COMMENTARY

Non-communicable diseases: A modern condition?

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For most of history, threats to healthy life have come from pestilence, famine, injury and complications of childbirth. As humans conquered these conditions and lifespans increased, new problems like diabetes, hypertension, cardiovascular

characterised by chronic illness, multi-morbidity, unequal distribution that disadvantages the poor and the vulnerable, and lack of proper health system response.

Most of the NCD burden is ascribed to four common and modifiable behavioural risk factors: tobacco use, alcohol consumption, unhealthy diet and lack of physical activity.

NCDs are the leading causes of death and disability in India: nearly 62% of all deaths and 55% of all disability-adjusted life years (DALYs) in 2016 were attributable to NCDs, and they, along with injury, constitute seven out of the top 10 causes of death and nine of the top 10 causes of disability.

Most NCD-related deaths in India are premature — over 52% of cardiovascular deaths occur below the age of 70, while it is 23% in high-income countries. The myth that NCDs were seen mainly in urban populations was destroyed as early as 2003, when NCD mortality in rural India (41%) was shown to be almost the same as that due to communicable diseases, maternal and perinatal conditions and nutritional disorders (40%). The figure rose to 47% by

disorders, lower back and neck pain, migraine, chronic kidney disease, depressive disorders, and anxiety disorders.

The heterogeneity of India is reflected in the communicable disease-to-NCD transition. The date when the number of NCD DALYs first exceeded DALYs due to CMNNDs ranges from 1986 to 2010 in different states. In the early transition states, 67% of all DALYs in 2016 were attributed to NCDs, whereas the figure was 49% for late transition states. The transition is directly related to the level of social development, with more developed states having greater NCD burden. The poorer states are catching up, however. NCD DALYs increased by 65% between 1990 and 2016 in late transition states, compared to 36% in early transition states.

The economic consequences of NCDs cannot be overstated. NCDs push large numbers of people into poverty. The potential for incurring out-of-pocket expenditure (OOPE) during hospitalisation for cancer and cardiovascular disease in India were respectively 160% and 30% greater than when the hospitalisation was for a communicable disease. OOPE

Why are NCDs increasing?

Increasing life expectancy, growing population, urbanisation and changing lifestyle are the major drivers of the rising NCD burden. With the rise in diabetes, hypertension and obesity, population ageing and climate change, NCD-related deaths and disability are expected to rise further. The pace of change combined with a vast population make the problem particularly acute for India.

The traditional risk factors around which the current health interventions are structured account for only half of the NCD burden in India, suggesting that additional reasons remain to be discovered. Unique risk factors that might contribute to the NCD burden include a propensity for metabolic syndrome at a lower body mass index, high rates of intrauterine malnutrition followed by exposure to calorie-rich food later in life, wide availability of diverse tobacco products, indoor air pollution, and environmental toxins. Some risk factors (including infections) are unique to specific NCDs, for example, human papillomavirus infection for cervical cancer, hepatitis C for chronic liver disease, H.

genesis of NCDs is in the early stages of exploration. Concerns related to trans-generational transmission of NCDs have led to consideration of interventions during adolescence, pregnancy and lactation.

The Indian response to disease

Until recently, the Indian healthcare system laid emphasis on sanitation, infection control and care of the mother and child during and after pregnancy. Several system-level barriers have prevented appropriate responses to NCDs: a lack of risk-factor and disease surveillance systems, poor access to drugs and diagnostic services, limited public financing or insurance, and human resource limitations.

Although India has been the largest recipient of overseas development assistance for health, little of it has been for NCD prevention and control. As a result, NCD care slipped into the domain of the profit-driven private healthcare industry. High-end tertiary care hospitals provide cutting-edge curative medical care for NCDs to those who can afford

the prevention and control of NCDs for 2013-2020, aimed at reducing the number of global premature deaths from NCDs by 25% by 2025.

The Union government launched the National Program for Prevention and Control of Cancer, Diabetes, CVD and Stroke (NPCDCS) in 2010 with the aim of health promotion through behaviour change, outreach camps for opportunistic screening, setting up of NCD clinics, capacity building, and providing support for the diagnosis and cost-effective treatment of NCDs.

The operational guidelines, however, have undergone several changes and are still evolving. Currently, NCDs are managed in the community by multiple stakeholders. Low detection rates, high rates of treatment attrition, non-compliance and uncontrolled disease status are important concerns for NCD control and management.

More recently, the NITI Aayog (National Institution for Transforming India) has been tasked with implementing programs in response to the United Nations Sustainable

provide primary healthcare and provide insurance coverage of up to ₹500,000 (~US$8000) to a family per year. The scheme currently covers in-hospital secondary and tertiary care, but mechanisms to pay for the chronic outpatient care and medication costs, the major drivers of NCD-related OOPE remain unclear.

What is needed?

The WHO NCD Progress Monitor 2017 has highlighted the lack of an integrated NCD policy in India. effectively Combatting NCDs requires reforms at multiple levels, starting from legislative action, such as imposing taxes on unhealthy food, tobacco products and alcohol; enforcing mandatory labelling on packaged foods; developing infrastructure to facilitate good lifestyle choices — providing bicycle paths, making roads safe for cyclists, public spaces for sports, and providing healthy food choices in schools.

These should be supplemented with awareness campaigns through mass media and social media; ensuring adequate

more attention. Insurance and finance reforms that align incentives with quality and outcomes are essential to maximize return on investment.

Communicable facts	
Myth	**Fact**
Call for investments in NCDs in India is premature	NCDs are the leading cause of death and disability in India. Three out of five deaths in India are due to NCDs. NCDs are a health concern for most of the Indian population.
NCDs are primarily urban diseases	Even in 2003, NCD mortality in rural India (41%) was almost the same as that due to infection (40%) and had risen to 47% by 2010-13. Several surveys have shown similar NCD risk-factor prevalence in urban and rural areas.
NCDs are disease of the rich	NCDs burden is increasing at a greater rate amongst the poor in India. NCDs develop earlier in life amongst the poor and the marginalized.
NCDs are disease of the elderly	A majority of deaths due to NCDs in India are premature and preventable. Additionally, years of productive life lost due to NCDs are greater than those due to communicable diseases.
NCDs are primarily diseases of men.	NCDs affect women equally to men and more in the post-menopausal age group. The effects of some risk factors like smoking and diabetes on CVD risk are disproportionally stronger in women.
Increase in NCDs repre-sent economic growth	The global cost of NCDs in the coming two decade is estimated at around US$30 trillion. India will have lost US$4.58 trillion due to NCDs by 2030.
NCDs are incurable	Most NCDs are incurable, but premature deaths

	foods, quality health education and limitations on the advertising of unhealthy products are strategies to reduce NCDs.
Behavioural risk factors for NCDs are difficult to change	Good quality evidence suggest that lifestyle interventions are useful in delaying the onset of diabetes and are scalable.
Lifestyle changes are for people who have diabetes, hypertension, and heart attacks.	Initiating healthy lifestyle changes early in life helps delay the onset of diabetes, hypertension and other NCDs.
People are very busy. Physical activity takes too much time.	Physical activity is the magic bullet to prevent NCDs. It only takes 30 minutes of moderate-intensity physical activity five days per week to improve and maintain your health.
NCDs have no relevance to young people	Smoking and alcohol use are high among today's youth. They will drive the future NCD epidemic. Targeting them early is therefore a good option.

Setting an effective research agenda

Development of a proper NCD policy response that converts the current 'cure-based reactive model' into a 'care-based proactive healthcare model' requires more research. We need granular data — disaggregated on the basis of geography, gender, caste, religion, occupation and socio-economic gradients — in order to better understand the disease drivers and determinants of care and to develop targeted

community need to be evaluated. Suggested approaches include task-sharing, in which frontline health workers provide standardised care using simple checklists, use of evidence-based decision-support tools based on standardised evidence-based algorithms/pathways and use of fixed-dose combinations.

Such interventions can be implemented by the use of mobile technology, wireless networks and point of care devices. We need to develop capacity for secure transmission, storage and analysis of electronic data. Research is needed to identify how health programmes can reach disadvantaged groups and reduce disparities. Multidisciplinary collaboration involving allied sectors such as agriculture, urban planning, environment, education, finance, trade, investment and transport is needed to develop a comprehensive response to the current and future healthcare challenges. Funding bodies should prioritise a comprehensive health system-focused NCD research agenda including capacity building.

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