

The Double Burden of Malnutrition

A Latin American perspective

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Key messages

- Lifestyles in Latin America have experienced significant changes in the last decades as a result of technological advances, free trade and acculturation, among other things; these factors have had a profound impact on food systems and consumption patterns, resulting in diets that are ultraprocessed and high in sodium, saturated fats and sugar.
- The double burden of malnutrition, which is the coexistence of undernutrition and overweight, remains high in Latin America; despite greater caloric intake, undernutrition persists, as overweight and obesity do not protect against micronutrient deficiencies.
- Factors that have exacerbated or failed to mediate undernutrition and obesogenic environments include lack of marketing regulation for junk food and infant formula, poor promotion of exclusive breastfeeding, insufficient fiscal measures and industry interference in nutrition and public health policies, among others.
- Although Latin America has designed and created many solutions to tackle the double burden of malnutrition, much work is needed to adequately address all forms of malnutrition without causing unintended adverse effects.
- Strategies to reduce the double burden of malnutrition should consider sustainable food systems, with a focus on providing economic and social access to water and

nutritious foods, while discouraging the consumption of ultraprocessed products through fiscal measures, marketing regulations and infrastructure that promotes and facilitates active living and physical activity.



Increasingly, dietary patterns are moving away from natural, nutrient-rich foods

Introduction

In the past decades, the world has seen a series of nutrition, epidemiologic and demographic changes that have occurred at different paces. In wealthy countries, these transitions have been almost linear. However, in middle-income countries – and some low-income countries, too – there has been overlap, resulting in a simultaneous burden of under- and overweight, referred to as the double burden of malnutrition.¹ Latin American countries largely fall into this category and have seen their traditional lifestyles completely transformed. Advances in industrialization, agriculture and globalization have dramatically influenced patterns of food production and consumption, which have moved away from natural, nutrient-rich foods to those high in sodium, saturated fats and sugar.

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“Latin American countries have seen their traditional lifestyles completely transformed”

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Countries that in the past were successful producers have adopted an international trade model to export their products. This has contributed to economic development but has also had a profound impact on the food system. For example, 45% of food demand was covered by imports in Mexico in 2012.² This outward growth model has also stimulated a phenomenon referred to as acculturation, caused by the importation of the culture and eating habits of North American countries where overweight and obesity had already taken off. In fact, ultraprocessed foods now comprise the main food supplies in high-, middle- and lower-middle income countries,³ creating obesogenic environments that discourage healthy eating due to many factors, such as high availability of junk food and cultural practices that make consuming unhealthy food normative and, oftentimes, preferable.

An analysis of 29 studies found three predominant drivers of this transformation: lifestyle alterations, urbanization and economic development and policy changes.⁴ Factors that have exacerbated or failed to mediate these changes include lack of marketing regulation for junk food and infant formula, poor promotion of exclusive breastfeeding, insufficient fiscal measures and industry interference in nutrition and public health policies, among others.

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Nonetheless, with greater caloric intake, populations gained intergenerational increases in weight and height, which was accompanied by an increase in obesity and chronic diseases.⁵ There is a common misconception that being overweight or obese protects against micronutrient deficiencies. However, in countries undergoing the nutrition transition – middle- and lower-middle-income countries – the defining factor is diet quality, as the odds of anemia have been found to be similar across body mass index (BMI) groups in women.⁶

The double burden of malnutrition can be present at the individual, household and population level. A common example of the double burden of malnutrition consists of an overweight or obese mother with a stunted child – a widespread condition in many Latin American households, with a prevalence of up to 20% in Guatemala, 13.1% in Ecuador and 8.4% in Mexico. Of Latin American countries, stunting prevalence is lowest in Chile (1.9%) and highest in Guatemala (48%), with countries such as Mexico and Uruguay falling between 10% and 14%.⁷ An estimated 4 million children in Latin America and the Caribbean are stunted, 1 million wasted and 6 million overweight. While stunting saw a 40% reduction from 2000 to 2016, rates of overweight have only increased.⁸ Even more, prevalence of overweight and obesity among adults is as high as 83% in Costa Rica and 72% in Mexico.^{9,10}

Malnutrition in all its forms is a public and economic health problem due to loss of productivity across the life course. For example, it is estimated that the combined impact of the double burden of malnutrition represents a net loss of gross domestic product (GDP) of 4.3% in Ecuador and 2.3% in Mexico.¹¹ Furthermore, studies show that cardiovascular disease, which is linked to nutrition and diet,¹² is estimated to cause 4.7 lost days of work per year; of those who suffer from a cardiovascular disease event, only 37% return to work 30 days after the event.¹³ Similarly, in Mexico, dietary risks accounted for over 10% of disability-adjusted life years (DALYs) in 2013, making diet a relevant determinant for quality of life.¹⁴

Victories and opportunities for action

Despite these challenges, Latin America has a strong potential to find creative solutions to tackle the double burden of malnutrition that are not necessarily technologically based. For instance, Chile created its own front-of-pack-labeling (FOPL) system that includes warning labels indicating the product is high in sodium, saturated fats, or sugar. Evaluations of this system indicate high levels of comprehension and acceptance among children and adults who had no prior knowledge of it.¹⁵ Chile was the first country in the world to approve the warning label and make it obligatory, while a growing number of countries have adopted or are attempting to adopt similar or alternative systems. On the other hand, the Guideline Daily Amount (GDA) labeling system (designed by the food industry) has low use and understanding, even among people who are college-educated.^{16,17} In fact, a nationally representative survey in Mexico found that only 13.8% of the population considers the GDA ‘very understandable.’¹⁶

In another case, Brazil was able to reduce its stunting prevalence among children under five from 37% in 1975 to only 7% in 2007 and to increase exclusive breastfeeding of infants under six months from 4.7% in 1986 to 37% in 2006.¹⁸



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Sugar-sweetened beverages are a common component of obesogenic environments in Latin America

Mexico pioneered the implementation of social protection systems, such as conditional cash transfers (CCTs), in 1997, followed by Brazil in 2003. In an analysis of CCT implementation in Latin America, 18 programs were considered nutrition interventions. Three examples of successful CCT programs are Bolsa Família in Brazil, Familias en Acción in Colombia and PROSPERA in Mexico, which aimed to provide food security and improve nutrition levels through the distribution of food supplements and health education.^{19,20} These three programs were similar in their aims and coincided in important ways: high national coverage, political commitment and secure funding. Monitoring and evaluation systems found increases in child birthweight and decreased child morbidity, with some improvements in anemia. A creative component of these CCT programs is that they connected their participants with other social initiatives to reduce poverty.

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In addition, Mexico was a front-runner in 2014 when it became the first country in Latin America to impose a tax on sugar-sweetened beverages. Chile has already followed suit, and many countries around the world are working towards implementation.

Nonetheless, although these are public health victories, there are missed opportunities to reallocate tax gains or increase investment in health policies. Although most Latin American countries acknowledge malnutrition as a national issue and have implemented social protection programs such as CCTs, significant work remains to be done to evaluate, monitor and improve targeting to scale up interventions and adopt evidence-based policies. Other challenges involved in tackling malnutrition include: improving coordination within government; implementation of nutrition-specific interventions throughout the life course (with particular attention to exclusive breastfeeding); regulation of obesogenic environments; partnerships between government and civil society to strengthen awareness and promotion campaigns; incomplete/inconsistent data collection; and insufficient use of data for decision-making.²⁰

Solutions

Undoubtedly, the strategies to reduce the double burden of malnutrition should aim to reinforce food systems that are sustainable and nutrition-sensitive, with a focus on providing economic and social access to water and nutritious foods, in terms of both quantity and quality.²¹ The management of these food systems must go hand in hand with discouraging the consumption of unhealthy ultraprocessed products through fiscal measures, marketing regulations and infrastructure that promotes and facilitates active living and physical activity. Moreover, increasing investment should also be on the table, as investing in nutrition delivers high benefits (reducing mortality and morbidity, increasing productivity and reducing costs). Specifically, interventions during the first 1,000 days of life have demonstrated cost-effectiveness: for every dollar invested in nutrition, there is a US\$30 pay-off in health and education.²² Interventions to prevent and



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Cities that create spaces for physical activity facilitate and encourage active living

control nutrition-related diseases have the potential to provide economic, social and health gains to all levels of society.

Conclusion

Over the past decades, Latin American countries have seen their traditional surroundings completely transformed and saturated with ultraprocessed foods. While obesity thrives, undernutrition persists. Creative solutions to address malnutrition designed by Latin American countries include an FOPL warning system, exclusive breastfeeding campaigns, taxation of sugar-sweetened beverages and junk food, and CCT programs, among others. Nonetheless, more investment is needed to address all forms of malnutrition and improve monitoring and evaluation systems. In addition, urgent action to prevent industry interference is needed to protect communities, and particularly children, from unethical marketing practices and misleading information.

To implement these changes, Latin America must confront special challenges, given its heterogeneity in ethnic identity and socioeconomic status. By way of illustration, prevalence of the double burden of malnutrition is often higher in indigenous populations and poor rural areas.²³ These kinds of disparities require targeted strategies, considering geographic dispersion and accessibility to services, healthy foods and safe drinking water. An obstacle to enacting these strategies includes limited resources: Latin American countries have fewer financial resources than high income countries and invest less of their GDP in health.

Double-duty programs with a focus on solving all forms of malnutrition should be adopted to avoid causing ‘inadvertent’ harm.²⁴ An example is addressing undernutrition without encouraging unhealthy eating or overeating. Nutrition programs and interventions must consider the nutrient quality of the foods they provide to their beneficiaries. Although foods high in calories lead to weight gain, micronutrient deficiencies can endure among those who are overweight. Moreover, continuous consumption of ultraprocessed foods alters a household’s or community’s food culture, turning them into ‘basic’ products.²⁵ An added challenge is designing and implementing nutrition interventions or programs in ways that are sustainable. For instance, investing in sanitation infrastructure to provide access to water is more sustainable and efficient than distributing plastic water bottles. These kinds of approaches allow for natural resources to meet society’s present and future needs.

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References

1. WHO. The double burden of malnutrition: policy brief. Geneva: World Health Organization; 2017.
2. Garza-Montoya BG, Ramos-Tovar ME. Cambios en los patrones de gasto en alimentos y bebidas de hogares mexicanos (1984–2014). *Salud Publica Mex.* 2017;59(6, nov–dic):612.
3. Monteiro CA, Moubarac JC, Cannon G, Ng SW, Popkin B. Ultra-processed products are becoming dominant in the global food system. *Obes Rev.* 2013;14(S2):21–8.
4. Min J, Zhao Y, Slivka L, Wang Y. Double burden of diseases worldwide: coexistence of undernutrition and overnutrition-related non-communicable chronic diseases. *Obes Rev.* 2018;19(1):49–61.
5. Shingleton R, Rokx C. The double burden of malnutrition – a review of global evidence. Health, Nutrition and Population (HNP) discussion paper. Washington, DC: World Bank; 2012.
6. Eckhardt CL, Torheim LE, Monterrubio E, Barquera S, Ruel MT. The overlap of overweight and anaemia among women in three countries undergoing the nutrition transition. *Eur J Clin Nutr.* 2008;62(2):238–46.
7. Rivera JA, Pedraza LS, Martorell R, Gil Á. Introduction to the double burden of undernutrition and excess weight in Latin America. *Am J Clin Nutr.* 2014;100(6):1613S–16S.
8. UNICEF, WHO, World Bank Group. Levels and trends in child malnutrition. New York, NY/Geneva/Washington, DC: UNICEF, WHO, World Bank Group; 2014.
9. datosmacro.com. Costa Rica – Población. 2016. Internet: <https://datosmacro.expansion.com/demografia/poblacion/costa-rica> (accessed 14 August 2018).
10. Shamah-Levy T, Cuevas-Nasu L, Gaona-Pineda EB, Gómez-Acosta LM, Morales-Ruán MdC, Hernández-Ávila M, et al. Sobre peso y obesidad en niños y adolescentes en México, actualización de la Encuesta Nacional de Salud y Nutrición de Medio Camino 2016. *Salud Publica Mex.* 2018;60(3, may–jun):244.
11. Fernández A, Martínez R, Carrasco I, Palma A. Impacto social y económico de la doble carga de la malnutrición: modelo de análisis y estudio piloto en Chile, el Ecuador y México. Santiago: UN; 2017.
12. Getz GS, Reardon CA. Nutrition and cardiovascular disease. *Arterioscler Thromb Vasc Biol.* 2007;27(12):2499–2506.
13. Chaker L, Falla A, van der Lee SJ, Muka T, Imo D, Jaspers L, et al. The global impact of non-communicable diseases on macro-economic productivity: a systematic review. *Eur J Epidemiol.* 2015;30(5):357–95.
14. Gómez-Dantés H, Fullman N, Lamadrid-Figueroa H, Cahuana-Hurtado L, Darney B, Avila-Burgos L, et al. Dissonant health transition in the states of Mexico, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet.* 2016;388(10058):2386–402.
15. De la Cruz-Góngora V, Torres P, Contreras-Manzano A, de la Mota AJ, Mundo-Rosas V, Villalpando S, et al. Understanding and acceptability by Hispanic consumers of four front-of-pack food labels. *Int J Behav Nutr Phys Act.* 2017;14(1):1–12.

16. Shamah T, Cuevas L, Gaona E. Encuesta Nacional de Salud y Nutrición de Medio Camino 2016: Informe final de resultados. Inst Nac Salud Pública. 2016;2016:151.
17. Stern D, Tolentino L, Barquera S. Revisión del etiquetado frontal: análisis de las Guías Diarias de Alimentación (GDA) y su comprensión por estudiantes de nutrición en México. Inst Nac Salud Pública. 2013;53:37.
18. Boccolini CS, Boccolini PMM, Monteiro FR, Venâncio SI, Giugliani ERJ. Breastfeeding indicators trends in Brazil for three decades. Rev Saude Pública. 2017;51:108.
19. Barquera S, Rivera-Dommarco J, Gasca-García A. Políticas y programas de alimentación y nutrición en México. Salud Publica Mex. 2001;43(5):464–77.
20. Galicia L, de Romana DL, Harding KB, De-Regil LM, Grajeda R. Tackling malnutrition in Latin America and the Caribbean: challenges and opportunities. Rev Panam Salud Publica. 2016;40(2):138–46.
21. International Food Policy Research Institute. 2018 Global food policy report. Washington, DC: IFPRI; 2018.
22. Blake-Lamb TL, Locks LM, Perkins ME, Woo Baidal JA, Cheng ER, Taveras EM. Interventions for childhood obesity in the first 1,000 days. A systematic review. Am J Prev Med. 2016;50(6):780–9.
23. Ramirez-Zea M, Kroker-Lobos MF, Close-Fernandez R, Kanter R. The double burden of malnutrition in indigenous and nonindigenous Guatemalan populations. Am J Clin Nutr. 2014;100:1644–51.
24. Hawkes C, Demaio AR, Branca F. Double-duty actions for ending malnutrition within a decade. Lancet Glob Heal. 2017;5(8):e745–e746.
25. FAO. Trabajo estratégico de la FAO. Para una alimentación y una agricultura sostenibles. Rome: FAO; 2017.