

Economics of Non-Communicable Diseases: Case Study of South Africa and India

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ABSTRACT

The burden of Non Communicable Diseases (NCDs) is one of the vital factors that is currently affecting most of the developing countries. NCDs accounted for 68% of worldwide deaths in 2012 and nearly three fourth of these deaths occurred in low and middle-income countries. The efforts of developing countries towards eradication of poverty and achievement of sustainable development is currently hindered due to significant loss in productivity caused by NCDs related premature deaths and treatment. South Africa and India are confronted with various health and developmental issues. Being a highly populated country, India faces a great challenge from NCDs as it mainly affects the most productive age group, which results in a heavy absolute economic burden. South Africa is faced with the problem of quadruple burden of diseases along with the problem of high incidence of poverty and inequality. Being resource-scarce economies, increasing expenses on health sector will adversely affect the availability of resources for other sectors in these countries. Both South Africa and India have initiated steps to combat the burden of NCDs in line with Global targets set by WHO. If appropriate actions are not initiated to prevent NCDs, it will further increase poverty and widen inequality. In view of this a holistic approach involving all the sectors of the economy, including community to work together, is essential to address the challenges of NCDs.

Key words: Non Communicable Diseases, Economic burden, Developing countries, South Africa, India.

INTRODUCTION

A healthy society is a productive asset for any economy. However, many countries of the world are confronted with various health-related issues that weaken their human resources. The prevalence and increase of Non-Communicable Diseases (NCDs) are prime factors currently affecting human resources of various countries around the globe. NCDs accounted for 68% (38 million of the 56 million) of all deaths that occurred worldwide in 2012. Premature and preventable deaths caused by NCDs have a major negative impact on health economics. Annually, over 9 million NCD related deaths occur at the most economically productive age of below 60, and around 16 million deaths (42%) occur under the age of 70.¹ It is crucial to note that in 2014, 80% of all NCD related deaths (28 million) occurred in low and middle-income countries.²

NCDs are rapidly advancing as the leading cause of morbidity and mortality amongst all social classes in developing countries. While the burden of NCDs is evident in both rural and urban areas, it is obviously affecting predominantly poor areas, and is exerting pressure on accessible financial, organizational and human resources.³ Estimates show that by 2030, NCDs may lead to 75% of global deaths.⁴ The principal causes of NCD deaths in 2012 were cardiovascular diseases, cancers, respiratory diseases, including asthma and chronic obstructive pulmonary diseases, and diabetes, accounting for 46%, 22%, 11% and 4% of all NCD deaths respectively.⁴

NCDs are chronic conditions that pose not only health but also developmental challenges, as they force many people into poverty, resulting in a loss of productivity

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along with catastrophic expenditure for treatments which they cannot afford.⁵ Risk factors such as tobacco use (9%), high blood glucose (6%), lack of physical activity (6%) and being overweight or obese (5%) were mainly responsible for the rise in major non-communicable chronic diseases.⁶ Studies have revealed that reducing exposure to and increasing the management of these risk factors, including alcohol consumption, smoking and unhealthy diet, could increase global life expectancy by 5 years.⁷

The increased pressure on healthcare systems due to NCDs, which are projected to increase further, will lead to negative economic impacts at the national level, affecting all the stakeholders-individuals, families, businesses, governments and health systems. Economic analysis has shown that for every 10% rise in NCDs, there is a 0.5% decrease in annual economic growth.⁸ Annually, US \$11.2 billion is spent worldwide on high impact, essential NCD interventions that can be delivered through a primary healthcare approach to strengthen early detection and timely treatment.¹

NCDS AND HEALTH ISSUES IN DEVELOPING COUNTRIES

Deaths from chronic diseases are anticipated to increase from 56% of all deaths in 2005 to 65% by 2030 in developing countries, and from 87.5 to 88.5% in developed countries, with cardiovascular diseases accounting for the majority of deaths.⁹ The estimated disease burden and loss of economic output associated with the four major chronic diseases in 23 selected low-income and middle-income countries account for around 80% of the total burden of chronic disease mortality in developing countries. If appropriate actions are not taken to reduce the menace of chronic diseases, then an estimated US\$84 billion of economic production between 2006 and 2015 is expected to be lost as a result of heart disease, stroke, and diabetes. Actions to achieve a global goal for chronic disease prevention and control were expected to lead to a 2% yearly reduction in chronic disease death rates over a span of 10 years. During this period, it was projected to prevent 24 million deaths in these countries, and to save an estimated \$8 billion, which would be around 10% of the anticipated loss in national income.³

Spanning from 2011 to 2025, the total amount of economic losses due to NCDs in low- and middle-income countries is estimated to be US\$ 7 trillion. This loss is significantly more than US\$ 11.2 billion required to implement a set of high-impact interventions to reduce

the preventable annual burden of NCDs. A majority of these developing countries are forced to manage the consequences of a double burden of diseases, which comprises of communicable diseases that have traditionally existed due to social determinants of health, along with poor economic conditions and, presently, the epidemic increase in NCDs.¹

The rise of lifestyle-related chronic diseases in low income countries is the result of a complex group of socio-economic and behavioural factors. Variability in the prevalence of chronic diseases is found both at the country level and within those countries at risk.¹⁰ In many countries, excess alcohol consumption, and unhealthy diet and lifestyles prevail across all income groups. However, high-income groups can afford services and products that protect them from most risks of NCDs which the economically weaker sections often cannot manage.¹¹ Increasing incidence of NCDs is expected to lead to a shift in the epidemiological profiles and age-wise distribution of the populations of developing countries.¹⁰ This will add to the existing burden of diseases in these countries. As NCDs usually affect the most economically productive age group of below 60, this is going to influence the age structure of the country and result in a reduction in productivity through decreases in the size of the available workforce. The economic strain will be severe, as the number of dependents in society will increase. In economically weak households, healthcare costs of major NCDs could lead to the rapid depletion of household resources due to the exorbitant costs of lengthy and expensive treatments. Additionally, other factors such as the loss of income-earning members is forcing millions of people into poverty annually, suppressing development.¹¹

NCDS AND GLOBAL INITIATIVE

Efforts of developing countries towards the eradication of poverty and achievement of sustainable development have been hindered due to both the significant loss in productivity caused by premature NCD deaths, and the individual and national costs of addressing NCDs.¹¹ Considering the seriousness of the problem of NCDs, global initiatives have been taken by the United Nations and the World Health Organisation. This is only the second time in the history of the UN that the General Assembly has convened a High-Level Meeting on a health issue, which took place in September 2011. The General Assembly adopted the resolution entitled “Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-Communicable Diseases” by consensus¹² during which

WHO was assigned the coordination and leadership role to address NCDs globally. Figure 1 highlights the global initiatives set to address the problem of NCDs.

The success of this effort is seen in the form of an increase in the number of countries conducting surveys based on the risk factors associated with NCDs to 63% in 2013, compared to only 30% of countries in 2011. Furthermore, a separate department has been established in 95% of 172 countries within their Ministries for Health, exclusively for the purpose of tackling NCDs. Also, operational plans and budgets dedicated to dealing with NCD-related issues have been introduced in 50% of these countries. Countries were expected to set national targets and to measure the progress made by them in 2015 on the baselines of 2010, as specified in the Global Status Report on non-communicable diseases 2014. To examine the national level progress in accomplishing these voluntary global targets by 2025, a third high-level meeting on NCDs will be convened by the UN General Assembly in 2018.¹¹

NCDs IN SOUTH AFRICA AND INDIA

South Africa belongs to the category of Upper Middle Income Countries, and exhibits better development indicators in terms of Per Capita Income and health expenditure than India, which is a Low Middle Income Country (Table 1). As seen in Table 1, in terms of incidences of poverty, inequality (Gini Index) and life expectancy, India is nonetheless in a better position compared to South Africa. However, India cannot be complacent with this, mainly because, in absolute numbers, India has a greater burden of poverty and related problems. Even though South Africa has spent a larger proportion of its GDP on health, the life expectancy of its people is considerably low. Both India (66%) and South Africa (65%) have higher percentages of the population between the ages 15 and 64, who could potentially be economically active.¹³ The demographic dividend that arises due to growing numbers of people in the workforce compared to the number of dependents can enhance economic productivity.¹⁴



Figure 1: The Global Initiatives Set to Tackle the Growing Challenge of NCDs

Source: WHO

Table 1: Selected Development Indicators Pertaining to South Africa and India

Country/ World Bank Classification	Population (2014)	Per capita GNI* (current US \$, 2014)	Incidence of Poverty (% of Population)	Gini Index (2011)	Per Capita Health Expenditure (US \$ in 2013)	Health expenditure as % of Gross Domestic Product	Life expectancy at birth (2013)
South Africa UMIC*	54 mn	6800	53.8	65	593.45	8.9	57
India LMIC*	1267 mn	1610	21.9	33.6	61.41	4.0	66

Source: Compiled from World Bank Data (data.worldbank.org) and WHO, 2014. *For the current 2016 fiscal year, middle-income economies are those with a Gross National Income (GNI) per capita of more than \$1,045 but less than \$12,736 in 2014. Lower-Middle-Income Countries (LMIC) and Upper-Middle-Income Countries (UMIC) are separated at a GNI per capita of \$4,125.³

Table 2: Health Expenditure and Life Expectancy in South Africa and India

Year	South Africa				India			
	Per Capita Health Expenditure(current US\$)	Public Health Expenditure as % of total Health expenditure	Out-of-pocket Health expenditure as % of private Health expenditure	Life Expectancy	Per Capita Health Expenditure (current US\$)	Public Health Exp. as % of total Health expenditure	Out-of-pocket Health expenditure as % of private Health expenditure	Life Expectancy
1995	270.78	39.64	23.21	61.4	16.09	27.00	91.36	60.2
2000	245.62	41.34	22.23	55.9	20.05	26.95	91.81	62.2
2005	450.48	38.38	29.93	51.6	32.00	23.11	90.27	64.1
2010	614.75	46.59	13.88	54.4	54.00	30.20	85.55	65.7
2011	669.52	47.70	13.78	55.3	60.54	29.83	87.12	66.0
2012	651.06	48.37	13.78	56.1	58.25	30.46	87.21	66.2
2013	593.45	48.43	13.78	56.7	61.41	32.22	85.88	66.5

Source: Compiled from <http://apps.who.int/nha/database>.¹⁶

Per capita health expenditure incurred in South Africa increased considerably between 2005 and 2011 (Table 2). This could be associated with the drastic fall in the life expectancy between 1995 and 2005. However, after 2011, a significant decrease in the per capita health expenditure is noticed despite the prevalence of an inflationary trend. The proportion of public expenditure in the total health expenditure of the country have been on the increase between 2005 and 2013. A reduction in out-of-pocket expenditure, expressed as a percentage to the private health expenditure, is also seen during this period. In the case of India, per capita health expenditure is meagre, and is only around one tenth of that spent by South Africa (Table 2). The life expectancy in India is seen to be improving gradually. The share of public expenditure in the total health expenditure of the country is less than one third, and the out-of-pocket expenditure, expressed as a percentage of the total private health expenditure, is considerably higher (above 85%).

South Africa and India, the two developing members of the BRICS countries face, various health and developmental issues. South Africa has an urbanisation level of 62%, which is almost twice that of India (31.3%). A look at the causes of deaths (Table 3) reveals that India has a higher incidence of NCDs (60% of total deaths) compared to South Africa (43% of total deaths). In both countries, over a quarter of premature deaths were due to NCDs.

The probability of dying between the ages of 30 and 70 from the 4 main NCDs in South Africa, for males, can be attributed to major adult risk factors, such as raised blood pressure, tobacco smoking, obesity and alcohol consumption, while, among females, raised blood pressure and obesity played a prominent role (Table 3). In India, tobacco smoking, raised blood pressure and alcohol consumption were the main risk factors for males, and, for females, it was raised blood pressure.

Table 3: Proportional Mortality by Causes in South Africa and India

Causes of Death(% of total deaths, all ages, both sexes)	South Africa	India
Cardiovascular diseases	18%	26%
Cancers	7%	7%
Chronic respiratory diseases	3%	13%
Diabetes	6%	2%
Other NCDs	10%	12%
Communicable, maternal, perinatal and nutritional conditions	48%	28%
Injuries	8%	12%
Percentage of estimated deaths to total deaths due to NCDs	43%	60%
Age standardized Death Rate due to NCDs per 100,000 between 2000 and 2012	711	682
Premature mortality due to NCDs	27%	26%
The probability of dying between ages 30 and 70 years from the 4 main NCDs: Adult risk factors		
a) Current tobacco smoking (2011)		
Male	28%	25%
Female	8%	4%
Total	18%	15%
b) Total alcohol per capita consumption, in litres of pure alcohol (2010)		
Male	18.4	8.0
Female	4.2	0.5
Total	11.0	4.3
c) Raised blood pressure (2008)		
Male	35.2%	21.3%
Female	32.4%	21.0%
Total	33.7%	21.1%
d) Obesity (2008)		
Male	21.0%	1.3%
Female	41.0%	2.4%
Total	31.3%	1.9%

Source: Compiled from World Health Organization, 2014.² Note: As per the source, the mortality estimates for these countries have a high degree of uncertainty as they are not based on any national NCD mortality data.

Of the deaths attributed to NCDs, cardiovascular diseases were the major causes of deaths in both countries. In South Africa, among males, the deaths per 100,000 caused by cardiovascular and chronic respiratory diseases decreased considerably during the period from 2000 to 2012 (Table 4). Even in the case of females, a moderate decrease in deaths due to cardiovascular and chronic respiratory diseases is observed. However, deaths resulting from cancers among females and diabetes among both males and females have increased over the same period. In India, a moderate decrease in deaths caused due to cardiovascular and chronic respiratory diseases is observed in both males and females. Deaths caused by cancers among females and diabetes among both males and females have almost remained the same during this period. However, an increase in deaths due to cancers is

seen amongst males. The overall age standardised death rate due to NCDs per 100,000 (2000 to 2012) in South Africa (711) was higher than that of India (682).

ECONOMICS OF NCDs

The forgoing analysis clearly depicts the challenges faced by both countries. Being a highly populated country, India has to face the great challenge of combating deaths which occur mainly due to NCDs, as it affects the most productive age group. When the younger population suffers from chronic NCDs, it will lead to huge loss of productivity and increased costs in chronic treatments. The smaller proportion of public expenditure, combined with a large proportion of out-of-pocket expenditure within the private expenditure (Table 2), will further

Table 4: NCD Death rates per 100,000 by Type of Disease in South Africa and India (2000 and 2012)

Causes of Death	South Africa				India			
	Males		Females		Males		Females	
	2000	2012	2000	2012	2000	2012	2000	2012
Cardiovascular diseases	450	350	300	255	375	350	300	270
Cancers	150	147	90	95	70	80	70	70
Chronic respiratory diseases	150	80	60	48	200	190	150	125
Diabetes	90	100	90	95	25	25	23	23

Source: Compiled from World Health Organisation, 2014.⁷

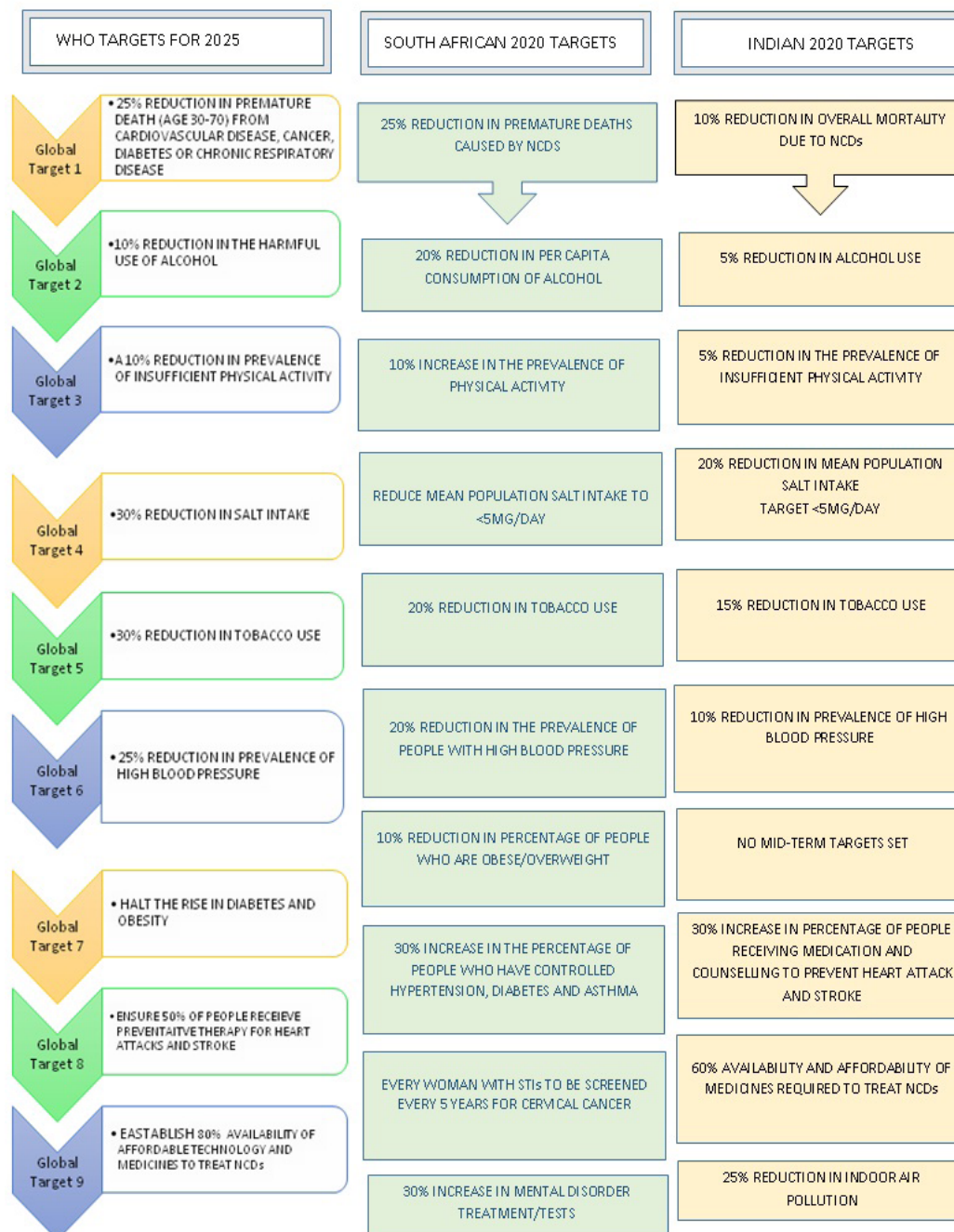


Figure 2: Global and Country-Specific Targets Set to Tackle the Growing Challenge of NCDs

Source: WHO

Table 5: National Systems Response to NCDs	
National Systems Response to NCDs	India
Has an operational NCD unit/branch or department within the Ministry of Health, or equivalent	Yes
Has an operational multi-sectoral national policy, strategy or action plan that integrates several NCDs and shared risk factors	No
Has an operational policy, strategy or action plan to reduce the harmful use of alcohol	Yes
Has an operational policy, strategy or action plan to reduce physical inactivity and/or promote physical activity	Yes
Has an operational policy, strategy or action plan to reduce the burden of tobacco use	Yes
Has an operational policy, strategy or action plan to reduce unhealthy diet and/or promote healthy diets	Yes
Has evidence-based national guidelines/protocols/standards for the management of major NCDs through a primary care approach	No
Has an NCD surveillance and monitoring system in place to enable reporting against the nine global NCD targets	No
Has a national, population-based cancer registry	No

Source: World Health Organization, 2014.²

worsen the condition of the poorer sections of society unless timely preventive actions are taken.

South Africa is faced with the problem of tackling a quadruple burden of diseases, which comprises of HIV/AIDS; TB; high maternal and child mortality; high rates of injury; and the increasing epidemic of non-communicable diseases. The problem is worsened by high incidences of poverty and inequality (Table 1). These factors will further worsen the burden on governmental, organisational, and individual resources. If appropriate actions are not exercised, health and social determinants of health are expected to worsen for the poor sections of the society.

Strong evidence shows that NCDs and their risk factors are associated with socio-economic backgrounds. This leads to a vicious circle of NCDs, as their risk factors worsen poverty. On the other hand, good health leads to improvement in the quality of human capital, which may result in increasing productivity by reducing incapacity, disability, and work days lost. This will ultimately lead to higher economic growth rates. A healthy individual would have better economic and educational opportunities. The availability of free resources due to decreased costs of treatments, could help to reduce the likelihood of poverty.¹⁵ This calls for a concerted effort from all the key role players to prevent NCDs, so as to attain sustainable development of these countries.

Prevention and control of NCDs

The global targets set for 2025 and targets set by South Africa and India for 2020 to address the growing

challenge of NCDs (Figure 2). It can be observed from the figure that South Africa has set up higher targets than those set globally. However, India's targets are far below the targets set by South African and WHO, despite the fact that India is confronted with a higher proportion of NCD deaths.

Table 5 shows the National Systems Response to NCDs in India. These suggest that India has to take NCDs more seriously, so that the actual benefits of being a country with a huge demographic dividend could be enjoyed by the country.

CONCLUSION

The above review clearly reveals the issues related to NCDs faced by developing economies in general, and South Africa and India in particular. Being resource-scarce economies, increasing expenses on health sectors will adversely affect the availability of resources for other sectors in these countries. Both South Africa and India have initiated steps to combat the burden of NCDs, in line with those global targets set by the WHO. However, India has to take the problem of NCDs more seriously than it currently does, as a larger proportion of deaths in India are caused by NCDs, and, in absolute numbers, it leads to a heavy economic burden. Both of the countries are confronted with the problem of poverty and NCDs, which, if NCDs are not alleviated, will further increase poverty and widen inequality. As NCDs affect the most productive age group of the economy, it is pertinent to control NCDs during their initial stages, so that they do not derail the development processes of the economy.

This calls for a holistic approach involving all sectors of the economy, including the community, to work together to reduce the risks associated with NCDs and to promote the interventions aimed at preventing and controlling them. Hence, South Africa and India have to gear up with the implementation of actions leading to prevention, early detection and control of NCDs. This will enable them to reap the benefits of their high demographic dividends and to achieve inclusive growth.

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CONFLICT OF INTEREST

The authors declares no conflict of interest.

ABBREVIATIONS

AIDS:	Acquired Immunodeficiency Syndrome
BRICS:	Association of Brazil, Russia, India, China and South Africa
HIV:	Human Immunodeficiency Virus
LMIC:	Lower Middle Income Country
NCDs:	Non Communicable Diseases
TB:	Tuberculosis
UMIC:	Upper Middle Income Country
UN:	United Nations
WHO:	World Health Organisation