



Tackling malnutrition in Latin America and the Caribbean: challenges and opportunities

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ABSTRACT

Undernutrition and micronutrient deficiencies are still a public health problem in Latin America and the Caribbean (LAC), and overweight and obesity have reached epidemic proportions. To assess the nutrition landscape in LAC countries and guide future nutrition efforts and investments, the Pan American Health Organization and the Micronutrient Initiative joined efforts to 1) identify information gaps and describe the current nutritional situation in the region; 2) map existing policies to address malnutrition in Latin America; 3) describe the impact of conditional cash transfer programs (CCTs) on nutrition and health outcomes; and 4) identify the challenges and opportunities to address malnutrition in the region. This article summarizes the methods and key findings from that research and describes the current challenges and opportunities in addressing malnutrition in the LAC region. LAC countries have advanced in reducing undernutrition and micronutrient deficiencies, but important gaps in information are a major concern. These countries have policies to address undernutrition and micronutrient deficiencies, but comprehensive and intersectoral policies to tackle obesity are lacking. CCTs in Brazil, Colombia, and Mexico have been reported to have a positive impact on child nutrition and health outcomes, providing an opportunity to integrate nutrition actions in intersectoral platforms.

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The current epidemiological situation and policy options offer an opportunity for countries, technical agencies, donors, and other stakeholders to jointly scale up nutrition actions. This can support the development of comprehensive and intersectoral policies to tackle the double burden of malnutrition, strengthen national nutrition surveillance systems, incorporate monitoring and evaluation as systematic components of policies and programs, document and increase investments in nutrition, and assess the effectiveness of such policies to support political commitment and guarantee sustainability.

Key words Nutrition; nutrition policy; Latin America; Caribbean region.

Latin America and the Caribbean (LAC) is facing a double burden of malnutrition in which undernutrition and/or micronutrient deficiencies coexist with overweight and obesity at the national, community, household, and even individual level. Rivera et al. found that maternal overweight and obesity coexist with child stunting in 13.1% and 20.0% of households in Ecuador and Guatemala respectively, and to a lesser extent in Brazil, Colombia, Mexico, and Uruguay (1). At the individual level, the highest prevalence of the double burden of overweight and micronutrient deficiencies was found in Ecuador for children under 5 years old (8.4%), and in Brazil for women (13.6%) (1).

Recognizing that the double burden of malnutrition is a serious problem that requires accelerated action, in 2012 the World Health Assembly (WHA) endorsed six Global Nutrition Targets (2) to be achieved by 2025: 1) reduce the global number of children under 5 who are stunted by 40%; 2) reduce anemia in women of reproductive age (WRA) by 50%; 3) reduce low birth weight by 30%; 4) have no increase in childhood overweight; 5) increase the rate of exclusive breast-feeding in the first six months up to at least 50%; and 6) reduce and maintain childhood wasting to less than 5%. To date, numerous donors and multilateral agencies have committed to support countries in their efforts to achieve these targets.

As part of the efforts to achieve all six targets, the World Health Organization (WHO) developed a Comprehensive Implementation Plan on Maternal, Infant, and Young child Nutrition (CIP) (3) that includes five priority actions: 1) create a supportive environment for the implementation of comprehensive food and nutrition policies; 2) include all required effective health interventions with an impact on nutrition in national nutrition plans; 3) stimulate development policies and programs outside the health sector that recognize and include nutrition; 4) provide

sufficient human and financial resources for the implementation of nutrition interventions; and 5) monitor and evaluate the implementation of policies and programs. Each line of action has recommended activities for implementation by countries who have committed to meet the Global Nutrition Targets by 2025, and various stakeholders, including WHO and international partners.

RESEARCH SERIES ON MALNUTRITION IN LATIN AMERICA AND THE CARIBBEAN

To help assess nutrition status and guide future nutrition efforts and investments in LAC countries, the Pan American Health Organization (PAHO) and the Micronutrient Initiative (Ottawa, Ontario, Canada) joined efforts to 1) determine the current nutritional status in the region and identify data gaps and trends in nutrition surveillance (4); 2) map existing policies addressing malnutrition in all its forms in 18 Latin American countries (5); and 3) describe the benefits, conditions, coverage, funding, goals, governance, and structure of well-established conditional cash transfer programs (CCTs) and identify their health and nutritional impacts among children under 5 years old (6). This article summarizes the methods and key findings from that research and describes the current challenges and opportunities in addressing malnutrition in the LAC region. The results of this landscape analysis could be used as a baseline by countries and their partners in establishing priority lines of actions for reducing malnutrition in all its forms, including the development of an interagency cooperation agenda that tackles the different challenges countries in the region are facing to improve the living conditions of their populations.

The data for this analysis were obtained in a systematic Internet search of available information from 1) reports of national nutrition surveillance systems and reports on nationally representative health or nutrition surveys from the LAC region that allowed for monitoring of nutritional status as measured by anthropometric indicators and biomarkers that were conducted between 1985 and 2014 (4); 2) current nutrition-related policies, legislation, regulations, strategies, plans, and clinical norms or guidelines and sectoral policies related to agriculture, food, maternal and child nutrition, health, education, physical activity, including nutrition-sensitive interventions in development, poverty reduction, and social protection, that create an enabling environment for addressing malnutrition in 18 countries in Latin America (5); and 3) peer-reviewed papers and grey literature describing the structure, operations, evaluation, and impact of national-level CCTs implemented for at least 10 years in LAC countries with at least 50% coverage of children under 5 years old (6). The Internet search was conducted from September 2014 to January 2016 and covered Web pages of ministries and governmental agencies and other relevant national and international organizations to obtain surveys, policy documents, evaluation reports, and

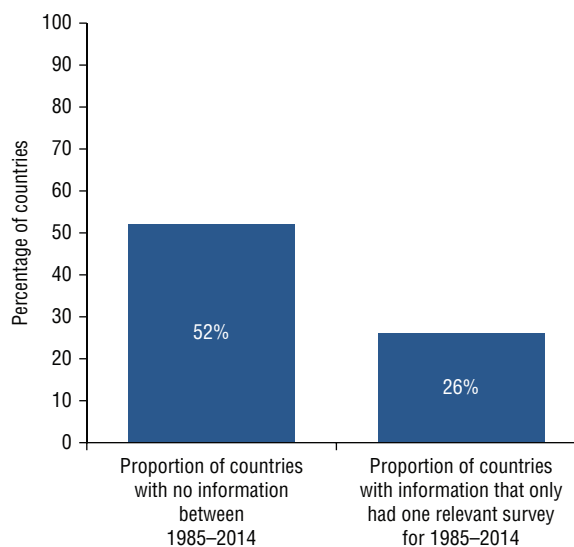
grey literature. If the Internet search did not produce relevant information, country offices of PAHO were contacted to obtain it. Most surveys, policies, evaluation reports, and grey literature were publicly available. Detailed information on the search procedures and analytical methods is published in the above-mentioned research reports (4–6).

SUMMARY OF KEY FINDINGS

Nutrition situation in Latin America and the Caribbean: current scenario, past trends, and data gaps³

Twenty-four (52%) of the 46 LAC countries/territories included in the nutritional status review (4) had not conducted any nationally representative surveys between 1985 and 2014 that included relevant anthropometric data for children under 5 years old and WRA (Figure 1). However, the 22 LAC countries/territories that did have relevant data (48%) represented 87% of the population in the region. The data source for six (26%) of the 22 countries with data was limited to one survey for the 30-year study period, and 32% of all data could be considered outdated (more than 5 years old). Most of the information came from Demographic Health Surveys (DHS), with additional information from Multiple Indicator Cluster Surveys (MICS), Nutrition and Health Surveys (NHS), and National Micronutrient Surveys (NMS). Only six countries in the region had collected information on the nutritional status of school-age

FIGURE 1. Gaps in available nationally representative anthropometric data for children under 5 years old and women of reproductive age^a for 46 countries and territories, Latin America and the Caribbean, 1985–2014



Source: Prepared by the authors with information from (4).

^a Twenty-four countries/territories (52%) had no information, and the data source for six (26%) of the 22 countries/territories with information (48%) was only one survey for the entire study period (1985–2014).

³ Results from the research report of the same name (4).

children and adolescents. Information on the nutritional status of adult males and older adults was scarce. The English-speaking Caribbean subregion (21 countries and territories) had the largest information gaps. All countries from the Central America and Andean subregions had at least one recent survey describing three or more of the selected nutrition indicators.

Prevalence of stunting (height for age < -2 SD) was medium to low ($< 30\%$) in children under 5 years old for all countries in the region with recent available data except Guatemala, where it was high, according to cutoff points recommended by a WHO Expert Committee (7). Similarly, for all countries with recent available data, prevalence of underweight (weight for age < -2 SD) in children under 5 years old was medium to low ($< 20\%$) (7). Except for Barbados, Guyana, Haiti, Suriname, and Trinidad and Tobago, wasting (weight for height < -2 SD) was below 5% in children under 5 years in all countries with available information. Over the study period, stunting and underweight in children under 5 decreased in almost all countries in the region. However, there were still large inequities in the distribution of stunting within the population, with those living in rural areas and in the lower quintiles of wealth having as much as 16 times greater risk of being stunted, as shown in Figure 2.

The prevalence of overweight was available for 19 countries and territories (41%) for children under 5 years old and for 14 countries and territories (31%) for WRA. Over time, overweight (weight for height $> +2$ SD) in children under 5 years old increased in Brazil (0.1 percentage points from 1996 to 2006), Colombia (0.5 percentage points from 2005 to 2010), Costa Rica (1.9 percentage points from 1996 to 2009), Ecuador (2.0 percentage points from 2004 to 2012), El Salvador (0.1 percentage points from 2002 to 2008), and Mexico (1.4 percentage points from 2006 to 2012). In WRA, overweight (body mass index (BMI) ≥ 25 kg/m²) was above 40% in all countries, except Haiti (where it was 25.3%). Overweight affected more than 60% of WRA in Ecuador, and in Mexico, where the prevalence of overweight and obesity increased by more than 16 percentage points in a seven-year period, with most of the increase due to a higher prevalence of obesity (BMI ≥ 30 kg/m²; Figure 3). There was a lack of published nationally representative data on overweight for all groups for the majority of countries in the region ($> 60\%$).

From 1985 to 2014, data were collected on anemia in children under 5 years old, WRA, and pregnant women (Figure 4) for 37%, 37%, and 26% of LAC countries respectively, and 65% of the available data were more than 10 years old. According to the available data, anemia in children under 5 years old was still a public health problem (with $\geq 5\%$ prevalence) across the region and was considered a severe public health problem ($\geq 40\%$ prevalence) in Bolivia, Guatemala, and Haiti. It was also a severe public health problem for WRA in Haiti (49.3%), and Panama (40.3%). Over the study

period, Costa Rica and Nicaragua made great achievements in reducing anemia in both children under 5 and WRA, and in Nicaragua anemia is no longer a public health problem ($< 5\%$ prevalence) in WRA (1.5% prevalence).

Most LAC countries did not collect data on micronutrient deficiencies between 1985 and 2014 (Figure 5). Twenty-eight countries had not conducted a national representative survey on vitamin A status in children under 5 years old since 1985, and of those who had, only 18% had collected data since 2006 (not shown). According to the most recent available data, vitamin A deficiency in children was no longer a public health problem ($\leq 1.9\%$ prevalence) in Belize and Guatemala but was still a severe public health problem ($\geq 20.0\%$ prevalence) in Colombia, Haiti, Jamaica, and Mexico.

Only 16 LAC countries and territories (35%) had collected information on iodine urinary concentration in school-age children in the past 20 years. Results showed that children from all LAC countries had median iodine urinary concentrations above the recommended threshold and that Brazil, Colombia, Costa Rica, Honduras, Paraguay, and Uruguay had an iodine intake that was excessive and thus considered a risk factor for adverse health consequences, such as iodine-induced hyperthyroidism and autoimmune thyroid disease (8).

Only five LAC countries ($< 10\%$) had available data on folate status. In each of those countries, folate deficiency in children under 5 years old and/or WRA was below 5%. Data on vitamin B12 deficiency from nationally representative surveys were only found in seven countries (10%) in diverse age groups. Prevalence of vitamin B12 deficiency in pregnant women was 18.2% and 18.6% respectively in Argentina and Colombia; 12.2% in children 6–14 years in Dominican Republic; and 22.5% in children under 5 years old in Guatemala.

Mapping of nutrition and sectoral policies addressing malnutrition in Latin America⁴

Policies, legislation, regulations, strategies, plans, clinical norms, and clinical guidelines addressing all forms of malnutrition in 18 Latin American countries were reviewed and mapped (5), following the structure of WHO's Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition (CIP) five priority lines of action and the corresponding activities recommended for CIP implementation. The results showed that the right to food for the entire population of vulnerable groups (e.g., children, pregnant and lactating women) is recognized in the Constitution of all 18 countries studied⁵ except Chile (which does not explicitly recognize this right in its Constitution but supports it through international treaties such as the International Covenant on Economic, Social and Cultural Rights

⁴ Results from the research report of the same name (5).

⁵ Ratification in Belize is pending.

(ICESCR), adopted by the United Nations General Assembly in 1966 and signed by Chile on September 16, 1969). Recognition of this right follows various international and regional instruments such as the Protocol of San Salvador (9), in which countries in the Americas agree to reaffirm, develop, and perfect the right to health and the right to food. All 18 countries included in the review had enacted intersectoral policies that established multi-sectoral coordination mechanisms, such as food and nutrition security councils, at the national and sub-national level. Countries in Central America had national breast-feeding councils and micronutrient and food fortification councils within the health sector. All 18 countries had enacted legislative and regulatory frameworks and developed guidelines for the prevention of stunting, wasting, underweight, and/or deficiency of iron, vitamin A, and iodine, depending on their epidemiological profiles. In that context, nutrition and/or food security policies in the region were multi-sectoral, to cover undernutrition and iron deficiency, but did not fully address the obesity epidemic. The degree of their implementation was unknown and beyond the scope of this analysis.

Some countries had developed policies to tackle overweight and obesity. This mainly occurred where there were some type of regulations to reduce the intake of salt, sugar, saturated fat, and/or trans fat, such as the excise taxes on sugar-sweetened beverages in Mexico; the requirements for front-of-package labeling in Chile and Ecuador; the restrictions on marketing of nonalcoholic sugar-sweetened beverages and high-calorie low-nutrient foods to children in Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay; and the school-based interventions and/or economic incentives for consumption of healthy foods in Chile, Colombia, Costa Rica, Ecuador, Peru, and Uruguay.

Information on human and financial resources for implementation of nutrition actions was scarce in the region, and neither comprehensive reports nor peer-reviewed articles on the evaluation of these policies were found. In most countries studied, program monitoring or surveillance of nutritional status, as part of efforts to evaluate the implementation of nutrition actions, was a weak or missing part of health information systems.

Conditional cash transfer programs and the health and nutrition of Latin American children⁶

In the early 1990s, implementation of CCTs as strategies to reduce poverty, delivered through social protection systems, began at the national level, first in Mexico (1997) and Brazil (2003) and later expanded to other LAC countries, and worldwide (10). CCTs are considered nutrition-sensitive interventions because their main objective is to reduce poverty and social vulnerability through the delivery of services designed to increase access to health care and education and to

improve nutritional status. In the review of CCTs implemented in Latin America (6), 18 programs were identified and three were selected for analysis. The inclusion criteria for the analysis were 1) in operation for 10 years or more, 2) high national coverage (50% or more coverage of the target population), 3) had nutritional status impact evaluation data, and 4) had a clear description of their architecture as well as their funding and governance structure.

The three CCTs that were analyzed included *PROGRESA* (now known as *PROSPERA*) in Mexico; *Bolsa Família* in Brazil; and *Familias en Acción* in Colombia. All three CCTs had been successfully implemented with high national coverage (6.1 million families, 13.8 million households, and 2.6 million families respectively); were subsequently scaled up due to strong political commitment, transparent structures (based on independent monitoring and evaluation systems), and social participation mechanisms; and had a combined annual budget of US\$ 17 billion. These characteristics, together with intersectoral coordination, had allowed for adequate oversight and strengthening of these three longstanding CCTs. The pioneering experience of *PROGRESA* in Mexico provided a model for the design of other CCTs in the region. *PROGRESA*'s strong, built-in quasi-experimental evaluation design showed positive outcomes on child birth weight, decreased child morbidity, and better child growth, and in some cases decreases in anemia and improved child gross motor and cognitive development. Similar findings in both health and nutrition outcomes were reported for the CCTs from Brazil and Colombia. The management information system and structure for social participation used by Brazil's *Bolsa Família* provided important lessons for other programs in the region. All three CCTs are now linking their beneficiaries to early childhood programs and economic development programs designed to help them break the cycle of poverty and maintain the health and nutrition benefits while reducing their dependency on the program.

TACKLING DATA AND POLICY GAPS IN THE AMERICAS: CHALLENGES AND OPPORTUNITIES

Information systems and data availability

The nutrition situation in LAC has changed significantly in the past few decades, transitioning from high prevalence of undernutrition and multiple micronutrient deficiencies to a growing prevalence of overweight and obesity combined with stunting and iron deficiency anemia. Certain challenges remain in obtaining timely and reliable information for policy-making, as well as various opportunities for improving the current status.

Challenges. Nutrition information systems must be systematic to provide the data required for making informed and timely decisions and targeting nutrition interventions among vulnerable populations.

⁶ Results from the research report of the same name (6).

Strengthening health information systems, particularly the timeliness and accuracy of the data, should be a priority in all countries, integrated in the technical cooperation agenda, to allow governments and other stakeholders to respond to the changing nutrition situation. In many countries in the region, information on indicators of nutritional status—anthropometric and biochemical—is outdated or not available for various populations. Based on recent evidence on the relationship between vitamin B12 and folate deficiency and cardiovascular risk, biomarkers for those micronutrients should be used in surveillance systems (11, 12). Available health and nutrition surveys use standardized methodologies and probabilistic samples, and are nationally representative, but are not carried out systematically and are often conducted in different timeframes, which makes comparisons difficult. More awareness must be created in governments and cooperation agencies regarding the importance of and need for identifying and allocating adequate funding to implement sustainable information systems. Finally, program monitoring and evaluation has been weak in most countries. It is essential to identify and solve bottlenecks related to implementation of, access to, and utilization of health services, as well as compliance and coverage. Impact evaluations can be a useful tool for determining the effects of interventions, and these results can in turn be used to maintain political support.

Opportunities. Opportunities for improving information systems and data availability include the growing recognition of the importance of 1) using data from all sectors of society for decision-making and 2) countries' commitment to report on the Global Nutrition Targets for 2025, which requires all stakeholders to adapt and produce high-quality data by using new technologies for data collection or point-of-use assessment of biomarkers of nutritional status. These technologies may also allow for greater disaggregation by geography, wealth, disability, sex, and age, among other variables; the inclusion of additional variables; and faster analysis and availability of information (13). In addition, databases on nutrition status are widely available in most countries with available information, providing an opportunity for secondary analysis and triangulation to provide a better diagnostic feed for the decision-making process.

Policies to address the double burden of malnutrition

Most governments in LAC countries have recognized the central role of nutrition in improving the lives of their citizens, especially young children and pregnant and lactating women, and have thus established a corresponding political agenda. However, many challenges remain in addressing malnutrition in all its forms in the region, along with opportunities for improving the current status.

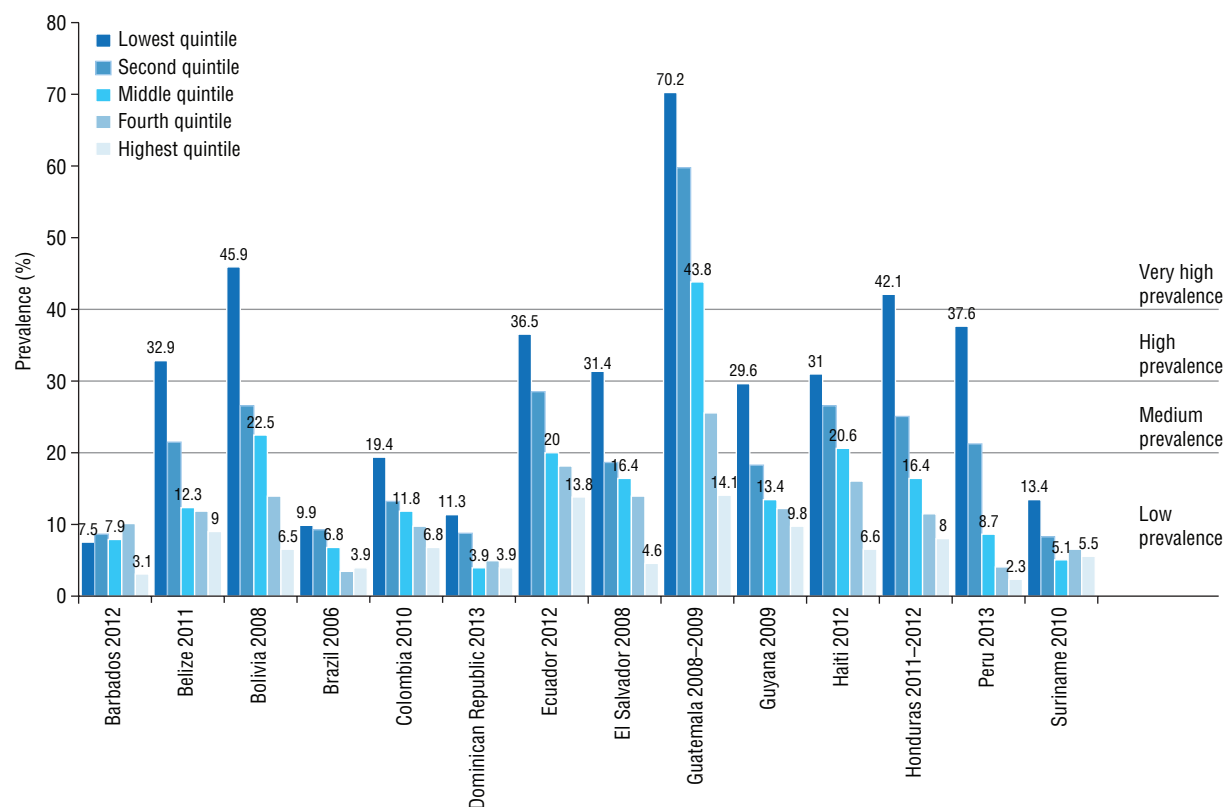
Challenges. Challenges in addressing malnutrition include the following: 1) nutrition goals and actions have not been fully incorporated into national development or poverty reduction policies; 2) while most countries in Latin America have established national food and nutrition security policies, coordination mechanisms between the national, regional, and local levels must be strengthened; 3) nutrition policies and actions are supported by regulatory frameworks, but countries lack the capacity to monitor and enforce their implementation; 4) nutrition-specific interventions must be adjusted to tackle the obesity epidemic throughout the lifecycle, as most are still largely focused on undernutrition and micronutrient deficiencies in young children and WRA; 5) there is a lack of information on implementation and evaluation of policies and programs and on human and financial resources for nutrition targets; 6) policies to modify the obesogenic environment (e.g., taxes on energy-dense nutrient-poor products; regulations on advertising, promotion, and sponsorship of ultra-processed food products; and regulation of food labeling) are needed to reduce the intake of sugar, salt, and trans fat; and 7) governments and stakeholders need to promote civil society engagement to strengthen social accountability.

Opportunities. Food and nutrition, as well as underlying social determinants, are receiving political attention, providing the opportunity to promote and include nutrition goals in new policies, scale-up existing nutrition-sensitive policies, and build intersectoral and multi-level coordination policies. In addition, most countries in the region already have CCTs in place, providing an opportunity to advocate for governments in the region to scale up these existing interventions while improving targeting and including reliable monitoring systems and improved evaluation of CCTs. Technical cooperation provides the opportunity to promote information exchange and sharing of lessons learned that improve the design, implementation, monitoring, and evaluation of nutrition actions, contributing to program effectiveness, sustainability, and accountability.

Limitations

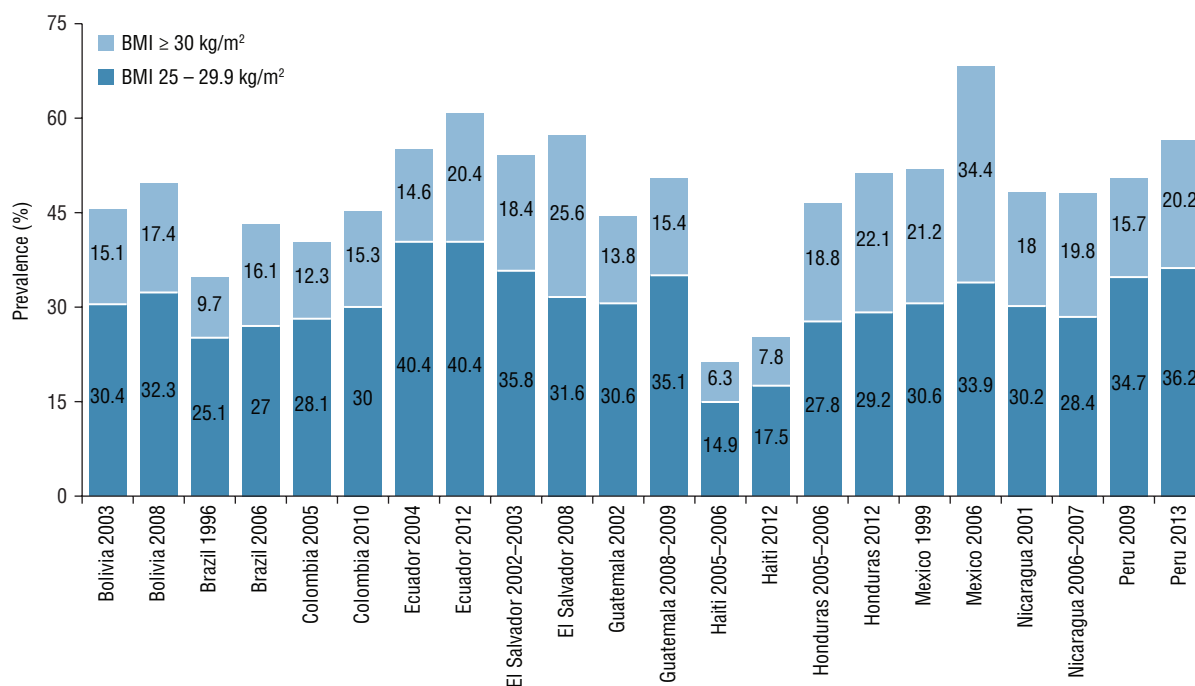
The research on the status of LAC nutrition had a number of limitations, described in each of the reports in the series (4–6), including the fact that all data were obtained through Internet searches and requests for information sent to PAHO country offices and thus may have excluded additional information available to the public through other search methods, especially in the English-speaking Caribbean. The small sample sizes used in much of the research—with the policy review limited to 18 Latin American countries and the CCTs review covering the three programs that met the inclusion criteria—was another limitation. Therefore, the results and conclusions of those reports should be interpreted with care, and extrapolation to the region as a whole avoided. However, the information obtained from this research series provides an overview of the nutrition landscape in

FIGURE 2. Prevalence of stunting^a in children under 5 years old, by wealth quintile, in countries with available nationally representative data, Latin America and the Caribbean, 1985–2014



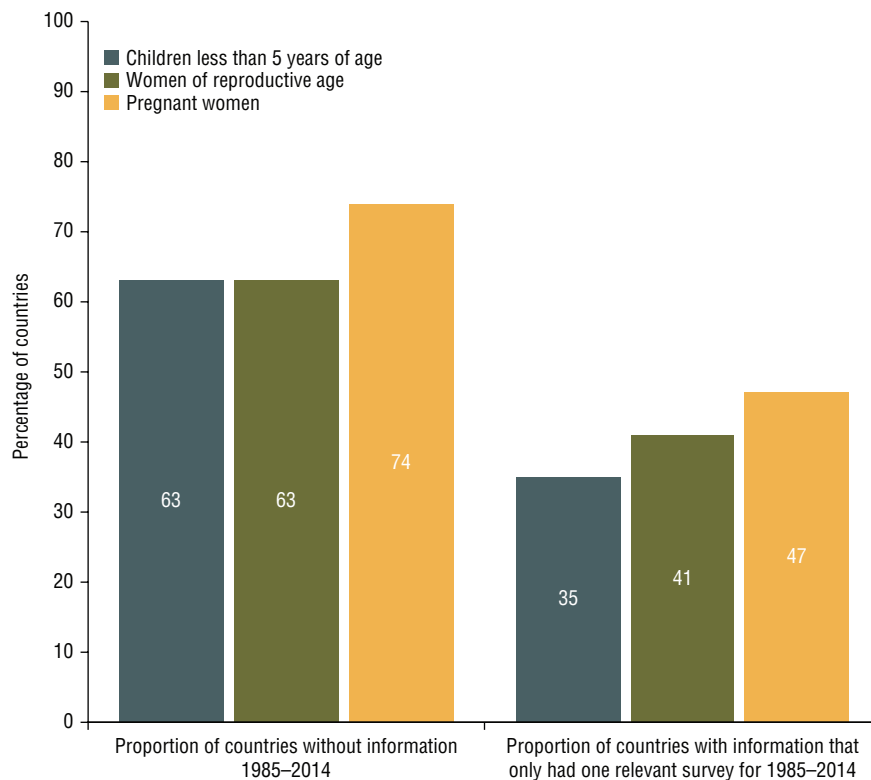
Source: Prepared by the authors with information from (14–27).
^a Height for age Z-score (HAZ) < -2 standard deviation.

FIGURE 3. Trends in the prevalence of overweight and obesity^a in women of reproductive age in countries with available nationally representative data, Latin America and the Caribbean, 1985–2014



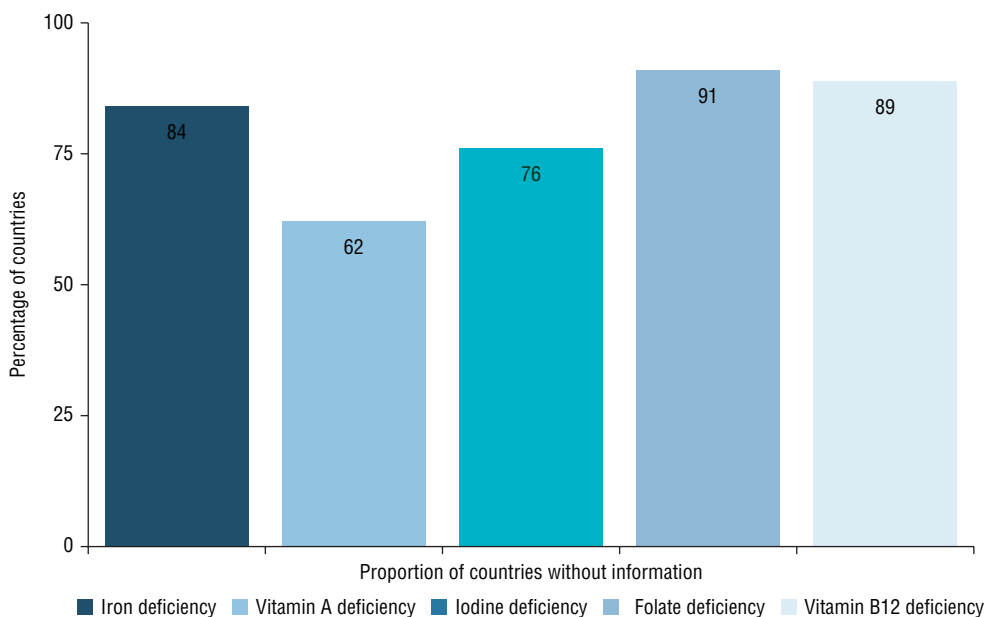
Source: Prepared by the authors with information from (14–27).
^a Body mass index (BMI) ≥ 25 kg/m² and ≥ 30 kg/m² respectively.

FIGURE 4. Gaps in available nationally representative information on anemia in children under 5 years old, women of reproductive age, and pregnant women for 46 countries and territories, Latin America and the Caribbean, 1985–2014



Source: Prepared by the authors with information from (4).

FIGURE 5. Gaps in available nationally representative information on micronutrient deficiencies in children under 5 years old and women of reproductive age for 46 countries and territories, Latin America and the Caribbean, 1985–2014



Source: Prepared by the authors with information from (4).

LAC countries and thus can be used to identify the main challenges and opportunities in tackling data and policy gaps in the region as well as policy options that should result in positive nutrition outcomes.

Conclusions

A rapid nutrition transition is ongoing in the LAC region, and surveillance systems are needed to effectively track it and inform decision-makers on how to better address the malnutrition double burden. Although most countries in the region have a political agenda to address undernutrition and micronutrient deficiencies, additional efforts are needed to strengthen intersectoral policies and coordination mechanisms to tackle the obesity epidemic. Program monitoring and evaluation systems are essential to improve effectiveness and sustainability.

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RESUMEN

La lucha contra la malnutrición en América Latina y el Caribe: retos y oportunidades

La desnutrición y las carencias de micronutrientes siguen siendo un problema de salud pública en América Latina y el Caribe y el sobrepeso y la obesidad han alcanzado proporciones epidémicas. Para evaluar el panorama nutricional en los países de América Latina y el Caribe y marcar el rumbo de futuras iniciativas e inversiones en el área de la nutrición, la Organización Panamericana de la Salud y la Iniciativa de Micronutrientes aunaron esfuerzos a fin de a) identificar brechas de información y describir la situación nutricional actual en la Región; b) mapear las políticas existentes para combatir la malnutrición en América Latina; c) describir los efectos que tienen los programas

de transferencias de efectivo condicionadas sobre la nutrición y la salud; y d) determinar los retos y oportunidades que encierra la lucha contra la malnutrición en la Región.

En el presente artículo se resumen los métodos usados en esa investigación y sus principales resultados, y se describen los retos y oportunidades que plantea actualmente la lucha contra la malnutrición en América Latina y el Caribe. Los países de la Región han avanzado en sus esfuerzos por reducir la desnutrición y las carencias de micronutrientes, pero hay grandes lagunas de información que constituyen un problema serio. Dichos países tienen políticas dirigidas a combatir la desnutrición y las carencias de micronutrientes, pero no tienen políticas integrales e intersectoriales para hacer frente al problema de la obesidad. Se ha señalado que en Brasil, Colombia y México las transferencias monetarias condicionadas tienen un efecto beneficioso sobre el estado nutricional y de salud del niño, lo que representa una oportunidad para integrar intervenciones nutricionales en las plataformas intersectoriales. La situación epidemiológica y las opciones normativas del momento actual brindan a los países, a los organismos técnicos, a los donantes y a otros interesados directos la oportunidad de ampliar, en conjunto, el alcance de las medidas en materia de nutrición. Esto puede estimular la formulación de políticas integrales e intersectoriales para combatir la doble carga de malnutrición, fortalecer los sistemas nacionales de vigilancia nutricional, incorporar el seguimiento y la evaluación como componentes sistemáticos de las políticas y programas, documentar e incrementar la inversión en el área de la nutrición y evaluar la eficacia de estas políticas para fomentar el compromiso político y garantizar la sostenibilidad

Palabras clave: Nutrición; política nutricional; América Latina; Región del Caribe.

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