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COVID-19, obesity and undernutrition: A major challenge for Latin American countries.

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In March of 2020, the World Health Organization declared the SARS-Cov2 2019 (COVID-19) outbreak a global pandemic after documenting community scale transmission in every region, including Latin America. The risk factors associated with severity of disease include older age, diabetes, hypertension, cardiovascular and lung diseases, and immune suppression. Additional evidence strongly suggests that obesity is also a risk factor for severe forms of COVID-19 disease, while other types of malnutrition increase the risk of hospitalization from influenza-like diseases, regardless of the causative agent of the illness (1). Although detailed data are not yet available on the impact of undernutrition in the evolution of COVID-19, given the known inflammatory response caused by this condition, it is reasonable to expect a suboptimal immune response and higher risk of severity, as found with obesity (2).

Because the pandemic reached Latin America weeks after the Unites States, there was some time to implement general hygiene measures. Nevertheless, all countries in the region have been impacted by COVID-19, including two of the 10 most populated countries in the world—Brazil and Mexico, which have been badly affected—and 48 cities with more than one million inhabitants. Most countries in this region have experienced a rapid nutrition transition resulting in a high prevalence of

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obesity and non-communicable diseases (NCDs), which coexist with undernutrition. NCDs are the main cause of death in the region and are responsible for 74% of all deaths in Brazil, 85% in Chile, 75% in Colombia and 80% in México (Global Health Observatory, WHO 2020). Latin America is also one of the most unequal regions in the world, characterized by extreme income disparities and differences in social capital. A significant proportion of the population lives below the poverty line and has poor access to a healthy diet, clean water, and health services. Diets have shifted from meals containing locally produced, fresh foods to those high in ultra-processed foods and beverages. In Mexico, an estimated 23.1% of the population's dietary calories come from ultra-processed foods; in Chile |28.6% and in Brazil 20.4% (3,4,5). Currently, Argentina, Brazil, Chile, Colombia, Peru, and Mexico are among the highest consumers of sugar-sweetened beverages in the world (6). For these reasons, the populations in this region are especially vulnerable to contracting severe forms of COVID-19 and their health systems are ill-equipped to manage this large scale burden.

The response to the pandemic may itself exacerbate the problem. Quarantine measures to avoid the spread of infection could lead to a decrease in physical activity and a rise in consumption of ultra-processed foods (7). Increased exposure to food marketing from additional screen time could encourage intake of energy-dense foods. Above all, the impact of the COVID-19 pandemic on the economy will increase the poverty rate and the population at risk of food insecurity (8).

If actions to prevent and control the obesity and NCD epidemic are not effectively implemented, this will further heighten the population's vulnerability to COVID-19 and emerging infectious diseases. Further, the burden of disease will prevent the region from achieving up to nine sustainable development goals including health, wellbeing, and economic development. Investment in health and financial protection have been identified as actions that can break this cycle and end poverty (9).

The current context has highlighted why these issues are so important and why the action to date has been insufficient. However, current resources might not be enough to respond to Latin America's enormous needs. Health investment in the region has not increased since the year 2000, when it represented approximately 6.5% of the region's gross domestic product (GDP). Taxation of unhealthy

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products such as tobacco, alcohol, sugary beverages, and junk food reduces consumption and provides much needed resources for the health sector. Other cost-effective regulations to modify the food environment can also ameliorate health outcomes. An additional challenge that arises from limited resources is the lack of multi-disciplinary teams in primary health care, health clinics and hospitals, including dieticians and psychologists. Initiatives to train health personnel to provide proper recommendations including behavioral and dietary guidance and recommendations should be prioritized to treat malnutrition in all its forms. Increasing health investments in the region and improving nutrition outcomes by modifying the food environment and primary care practices will boost the region's capacity to fight off both infectious and non-communicable diseases.

Nonetheless, Latin America has shown it can improve its food environment and reduce the overall burden of disease. The region has a network of professionals, academics, civil society organizations, international health organizations, and decision makers that rapidly exchange research and experiences in policy implementation and evaluation. Sharing information on initiatives that show potential to modify the food environment and improve population nutrition have led to the implementation of soda taxes, front-of-pack food warning labels, junk-food marketing regulations, school food guidelines based on the NOVA system (food classification based in its processing), and physical activity programs, among others. This network has been crucial in the rapid implementation of prevention policies across the region, with the highest number of countries in the world to have implemented soda taxes. Further, the Chilean front-of-pack warning labels, which were implemented in 2016, have been shown to be an effective tool to decrease consumption of sugary beverages and junk food and have now been adopted in Peru and approved in Uruguay and Mexico, with Brazil and Colombia discussing similar strategies. Although there has been great progress in advancing public health nutrition policies in the region—and the importance of these policies has been highlighted by COVID-19—more needs to be done for "future proofing" populations and health systems.

A major challenge to implement obesity prevention policies in the region is the permanent interference of multinational food and beverage industries in health and nutrition education, as well as research and policy implementation. Crises such as the COVID-19 pandemic are often used by food

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industry to develop marketing strategies that take advantage of the emergency to promote unhealthy food (10). Accountability mechanisms and support from international health organizations are necessary to develop responsible practices that do not affect health or undermine public health efforts from local governments.

Finally, another major challenge to reducing the burden of NCDs include improving quality of care, starting with low cost, effective primary health care practices (20). Given the current situation, policies to reduce obesity and modify the food environment are needed more urgently than ever to tackle malnutrition in all its forms and lower the impact of infectious diseases, such as COVID-19.

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