Editorial

Food and Nutrition Bulletin
2015, Vol. 36(Supplement 2) S95-S97

DOI: 10.1177/0379572115585736
fnb.sagepub.com
SAGE

Introduction: Prevalence of Micronutrient Deficiencies in Latin America and the Caribbean

Daniel López de Romaña[1], Manuel Olivares[2], and Alex Brito[3]

Abstract

This *Food and Nutrition Bulletin* supplement summarizes updated prevalence data on micronutrient deficiencies in Latin America and the Caribbean (LAC). In order to provide an updated view of micronutrient status in LAC, systematic reviews were performed utilizing national health surveys and research-oriented studies focused on the prevalence of deficiencies of vitamin A, folate, anemia (as a proxy of iron deficiency), and zinc. Results show that the prevalence of vitamin A deficiency has been reduced in many countries, folate deficiency is now almost non-existent, low or marginal vitamin B_{12} status is still prevalent in most locations, anemia remains a public health problem among children under 6 years of age and women of childbearing age in most surveyed countries, and there is a high prevalence of zinc deficiency in children under 6 years of age and girls and women 12 to 49 years of age. Thus, regardless of improvements in the overall rates of economic growth in LAC, deficiencies of these micronutrients still remain a public health problem.

Keywords

anemia, folate, folic acid, Latin America, micronutrients, minerals, prevalence, vitamin A, vitamin B_{12}, vitamins, zinc

Micronutrient deficiencies are more prevalent in developing countries and are typically due to inadequate food intake, poor dietary quality, and/or low bioavailability of nutrients, among other causes. A deficient micronutrient status can affect multiple health outcomes, such as child survival, growth, and development. Many efforts have been made in recent decades to prevent and control micronutrient deficiencies in Latin America and the Caribbean. Although this region has experienced a rapid change in its nutritional and epidemiological profile, most notably characterized by increases in the rates of overweight and

[1] Micronutrient Initiative, Ottawa, Canada
[2] Institute of Nutrition and Food Technology (INTA), University of Chile, Santiago, Chile
[3] US Department of Agriculture Agricultural Research Service, Western Human Nutrition Research Center, Davis, CA, USA

Corresponding Authors:
Daniel López de Romaña, Jirón Batallón Libres de Trujillo 159, Santiago de Surco, Lima, Peru.
Email: dlopezderomana@gmail.com
Alex Brito, ARS, USDA, Western Human Nutrition Research Center, University of California, Davis, 430 West Health Sciences Drive, Davis, CA 95616, USA.
Email: abrito@ucdavis.edu

obesity, micronutrient deficiencies still exist, especially in the most economically disadvantaged and vulnerable groups. At the same time, questions have been raised about the safety of repletion or excess of micronutrients in Latin America and the Caribbean as a result of supplementation and fortification programs. Updated interpretations of the magnitude of micronutrient deficiencies in the region should help to identify populations most at risk for deficiency and in need of intervention, while also critically evaluating the potential for overconsumption in micronutrient-replete countries where micronutrient interventions have already been implemented.

This Supplement to the *Food and Nutrition Bulletin* summarizes updated prevalence data on micronutrient deficiencies in Latin America and the Caribbean. A systematic review intended to provide an updated view of micronutrient status in the region was performed in 2011 and 2012 and updated in 2014. This review included the identification of biochemical assessments and studies based on dietary intake estimations. National health surveys and research-oriented studies focused on the prevalence of micronutrient deficiencies were identified. Data were identified for multiple micronutrients, including vitamin A, vitamin D, vitamin B_{12}, folate, anemia (as a proxy for iron deficiency), zinc, and iodine. Although we identified information for all these micronutrients, we finally centered our attention on those micronutrients for which there was sufficient information available to allow for a general overview of micronutrient status in Latin America and the Caribbean. Prevalence data, as well as interpretations of these findings, are contained in this Supplement. We previously reported the current situation of vitamin D deficiency and insufficiency in Latin America and the Caribbean.[1] We concluded that there is some indication that vitamin D insufficiency may be a public health problem in this region, but its exact magnitude is currently unknown. Iodine deficiency (not included in this Supplement) has been a public health problem in most Latin America and Caribbean countries in the past. However, a survey assessing iodine nutrition in the entire continent using the same standardized method was available.[2] The results from this study show the elimination of iodine deficiency in Latin America.

The first article in this Supplement, "Interpretation of Serum Retinol Data From Latin America and the Caribbean," by Cediel et al.,[3] provides interpretations of serum retinol data using data released between 1998 and 2014. This article shows that the prevalence of low serum retinol has been reduced in many countries, especially in Central America. However, these results must be interpreted with caution due to issues with the ability of this biomarker to accurately reflect liver stores. Secondly, Brito et al., in "Folate and Vitamin B_{12} Status in Latin America and the Caribbean: An Update,"[4] summarize available information reported since 1990, covering the period before and after folic acid fortification. Folate deficiency is now almost nonexistent, but high rates of low or marginal vitamin B_{12} status still remain in most locations and across population groups. The prevalence of anemia was also updated by Mujica-Coopman et al. in "Prevalence of Anemia in Latin America and the Caribbean,"[5] which shows that anemia remains a public health problem among children under 6 years of age and women of childbearing age in most countries for which data are available. Finally, Cediel et al., in "Zinc Deficiency in Latin America and the Caribbean,"[6] indicated that according to the four available national surveys, there is a high prevalence of zinc deficiency in children under 6 years of age and girls and women 12 to 49 years of age. High rates of both estimated zinc dietary inadequacy and stunting were also reported in most of the Latin America and Caribbean countries.

Well-designed interventions targeted at preventing and controlling micronutrient deficiencies are needed. These interventions must include adequate surveillance, avoid potential unintended consequences of excess consumption of micronutrients, and focus especially on vulnerable groups. Regardless of improvements in the overall rates of growth in Latin America and the Caribbean, micronutrient deficiencies are still prevalent and coexist with high rates of overweight and obesity. The present Supplement was conceived with the purpose of updating the current prevalence data on micronutrient status in order to optimize efforts from multiple sectors.

The aim is to reduce morbidity and mortality and achieve optimal physical and neurological development by achieving adequate micronutrient status in Latin America and the Caribbean.

Acknowledgments

We would like to thank Dr. Kenneth H. Brown from the Bill and Melinda Gates Foundation for advising on the design of the study focused on zinc deficiency, and Dr. Juan Pablo Pena Rosas from the World Health Organization and Dr. Omar Dary from the US Agency for International Development for providing suggestions on the manuscripts focused on anemia and vitamin A, respectively. Finally, we acknowledge DSM Nutritional Products, which financed the publication of this Supplement.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The authors received financial support for the publication of this article from DSM Nutritional Products.

References

1. Brito A, Cori H, Olivares M, Mujica MF, Cediel G, López de Romaña D. Less than adequate vitamin D status and intake in Latin America and the Caribbean: A problem of unknown magnitude. Food Nutr Bull 2013;34:52-64.
2. Pretell EA, Delange F, Hostalek U, Corigliano S, Barreda L, Higa AM, Altschuler N, et al. Iodine nutrition improves in Latin America. Thyroid 2004;14:590-9.
3. Cediel G, Olivares M, Brito A, López de Romaña D, Cori H, La Frano MR. Interpretation of serum retinol data from Latin America and the Caribbean. Food Nutr Bull 2015;36(suppl 2):S98-S108.
4. Brito A, Mujica-Coopman MF, Olivares M, López de Romaña D, Cori H, Allen LH. Folate and vitamin B_{12} status in Latin America and the Caribbean: An update. Food Nutr Bull 2015;36(suppl 2):S109-S118.
5. Mujica-Coopman MF, Brito A, López de Romaña D, Ríos-Castillo I, Cori H, Olivares M. Prevalence of anemia in Latin America and the Caribbean. Food Nutr Bull 2015;36(suppl 2):S119-S128.
6. Cediel G, Olivares M, Brito A, Cori H, López de Romaña D. Zinc deficiency in Latin America and the Caribbean. Food Nutr Bull 2015;36(suppl 2): S129-S138.