NETWORK HEALTH DIGEST

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MALNUTRITION: THE BIG PICTURE

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Global commitment to fight malnutrition in all its forms continues. However, when one focuses on daily, weekly, or monthly efforts, it is easy for the big picture to become blurry and the interactions between disease drivers elusive. This article focuses on refreshing the connections between underlying causes of the prevalence of global malnutrition.

Malnutrition is an umbrella term for undernutrition, micronutrient imbalance and obesity. Subforms of undernutrition are wasting (low weight-for-height), stunting (low height-for-age) and being underweight. On the other end of the spectrum there is overweight and obesity, often resulting in non-communicable diseases (NCDs), including diabetes, certain cancers, stroke and heart attack. An imbalance of vitamins or minerals preventing the body's proper growth is yet another threat for healthy development of populations worldwide.[1] The various forms of malnutrition are intertwined throughout the life cycle and are by far the biggest cause of health loss globally.[2]

The global population is approximately 7.6 billion people.[3] In 2018, the Global Nutrition Report established that 815 million people were chronically undernourished, 155 million children were stunted, 52 million children were wasted and two billion people were suffering from a micronutrient deficiency.[4] Overweight and obesity are on the rise. In 2016, 340 million children and adolescents were overweight or obese, 1.9 billion adults were overweight and, of these, 650 million were obese. Non-communicable diseases kill 41 million people each year, equivalent to 71% of all deaths globally.[5] Economic losses attributable to undernutrition, micronutrient deficiencies and overweight are approximately $3.5 trillion annually.[2,6]

In recent years, several reports published by world renowned organisations including the World Health Organisation (WHO), Food and Agriculture Organisation (FAO) and United Nations System Standing Committee on Nutrition (UNSSCN), resulted in a parallel global effort in developing initiatives to end all forms of malnutrition by 2030. Despite this high-level rhetoric, the implementation of actions so far has been slow and

inconsistent.[6] Global trends show increasing numbers of undernourished people and a rising prevalence of overweight in all age groups and regions. Even though some wealthier countries have managed to achieve a slight decline in childhood obesity, none have managed to tackle the epidemic across its population.[7]

FOOD INSECURITY AND ECONOMY

Growth of populations, along with economic downturns, natural disasters, conflicts and increasing costs of food production and transportation, are the main reasons why food insecurity is on the rise. FAO estimates that today, a little over 820 million people suffer from hunger. Around two thirds of these (74 million people) are in territories affected by conflict or insecurity: 33 million people in Africa, 27 million people in Western Asia, 13 million people in Asia/Middle East and 1.1 million people in Eastern Europe. Another 29 million people suffer hunger due to climate shocks and natural disasters. For 10.2 million people, mainly in Burundi, Sudan and Zimbabwe, economic shocks (an unexpected event that is external to the specific economy and can either harm or boost it, i.e. a global financial crisis) were the primary cause of hunger.[2,8,9] The relations between economy, food security and improving nutritional status are not straightforward. Countries can achieve economic growth and yet not achieve poverty reduction. Even if they do, the poverty reductions do not necessarily need to translate into food security and improved food security may not be sufficient to ensure better nutritional status.[2]

PERCEPTION OF WEIGHT

The co-occurrence of undernutrition and obesity is not uncommon within the same country, town, family and even in an individual.[8] Widespread research shows that foetal and infant undernutrition is a predictor for obesity in later life.[10] This is often the case in low and middle income countries (LMICs). Health organisations are trying to help people understand that both obesity and undernutrition are a consequence of poor quality and low variety diet rather than a result of too many or too few calories. The aim is to change people's perception of those diseases, enabling them to start acting against them.[6] For instance, perception of obesity differs depending on where one lives. In some countries with a high HIV/AIDS prevalence and in LMICs, where infant undernutrition is common, being overweight or obese might be desired and considered as an indicator of better health, wealth or status among adults. Conversely, in high income countries, obesity is rather considered a personal failure. People are held responsible for their disease and presumed lazy, ugly, less competent and lacking in self-discipline. Despite this bias, there are biological, psychological, social and economic vulnerabilities that industry in these countries exploits, strengthening obesogenic environments.[6]

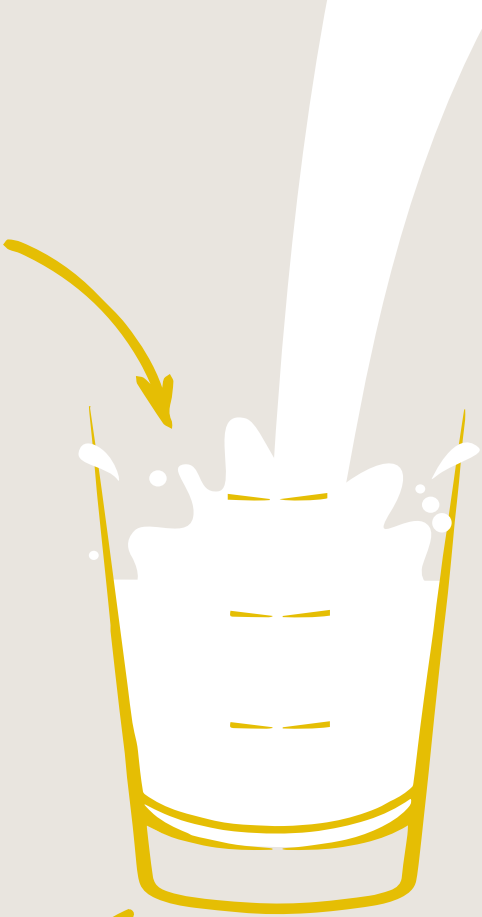
ECONOMIC TRANSITION

Economic country development causes rapid urbanisation, higher livestock production and change to motorised transportation, in turn leading to higher greenhouse gas emissions. Moreover, the change in dietary patterns, despite happening over decades, can be observed. Populations that climb economic ladders have an inclination for Western-style foods and the market efficiently meets the demand, supplying the products consumers want, need and are able to pay for. Populations consume more energy-dense, nutrient-poor food and beverages, move less and consequently increase prevalence of obesity and related NCDs, thus joining the high-income countries.

URBAN DESIGN

Change of urban and rural environments is dynamic. There is a shortage of cities and the amount of people who want to live in them increases. This results in demographic changes, gentrification and marginalisation of the poor.

TOP UP IN A SHOT



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Residential segregation of high- and low-income citizens leads to the creation of 'food deserts', areas in a city which lack in healthy and nutritious food options, and 'food swamps', areas with an excess of fast food chains and shops selling processed foods. In consequence, the access to healthier food options might be more difficult for low-income residents. A US study showed higher prevalence of obesity in those residential zones compared with areas with more supermarkets and fewer fast foods.[11] These divisions are influencing people's food choices and, in the long term, form eating patterns that are driving the rates of obesity up.

CLIMATE CHANGE

The development of present food systems has undeniably improved human health and life expectancy. Paradoxically, the same food systems are the main driver for the global pandemic of malnutrition. Increased demand for red meat, dairy products, ultra-processed foods and beverages has led to food becoming the major contributor to greenhouse gas emissions, beating even transportation.[12] Types of foods have different environmental effects. Production, harvesting and transporting of non-seasonal fruit and vegetables generate huge amounts of carbon dioxide (3.3 billion tonnes annually). Keeping livestock drives deforestation. It is estimated that 70% of global agricultural land is used for livestock. Although, both meat and dairy are sources of highly bioavailable nutrients and in moderation are considered part of a healthy diet, their production generates higher emissions of methane than plant-based alternatives. Moreover, growing populations with a prevalence to obesity increases the demand for food and agricultural production, thus increasing greenhouse gas emissions.[6]

Climate change can affect food systems in many ways. The environmental disasters affect small-scale low-income farmers. Drought, wildfires and storms destroy crops, leading to hunger and infections. Due to rising sea levels there will be increased migration across populations. Furthermore, change in nutrient value amongst crops has been observed as a result of elevated levels of carbon dioxide, with wheat, rice, barley and potato crops having reduced protein concentrations by 10-15% and soy by 1.5%.[13] Disproportionate food production and lower harvests will have likely different effect on countries. In high income countries it will likely cause products to be more expensive, which again might shift population eating patterns towards processed food and beverages.[14,15,16] In LMICs, it will increase food insecurity and food-borne illnesses and will contribute to unemployment, loss of income, poor health and over-stretched social services.

So far, only four countries worldwide have responded to climate change challenges. Sweden, Germany, Brazil and Qatar have included and implemented environmental sustainability in their dietary guidelines, thus ensuring food security and improving human health, wellbeing and social equity.[6] Yet, not always the decisions taken on the highest level will have the biggest impact on the cause. For instance, recently Trump's administration withdrew from the Paris Agreement on climate change. Even so, 2700 determined US leaders, representing 159 million citizens, continue the efforts to decrease greenhouse gas emissions.[2,6,17]

World nutrition report recommendations agree that eradicating hunger and broadly understood malnutrition by 2030 will require greater effort and better communication on every political and socio-economic level. Global renowned organisations, governments, industries, health systems, through to consumers, communities, schools, families and individuals, are all interrelated in one big chain. Like social movements that led to sugary drink taxes and tobacco control, the change is most likely to begin from individuals upwards. It is Imperative to motivate each of these complex structures to act, as this gives us the biggest chance to mitigate the pandemic of malnutrition.

References

1 World Health Organisation (WHO). Malnutrition
2 FAO, IFAD, UNICEF, WFP and WHO (2019). The State of Food Security and Nutrition in the World 2019. Safeguarding against economic slowdowns and downturns. Rome, FAO
3 United Nations estimates elaborated by Worldometers. www.worldometers.info/world-population/
4 GLOBAL REPORT ON FOOD CRISES 2019
5 World Health Organisation (WHO). Obesity and overweight. Fact sheet (2017)
6 The Global Syndemic of Obesity, Undernutrition and Climate Change: The Lancet Commission report. Published online January 27, 2019
7 The state of food security and nutrition in the world. FAO, Rome 2019
8 Development Initiatives. Global Nutrition Report 2017: Nourishing the SDGs. Bristol, UK: Development Initiatives, 2017
9 Increasing food security, CIDA's Food security strategy. Canadian International Development Agency, 2008
10 Gillman MW, Barker D, Bier D et al. Meeting report on the 3rd International Congress on Developmental Origins of Health and Disease (DOHaD). Pediatr Res 2007; 61: 625-29
11 Sushil Z, Vandevijvere S, Exeter DJ, Swinburn B. Food swamps by area socioeconomic deprivation in New Zealand: a national study. Int J Public Health 2017; 62: 869-77
12 Mottet A, de Haan C, Falcucci A, Tempio G, Opio C, Gerber P. Livestock: On our plates or eating at our table? A new analysis of the feed/food debate. Glob Food Secur 2017; 14 (suppl C): 1-8
13 Taub DR, Miller B, Allen H. Effects of elevated CO2 on the protein concentration of food crops: a metaanalysis. Glob Change Biol 2008; 14: 565-75
14 Springmann M, MasonD'Croz D, Robinson S et al. Global and regional health effects of future food production under climate change: a modelling study. Lancet 2016; 387: 1937-46
15 Frank S, Havlik P, Soussana JF et al. Reducing greenhouse gas emissions in agriculture without compromising food security? Environ Res Lett 2017; 12: 105004
16 An R, Ji M, Zhang S. Global warming and obesity: a systematic review. Obes Rev 2018; 19: 150-63
17 America's Pledge (2018). US Climate Leadership: one year later. https://oneyearlater. americaspledgeonclimate.com/ (accessed Dec 11, 2018)

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Questions relating to: *Malnutrition: the big picture* *Type your answers below, download and save or print for your records, or print and complete by hand.*	
Q.1	Explain what encompasses the umbrella term malnutrition.
A	
Q.2	Outline the reasons why food insecurity is on the rise globally.
A	
Q.3	Why can undernutrition and obesity co-occur in a population or within a family?
A	
Q.4	How can the economy of a country affect obesity levels?
A	
Q.5	Explain the impact of urban design on obesity rates.
A	
Q.6	How does the food industry contribute to climate change?
A	
Q.7	What effect can climate change have on the prevalence of malnutrition?
A	
Please type additional notes here . . .	