

# Behavioral and Dietary Risk Factors for Noncommunicable Diseases

## Abstract

Noncommunicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. Heart disease, cancer, chronic respiratory diseases and diabetes are the leading causes of suffering and death, and affect all countries, rich and poor. NCDs are posing a serious public health threat today, due to changing life styles such as physical inactivity and consumption of alcohol, tobacco and excess calories. Today our region is faced with a growing epidemic of children who are grossly overweight and who are facing serious disabilities and illnesses as a result. The prevalence and impact of noncommunicable diseases continue to grow. Early diagnosis of diseases such as diabetes can, with effective treatment, avert potentially life-threatening and disabling consequences. Curbing its current harms and preventing its rise with the use of interventions known to be effective should be a priority.

**Keywords:** Chronic Diseases, Life Style, Life Threatening.

## Introduction

Non-communicable disease continues to be an important public health problem in India, being responsible for a major proportion of mortality and morbidity. Increased rates of urbanization along with demographic changes and changes in the lifestyle are the major risk factors for NCDs.

A number of studies and randomized trials have established the hazardous effects of behavioral and dietary risk factors on NCDs, and the metabolic and physiological conditions that mediate their effects. NCDs already disproportionately affect low and middle income countries where nearly three quarters of NCD deaths 28 million occur.<sup>(1)</sup> All age groups and all regions are affected by NCDs. Besides age, gender and genetics, exposure to air pollution and behaviors such as tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets all increase the risk of dying from an NCD. The projected cumulative loss of national income for India due to NCD mortality (for 2006-2015 expected to be USD 237) by 2030 is expected to double to 17.9 million years lost.<sup>(2)</sup> In India, there is lack of a regular system of adequate quality for collecting data on NCDs, thus most of these estimates at best may be taken as approximation only.

## Objective of the Study

1. To collect information on risk factor trends of NCDs.
2. To summarize the available data on trends in selected behavioral and dietary risk factors for NCDs.
3. To examine the effects NCDs have had or may have in future on the health of population.

## Review of Literature

"Life style factors are at the root of the non-communicable disease crisis, which is responsible for millions of premature deaths every year" (WHO, 2011)

Rising longevity, alterations in life styles and progressive control of communicable diseases has led to emergence of cancer and non-communicable diseases as an important health problem in India and other developing countries. In India, the life expectancy at birth has steadily risen from 49.7 yrs. in 1973 to 62.7 years in 2001, indicating a shift in demographic profile (SRS. 2006). It is expected that life expectancy of Indian population will increase to 70 years by 2021-25 (Registrar General of India, 1996)

Future health scenarios that are likely, or probable or merely possible can have an important role in shaping public health policy. Studies on health projections provide an indication of the strong interest shown by scientific and public-health communities in the definition and quantification



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of scenarios of future health (Murray and Lopez, 1997).

As a result of industrialization, socio-economic development, urbanization, changing age-structure, changing lifestyles, India is no regular system for collecting data on NCDs which can be said to be of adequate coverage or quality. Thus, most of these estimates at best may be taken as approximation only Rheumatic heart disease (RHD) constitutes 20% to 30% of hospital admission due to all CVDs in India (National Institute of Health & Family welfare, 2003).<sup>23</sup> It has been recently estimated that there are about one million cases of stroke occurring every year in the country, of these more than 100,000 die. This could be as under estimated as not all strokes are recognized and treatment sought for in (WHO NCD in SE Asian region A profile 2002).<sup>24</sup>

India seems to have a genetic predisposition towards diabetes. This becomes manifest on exposure to richer diet and consequent increase in body weight. Studies until the early 1970s essentially showed prevalence rates of less than 3% (National Institute of Health and family welfare, 2003). Studies during 1990-2001 show a significantly higher prevalence than that reported above.<sup>23</sup>

Non- Communicable disease (NCD) is a medical condition or disease that is non-infectious or non-transmissible. NCDs can refer to chronic diseases which last for long periods of time and progress slowly. Sometimes, NCDs result in rapid deaths such as seen in certain diseases such as autoimmune diseases, heart diseases, stroke, cancers, diabetes, chronic kidney disease, Osteoporosis and others.

NCDs are the leading cause of death globally. In 2012 they cause 68% of all deaths (38 million) up from 60% in 2000.<sup>25</sup> Risk factors such as a person's background, lifestyle and environment increase the likelihood of certain NCDs.<sup>26</sup>

NCDs include many environmental diseases covering a broad category of avoidable and unavoidable human health conditions caused by external factors such as sunlight, nutrition, pollution and lifestyle choices. The diseases of affluence are non-infectious diseases with environmental causes. Previously, chronic NCDs were considered a problem limited mostly to high income countries, while infectious diseases seemed to affect low income countries. The burden of disease attributed to NCDs has been estimated at 85% in industrialized nations, 70% in middle income nations and nearly 50% in countries with the lowest national incomes.<sup>27</sup>

The burden of chronic NCDs including mental health condition is felt in work places around the world, notably due to elevated levels of absenteeism, or absence from work because of illness and presenteeism or productivity lost from staff coming to work and performing normal standards due to poor health.<sup>28</sup>

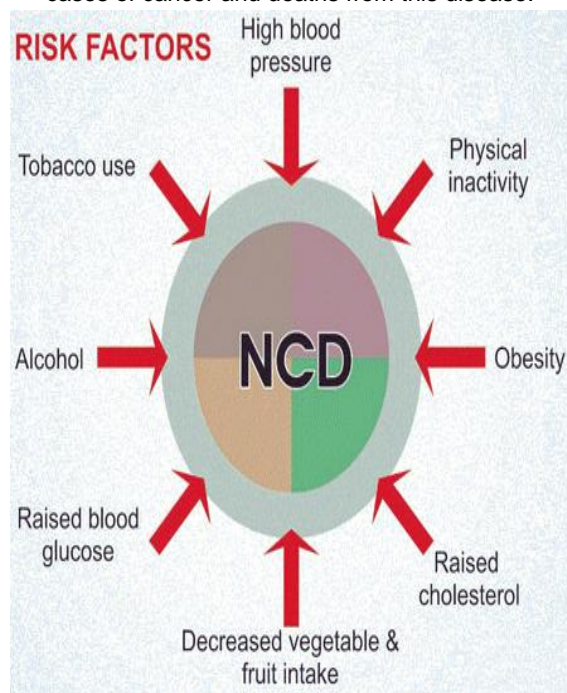
**Tobacco use/Smoking**

The hazardous effects of smoking on mortality from cancers and cardiovascular and respiratory diseases have been known for decades. Effects on other globally important diseases such as

diabetes and tuberculosis have also been shown. In parallel, evidence of the hazards of smoking in Asian countries has established that it is a global problem.<sup>(3,4)</sup>

**Key Facts**

1. Tobacco smoke contains over 4000 harmful and poisonous chemicals.
2. Smoking has deleterious effects on cardiovascular and pulmonary functions.
3. Tobacco smoking and exposure to secondhand smoke together are responsible for about 6.3 million annual deaths worldwide and 6.3% of the global burden of disease, mostly in low and middle income countries.<sup>(5)</sup>
4. A positive relationship exists between years smoked and bone thinning and fractures which is also observed in second-hand smokers.<sup>(6)</sup>
5. Smoking delays healing and increases complications from fractures and trauma.
6. The relationship between smoking and pain has been well established. Smoking aggravates the progression of back pain and arthritis.<sup>(7)</sup>
7. Both smoking early in life and over many years increase the risk of experiencing frequent pain over one's life.<sup>(7)</sup>
8. Exposure of pregnant women, children, and non pregnant adults to secondhand smoke at home and in public places is associated with adverse birth outcomes, childhood respiratory diseases and many of the same diseases that are associated with active smoking.<sup>(8)</sup>
9. Quitting smoking improves musculoskeletal health and functional capacity in several ways: improvement in cardiovascular and pulmonary function, bone density is better preserved overtime.<sup>(9)</sup>
10. In addition to smoking, oral tobacco use and betel nut chewing are responsible for a large number of cases of cancer and deaths from this disease.



**Alcohol**

More than half of the 3.3 million annual deaths from harmful drinking are from NCDs.<sup>(10)</sup>

**Key Facts**

1. Alcohol consumption is associated with numerous diseases of heart, liver, kidney, brain, cancer etc.
2. Culture transition due to Globalization has increased alcohol consumption steadily.
3. Predisposes to injuries, violence, neuropsychiatric conditions.
4. Consumption of alcohol leads to calcium depletion.

**Excessive Weight and Obesity**

Overweight is more prevalent among female, urban and high socioeconomic status groups.<sup>(11)</sup> The prevalence of overweight and obesity had increased slightly over the past decade in India, but in some urban and high socioeconomic status groups it reached a relatively high level. Excessive weight is responsible for about 3.4 million annual deaths and 3.8% of the global burden of disease.<sup>(12)</sup>

**Key Facts**

1. Excess body weight is associated with increased total mortality.
2. Obesity increases risk of diseases or death from diabetes, IHD, cancer, chronic kidney disease and osteoarthritis.
3. High body mass impairs the constituents of bone that are most important for bone strength and fracture protection.<sup>(13)</sup>
4. Excessively-high body mass has been associated with a range of musculoskeletal conditions that impact functional capacity.
5. Obese people are more prone the hyperuricemia and gout and osteoarthritis.<sup>(14)</sup>
6. Body mass and pain threshold have been reported to be inversely related in obese persons.<sup>(15)</sup>

**Physical Activity**

Studies of the beneficial health effects of physical activity date back to the 1950s and have been replicated in large cohorts.<sup>(11)</sup>

Physical activity at work, walking, and in some populations bicycling used to be major contributors to total energy expenditure but have declined dramatically in industrial and urban societies. Epidemiologic studies in high income countries have focused on leisure-time activity with less emphasis on work and methods of local transportation, which are important in developing countries.<sup>(16)</sup> Only recently has attention been given to population-based measurement of physical activity in countries at all stages of urbanization and economic development. In a study by Ramachandran et al on temporal changes associated with pattern of life style (1989-2003) there had been a decline in levels of physical activity.<sup>(11)</sup>

**Key Facts**

1. Sedentary lifestyles are well known to be associated with non-communicable diseases including heart disease, high blood pressure and stroke, type 2 diabetes mellitus, and some cancers.

2. Sedentary living has its impact on musculoskeletal health, and is associated with back problems too.<sup>(17)</sup>
3. Inactivity has been associated with joint degeneration due to reduced synovial fluid production to protect joint surfaces.<sup>(18)</sup>
4. 3.2 million deaths are linked to lacking physical activity (WHO 2015).<sup>(19)</sup>
5. Excessive use of technologies, electronic gadgets has led to sedentary lifestyles associated with NCDs.
6. People who are active and exercise more regularly report better mental health i.e, less anxiety and depressive symptoms, than those who are not active nor exercise.

**Diet and Nutrition**

Dietary patterns have changed fundamentally in global era, and there is now a real danger that the diets of both children and adults will produce serious health challenges. Unhealthy diets may show up in individuals as raised blood pressure, increased blood glucose, elevated blood lipids and obesity. Globalized markets are nudging people worldwide towards unhealthy habits along with marketing strategies used in the media to promote consumption of high energy dense foods and fast food outlets with large portion sizes also by the relatively high cost of healthy foods.

**Key Facts**

1. The rapidity of the nutrition transition has led to dietary changes towards adoption of the 'western diet' which is high in animal proteins, fat and sugar all leading to obesity and related problems.
2. This diet in combination with tobacco use and little physical activity, leads to population wide atherosclerosis and the widespread distribution of NCDs. (Beaglehole and yach, 2003)
3. Western lifestyle practices contribute to calcium negative balance and bone demineralization.
4. Low dietary intakes of fruits, vegetables, whole grains or nuts and seeds or a high dietary intake of salt are individually responsible for 1.5% to more than 4% of the global diseases burden.<sup>(5)</sup>
5. FAO data show that regions consuming animal fats and high-calorie foods are having one of the largest worldwide increase in serum cholesterol levels.<sup>(20)</sup>
6. A high intake of salt is a risk factor for stomach cancer and also for elevated blood pressure, which in turn increases the risk of stroke, other cardiovascular diseases, chronic disease and kidney cancer.<sup>(21,22)</sup>

**Conclusion**

Study of various risk factors trends presents a more complete picture of the epidemiologic transition as well as measures to manage and reduce the risk factors in countries at all levels of economic development, with the use of various preventive strategies.

Preventive measures are key to addressing NCDs and do not require anything more than for individual to change their lifestyle. By taking part in more physical activity, stopping smoking and

modifying dietary habits the risk of premature deaths or illness from NCDs can be significantly reduced.

The damage caused by NCDs should be reframed as a collective problem that requires a global response. Preventing NCDs not only leads to longevity and prosperity but also society gains simple pleasure that comes from leading healthier, more vigorous lives- an aspiration well within our grasp.

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