noncommunicable diseases: tomorrow's pandemics. *Bulletin of the World Health Organization*. 79:907-912
17. Stampfer MJ, Hu FB, Manson JE, Rimm EB, Willett WC.(2000). Primary prevention of coronary heart disease in women through diet and lifestyle. *New England Journal of Medicine*. 6;343(1):16-22.
18. Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *New England journal of medicine*. 2002 Feb 7;346(6):393-403.
19. Key TJ, Allen NE, Spencer EA, Travis RC. (2002). The effect of diet on risk of cancer. *The Lancet*. 14;360(9336):861-8.
20. Kenchaiah S, Evans JC, Levy D, Wilson PW, Benjamin EJ, Larson MG, Kannel WB, Vasan RS. (2002). Obesity and the risk of heart failure. *New England Journal of Medicine*. 1;347(5):305-13.
21. World Health Organization. Diet, nutrition, and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation. World Health Organization; 2003 Apr 22.

CITATION OF THIS ARTICLE

Khiumajuli Abonmai, Sunil Kumar Dular, Deepa Mukherjee, Sameeksha. The burden of Non-communicable Diseases in India: A Review. *Bull. Env. Pharmacol. Life Sci., Spl Issue [4]*; 2022: 602-605