THE FIRST DR C GOPALAN MEMORIAL LECTURE

Delivered by
Dr Soumya Swaminathan
Chief Scientist, WHO

January
2020

M S Swaminathan Research Foundation
Center for Research on Sustainable Agriculture and Rural Development

This document captures the content of the first 'Dr C Gopalan Memorial Oration' delivered by Dr Soumya Swaminathan, Chief Scientist, World Health Organization at the M S Swaminathan Research Foundation, Chennai on January 05, 2020

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About the Dr C Gopalan Memorial Lecture:

Known as the 'Father of Nutrition Research in India' former Director-General of Indian Council of Medical Research, and Director National Institute of Nutrition, Dr. C Gopalan who also started the National Nutrition Monitoring Bureau made immense contributions to nutrition research in India. He passed away on October 3, 2019 at the age of 101. This lecture was instituted by MSSRF as a tribute to his memory. This booklet documents the first lecture held in his memory.

DR COLATHUR GOPALAN 1918 – 2019

DR C GOPALAN MEMORIAL LECTURE – EVENT FLYER

TITLE: DOUBLE TROUBLE: WHY NUTRITION POLICY MATTERS, MORE THAN EVER NOW

Speaker:**Dr Soumya Swaminathan,**

Chief Scientist, World Health Organization (WHO)

DATE: FRIDAY, JANUARY 03, 2020

Venue: Sambasivan auditorium,

M S Swaminathan Research Foundation,

Taramani, Chennai 600113

TIME: 11.00 AM

About the talk:The overall burden of noncommunicable diseases is rapidly growing in India, as elsewhere around the world. These diseases share common risk factors, including unhealthy diets. India has a growing "double burden of malnutrition" that needs urgent action. These actions require systemic changes, which cannot happen without involvement of government, civil society, academics, the media, donors, and the private sector, as well as new actors, such as grass-roots organizations, farmers and their unions, faith-based leaders, innovators and investors who are financing "green" companies, city mayors and consumer associations. The talk will focus on ways to tackle this, including policy options.

About the speaker: Dr Soumya Swaminathan is a renowned public health professional, who has served as the former Director General of the Indian Council of Medical Research. Particularly recognized for her work on tuberculosis and HIV, she has the distinction of placing India on the global health policy map, becoming the first Indian to serve at one of the highest levels of the WHO. In her career of over three decades, she has held several prestigious roles in multilateral organizations. With over 350 peer-reviewed publications and book chapters, she is an elected Foreign Fellow of the US National Academy of Medicine and of the science academies in India.

TEXT OF THE ORATION

The Double Burden of Malnutrition: Policy actions needed now

Dr Soumya Swaminathan, Chief Scientist, WHO

5 January 2020
At MSSRF, Chennai

Distinguished guests, colleagues in public health, ladies and gentlemen,

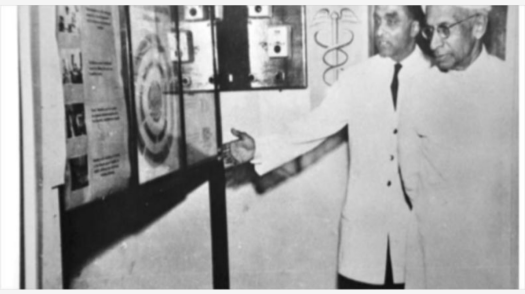
I am delighted to be here today to talk about a critically important topic in global health, nutrition. This lecture comes at a particularly important moment in nutrition research, especially within the current context of what is rightly being called the climate emergency.

DR GOPALAN SHOWING PRIME MINISTER NEHRU THE WORK AT NRL, COONOOR, 1950

First, however, let me pay tribute to the man for whom this lecture is named. Coluthur Gopalan was not just a pioneering nutritionist, he was also an institution builder.

He started the National Nutrition Foundation, directed the National Institute of Nutrition, led the Indian Council of Medical Research, formed the Nutrition Society of India and the Asian Congress of Nutrition.

DR GOPALAN, DIRECTOR NATIONAL INSTITUTE OF NUTRITION, SHOWING DR RADHAKRISHNAN AROUND THE NIN MUSEUM



He was responsible for the Mid-Day Meals scheme and for important research contributions to our understanding of Kwashiorkor and Marasmus and Pellagra, as well as the importance of breast-feeding.

Just a few weeks ago, colleagues at WHO and other global experts published a series of papers in The Lancet on the "new nutrition reality". This reality is the co-existence of overweight and obesity along with stunting; obesity is no longer confined to high-income countries, and under-nutrition is no longer a problem only for low-income ones. (In Box) Definition of Double Burden of Malnutrition:

High prevalence of undernutrition

>15% wasting in children, or

>30% stunting in children, or

>20% thinness in women

And high prevalence of overweight/obesity in adults or children

>20%, >30%, >40%

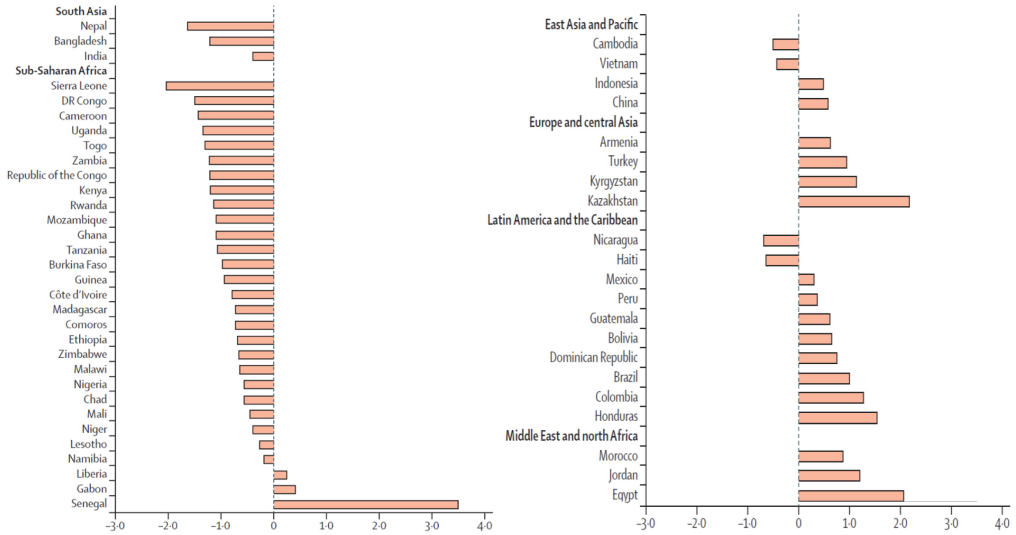


Figure 1: The shifting burden of overweight and obesity from higher-wealth to lower-wealth populations in sample countries

Globally, estimates suggest that almost 2.3 billion children and adults are overweight and more than 150 million children are stunted. However, in low- and middle-income countries these conditions overlap in individuals, families, communities and countries, a phenomenon known as the double burden of malnutrition. More than one-third of low and middle-income countries have overlapping forms of malnutrition, particularly in sub-Saharan Africa, south Asia, and east Asia and the Pacific.

Although modest progress has been made in the reduction of stunting and in the improvement of breastfeeding rates, anaemia rates in women are stagnating and the epidemic of obesity is rapidly expanding.

Undernutrition and obesity can affect generations, as both conditions are associated with poor health and can be passed along from malnourished mothers to children. Now, more people are being exposed to both forms of malnutrition at different points in their lifetimes, which further increases these adverse health effects.

Further, the double burden of malnutrition is a key factor driving the emerging global epidemics of type 2 diabetes, high blood pressure, stroke, and cardiovascular disease.
In 2012, the World Health Assembly endorsed a plan on Maternal, Infant and Child Nutrition that included six targets: reducing stunting and wasting in children under 5, halting the epidemic of obesity, reducing anaemia in women of reproductive age, reducing low birth weight and increasing the rate of exclusive breastfeeding.

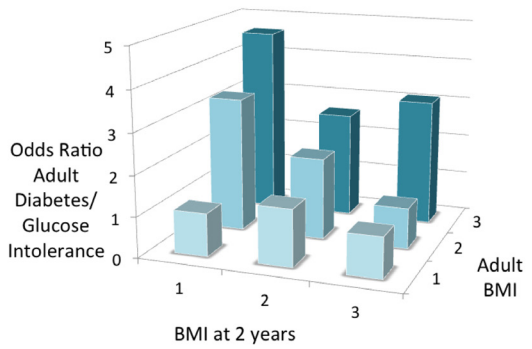


Figure 2: The double burden and disease

We are still in the UN Decade of Action on Nutrition (2016-2025), which received the full endorsement of UN Member States in 2016. But with only 5 years to go, we have a great deal of work before us. Clearly, what we have been doing in nutrition is no longer adequate for these challenges.

A new approach, including new economic modelling tools, is required to accurately estimate the economic impact of the double burden of malnutrition and to help reduce the occurrence of undernutrition and obesity at the same time. These issues have become increasingly connected as a result of rapid changes in food systems.

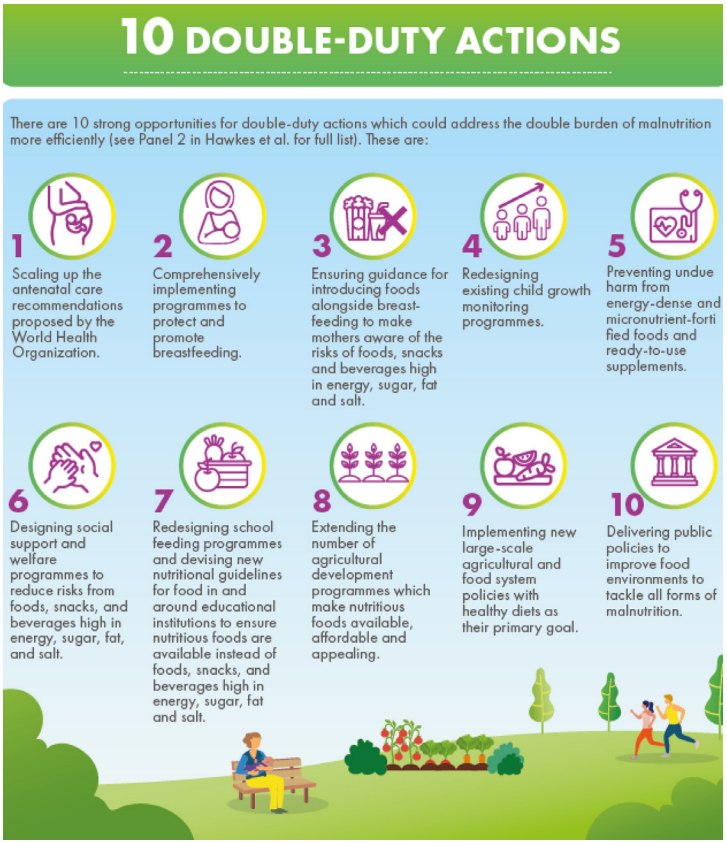
Many current food systems do not provide people with healthy, safe, affordable, and sustainable diets. Instead, many people are increasingly exposed to ultra-processed foods linked to weight gain. Remarkably, these foods are even affecting the diets of infant and very young children. Fresh foods are difficult to come by in many areas, creating so-called "food deserts". Changing this will require action all along the food chain--from production and processing, through trade and distribution, pricing, marketing, and labelling, to consumption and waste.

On the other hand, high-quality diets reduce the risk of malnutrition in all its forms by promoting healthy growth, development, and immunity, and preventing obesity and non-communicable diseases throughout life.

The components of healthy diets are: optimal breastfeeding practices in the first two years; a diversity and abundance of fruits and vegetables, wholegrains, fibre, nuts, and seeds; modest amounts of animal source foods; minimal amounts of processed meats, and minimal amounts of foods and beverages high in energy and added amounts of sugar, saturated fat, trans fat, and salt.

Actions to address all forms of malnutrition have historically not taken account of the multiplicity of key factors, including early-life nutrition, diet quality, socioeconomic factors, and food environments. In addition, there is some evidence that programmes addressing undernutrition have unintentionally increased risks for obesity and diet-related NCDs in low-income and middle-income countries, where food environments are changing rapidly.

While it is critical to maintain these programmes for undernutrition, they need to be redesigned to do no harm. Undernutrition programmes delivered through health services, social safety nets, educational settings, and agriculture and food systems present opportunities to address obesity and diet-related NCDs.



The Lancet series identified a set of 'double-duty actions' that simultaneously prevent or reduce the risk of nutritional deficiencies leading to underweight, wasting, stunting or micronutrient deficiencies, and obesity or NCDs, with the same intervention, programme, or policy. These range from improved antenatal care and breastfeeding practices, to social welfare, and to new agricultural and food system policies with healthy diets as their primary goal.

Double duty actions may be more economically effective to address malnutrition in its multiple forms than interventions and programmes that focus on undernutrition or overnutrition separately.

Let me now run through these double-duty actions.

As you can easily see, these actions require systemic changes, which cannot happen without the involvement of governments, the UN, civil society, academics, the media, donors, and the private sector, as well as new actors, such as grass-roots organizations, farmers and their unions, faith-based leaders, innovators and investors who are financing "green" companies, city mayors and consumer associations.

As my colleague Francesco Branca has said, "Given the political economy of food, the commodification of food systems, and

growing patterns of inequality worldwide, the new nutrition reality calls for a broadened community of actors who work in mutually reinforcing and interconnected ways on a global scale". Without a profound food system transformation, the economic, social, and environmental costs of inaction will hinder the growth and development of individuals and societies for decades to come."

Thus far, I have been talking about the global double burden of malnutrition.

What is the situation here in India?

The overall burden of noncommunicable diseases is rapidly growing in India, as elsewhere around the world. These diseases share common risk factors, including unhealthy diets.

Nutrition is powerfully affected by socio-economic determinants, including education, sanitation, and wealth.

Over half of children born to mothers with no schooling are stunted, compared

with 24% of children born to mothers with 12 or more years of schooling. There is a strong negative correlation between stunting and improved sanitation. Not surprisingly, the prevalence of malnutrition decreases steadily with increased wealth.

The prevalence of child overweight, at 12%, increased significantly in India between 2010 and 2017. The projected child overweight prevalence of 17•5% in India in 2030 will rise to 17.5%. This is 14. 5% higher than the WHO and UNICEF 2030 target of less than 3%.The prevalence of overnutrition, overweight and obesity, has increased from 12.6% to 20.7% among women and from 9.3% to 18.6% among men during 2005-2016.

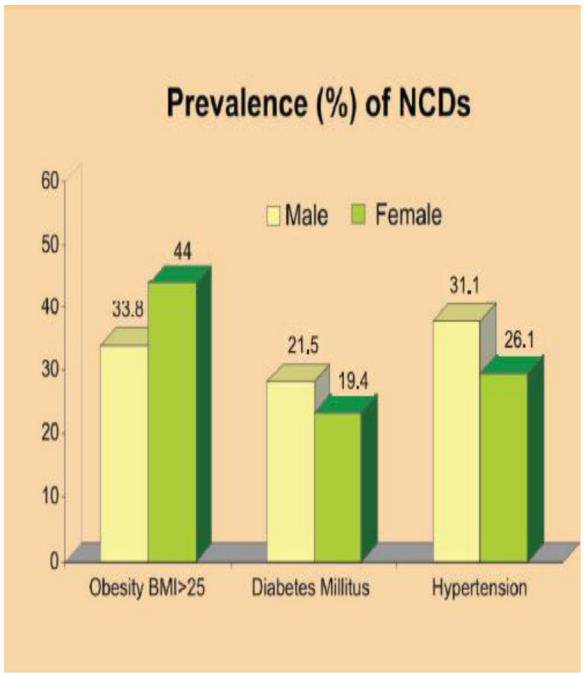


Figure 3: Prevalence of non-communicable diseases

Low body-mass index is highest among rural residents and the poor. In contrast to the global situation, in India overnutrition is still more of an urban and affluent society phenomenon.
Although the burden of child and maternal malnutrition has declined by 64.3% in India since 1990, it is still the main risk factor for adverse health effects in children younger than 5 years of age in every state of the country and the leading risk factor for health loss across all ages in the majority of states.

Low birth weight, primarily as a result of intrauterine growth restriction in developing countries. is a consequence of maternal undernutrition before and during pregnancy and subsequently contributes to undernutrition in infancy and childhood, with significant health impairments in adult life and reduced work capacity, which in turn affects economic productivity.

The prevalence of low birthweight, stunting, wasting, and anaemia has decreased significantly, but these decreases are still less than those needed to meet agreed targets.

Chronic energy deficiency in women of reproductive age is a manifestation of long-standing malnutrition that is common in India, which increases the risk of preterm births and infants with low birthweight.

The low prevalence of exclusive breastfeeding, lack of use of full antenatal care, low consumption of iron folic acid tablets and the extremely low percentage of children receiving the minimum acceptable diet in most of the states is alarming and must be addressed by increasing awareness and effective implementation of policies.

Improving the nutritional status of girls in general and that of women in the preconception period and during pregnancy and provision of quality antenatal care, including the treatment of pregnancy complications, would positively affect low birthweight and extend the benefits to the next generation.

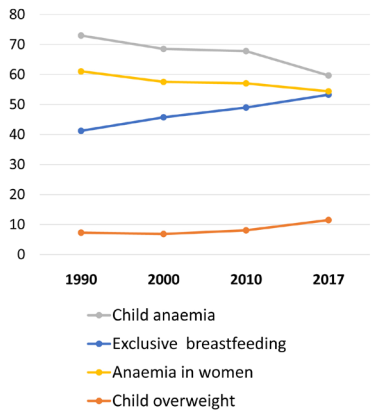


Figure 4: Prevalence Trends of Malnutrition Indicators in India: 1990 to 2017

Alarmingly, the projected child overweight prevalence of 17•5% in India in 2030, based on trends between 1990 and 2017, is 14•5% higher than the WHO and UNICEF 2030 target of less than 3% and no state met these targets.

A life-cycle approach has to be strengthened, with a continuum of care focusing on the critical periods of nutritional vulnerability.

In 2017, India released its National Nutrition Strategy, which outlined measures to address malnutrition across the life cycle. In 2018, the Prime Minister launched the National Nutrition Mission, also known as POSHAN. PoshanAbhiyaan has been developed to tackle the intergenerational cycle of malnutrition in India.

PoshanAbhiyaan will monitor nutrition status on a real-time basis. The focus will be on the most critical period of life—the first 1000 days. Further, the major ongoing sanitation improvement drive in India under the Swachh Bharat Missionis also expected to contribute to the reduction in malnutrition.

In recent years, as is the case in much of the world, Indian agriculture has undergone a major transformation, from dependence on food aid to self-sufficiency, and a consistent net food exporter.

What is now needed is to ensure that changes in agriculture contribute to better food systems.

A food-systems approach to malnutrition requires comprehensive programmes and coherent public policies that address both the supply and demand sides of food, as well as the food environment in which consumers engage make their food-related decisions. Policies, programmes and investments need to be "nutrition-sensitive", which means nutrition must be mainstreamed across sectoral policies.

Policies that support healthy diets include incentives to encourage the production of nutrient-rich foods like fruit and vegetables, investing in transport and cold-chain infrastructure to reduce food loss, food reformulation laws, regulations for retail and food service chains, food labelling policies and legislation to ensure institutional procurement from local smallholder farmers where this is possible. It is possible in India! Recall what Gopalan used to say about how to prevent nutritional deficiencies: "look to the farms, not the pharmacies".

We also need incentives to encourage fruit and vegetable production, reformulation of processed foods, regulations on retail and food service chains, food labelling policies and procurement policies for food served in public places.

Digital technologies can help, including well-designed applications for smartphones. Nutrify India Now is an app that acts as a nutri-guide or companion that helps users assess the nutrients in food. It also helps the users keep track of energy balance (consumed vs. expended), while providing comprehensive nutritional information, including calories,

proteins, vitamins and minerals. Nutrify India Now also shows the raw food names in 17 Indian languages and is tailored to provide the most comprehensive nutritional guide to Indian users. It uses specifically Indian guidelines prescribed by ICMR, authentic and well-researched India-specific databases, Indian foods and recipes and their nutrition information. We need more innovations like this.

We cannot discuss changing food systems without talking about climate change. The climate emergency is affecting all aspects of food security. These include availability (yield and production), access (prices and ability to obtain food), use (nutrition and cooking), and stability (disruptions to availability).

Crop yields are declining, especially in tropical areas, leading to higher prices, reduced nutrient quality, and disruptions to the supply chain. As always, lower income countries will be disproportionately affected.

A recent UN report noted that "balanced diets featuring plant-based foods, such as coarse grains, legumes, fruits and vegetables, and animal-sourced food produced sustainably in low greenhouse gas emission systems, present major opportunities for adaptation to and limiting climate change".

Managing the risk of extreme weather events can help improve food systems. This risk management can include dietary changes as well as ensuring a variety of crops to prevent land degradation.

A broad approach to improving food systems is needed, from sustainable land management and reduction of both overconsumption and waste of food, to reducing greenhouse gas emissions.

Ladies and gentlemen,

This will be an important year for political commitment to address malnutrition and contribute to the achievement of the Sustainable Development Goals. In 2020 the mid-term review of the UN Decade of Action on Nutrition is expected and the Nutrition for Growth Summit, hosted by the Government of Japan. We are well into the 2030 Agenda for Sustainable Development, with its 17 goals. In nutrition we are concerned especially with 2 – End hunger, achieve food security and improved nutrition and promote sustainable agriculture – and SDG 3 – Ensure healthy lives and promote well-being for all at all ages.

But we are not going to meet these goals the way we are going now. Progress need to accelerate, including financial and human resources, as well as enacting policies needed to achieve changes in food systems that will ensure access to affordable and nutritious food for everyone everywhere, particularly the most vulnerable.

The Agenda 2030 calls on us to "leave no one behind". To achieve this, we must tackle, in a comprehensive manner, all forms of malnutrition, here in India and around the world.

Thank you.

Remarks by Prof M S Swaminathan

I am glad we have met to remember the great contributions of Dr Gopalan. I recall when I first met Dr Gopalan in 1958 at a meeting organised by the Department of Atomic Energy under the leadership of DrA R Gopal Iyengar. Dr Gopalan was one of the speakers and even then, he emphasised the need for a food-cum-drug approach in addressing public health problems. He repeatedly emphasised the need for a food-based approach to dealing with diseases like TB, since at that time the emphasis was always on chemical drugs. One day I was in the Indian Agricultural Research Institute, he called one morning and said we have discovered a high nutrition maize. He felt that biofortification was a method to overcome micronutrient deficiencies.

Since then, we have shared ideas, worked together. Dr Gopalan played a significant role in linking agriculture, nutrition and health. Thus he was ahead of his time in dealing with public health issues.His contributions to the building of the National Institute of Nutrition and laying the foundation for a Nutrition Secure India are truly monumental. He took the initiative in organising Asian Nutrition Conferences. He has thus helped to shape the approach to nutrition security not only in our country, but all other countries of Asia. A man of great vision and a practical person. He always believed in biological versus chemical fortification. In the context of malnutrition today, people only talk about biofortification. Thank him for all the work he has done and all the impact he has had, on the nutrition security of India. The National Institute of Nutrition is one of the finest in the world today; make Nutrition Secure India a reality.

Hope there will be a long-term impact of his work. The speaker Dr Soumya Swaminathan has practical experience in linking nutrition and health. She actually practiced the fortification of food in tribal areas; felt nutrition is as important as drugs. She promoted a food-cum-drug approach to managing public health. She is therefore an appropriate speaker in honour of Dr Gopalan.

Remarks by DrSrivalli Krishan, Senior Program Officer, Bill and Melinda Gates Foundation – Chair of the Session

It is very apt to have Dr Soumya deliver the first lecture for a visionary such as Dr Gopalan also to share that different people share light on the nutrition agenda. This requires convergence, multiple disciplines to work together also most importantly to look at now, more than ever how the double burden of malnutrition is considered important and needs to be tackled.

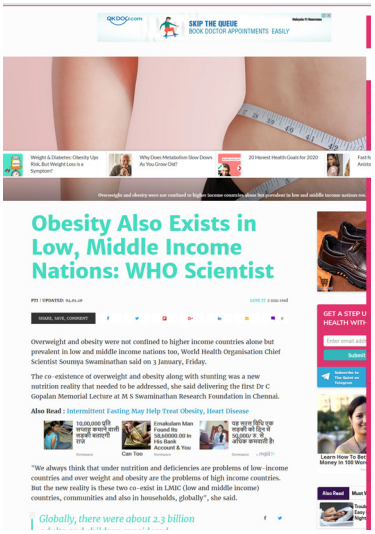
The country has to deliver on economic gains and foster growth, for which this has to be addressed. From the work that MSSRF is doing but also in terms of several partners who are required to drive this forward – Health, Agriculture, Women and Child ministries – it requires convergence, not as a problem of individual ministries. It has to be a national agenda and this is what Poshan Abhiyan is trying to do. Otherwise achieving the SDG targets or the national nutrition targets is a humungous task.

On data, I would like to emphasize that we have good quality data that allows us to identify where the problems exist and what sort of solutions can actually help address these challenges. The ICAR, ICMR or similar start thinking of data platforms, rather than working in silos. However, what is required is convergence of data and look at it as a holistic problem.

I really enjoyed listening and learnt a lot and hope the audience gained new insights on this issue.

The event was attended by a number of stakeholders in nutrition, research and health, by scientists and scholars as well as development practitioners. Mrs Malini Seshadri, daughter of Dr C Gopalan attended the event as did Prof Swaminathan and Mrs Mina Swaminathan. Dr G N Hariharan, Executive Director (in charge), MSSRF delivered the welcome address, briefly explaining the various initiatives taken up on nutrition research by the Foundation. Dr R V Bhavani, Director – Agriculture, Nutrition & Health program at MSSRF introduced the speaker while Ms Jayashree Balasubramanian, Director Communication, MSSRF presented the proceedings and offered Vote of Thanks. The event was live streamed and shared on social media, where it generated discussions. The news about this lecture and the double burden of malnutrition was featured in national / international media.

IN THE MEDIA



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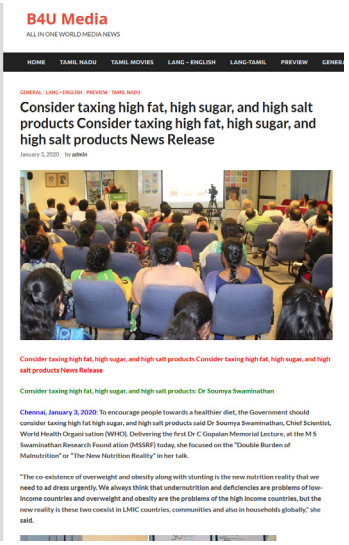

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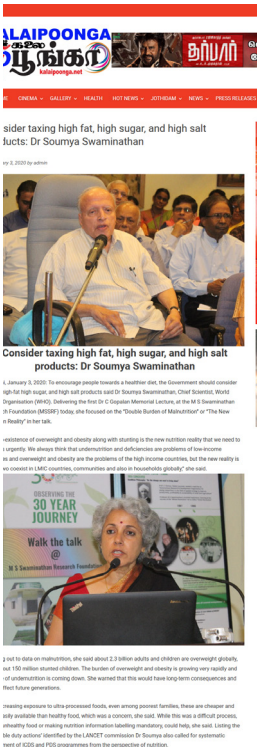

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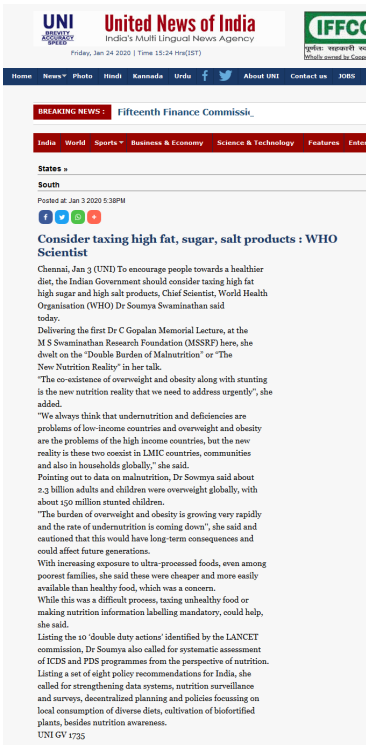

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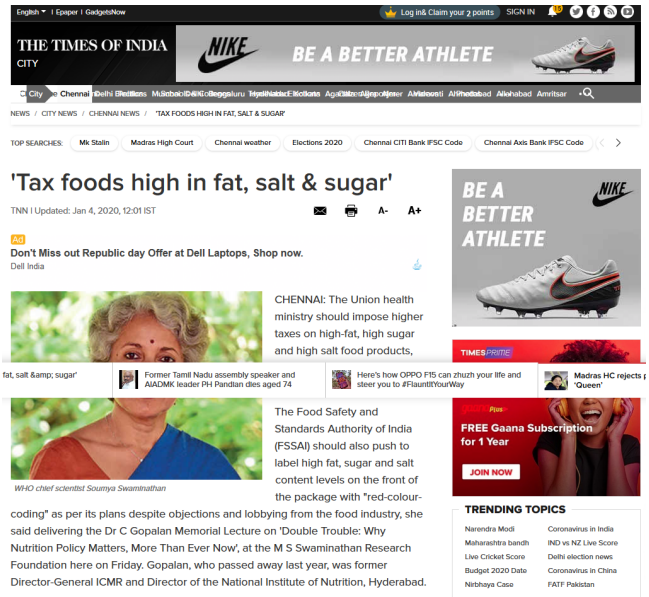

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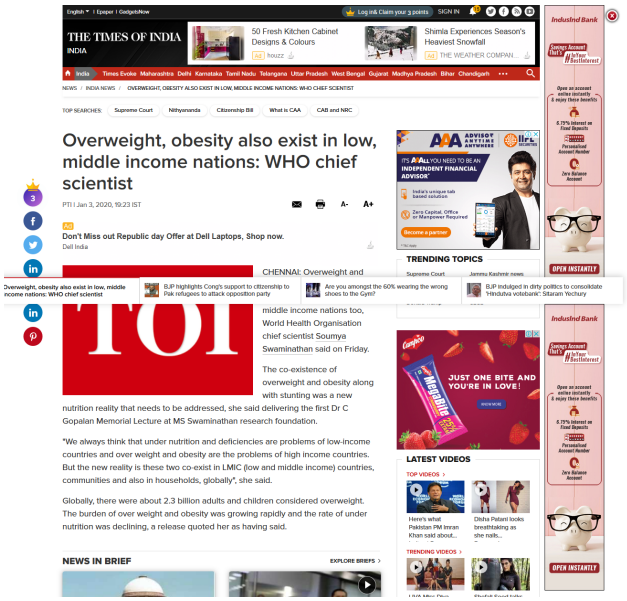

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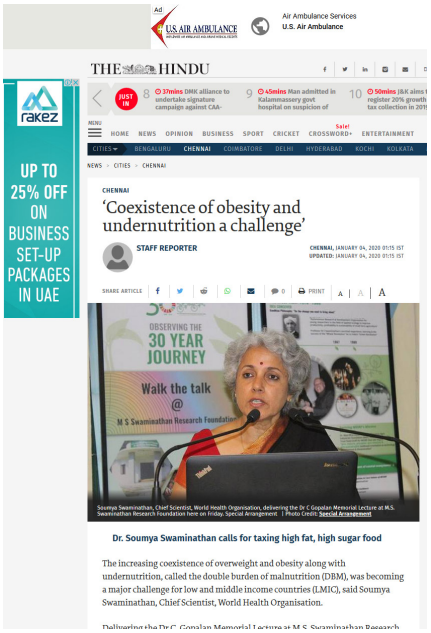

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