

Living with chronic diseases in India

Prakat Karki

Department of Psychology

Christ (Deemed to be) University, Bangalore, India

Abstract: Chronic diseases refer to a collection of diseases which take decades to fully establish and are largely untreatable. The most common ones include diabetes, stroke, cancer, hypertension and heart/cardiovascular diseases. They are responsible for more than half of total deaths each year worldwide, and the incidence has grown tremendously over the last fifty years, overtaking infectious diseases as the major disease burden of most countries. In India, this transition occurred late, but at present chronic diseases represents a significant proportion of total loss and disability. India's chronic disease situation is characterized by two distinct qualities; first, the younger populations are largely implicated in most major chronic diseases and second, the prevalence is more common in urban areas. In exploring the reasons behind the dramatic transformation of a population's overall health, lifestyle factors provide the best explanation. Three major lifestyle aspects of diet, physical activity and substance use are most often recognized as easily modifiable in prevention of chronic diseases and the changes in these three lifestyle domains over the last fifty years, particularly in urban areas, give a clear indication of why chronic diseases are rising so dramatically. The foremost method of curbing the impending epidemic of chronic diseases remains addressing particular long term changes in diet, physical activity and substance use for the whole population.

Keywords: Chronic diseases, lifestyle, India, diet, physical activity, substance use.

I. INTRODUCTION

The advent of modern civilization has seen a remarkable progress in the last fifty years in all areas of science, infrastructure, medicine, politics, etc. The quality of life in most societies worldwide has dramatically improved with ease of access of food, healthcare, communication and leisure. In terms of human health, the average life expectancy has increased by many years and diseases that plagued populations in the past have been eradicated or properly controlled. While the rate of infectious diseases has reduced, epidemiologists have seen the rise of new kinds of non-communicable diseases, which has come to be collectively referred to as chronic diseases. It is a new phenomenon or collection of clinical observations that did not exist a century ago and has come to become the major cause of death and disability worldwide (World Health Organization, 2005). It includes cardiovascular and pulmonary disorders such as heart diseases, stroke, diabetes, hypertension and cancer. The epidemiological transition of the main disease burden from infectious ones to chronic diseases occurred in the 1970-80s in most Western economies (Eggerl & Dixon, 2014). The term 'chronic' captures the essence of the diseases mentioned as they take decades to become fully established, have numerous opportunities for prevention and intervention, and require long term systematic treatment.

II. CHRONIC DISEASES IN INDIA

India is probably the most relevant nation in regard to chronic diseases given its rising distinction of becoming the diabetes capital of the world (Mohan & Reddy, 2014). India is currently one of the fastest growing economies in the world and the transformation from an underdeveloped third world country to a global mega power came much later than the Western developmental burst in the post world war era. Rapid industrialization and urbanization has improved the quality of life, especially in the emerging urban areas. India is a host to at least three megacities which have been highly modernized in all forms of culture, diet, lifestyle, art, media, etc. to a pattern that mimics European cities. The prospect of better living attracts millions of people from rural areas every year to migrate to cities and who try to assimilate into the emerging middle class.

At the present stage, chronic diseases account for 53 percent of total deaths each year in India, which is expected to grow up to 67 percent by 2030 (Reddy, Shah, Varghese & Ramadoss, 2005). India is also home to more than 30 million coronary heart disease (CHD) patients as well as 50 million people with diabetes (India Business Newsweekly, 2011). Diabetes alone accounts for more than a million deaths each year in India and is predicted to affect more than 100 million people in India by 2035 (Sinha & Pati, 2017). The age of onset of diabetes is a decade earlier than other countries and the rates of undetected diabetes too is very high (Sahay & Sahay, 2010). Of the 10.3 million deaths estimated to occur in 2004 in India, 5.2 million (50 percent) was directly attributable to chronic diseases (Patel, et al., 2011). Hypertension which often accompanies diabetes, stroke and coronary heart diseases is expected to rise in prevalence from 118.2 million to 213.5 million by 2025 (Reddy, et al., 2005). Cost wise, India is expected to lose up to 237 billion dollars within the next decade due to chronic non- communicable diseases (Kounteya, 2007). The elderly population fares no better with almost 90 percent of Indians over 50 years having insufficient nutrition intake and high risk waist hip ratio or abdominal obesity. More than 60 percent of aged men also use tobacco, a key factor that increases the risk for most chronic diseases (Times of India, October 1, 2012). The number of people living with chronic diseases is expected to only rise further in the near future as changes in lifestyle as well as broader social, economic and environmental determinants of chronic disorders are occurring rapidly (Suminski, 2014).

In analyzing India's current chronic disease situation, two distinct patterns can be noticed. First, a high proportion of deaths due to chronic diseases occur at relatively younger ages among the Indian population. In terms of productive years of life lost due to cardiovascular diseases among people between 35 and 64 years, India ranks first in the world with 9.2 million years lost in 2000 alone. The number is estimated to rise to 17 million years by 2030, almost 940 percent greater than the loss in the USA (Reddy, et al., 2005). Coronary heart diseases too occur among Indians at least five to ten years earlier than other populations with the average age of first acute myocardial infarction being 53 years (Singh, 2011). The way in which same identified risk factors have affected the Indian population more potently has been attributed to an "Indian Asian phenotype" which leads to a greater diabetogenic and atherogenic sensitivity often resulting in increased insulin resistance and metabolic syndrome. Secondly, the rate of chronic disease escalation is more prominent in urban areas of India, with a high prevalence of existing patients as well as a growing incidence among the younger population. The prevalence of coronary heart disease itself is around 8 to 10 percent in urban centers compared to just 3 to 4 percent in rural areas. It represents a six fold increase in the urban areas compared to the two fold rise in the rural ones in the last four decades. Although there are millions of people from low socio economic and rural backgrounds too affected by the same ailments, the causes for the ones in the urban areas remain very clear, often owing to the dynamics of city life. Cities and metros are the faces of modern India and exist as a breeding ground for the growing epidemic of chronic diseases.

III. CHANGES IN LIFESTYLES RELATED TO CHRONIC DISEASES

The reasons for the shift in diseases from infectious to chronic ones parallel India's overall development in the last few decades. Common to most nations, the improvements in sanitation, consistent nutrition supply and healthcare services have drastically reduced nutrition or infection related diseases in childhood, resulting in the majority of the population surviving till old age (Bruce, 2006). Mortality in middle and older ages are largely attributable to chronic diseases and mostly represent a normal development function. However, given the disproportionate distribution of disease prevalence in urban and rural areas, and the increasing prevalence of chronic diseases in younger populations, explanations based solely on ageing are insufficient in explaining the chronic diseases situation in India (Eggerl & Dixon, 2014). The focus has been shifted to lifestyle, a construct that encompasses various levels of personal, social and environmental determinants.

The adoption of the modern western lifestyle is often pinpointed as the cause of the present day disease pandemic which seems plausible given the relatively short span of the disease transition and growth which is too quick for genome changes to have taken place. Lifestyle covers all distal, medial and proximal factors which encompass social, dietary, cultural, occupational, environmental and personal factors. Often causality of chronic diseases is layered and difficult to pinpoint among the myriad of behaviors and effects that take decades to manifest into a disease state (Eggerl & Dixon, 2014). In analyzing the causes for the remarkable downslide in the health of an entire country, a few lifestyle factors such as diet, physical activity and substance use have often been recognized as being the most common modifiable risk factors for many chronic diseases (Suminski, 2014). Up to 80 percent of the cases of chronic diseases is believed to be preventable through specific behavioral changes in lifestyle and pharmaceutical interventions (IBN, 2011; Kounteya, 2007). Lifestyle often denotes regularity, such that the single incidence of the risk factor is not implicated in causing the disease, but rather

a continuous or repeated occurrence over many years or lifetime. The changes that have occurred in India in the last fifty years with regard to each of the modifiable risk factors are described below in brief.

A. Diet.

India was predominantly an agricultural nation till a few decades earlier. Agriculture shifted from a means of sustenance to a means of income and trade, with the rise of middle industries often producing altered food products on a large scale. The millions of people in the urban centers largely depend on food materials produced in profit driven markets, often low in quality and laced with preservatives and harmful chemicals. The advent of modern food industry in the urban centers has seen the increasing consumption of packaged 'junk' foods and the sprawling of supermarkets and fast food chains that serve up unhealthy processed foods. The pattern of consumption has unduly been influenced by the availability of different varieties of easily obtainable food, particularly in the big cities. Inadequate or over nutrition alone is reported to account for two thirds of risk for chronic diseases like type II diabetes and cardiovascular diseases (Eggerl & Dixon, 2014).

The traditional diets of India constituting high fibers and low saturated fats, cholesterol and meat have been considered as protective against heart diseases and hypertension (Gopalan, 1996). The enduring practice of faith based vegetarianism prevalent in India for the last 3000 years has been on the decline along with other traditional diets (Singh, 2011). In terms of specific changes in diet, there has been an increase of edible oil consumption (from 18 to 27 grams per person) and fat intake (from 41 to 52 grams per person) between 1992 and 2005. Salt consumption which is mainly implicated in hypertension and cardiovascular diseases is also high (9 to 12 grams per day) compared to the World Health Organization recommendations of less than five grams per day (Mohan & Reddy, 2014). The non vegetarian diet pattern alone is associated with up to 82 percent increase in the risk of coronary heart diseases (Singh, 2011). The major diet patterns prevalent at present include excessive consumption of sugars, salts and fats, and low levels of fruits and vegetables (Eggerl & Dixon, 2014). A study on the diet patterns of urban South Indians found that it was high in refined cereals and low in fish, fruits and vegetables compared to WHO sanctions (Radhika, Sathya, Saroja, Vijayalakshmi, Sudha & Mohan, 2010). The cities of India have seen the establishment and expansion of Western fast food chains and the population has followed suit. Finally, the decentralization of government along with increased mobility has allowed the diversity of food within India to be savored in easy reach anywhere. All these factors have led to only one outcome; Indians are eating more food than usual, which is very diverse, low in quality and high in harmful ingredients.

B. Physical activity.

The mobility of the average Indian has transformed a great deal in the last few decades. Earlier, major occupations such as agriculture and cattle rearing were directly related to physical activity such that no additional exercise was required. However, occupation patterns have shifted from physical labor type to service type which emphasizes mental work rather than physical ones. Public and private transportation has reduced the need to walk, and people are increasingly living sedentary lifestyles. Inactivity is linked to most of the chronic diseases, and it is being increasingly taken up as a luxury by middle class urban dwellers whose occupation mostly involves sitting for long hours while travel is done using private or public vehicles. Physical exercise has been regarded as one of the best ways to prevent and counter chronic diseases as it helps to regulate blood pressure, lipid density and glucose utilization implicated in the major chronic diseases (Mohan & Reddy, 2014). Younger populations among the affluent class have become more home bound often spending time with internet, video games and television rather than engaging in physical activity. This has increased the risk for developing chronic diseases among them in a much earlier age (Mane, et al., 2012). Obesity is at an all-time high and it is often the obese people who bear the brunt of the diseases in their later years. Often, obesity is seen as a sign of prosperity and encouraged in most Indian societies whereas formal daily exercises and fitness schedules remain a foreign concept and are often neglected. Physical exercise remains the best way to counter the ill effects of an unhealthy diet, and a lack of exercise from an early age is probably the most plausible explanation for the emergence of chronic diseases among younger populations.

C. Substance use.

Substance use, particularly tobacco and alcohol use remain important and yet often underrated factors in the high prevalence of chronic disorders. The use of substances directly aggravates the already fragile state of health of most Indians and brings forth health problems at a much earlier age. The overall prevalence of tobacco use in men is around 56

percent, with almost 72 percent of men in the age group of 51 to 60 years using tobacco in some form (Reddy, et al., 2005). India is the second largest producer and third largest consumer of tobacco products in the world and tobacco use is directly implicated in the etiology of the high rates of cancer (lungs, esophagus and throat), cardiac pulmonary obstructive diseases (atherosclerosis, emphysema, bronchitis), and heart diseases, as well as worsening the progression of diabetes and hypertension. A large proportion of particularly the male population is dependent on tobacco or alcohol, as they start the use of the substance at a relatively young age and go on to become lifelong users later (Flay, 1992). The loose policy networks, lack of awareness and information, improper control strategies, manipulation by the media, etc. have led to a situation in which more young people are taking up tobacco and alcohol use every year. The prevalence of substance use transcends the rural-urban divide, as rates remain high in both cases, with only the choice of substance being different. While the urban lifestyle harbors a free space for the emerging adults of both genders to take up alcohol or tobacco use frequently, people from low income or rural backgrounds often stick to low costing chewing tobacco and *beedis*. Similar to the effects of unhealthy diet and physical inactivity, the use of substance only leads to health problems after regular use for decades, up to which relatively few problems are observed.

D. Other.

Alternate explanations of chronic diseases have also focused on the stressful nature of urban living, citing excessive demands from occupation, such that depressive and anxious symptoms become common. Chronic stress has been directly related to elevated levels of adrenocortical hormones in the body which places a strain on the sympathetic nervous system. Environmental factors such as pollution of air and water are also common to most big cities (Eggerl & Dixon, 2014). In the rural sphere, chronic diseases are perpetuated by rudimentary level of understanding about chronic diseases, lack of healthcare infrastructures and resistance to modern medicine with over reliance on faith based healing practices. While these factors are not implicated in urban areas as urban inhabitants are mostly educated and have easy access to healthcare, the same ease of access to basic needs and overindulgence on desires and leisure have proved to be the downfall of the population.

IV. CONCLUSION

The state of health of the Indian population is at a critical juncture at present with chronic diseases bordering on epidemic proportions. Besides the personal predicaments of pain and suffering of the people suffering from chronic diseases and their families, the country stands to lose a great deal economically in terms of loss of working manpower, health care and disability costs. However, there remains no easy solution in sight too as any step in fixing the problem needs to first undo the decades of unhealthy changes. The issue of chronic diseases needs to be addressed as a top priority by the governing bodies and steps need to be taken to promote healthy lifestyles, regulate food production industries and discourage tobacco and alcohol consumption. The focus needs to be placed on prevention of chronic diseases rather than on treatment (Kounteya, 2007). The population already implicated by the diseases need to be adequately catered to, by providing scope for accessible management and ensuring detection of conditions such as diabetes, hypertension and high cholesterol at earlier ages for effective treatment (Bruce, 2006). Most importantly, information about chronic diseases needs to be put on the forefront of every media source such that the population is adequately aware about the grave situation that the country is in. Unless individuals become proactive on their own to tackle the diseases, the wider policy changes will have little effect. The test of overcoming chronic diseases remains a huge challenge for India in the next fifty years due to the sheer speed of the country's growing economy and population. If only nutritious diet, physical activity and substance abstinence can be enforced on the population at a large scale, it will mark a great stride in the advancement of the nation

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