



Mapping of nutrition and sectoral policies addressing malnutrition in Latin America

María Cristina Tirado,¹ Luis Galicia,² Hannah M. Husby,¹ Jaime Lopez,¹ Stephania Olamendi,¹ Maria Pia Chaparro,³ María A. González,⁴ and Rubén Grajeda²

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ABSTRACT

Objective. To map existing policies addressing malnutrition in all its forms in Latin America and identify gaps in enabling environments supporting the five priority lines of action outlined in the World Health Organization Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition (CIP) approved in 2014.

Methods. This descriptive study consisted of a systematic Internet search for and mapping of publicly available nutrition-related and sectoral policies already in place to address malnutrition in all its forms in 18 Latin American countries (Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay). The policies were described in documents retrieved from the websites of ministries of health, education, agriculture, labor, and development; the national congress; and other government agencies.

Results. All 18 countries had relevant policies to address malnutrition, especially undernutrition and micronutrient deficiencies, but only a few had policies to address overweight and obesity. Nutrition actions were incorporated in food and nutrition security and social protection policies in all 18 countries, and were part of education, environment, agricultural, development, and/or employment policies in some countries. Information on human and financial resources assigned to nutrition was not available through the search strategies used in the study.

Conclusions. All 18 countries included in this review had established enabling environments to support CIP implementation. However, each of the 18 countries needs to develop integrated policies for the promotion of nutrition and prevention of noncommunicable diseases through cross-sector involvement and multi-stakeholder collaboration.

Key words

Nutrition policy; malnutrition; chronic disease; Dominican Republic; Central America; Latin America.

Most countries in Latin America have reduced stunting, underweight, wasting, anemia, and vitamin A and iodine deficiencies, but overweight and obesity have reached epidemic proportions.

Many countries in the region are experiencing a double burden of malnutrition in which stunting and/or micronutrient deficiencies occur in tandem with obesity and overweight at the national, community, household, and even individual level (1). To fight malnutrition, ministers of health in the region have committed to implementing the World Health Organization (WHO) Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition (CIP) approved by the 65th World Health Assembly

(WHA) in 2014 (2, 3). The CIP includes five priority lines of action and a number of recommended activities designed to 1) reduce the number of young children who are stunted, the prevalence of anemia in women of reproductive age, and the incidence of low birth weight; 2) halt the increase in childhood overweight; 3) increase the rate of exclusive breast-feeding in infants' first six months; and 4) reduce or prevent any increase in childhood wasting. The objective of this study was to map existing policies designed to

¹ University of California-Los Angeles, Los Angeles, California, United States of America. Send correspondence to: María Cristina Tirado, mcrisnatirado@gmail.com

² Pan American Health Organization, Washington, D.C., United States of America.

³ University of Essex, Colchester, United Kingdom.

⁴ Independent nutrition consultant, Guatemala City, Guatemala.

address malnutrition in all its forms in 18 Latin American countries and identify gaps in enabling environments supporting the five priority lines of action outlined in the CIP.

MATERIALS AND METHODS

This descriptive study consisted of a systematic Internet search for and mapping of publicly available nutrition-related and sectoral policies already in place to address malnutrition in all its forms in 18 countries in Latin America (Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay). For the purpose of this study, nutrition-related policies were defined as “all governmental policies, legislation, regulations, strategies, plans, clinical norms, or clinical guidelines related directly or indirectly to nutrition, food security, or food and nutrition security”; sectoral policies included those related to agriculture, food, maternal and child nutrition, health, education, and physical activity and nutrition-sensitive interventions in development, poverty reduction, and social protection. The documents were obtained from the websites of the 18 ministries of health, education, agriculture, labor, and development; each country’s national congress; and other government agencies.

The framework for mapping the policies, legislation, regulations, strategies, plans, clinical norms, and/or guidelines found in the search followed the structure of the five CIP priority lines of action and recommended activities shown in Figure 1.

The Internet search strings included multiple key words [“nutrition” or “stunting” or “chronic malnutrition” or “wasting” or “acute malnutrition” or “low weight” or “micronutrients” or “anemia” or “vitamin A deficiency” or “iodine deficiency” or “food security” or “obesity”] AND [“Policy” or “Legislation” or “Law” or “decree” or “regulations” or “strategy” or “plan” or “norms” or “guidelines” or “actions”]. When the initial searches conducted on the national government websites did not generate a policy or official document, additional searches for studies and reports pertaining to nutrition-related and sectoral policies in each country were carried out in English and Spanish on the websites of international organization

such as the Pan American Health Organization (PAHO); WHO (e.g., the Global Database on the Implementation of Nutrition Action (GINA)); World Food Programme (WFP); World Bank; and United Nations Children’s Fund (UNICEF). National experts or PAHO/WHO country offices were also consulted. If no relevant documents were found using any of these strategies, the policies for that country were classified as “not publicly available.” All searches for Belize were conducted in English. The search timeframe was September 2014 to June 2015 for Central America and the Dominican Republic and October 2015 to January 2016 for South America.

Database construction, process, and analysis

The information collected from the policy documents was imported into a descriptive matrix database with a structure similar to that of the five CIP priority lines of action and recommended activities (Figure 1). To be included in the matrix database, the information had to be from official documents pertaining to nutrition-related and sectoral policies in each country (including reports obtained from international organization websites based on information submitted by the countries).

Coders used popular search engines to identify policy sources (websites) for conducting the searches described above. Each of the five CIP lines of action and its corresponding set of recommended activities was assigned a binary code. Each policy document retrieved in the search that met the study criteria was coded for whichever CIP line(s) of action the policy supported, as determined by the coders. Any disagreements about coding were decided by consensus among the authors.

To avoid human error and ensure good-quality, accurate findings, two different researchers performed the Internet searches and coded the policy documents for the corresponding CIP priority action lines and recommended activities.

The number of policies supporting each CIP priority line of action and set of recommended activities were then mapped and tallied. The results of this mapping are presented in Table 1 and Figure 2.

RESULTS

As shown in Table 1, 15 of the 18 countries included in the review (all but

Argentina, Brazil, and Mexico⁵) had one or more nutrition-related and/or sectoral policy in place to support most of the 24 activities recommended by WHO for implementation of the five CIP priority lines of action. Figure 2 shows the number of nutrition-related and/or sectoral policies in place in those 15 countries that address malnutrition in all its forms, including food and nutrition security, by type of policy and form of malnutrition targeted.

The section below describes publicly available nutrition-related and sectoral policies corresponding to the five CIP priority lines of action in all 18 countries included in the review.

Action 1. Creation of a supportive environment for the implementation of comprehensive food and nutrition policies

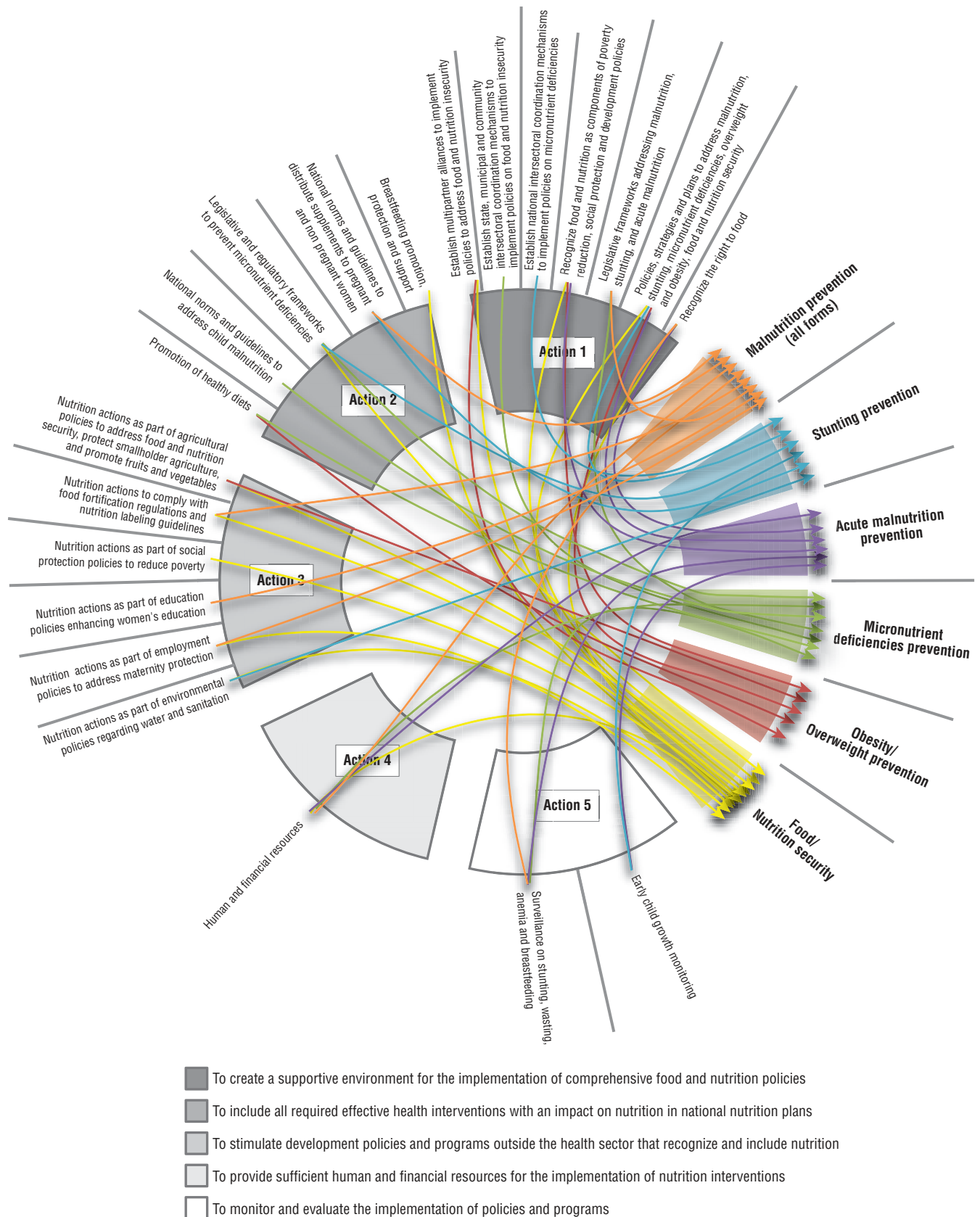
The right to food is recognized in the Constitution in all 18 countries included in this review⁶ except Chile (which does not explicitly recognize it but supports it through international treaties such as the International Covenant on Economic, Social and Cultural Rights (ICESCR), adopted by the United Nations General Assembly in 1966 and signed by Chile on September 16, 1969). The Constitution of Honduras recognizes the right to food for children and their mothers and the Constitution of Costa Rica recognizes the right to food for homeless and school-age children. The right to food is also recognized in the health codes of the Dominican Republic, El Salvador, Guatemala, Nicaragua, Panama, Paraguay, and Peru. The health code in Costa Rica includes the right to food for pregnant and lactating women and their children.

All 18 countries in the analysis had food and nutrition policies in place or had enacted related legislation or regulations that include interventions to improve infant and young child feeding practices and prevent micronutrient deficiencies. All 18 countries studied also had policies to address stunting, and 10

⁵ As explained in more detail in the Limitations section, the review for these three federal states was restricted to national policies such as the Constitution plus broad food and nutrition security policies (i.e., policies enacted by state and local authorities were not reviewed) so they were excluded from the analysis of 1) the enabling environment supporting CIP priority lines of action (Table 1) and 2) the number and type of existing policies addressing all types of malnutrition in the region (Figure 2).

⁶ Ratification in Belize is pending.

FIGURE 1. Recommended activities for World Health Organization Member States committed to implementing the five priority lines of action of the Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition (CIP), 2012–2025



Source: Prepared by the authors with information from (2).

TABLE 1. Countries with nutrition-related and/or sectoral policies^a corresponding to recommended activities for implementing the five WHO CIP^b priority lines of action, Latin America,^c 2014–2016^d

CIP priority line of action	Recommended activity	Has publicly available policy corresponding to recommended activity															
		BO	BZ	CL	CO	CR	DO	EC	SV	GT	HN	NI	PA	PY	PE	UY	
1. Creating a supportive environment for implementation of comprehensive food and nutrition policies	Recognition of the right to food	Y ^e	N ^f	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Specific policies to address stunting, wasting, and underweight	N	Y	Y	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	
	Specific policies to address micronutrient deficiencies	Y	N	Y	Y	Y	N	Y	N	N	N	Y	N	Y	Y	Y	
	Specific policies to address overweight and obesity	Y	Y	Y	Y	Y	N	Y	N	N	N	N	N	N	Y	Y	
	Food and nutrition security policies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Legislative frameworks and intersectoral coordination mechanism to support food and nutrition security policies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Other subregional coordination mechanisms	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	
	Recognition of nutrition or food and nutrition as key components of development, poverty reduction, or social protection policies	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
2. Include all required effective health interventions with an impact on nutrition in national nutrition plans	Breast-feeding promotion, protection, and support	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	National guidelines for distribution of micronutrient supplements	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Legislative frameworks and intersectoral coordination to support food fortification programs	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
3. Stimulate development policies and programs outside the health sector that recognize and include nutrition interventions	Promotion of healthy diets	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Policies to reduce the consumption of sugar, salt, and saturated and/or trans fats	Y	N	Y	Y	Y	N	Y	N	N	N	N	N	Y	Y	N	
	Policies for taxation of sugar-sweetened beverages and energy-dense nutrient-poor products and fast foods	N	Y	N	N	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	
	Regulation of marketing of sugar-sweetened beverages and energy-dense nutrient-poor products and fast foods	Y	N	Y	Y	N	N	Y	N	N	N	N	N	N	Y	Y	
	Food labeling norms	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	School-based interventions to address malnutrition	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Women's education policies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
	Nutrition actions as part of environmental policies	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	Family farming policies	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	
Nutrition actions or targets as part of employment policies	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y		
4. Sufficient human and financial resources for implementation of nutrition interventions	Human resources	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	
	Financial resources	Y	N	Y	Y	Y	Y	Y	N	Y	N	N	N	Y	Y	Y	
5. Monitoring and evaluation of implementation of policies and programs	Growth monitoring and surveillance	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	

Source: Prepared by the authors based on the study results.

^a Nutrition-related policies were defined as “all governmental policies, legislation, regulations, strategies, plans, clinical norms, or clinical guideline related directly or indirectly to nutrition, food security, or food and nutrition security”; sectoral policies included those related to agriculture, food, maternal and child nutrition, health, education, and physical activity and nutrition-sensitive interventions in development, poverty reduction, and social protection.

^b World Health Organization Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition (2).

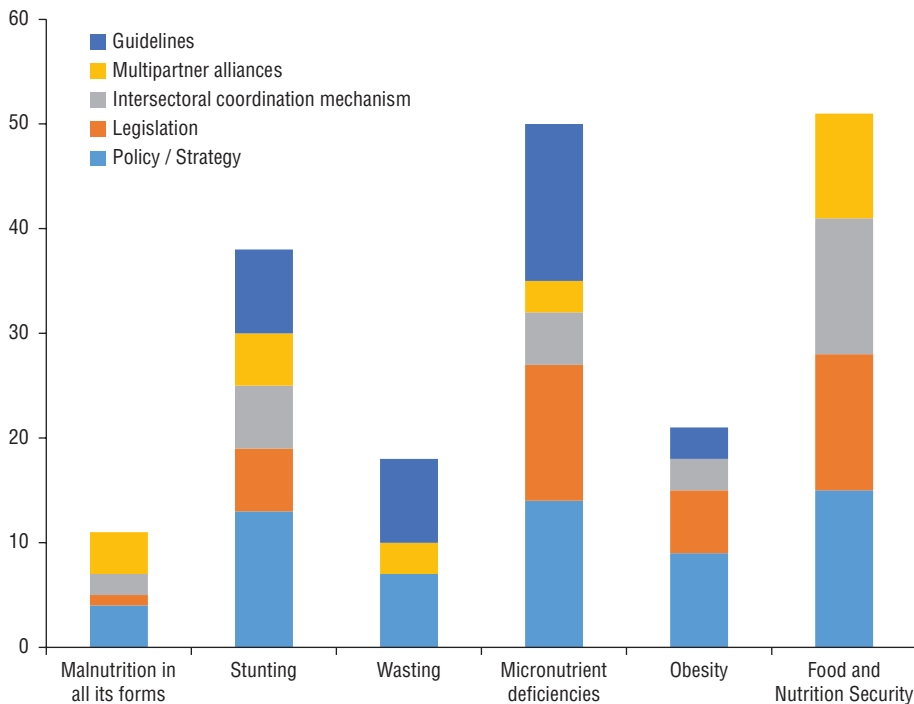
^c BO: Bolivia; BZ: Belize; CL: Chile; CO: Colombia; CR: Costa Rica; DO: Dominican Republic; EC: Ecuador; SV: El Salvador; GT: Guatemala; HN: Honduras; NI: Nicaragua; PA: Panama; PY: Paraguay; PE: Peru; UY: Uruguay. Federal states Argentina, Brazil, and Mexico were part of the overall study but were not included in this analysis because their review was limited to national policies such as the Constitution plus broad food and nutrition security policies (i.e., policies enacted by state and local authorities were not reviewed) due to the very large amount of policy documents available from the region.

^d The policy review was conducted September 2014–June 2015 for Central America and the Dominican Republic and October 2015–January 2016 for South America.

^e Y: Yes.

^f N: No.

FIGURE 2. Number of nutrition-related and sectoral policies^a in place to address malnutrition and food and nutrition security, by type of policy and form of malnutrition, based on a review of official documents pertaining to 15 countries,^b Latin America, 2014–2016^c



Source: Prepared by the authors based on the study results.

^a Nutrition-related policies were defined as “all governmental policies, legislation, regulations, strategies, plans, clinical norms, or clinical guideline related directly or indirectly to nutrition, food security, or food and nutrition security”; sectoral policies included those related to agriculture, food, maternal and child nutrition, health, education, and physical activity and nutrition-sensitive interventions in development, poverty reduction, and social protection.

^b Belize, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Paraguay, Peru, and Uruguay. Federal states Argentina, Brazil, and Mexico were part of the overall study but were not included in this analysis because their review was limited to national policies such as the Constitution plus broad food and nutrition security policies (i.e., policies enacted by state and local authorities were not reviewed) due to the very large amount of policy documents available from the region.

^c The policy review was conducted September 2014–June 2015 for Central America and the Dominican Republic and October 2015–January 2016 for South America.

countries had guidelines to address wasting. Plans or strategies to address micronutrient deficiencies included diet diversification, distribution of micronutrients powder, micronutrient supplementation, mandatory food fortification, and other actions such as birth spacing and delayed cord clamping. Chile, Colombia, and Panama included biofortification among their strategies.

All South American countries except Paraguay had specific policies to address overweight and obesity in children. In Central America, these types of policies were only found in Costa Rica, which had a National Commission on Obesity and included obesity as a disease of compulsory notification. Brazil, Chile, Ecuador, Mexico, and Peru had enacted multi-sectoral legislation to address several drivers of obesity.

Food and nutrition security

All 18 countries included in the review had developed intersectoral food and nutrition security policies and enacted food and nutrition security laws to form a food and nutrition security system, and established intersectoral coordination mechanisms at the national, state, municipal, and/or community level. Examples include the National Council for Food and Nutrition (*Consejo Nacional de Alimentación y Nutrición*, CONAN) in Bolivia; the National Council on Food and Nutrition Security (*Conselho Nacional de Segurança Alimentar e Nutricional*, CONSEA) in Brazil; the Secretariat of National Food and Nutrition Policy (*Secretaría de la Política Nacional de Alimentación y Nutrición*, SEPAN) and the Cantonal Councils on Nutrition and Food Security (*Consejos*

Cantones de Seguridad Alimentaria y Nutricional, COSAN) in Costa Rica; the National System for Food and Nutrition Security (*Sistema Nacional de Seguridad Alimentaria y Nutricional*, SISAN) in Ecuador; the National Council for Food and Nutrition Security (*Consejo Nacional de Seguridad Alimentaria y Nutricional*, CONASAN) in El Salvador; and the National System for Food and Nutrition Security (*Sistema Nacional de Seguridad Alimentaria y Nutricional*, SINASAN) in Guatemala.

Subregional integration bodies such as the Central American Integration System (*Sistema de la Integración Centroamericana*, SICA) (4); the Andean Community (*Comunidad Andina*, CAN) (Bolivia, Colombia, Ecuador, and Peru) (5); and the Southern Common Market (*Mercado Común del Sur* or MERCOSUR) (6) were established to boost trade and cooperation between their member states and have developed subregional policies on agriculture, food, nutrition, health, and social affairs as well as food and nutrition security. Costa Rica, El Salvador, Guatemala, and Peru are also part of the international initiative Scaling Up Nutrition (SUN) (7), which unites different sectors to improve nutrition.

In most countries included in this review, nutrition and/or food and nutrition security had been recognized as key components of development, poverty reduction, and social protection policies as well as conditional cash transfer programs (CCTs) such as *Asignación Universal para Protección Social* (Argentina), *Bono Juancito Pinto* (Bolivia), *Bolsa Familia* in Brazil, *Chile Solidario* (Chile), *Más Familias en Acción* (Colombia), *Bono de Desarrollo Humano* (Ecuador), *Programa de Solidaridad* (Dominican Republic), *Comunidades Solidarias* (El Salvador), *Mi Bono Seguro* (Guatemala), *Bono 10,000* (Honduras), *PROSPERA* (Mexico), *Red de Protección Social y Sistema de Atención a Crisis* (Nicaragua), *Red de Oportunidades* (Panama), *Tekopora* (Paraguay), *Juntos and Crecer* (Peru), and *Tarjeta Uruguay Social* (Uruguay).

Action 2. Include all required effective health interventions with an impact on nutrition in national nutrition plans

All countries had enacted breast-feeding laws, but implementation of the regulations was pending in Belize, Ecuador, El Salvador, and Peru. El Salvador had recognized the right to breast-feeding in

its child protection law. Through these laws, the countries had adopted many but not all provisions of WHO's International Code of Marketing of Breast-milk Substitutes, and some had national breast-feeding councils. All countries had enacted maternity protection laws requiring 12–14 weeks of paid leave, and Brazil, Chile, and Uruguay had recently extended maternity leave to six months. In addition, all countries had adopted the Baby-friendly Hospital Initiative (BFHI),⁷ and a recent report included information on the number of health facilities accredited as “Baby-friendly” (8).

All countries except Belize, Bolivia, Dominican Republic, and Nicaragua had publicly available guidelines or educational materials for education and counseling on breast-feeding, including optimal feeding of low-birth-weight infants or pre-term newborns (14 countries), and most countries (16 out of 18) had established infant and young child feeding guidelines in the context of HIV. Information on current behavior change or mass media campaigns promoting optimal infant and young child feeding practices at the national or subnational level was not available.

For prevention of micronutrient deficiencies, some countries had established, by law, a national council on micronutrients or food fortification, and passed comprehensive policies and national norms or guidelines for the distribution of micronutrient supplements or mandatory food fortification programs to prevent anemia and iodine and vitamin A deficiencies.

Distribution of micronutrients powder and micronutrient supplementation norms included the following:

- Vitamin A supplements for children 6–59 months old (all 18 countries included in the review except Chile, Paraguay, and Uruguay);
- Daily iron supplementation for children 6–59 months old (all 18 countries except Colombia and Ecuador);
- Intermittent iron supplementation for children 6–59 months old (Guatemala and Panama);
- Use of micronutrient powders for home fortification of foods consumed by children 6–23 months old (all 18 countries except Belize, Chile, Costa Rica, Nicaragua, Panama, and Paraguay);

- Iron recommendations for pre-school-age children who attend checkups (Costa Rica);
- Daily iron and folic acid supplementation for nonpregnant women (Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and Paraguay);
- Intermittent iron and folic acid supplementation for nonpregnant women (Guatemala and Panama);
- Daily iron and folic acid supplementation for pregnant women (all 18 countries);
- Daily iron and folic acid supplements for anemic pregnant women (all 18 countries);
- Zinc supplementation for management of diarrhea (Bolivia, Colombia, El Salvador, Guatemala, and Nicaragua);
- Calcium supplementation during pregnancy (Colombia, El Salvador, and Nicaragua).

Food fortification programs included the following:

- Universal salt iodization (all 18 countries);
- Sugar fortification with vitamin A (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua);
- Oil fortification with vitamin A (Bolivia);
- Wheat flour fortification with iron, folic acid, niacin, thiamine, and/or riboflavin (all 18 countries);
- Pasta fortification with iron, folic acid, niacin, thiamine, and/or riboflavin (El Salvador);
- Maize flour or corn meal fortification with iron, folic acid, niacin, thiamine, and/or riboflavin (Costa Rica and El Salvador);
- Rice fortification in place, using folic acid, niacin, thiamine, riboflavin, and/or selenium (only Costa Rica, but Nicaragua and Panama had recently passed a rice fortification law).

Action 3. Stimulate development policies and programs outside the health sector that recognize and include nutrition interventions

All countries except Ecuador and Peru had food-based dietary guidelines that complied with the joint Food and Agriculture Organization (FAO)/WHO consultation on preparation and use of food-based dietary guidelines (FBDGs) (9). In most of

the countries the educational messages of the FBDGs were incorporated in school curricula, health education materials, and/or some governmental food programs but were not part of national agricultural policies. Eleven countries had policies to support family farming; these policies included agricultural incentives, reduction of postharvest losses, and agricultural risk management programs.

Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, and Paraguay had a national plan to reduce salt/sodium consumption. Bolivia, Chile, Colombia, Costa Rica, Ecuador, and Peru had strategies to reduce trans-fatty acids in foods.

Most of the countries studied have had taxes on sugar-sweetened beverages since 1992. However, only Mexico had recently imposed excise taxes with the public health objective of reducing the purchase and consumption of these products to prevent obesity (10).

Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay have a national regulatory framework to protect children and adolescents from the impact of marketing of sugar-sweetened beverages, energy-dense nutrient-poor products, and fast foods.

Belize has the National Standard Specification for Labelling in place, and the rest of the Central American countries, and the Dominican Republic, comply with the Central America Technical Regulations (CATR) on food labeling (11). Argentina, Brazil, Paraguay, and Uruguay comply with MERCOSUR standards; CAN countries have food labeling norms, all of which are aligned with Codex⁸ general standards for the labeling of prepackaged foods; and Chile and Ecuador have front-of-package labeling systems that allow quick and easy identification of healthy foods.

All 18 countries had nutrition education in schools, and 12 countries included it in their official school curriculum (all but Belize, Costa Rica, El Salvador, Honduras, Panama, and Peru). All 18 countries had physical education as part of their official school curriculum, but only Ecuador included recommendations for the duration and frequency of physical activity in school settings. Chile, Colombia, Costa Rica, Ecuador, Peru, and Uruguay

⁷ Global program launched by WHO and UNICEF in 1991 to recognize hospitals and birthing centers that offered optimal care for infant feeding and mother/baby bonding.

⁸ The Codex Alimentarius was established by the FAO and WHO in 1963 to harmonize international food standards to protect consumer health and promote fair practices in food trade.

regulated the sale of foods in school canteens. Brazil had a procurement policy for school feeding programs to purchase food from smallholder farmers.

All countries had a policy in place that addressed enhancement of women's education as a broader equality issue, and Honduras had made its policy into law.

All countries studied had water, sanitation, and environmental policies, but none of them had established nutrition targets or outcomes. Guatemala's policies acknowledged the relationship between water and food and nutrition security.

All countries included in the review had established maternity protection laws. Most of these laws were incorporated within labor policies. In Honduras, the legislation was embedded in the national lactation policy.

Action 4. Sufficient human and financial resources for the implementation of nutrition interventions

Information on the number of available trained nutritional professionals was not found for any of the countries reviewed. However, assuming that the density of nutrition professionals might be embedded within the number of medical doctors and or community health workers, those latter measures were used as a proxy. The density of physicians per 10 000 people for 2013 varied across countries from 7.5 (Guatemala) to 47.3 (Uruguay), and the density of nurses per 10 000 people for 2013 varied across countries from 3.8 (Dominican Republic and Honduras) to 25.1 (Mexico) (12).

Health expenditure per capita is reported as a proxy of expenditures on nutrition as it includes total expenditure for the provision of health services, family planning activities, nutrition activities, and emergency aid designated for health, but does not include provision of water and sanitation. In 2013, health expenditure per capita varied across countries from US\$ 154 (Nicaragua) to US\$ 1 431 (Uruguay) (13). Some countries report a specific budget and financing target for nutrition programs in their national health accounts, but detailed information on that funding was not found for most countries included in this review. Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Paraguay, Peru, and Uruguay reported a specific budget and financing scheme to address food and

nutrition insecurity through nutrition interventions and programs in different ministries; however, reports evaluating implementation could not be found.

Action 5. Monitoring and evaluation of the implementation of policies and programs

All countries included in the review had adopted WHO child growth standards. However, in most of them, the national nutrition surveillance system was weak, because nutrition information was collected through international surveys such as Demographic and Health Surveys (DHS) (Bolivia, Brazil, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, and Peru); Nutrition and Health Surveys (NHS) (Argentina, Colombia, Costa Rica, and Mexico); and National Micronutrient Surveys (NMS) (Dominican Republic and Guatemala) implemented every five or 10 years. Mexico and Colombia were the exception, as they collect nutrition information systematically through their own health and nutrition surveys. The authors of this study were unable to identify any specific monitoring and evaluation systems assessing the effectiveness of national policies and programs addressing malnutrition in all its forms.

DISCUSSION

The development and establishment of policies to improve nutrition is receiving increased political attention in all countries in the Latin America and Caribbean (LAC) region (14–16), and as a result, most of them have reduced stunting, underweight, wasting, anemia, and vitamin A and iodine deficiencies; however, overweight and obesity are now a public health problem (17).

The results of this policy mapping showed that most Latin American countries had established an agenda and an enabling environment supportive of 1) food and nutrition policies, 2) effective health interventions, and 3) policies and programs outside the health sector to address malnutrition. These agendas have been included in many countries' Constitution—a major step toward ensuring accountability, and the strongest foundation any policy can have, as all laws must conform to a country's constitutional provisions. In addition, nutrition actions have been incorporated in health, agriculture, education, and social protection policies. This has

promoted intersectoral dialogue, but there is still a need to develop multi-sectoral plans to improve nutrition, especially at the subnational level (18).

Specific nutrition policies addressing undernutrition and food and nutrition security had been enacted in most countries studied where stunting was highly prevalent, including Ecuador (25.3%), Guatemala (49.8%), and Honduras (22.6%). All countries had implemented social protection policies, especially CCTs aimed to reduce poverty, but only a few of them had been systematically evaluated (19). Comprehensive interventions that address the determinants of undernutrition—by reducing poverty or improving access to water and sanitation, health services, purchasing capacity, or women's education—can help reduce the prevalence of stunting. However, it is clear that these policies do not reach everyone who needs them, as stunting and anemia are still a major public health problem in vulnerable populations in the region, especially the poorest population (20–22).

All 18 countries included in the review had enacted laws and health promotion interventions to improve infant and young child feeding practices, including the application of the International Code of Marketing of Breast-milk Substitutes adopted by the WHA in 1981, and the implementation of the BFHI, but there were no surveillance systems in place to monitor the implementation of these interventions.

All 18 countries had made significant efforts to prevent micronutrient deficiencies and had developed national plans, including food fortification laws and guidelines for distribution of micronutrients powder and micronutrient supplementation. However, very few countries had publicly available information about the coverage of these interventions. In the LAC region, there is strong evidence that wheat flour fortification for prevention of neural tube defects has been effective. Studies from Argentina, Brazil, Chile, and Costa Rica show a 50% reduction in the incidence of these congenital malformations as well as an increase in folic acid stores (23–27).

In recent years, many of the countries studied have established various regulatory frameworks to address overweight and obesity, including taxation of sugar-sweetened beverages (Mexico) (10), front-of-package labeling (Chile and Ecuador), regulation of foods sold in schools (Chile, Colombia, Costa Rica, Ecuador, Peru, and Uruguay), and regulation of food and beverage marketing

targeting children and adolescents (Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay) using interventions that can effectively prevent childhood obesity (28). Other than Costa Rica, the Central American countries included in this review did not have the necessary enabling environment to address overweight and obesity in a comprehensive way. This is concerning given that rates of overweight and obesity continue to climb in the LAC region. None of the countries included in this review had modified their policies to address the double burden of malnutrition in which stunting and/or micronutrient deficiencies occur in tandem with obesity and overweight. However, to the best of the authors' knowledge, most of the countries included in this review were considering developing these types of policies, as all have committed to halt the growing obesity epidemic in children and adolescents (29).

Policies and legislation promoting healthy diets in the region need to be developed or strengthened. Most countries studied had food-based dietary guidelines but lacked the legislation required to increase access to fresh food and/or address the obesogenic environment that leads to overweight and obesity and nutrition-related diseases. For example, the dietary guidelines from Brazil focused on specific foods, meals, and dietary patterns rather than food groups and/or nutrients; the benefits of natural and minimally processed foods in promoting health and well-being; the health risks of ultra-processed food and drink products; or relevant aspects of cultural, social, economic, and environmental sustainability (30).

Several countries included in this review did not incorporate nutrition in their national public policies on domestic or international trade, including those covering taxes, regulation, and standardization of food products. Furthermore, most countries studied were seeking open economies and trade agreements that had the potential to reduce the prices and increase the availability of ultra-processed food products, whose consumption is associated with weight gain, increased body mass, and higher risk for cardiovascular disease (31).

All 18 countries studied had nutrition-related legislation as part of their agricultural policies, most of which supported small farmers. Nutrition-sensitive policies should always be included in smallholder farming policies. Strong agricultural policies can boost nutrition directly, through embedded nutrition actions, and indirectly,

by increasing income (from surplus crops) and education (by increasing the likelihood that children will attend school) and creating a buffer against the most frequent and severe climate-related shocks. Improving access to water and sanitation was another priority in the countries included in this review, providing another potential area for integrating nutrition-related policies. Nutrition-related objectives could be integrated into water and sanitation policies, as improved access to drinking water and sanitation have been shown to drive improved nutrition status, along with increased access to health services and improved income (20).

No available information was found on trained nutrition professionals, using the study search methods described above, but some information was found on the density of physicians and nurses, which might be a proxy measure for this indicator. Countries should have sufficient human and financial resources to support nutrition-specific policies and nutrition-sensitive interventions.

The scarcity of data on the allocation of human and financial resources to promote nutrition translates into problems with implementing effective nutrition policies, as shown in a recent report on Guatemala, where an estimated funding gap of 0.3% of the gross domestic product (GDP) for nutrition interventions for 2014 could reach 4.5% of the GDP by 2021 if increases in required annual funding for nutrition follow the current trend (32). Economic models suggest that returns on investment in nutrition have high benefit-to-cost ratios, so interventions in this area should be a top development priority (33). Information on spending for nutrition must be made publically available so that accountability between government, donors, and international organizations can be developed and the progress and impact of various nutrition-specific and nutrition-sensitive policies and programs can be assessed.

National food and nutrition surveillance systems need to be established or strengthened in most of the 18 countries included in this review. Ministries of health should develop and maintain websites with publically available information on these topics.

Limitations

The main limitations of this study were that, due to the very large amount of policy,

legislative, and regulatory documents available from the region, the size and scope of the study sample had to be restricted. As a result, 1) only 18 of the 46 countries/territories in the LAC region were included in the analysis, and 2) for three of the 18 countries (federal states Argentina, Brazil, and Mexico), the analysis was limited to national policies such as the Constitution plus broad food and nutrition security policies (i.e., policies enacted by state or local authorities, which were part of the analysis for the 15 nonfederal countries, were not included for the federal states).

Conclusions

All countries included in this review have set an agenda to address malnutrition in all its forms and achieved significant reductions in undernutrition and micronutrient deficiencies, but most need to develop integrated policies for the promotion of nutrition and the prevention of noncommunicable diseases through cross-sector involvement and multi-stakeholder collaboration. This is critical for promoting the level of investment in nutrition-specific interventions, coordinated and synergistic actions, and policy coherence among different sectors that can contribute to improved nutrition and health in the Latin American region.

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RESUMEN

Mapeo de las políticas alimentarias y sectoriales orientadas a combatir la malnutrición en América Latina

Objetivo. Hacer un mapeo de las políticas que existen para combatir la malnutrición en todas sus formas en América Latina y encontrar las brechas que pueda haber en los ambientes propicios para la aplicación de las cinco líneas de acción prioritarias descritas en el Plan de aplicación integral sobre nutrición materna, del lactante y del niño pequeño de la Organización Mundial de la Salud, aprobado en el 2014.

Métodos. El presente estudio descriptivo consistió en una búsqueda sistemática de la Internet y en un mapeo de las políticas nutricionales y sectoriales a disposición del público que ya se han adoptado para combatir el problema de la malnutrición en todas sus formas en 18 países latinoamericanos (Argentina, Belice, Bolivia, Brasil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, México, Nicaragua, Panamá, Paraguay, Perú, República Dominicana y Uruguay). Las políticas estaban descritas en diversos documentos que se obtuvieron de los sitios web de los ministerios de salud, educación, agricultura y ganadería, trabajo y desarrollo; del congreso nacional; y de otras dependencias gubernamentales.

Resultados. Los 18 países tenían políticas para combatir la malnutrición, especialmente la desnutrición y las carencias de micronutrientes, pero solo unos cuantos tenían políticas relativas al sobrepeso y la obesidad. Diversas medidas de tipo alimentario estaban incorporadas en las políticas de seguridad alimentaria y nutricional y en las de protección social en los 18 países, y en algunos países formaban parte de las políticas educativas, medioambientales, agropecuarias, de desarrollo y laborales. No se encontró ninguna información acerca de los recursos humanos y económicos asignados al área de la nutrición mediante las estrategias de búsqueda que se usaron en el estudio.

Conclusiones. Los 18 países incluidos en esta revisión habían creado ambientes propicios para la puesta en práctica del Plan de aplicación integral sobre nutrición materna, del lactante y del niño pequeño. Sin embargo, cada uno de ellos tiene que formular políticas integradas para la promoción de la buena nutrición y la prevención de las enfermedades no transmisibles mediante la participación intersectorial y la colaboración entre los diversos interesados directos.

Palabras clave Política nutricional; desnutrición; enfermedad crónica; República Dominicana; América Central; América Latina.
