












Childhood obesity prevention across borders: A National Institutes of Health commentary

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Summary

In response to the increasing rates of childhood obesity, the United States and countries across Latin America have invested in research that tests innovative strategies and interventions. Despite this, progress has been slow, uneven, and sporadic, calling for increased knowledge exchange and research collaboration that accelerate the adaptation and implementation of promising childhood obesity interventions. To share research results, challenges, and proven intervention strategies among Latin American and US researchers, particularly those working with Latino and Latin American populations, the National Institutes of Health (NIH) convened researchers from the United States and Latin America to highlight synergies between research conducted in Latin America and among Latino populations in the United States with the goal of catalyzing new relationships and identifying common research questions and strategies. This article highlights the NIH's research and priorities in childhood obesity prevention as well as areas for future direction, including overarching NIH plans and NIH institutes, centers, and offices investments in specific areas related to childhood obesity prevention in Latin America and/or among Latino populations in the United States.

KEYWORDS

childhood obesity, Latin America, Latino, National Institutes of Health

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1 | INTRODUCTION

Increases in childhood obesity rates can be seen around the globe and many countries are working to understand, monitor, and ultimately reverse this trend. The United States and countries across Latin America have invested in research that tests innovative new strategies and interventions to tackle this problem. However, progress to address childhood obesity is slow and inconsistent, emphasizing the need for evidence-based strategies that can be adapted and scaled to diverse settings.¹ Sharing research results, local challenges, and proven program and policy strategies among Latin American and US researchers, particularly those working with Latino and Latin American populations, is a first step to help identify common ground and transferable lessons learned. A recent review by US National Institutes of Health (NIH) staff found a relatively low number of research grants funded by the NIH focusing on Latino health and called for more research on understanding and addressing the health research needs of Latinos.² Natural experiments, like those taking place across Latin America related to sugar-sweetened beverage taxes, food labeling warning labels, child protection against unhealthy food and beverages marketing, and open streets policy, as well as research on longitudinal growth patterns in Mexican Americans, tailored childhood obesity screening and counseling for Latino families, and progress in the measurement of diet, physical activity and their environmental determinants taking place in the United States provide prime opportunities for multidirectional learning. This kind of knowledge exchange and increased research collaboration could accelerate the adaptation and implementation of promising childhood obesity interventions among Latino populations in both the United States and Latin America.

To capitalize on past successes, better meet current challenges, and optimize the impact of future research, eight institutes, centers, and offices (ICOs) at the US NIH, led by the Center for Global Health Studies at the Fogarty International Center, developed the *Childhood Obesity Prevention Across Borders: The Promise of US-Latin American Research Collaboration* (COPAB) workshop. In November 2019, the workshop convened researchers from the United States and Latin America to highlight synergies between research conducted in Latin America and among Latino populations in the United States with the goal of catalyzing new relationships and identifying common research questions and strategies.³ The COPAB project builds on NIH's research investments in these areas by exploring opportunities and challenges in working in both the United States and Latin America, identifying strategies for collaboration, and addressing what the World Health Organization calls "one of the most serious public health challenges of the 21st century":⁴

2 | NIH'S RESEARCH AND PRIORITIES IN CHILDHOOD OBESITY PREVENTION

The NIH has launched a variety of initiatives aimed at developing innovative approaches to help children eat well and stay fit. These efforts target the causes and consequences of childhood obesity,

address health disparities, develop and evaluate unique prevention strategies, and determine how to implement and grow promising approaches to reach vulnerable populations in the United States and abroad.⁵ One example is the US Environmental influences on Child Health Outcomes (ECHO) Program, a 7-year initiative that supports multiple and synergistic longitudinal studies using existing study populations to investigate environmental exposures on child health and development.⁶ The research focuses on specific pediatric areas, including obesity, that have a public health impact and includes 72 study cohorts in Puerto Rico and across 44 US states, many with Latino populations. ECHO will enroll more than 50,000 children of different races, genders, ages and backgrounds. A recent ECHO publication found that of almost 40,000 children, Hispanic and Non-Hispanic Black participants had the highest prevalence of overweight, obesity, and severe obesity across ages two to 18 years old.⁷

Furthermore, multiple NIH ICOs have been working with the US Centers for Disease Control and Prevention, the US Department of Agriculture, and the Robert Wood Johnson Foundation since 2009 as part of the National Collaborative on Childhood Obesity Research (NCCOR), a public-private partnership that addresses childhood obesity by fostering collaboration and promoting improved methods, sustainable interventions, and better surveillance across multiple relevant sectors.⁸ Recently, NCCOR held a workshop on Advancing Measurement for High-Risk Populations and Communities Related to Childhood Obesity that aimed to illustrate gaps in measurement, understand practices to adapt existing measurements and develop new measurement tools, and develop recommendations for high-risk populations.^{9,10} Coordination between this and the COPAB workshop helped to ensure complementarity between the two and an enhanced Latino perspective in the NCCOR workshop.

In Latin America, the US National Cancer Institute and the Office of Disease Prevention are supporting the Latin American Congress of Physical Activity and Health Research, the first research-focused scientific conference of its kind.¹¹ Though postponed in 2020 due to COVID-19, physical activity and health researchers from seven Latin American countries and the United States will, when it is safe to convene in person, formally launch the society and will provide training for early career physical activity and cancer researchers, which promotes the resource mobilization called for by the WHO's Global Action Plan on Physical Activity.¹²

Along with these key examples, NIH ICOs have funded 143 projects in childhood obesity in Latin American and/or among Latino populations in the United States over the last 5 years. Of these projects, about a quarter of the awards focused on children ages 5 to 12 and about half on children under 5. Over 110 awards supported research in the United States among Latino populations while 30 of them supported research conducted in Latin America countries, including Colombia, Brazil, Mexico, Guatemala, and Chile, to name a few. The research projects addressed the full spectrum of the Community Energy Balance Framework,¹³ including individual education programs, family-oriented weight management, school-based interventions, built environment improvements that promote physical activity, and the impact of food warning labels. Funding for these

TABLE 1 NIH ICO interest and priority areas for childhood obesity in Latin American and among Latino populations**Fogarty International Center**

The Fogarty International Center (FIC) facilitates global health partnerships, strengthens research capacity in low- and middle-income countries (LMICs), and supports promising research initiatives in LMICs. FIC supports two dedicated NCD grant programs. First, the Chronic, Noncommunicable Diseases and Disorders Across the Lifespan (NCD-Lifespan) is a capacity building program that supports training for in-country experts to conduct research on NCDs, with the goal of implementing evidence-based interventions relevant to their countries. In Latin America, NCD-Lifespan funds a training program aimed at developing a new cadre of NCD researchers to build sustainable research capacity in Peru in collaboration with institutions in Argentina and the United States.¹⁷ FIC also administers Global Noncommunicable Diseases and Injury Across the Lifespan, a research program that supports innovative, collaborative research approaches and interdisciplinary research on NCDs and injury in LMICs (in its final 2 years). To evaluate policy interventions like food warnings labels in Guatemala, this program is funding research to test the effect of repeated exposure to warning labels on adolescent's sugary drinks purchases.¹⁸ Regarding childhood obesity and acculturation more broadly, the Global NCD program also supports testing an intervention on US media literacy to youth in LMICs. Specifically, the project seeks to protect Jamaican adolescents and their mothers against harmful media on unhealthy food messages by increasing media literacy and improving intentions and behaviors regarding healthy and unhealthy eating.¹⁹

National Cancer Institute

Obesity increases risk of at least 13 types of cancer; obesity and related behaviors are known to track across the life course, with childhood obesity persisting and often worsening in adulthood. Thus, efforts to prevent and/or treat obesity early in life are essential to successful cancer prevention and control.

NCI supports developing and improving tools for measurement and surveillance of obesity and related behaviors in children and youth, as well as development of interventions for cancer prevention over the life course. NCI has a strong interest in the multilevel, geospatial and contextual determinants of obesity and the evaluation of natural experiments. NCI supports NCCOR and has a portfolio of diverse grants and projects related to policy evaluation including the Classification of Laws Associated with School Students database of state-level school policies regarding nutrition and physical education.²⁰ Additionally, based on the recognition that cancer prevention requires a life course approach, NCI supports grants focused on obesity prevention in children and youth.

The United States has a substantial Latino population including both recent immigrants and families with multiple generations in the United States. Overall, Latinos in the United States have elevated prevalence of obesity and steady (e.g., colorectal) or increasing (e.g., liver) cancer incidence. NCI priorities include addressing the psychosocial, familial, cultural, and environmental determinants of obesity, elucidating the relationship of obesity to different types of cancers in Latinos and exploring targeted new approaches to address obesity in Latino populations. We can learn much from innovative approaches to obesity and related behaviors developed and adopted across Latin America, including novel interventions targeting individuals, families, and communities, and creative programs and policies concerning the environmental determinants of obesity.

Eunice Kennedy Shriver National Institute of Child Health and Human Development

The Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) funds research and training efforts to improve our understanding and prevention of childhood obesity in the United States and abroad. The NICHD Strategic Plan has a specific focus on lifelong wellness and the Developmental Origins of Health and Disease (DOHaD) paradigm that includes understanding factors contributing to obesity as well as interventions. NICHD supports obesity research in several Latin American countries. The efforts aimed at preventing childhood obesity are impacted by societal and psychosocial factors; consequentially, paradigms, and programs that are found effective in Latin America may be applicable to the US population. Given the scale of the childhood obesity problem at the southern US border, effective strategies to prevent childhood obesity in other regions in Mexico and Latin America may be applicable to the border region as well. Additionally, many obese children in Latin America are also malnourished (i.e., failing to eat nutrient-rich foods), so that studying this population provides an opportunity to better understand the impact of the double burden (e.g., concomitant obesity and micronutrient deficiencies) on child growth and development. Understanding why certain interventions to prevent childhood obesity work (or do not work) may also provide insight into the pathogenesis of obesity in children of certain ethnicities and inform more effective treatment strategies. Children are not "small adults," and the pathogenesis of obesity in young children may differ from the pathogenesis of obesity in adults in the same population and ethnic group.

National Heart, Lung, and Blood Institute

In Latin America, 20% to 25% of children are overweight or obese²¹ and studies within the United States indicate that obese children and adolescents are more likely to suffer from asthma, sleep apnea, and Type 2 diabetes.²² Globally, overweight and obese children are more likely to develop noncommunicable diseases, including cardiovascular disease, if they continue to be obese in adulthood.²³ Childhood obesity prevention in Latino populations is challenged by certain social determinants of health factors, such as socioeconomic, cultural, behavioral, and environmental factors. Thus, continued research is needed to address this important public health problem.

The National Heart, Lung, and Blood Institute (NHLBI) has a long history of engaging in research to address childhood obesity²⁴ and currently supports several grants focused on obesity prevention in Latino youth and adult populations. The NHLBI continues to recognize the need to investigate factors that account for differences in health among different populations and prioritizes research from basic molecular biology to implementation science related to heart, lung, blood diseases and sleep disorders, self-management of symptoms and disease conditions, and prevention of obesity-related diseases, including within Latino populations. In addition, the NHLBI has interests in several relevant compelling questions, as described in the NHLBI Strategic Vision,²⁵ including the following: Will reduction of known risk factors during childhood and adolescence translate into the prevention or delayed development of HLBS diseases and disorders? How can risk for obesity in childhood be managed to improve health trajectories in Latino populations into adulthood? Can multidisciplinary teams be an effective approach to developing, testing, and ultimately applying lifestyle interventions as part of routine patient care in a variety of contexts from community to patient care settings?

National Institute of Diabetes and Digestive and Kidney Diseases

One of the leading NIH ICs to support investigator-initiated grants on childhood obesity, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has a substantial and diverse portfolio of childhood obesity research. Some of these projects focus exclusively on Latino/Hispanic

(Continues)

TABLE 1 (Continued)

Fogarty International Center

populations of children/families living in the United States or have a strong Latino/Hispanic representation. For instance, the Positive Deviance in Early Childhood Obesity project in South Texas²⁶ uses peer mentors to promote the adoption of positive deviance behaviors among parents of Hispanic children who are obese. Another, the Preventing Diabetes in Latino Youth²⁷ tests the efficacy of delivering culturally grounded lifestyle intervention at home and through a community youth program at a YMCA. In Latin America, NIDDK supported investigators from University of North Carolina, Chapel Hill and National Institute of Public Health in Mexico to evaluate the impact of the 2014 sugar-sweetened beverage and nonessential food taxes in Mexico to estimate the taxes' effects on changes in calorie, total sugar, saturated fat, and sodium purchases for households of various socioeconomic status subpopulations among other things.²⁸ While NIDDK does not currently have dedicated funding opportunities specifically for Latino investigators or to promote foreign collaboration, research experiences from other countries, like COPAB, can inform efforts to prevent childhood obesity in the United States.

National Institute of Minority Health and Health Disparities

National Institute on Minority Health and Health Disparities (NIMHD) offers funds for research training at select foreign sites,²⁹ and for intervention^{30,31} and etiology³¹ research with NIH-designated populations experiencing health disparities in the United States. Typically, NIMHD supported research may include support for foreign components. Obesity research projects or interventions can be supported.

The *Minority Health and Health Disparities Research Training (MHRT) Program (T37)*²⁹ supports training for individuals from diverse backgrounds, including groups underrepresented in the biomedical sciences. Trainees receive international research training at domestic sites and/or at foreign sites in low- and middle-income countries from which a significant proportion of immigrants come to the United States. These sites are located primarily in Latin America (Mexico, Central America, and South America); the Caribbean; Sub-Saharan and West Africa; and Southeast Asia. Undergraduate, post-baccalaureate, and graduate students, as well as residents, fellows, and postdoctoral students, are eligible to apply.

The Funding Opportunity Announcements, *Addressing the Etiology of Health Disparities and Health Advantages Among Immigrant Populations*,³² and *Addressing Health Disparities among Immigrant Populations through Effective Interventions*^{31,33} can support obesity research with children, adults, or across the life span. Adult and child residents of US territories (Guam, Puerto Rico, American Samoa, Commonwealth of the Northern Mariana Islands, and US Virgin Islands) who migrate to the US mainland are also considered to be immigrants. Attention is encouraged to preexisting immigration experiences, cultural values and related health practices, the experience of migration itself, or how the process of adjustment, adaptation, and assimilation/long term residence to a new cultural, social, political and ecological environment may affect health outcomes.

NIH Office of Disease Prevention

Disease prevention is a goal of the NIH and central to its mission of applying knowledge to enhance health, lengthen life, and reduce illness and disability.³⁴ The NIH Office of Disease Prevention (ODP) supports this goal and mission by providing leadership for the development, coordination, and implementation of prevention research in collaboration with NIH institutes, centers, and offices and other partners. The ODP puts a high priority on prevention research that addresses the leading risk factors associated with morbidity and mortality (e.g., obesity, poor diet, and physical inactivity) in the United States and other countries.^{35–37}

The ODP supports obesity research across the lifespan, examining the causes and consequences of obesity, developing and evaluating new prevention strategies, and determining how to best implement and expand promising interventions. The ODP participates on the NIH Obesity Research Task Force and provides funding for several obesity-related programs and initiatives, including NCCOR.

The ODP is very pleased to support the COPAB project, which provides an important collaborative opportunity to explore and address childhood obesity in the United States and in Latin America, where one in five children under 20 years old is either overweight or obese.³⁸ The ODP has placed a priority on promoting implementation science, which examines the adoption and integration of evidence-based health interventions into clinical and community settings.³³ The COPAB project fosters implementation science by building a knowledge base of effective strategies to prevent childhood obesity, which are informed by the setting and multiple stakeholders. The ODP also values supporting early-career scientists who are poised to become future leaders in prevention research. The COPAB project, which supports many of these investigators across different Latin American countries, catalyzes new science while expanding the capacity to perform high-quality childhood obesity research and training the next generation of investigators. Health disparities are another priority for the ODP, which is committed to working with the COPAB project and other stakeholders to promote a prevention research agenda that addresses the complex and multifaceted relationship between obesity and health disparities. The ODP looks forward to supporting additional collaborative efforts to address obesity in the future.

awards came from 12 ICOs with the top four institutes—National Institute on Minority Health and Health Disparities, National Heart, Lung, and Blood Institute, and Eunice Kennedy Shriver National Institute of Child Health and Human Development, and National Institute of Diabetes and Digestive and Kidney Diseases—accounting for 70% of the funding. The majority of awards were funded under the NIH R01 Research Project Grant Program (43%), which is used to support a specified, circumscribed research project for up to 5 years, and the NIH R21 Exploratory/Developmental Research Grant Award (13%), a 2-year program that provides support for the early stages of project development.

3 | AREAS FOR FUTURE DIRECTION

The 2020 publication of the Strategic Plan for NIH Nutrition Research calls for research investments in nutrition and dietary practices in early childhood and across the lifespan over the decade through 2030.¹⁴ This plan complements the Strategic Plan for NIH Obesity Research, which serves as a guide to accelerate research into new and more effective approaches to address the burden of obesity.¹⁵ The Obesity Research plan highlights the need to develop, evaluate, and integrate promising strategies for obesity prevention in real-world settings and in populations that are disproportionately at risk, including

Latinos. Additionally, there is a pressing need to promote rigorous evaluation of policy and environmental changes potentially influencing childhood obesity. These calls to action underscore the work of the COPAB project to explore the promise and collaboration opportunities of working in both regions to address childhood obesity prevention.

In addition to these overarching NIH plans, many ICOs have invested in specific areas related to childhood obesity prevention in Latin America and/or among Latino populations in the United States (Table 1). To complement these efforts and promote partnerships among researchers in the United States and Latin American as well as among investigators across different Latin American countries, the Fogarty International Center, with co-sponsorship from the National Cancer Institute, the Office of Disease Prevention, and *Eunice Kennedy Shriver* National Institute of Child Health and Human Development developed the COPAB Collaboration Awards.¹⁶ These small awards provide support to develop a new research project in collaboration with a new partner, collaborate with a new partner on an existing specific project, contribute to the costs of holding an event that furthers the aim to promote new global South/South or North/South collaborations, and support the cost of research training in an area of identified need that includes trainers and/or participants from multiple countries. All awards required inclusion of new partners from at least two countries and must be relevant to childhood obesity prevention.

As childhood obesity rates continue to increase in the United States and across Latin America, it is imperative to identify and implement effective strategies to address this health crisis. Breaking out of current country-specific, research silos will allow us to tackle a global health challenge that has no borders. NIH's support for COPAB research and training throughout the region and encouragement of partnerships between researchers in Latin America and in the United States working with Latino populations will help to generate evidence for innovative tools and interventions that can have a broad impact across both regions for today's children and future generations as shown in the papers presented in this special issue.³⁹

CONFLICT OF INTERESTS

The authors declare no potential conflicts of interest.

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