# Challenges and Opportunities for Member States to Implement Resolution WHA63.14 to Restrict the Marketing of Unhealthy Food and Non-alcoholic Beverage Products to Children to Decrease Global Obesity and Non-Communicable Disease Risks by 2025

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Dissertation that will be submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

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In
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## Abstract

The widespread marketing of food and beverage products high in fat, sugar and salt (HFSS) es is a significant driver of obesity and diet-related non-communicable diseases (NCDs). This PhD dissertation examined the factors related to Member States' capacity and actions to fully implement the 2010 World Health Assembly's Resolution WHA63.14 to restrict the marketing of HFSS food and non-alcoholic beverage products to children up to 18 years by 2025. The first study describes the capacity-building needs of Ministries of Health (MoH) to implement the Resolution WHA63.14. The research used a 28-item web-based survey administered to representatives of MoH from the Pan American Health Organization (PAHO) region ($n$= 35). A government capacity-building and integrated marketing communications (IMC) frameworks guided this research. The second study examined the government policies to restrict the marketing of HFSS food and beverage products in a purposive sample of countries in the PAHO region ($n$=14). The WHO policy and IMC frameworks were used to develop a responsible policy index (RESPI). A web-based platform was developed that uses data visualization tools to depict the results. The third study explored the dimensions of power in the Mexican social networks of stakeholders that influenced the policy-making process that enabled the government to enact front-of-pack (FOP) warning labels on HFSS food and beverage products marketed to children and adults in 2020. The study followed a case study approach, using semi-structured interviews with stakeholders, and guided by the Gaventa's power cube framework. Social Network Analyses were conducted using the UCINET software (version 6) that measured centrality, factions and quadratic assignment procedures (QAP). These PhD studies applied several theoretically grounded conceptual frameworks related to nutrition governance that allowed me to draw conclusions from empirical and published evidence to develop and implement comprehensive policies to restrict the marketing of HFSS food and beverage products to children. Results may inform government agencies, civil society organizations, academic researchers, private foundations and industry actors about the areas needed for policy improvement and promising or best practices that should be adopted to implement Resolution WHA63.14 to reduce children's future risks of obesity and diet-related NCDs by 2025.

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## General Audience Abstract

The widespread marketing of food and beverage products high in fat, sugar and salt (HFSS) by transnational food and beverage manufacturers, chain restaurants and retailers, entertainment companies and digital technology companies is a significant driver of poor diet quality, obesity and diet-related non-communicable diseases (NCDs) among populations globally. In May 2010, 193 Member States endorsed the World Health Assembly's Resolution WHA63.14 to restrict the marketing of HFSS food and non-alcoholic beverage products to children up to 18 years to promote healthy diets and reduce their future risk of obesity and NCDs. This PhD dissertation examined the factors related to Member States' capacity and actions to fully implement the 2010 Resolution WHA63.14 by 2025. The first study describes the capacity-building needs of Ministries of Health (MoH) to restrict the marketing of HFSS food and beverage products to children. Priority actions recommended include governments adopting mechanisms to identify, declare and manage conflicts of interest related to food marketing; better utilization of existing Constitutional requirements of governments to protect children's health and human rights; and developing comprehensive policies to restrict unhealthy HFSS marketing through digital media. The second study examined the government policies to restrict the marketing of HFSS food and beverage products across 14 countries from the PAHO region. Brazil, Canada, Chile, and Uruguay had the strongest statutory policies that restricted HFSS food and beverage product marketing at point of sale, use of cartoon licensed media characters and celebrities, and marketing in schools and through broadcast media. The third study explored the dimensions of power in the Mexican social networks of stakeholders that influenced the policy-making process that enabled the government to enact front-of-pack (FOP) warning labels on HFSS food and beverage products marketed to children and adults between 2019 and 2020. FOP labeling is a marketing used that have shown impact on children's choice of food and beverage products. Results revealed that advocacy, collective engagement and building strategic coalitions were forms of power that shifted from a profit-interest-based to an evidence-based policy-making process in Mexico. These PhD studies applied several theoretically grounded conceptual frameworks related to nutrition governance that allowed me to draw conclusions from empirical and published evidence to develop and implement comprehensive policies to restrict the marketing of HFSS food and beverage products to children. The collective results may inform government agencies, civil society organizations, academic researchers, private foundations and industry actors about the areas needed for policy improvement and promising or best practices that should be adopted to implement Resolution WHA63.14 an create healthy food environments to reduce children's future risks of obesity and diet-related NCDs by 2025.

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## List of Abbreviations and Acronyms

| | |
|---|---|
| **AFRO** | African Region |
| **ARCSA** | Agencia Nacional de Regulación, Control y Vigilancia (National Agency for Health Regulation, Control and Surveillance) |
| **ATNF** | Access to Nutrition Foundation |
| **ATNI** | Access to Nutrition Index |
| **COFEPRIS** | Comisión Federal para la Protección contra Riesgos Sanitarios (Federal Committee for Protection from Sanitary Risks) |
| **COVID** | Corona Virus Disease |
| **DC** | District of Columbia |
| **EMRO** | Eastern Mediterranean Region |
| **EURO** | European Region |
| **FAO** | Food and Agriculture Organization |
| **FBDG** | Food-based dietary guidelines |
| **FOP** | Front-of-pack |
| **g** | Grams |
| **GINA** | Global database on the Implementation of Nutrition Action |
| **HFSS** | High in saturated fats sugar and salt |
| **HIC** | High income countries |
| **HNFE** | Human nutrition, foods and exercise |
| **ICAT** | Institute for Creativity, Arts, and Technology |
| **ICN2** | Second International Conference on Nutrition |
| **IFBA** | International Food and Beverages Alliance |
| **IMC** | Integrated marketing communications |
| **INAN** | National Institute of Food and Nutrition, acronym in Spanish |
| **INFORMAS** | International Network for Food and Obesity non-communicable Diseases Research Monitoring and Action Support |
| **IRB** | Institutional Review Board |
| **ISBNPA** | International Society of Behavioral Nutrition and Physical Activity |
| **LMIC** | Low-and middle-income countries |

| | |
|---|---|
| **MoH** | Ministry of Health |
| **NCD** | Non-communicable diseases |
| **NGO** | Non-governmental organization |
| **NPM** | Nutrient profile model |
| **PABI** | Código de Autorregulación de Publicidad de Alimentos y Bebidas para el público Infantil (Code of Ethics to Address Marketing of Food and Beverage Directed to Children) |
| **PAHO** | Pan American Health Organization |
| **QAP** | Quadratic Assignment Procedure |
| **RDN** | Registered Dietitian Nutritionist |
| **RESPI** | Responsible Policy Index |
| **SDG** | Sustainable Development Goals |
| **SERNAC** | Servicio Nacional del Consumidor (National Consumer Service) |
| **SMART** | Specific, Measurable, Achievable, Relevant and Time-bound |
| **SEARO** | South-East Asia Region |
| **UN** | United Nations |
| **UNCRC** | United Nations Convention on the Rights of the Child |
| **UNICEF** | United Nations Children's Fund |
| **US** | United States |
| **VA** | Virginia |
| **VT** | Virginia Tech |
| **WB** | World Bank |
| **WHA** | World Health Assembly |
| **WHO** | World Health Organization |
| **WOF** | World Obesity Federation |
| **WPHN** | World Public Health Nutrition |
| **WPRO** | Regional Office for the Western Pacific |
| **WCRFI** | World Cancer Research Fund International |

# Chapter 1 . Introduction

## 1.1 Research Background and Rationale

In 1989, several Member States had ratified an international treaty called the United Nations Convention on the Rights of the Child (UNCRC), which outlined 54 articles recognizing international standards for State Parties and national governments to translate those into legal obligations to protect, promote and fulfill the economic, social, civil and political rights of every child from birth up to age 18 years worldwide, including the right to secure an adequate and nutritious diet to promote good health and well-being.(1) By the 30$^{th}$ anniversary of the UNCRC in November 2019, 195 State Parties had signed and ratified this treaty except the United States (US).(2)

Despite this political commitment by national governments, children worldwide continue to experience malnutrition in many forms. In 2019, the United Nations Children's Fund (UNICEF), the World Health Organization (WHO) and World Bank (WB) estimated that 47 million children under 5 years are wasted (low weight for height) , 144 million are stunted (low height for age) and 38 million are overweight or obese.(3) A 2019 Lancet study documented that 18% of adolescents worldwide were overweight or obese, and 24% had anemia.(4) The World Obesity Federation (WOF) has estimated that childhood obesity rates will increase steadily in most child and adolescent populations in countries by 2030.(5)

The widespread marketing of branded food and beverage products high in fat, sugar and salt (HFSS) encourages young people to consume products that promote rapid weight gain during an

early stage of life and increases children's future risk of overweight, obesity, and diet-related non-communicable diseases (NCDs) such as type 2 diabetes, cardiovascular diseases, and various types of cancers, which are major public health problems worldwide.(6) Since 2010, the WHO has encouraged Member States to implement comprehensive policies to restrict the marketing of HFSS food and beverage products as one of many effective strategies to tackle obesity.(7) However, the implementation of public policies to reduce malnutrition is a complex challenge given the competing priorities and agendas of many stakeholders.(8-11)

In May 2010, 193 Member States endorsed the World Health Assembly (WHA) Resolution WHA63.14 to restrict the marketing of HFSS food and non-alcoholic beverage products globally to children up to 18 years to address the growing obesity and NCD pandemics.(12) Throughout this document, the term *children* will be defined based on the UN definition of "*individuals from birth to 18 years.*"(1)

The WHO released an action plan in 2013 that mandate national governments to reduce NCD-related mortality by 25 percent by 2025, and the United Nations (UN) Decade of Action on Nutrition identified the importance of strengthening governance and accountability for nutrition between 2016 and 2025.(13) The WHO action plan included a specific indicator for Member States to develop and strengthen policies to reduce children's exposure to and the power of the marketing of HFSS food and non-alcoholic beverage products.(14) The available evidence suggests that progress has been limited among Member States to implement Resolution WHA63.14.(15) By 2019, the WHO reported that less than a third (31% , *n*=60) of 193 Member

States that had endorsed Resolution WHA63.14 had adopted or implemented a national policy to restrict marketing of HFSS food and beverage products.(16)

### 1.2 Research Questions and Approaches

This PhD dissertation examined the factors related to Member States' capacity and actions to fully implement the 2010 Resolution WHA63.14 to restrict the marketing of HFSS food and beverage products to children to halt and reduce global obesity and NCD rates by 2025 to align with the WHO and UN Decade of Action on Nutrition targets. This document describes a mixed-method research approach implemented through three studies that inform government policies. This dissertation also describes challenges and opportunities for diverse stakeholders (e.g., Member states, academia, civil society) to restrict the marketing of HFSS food and beverage products to children within a global, regional and country context. The specific research questions and approaches used for each study are summarized below.

***Study 1: Assess Member States' capacity to implement Resolution WHA63.14 in the Americas Region***

- **Research question:** What are Member States' capacities to restrict the marketing of HFSS food and beverage products to children to halt obesity and reduce diet-related NCDs globally by 2025 in the Americas Region?
- **Research methods:** Cross-sectional study that used a 28-item web-based survey distributed to representatives of Ministries of Health or the US Department of State for 35 Member States associated with the WHO's Pan American Health Organization (PAHO) regional office. A government capacity-building framework and integrated marketing communications framework were combined and used to guide this research.

***Study 2: Monitor and evaluate food marketing policy progress in the Americas Region***

- **Research question:** How can existing monitoring and evaluation tools be adopted or refined and used by Member States to implement the 2010 WHA63.14 Resolution to restrict the marketing of HFSS food and beverage products to children to halt obesity and reduce diet-related NCDs by 2025?
- **Research methods:** Transdisciplinary research approach to develop a responsible policy index (RESPI) as a strategic tool that can be used by Member States to inform policies. A comprehensive literature review was conducted to assess policies based on the WHO policy and integrated marketing communications frameworks. Using Python programming and a data mining and querying framework for the data extraction enabled the creation of a web-based platform with interactive data visualization to inform the current challenges and areas to strengthen marketing policies.

***Study 3: Explore the dimensions of power in the Mexican social networks that influence the policy-making process and hinder government regulation for unhealthy food and beverage products***

- **Research question:** What are the dimensions of power in the Mexican social networks that influence the policy-making process to regulate unhealthy food and beverage products?
- **Research methods:** Cross-sectional case study that used a mixed-methods approach using social network analysis. This research was guided by the Gaventas' power cube framework from the Institute of Development Studies. Semi-structured interviews were conducted using a snowball sample technique through a nominative process until data saturation was reached.

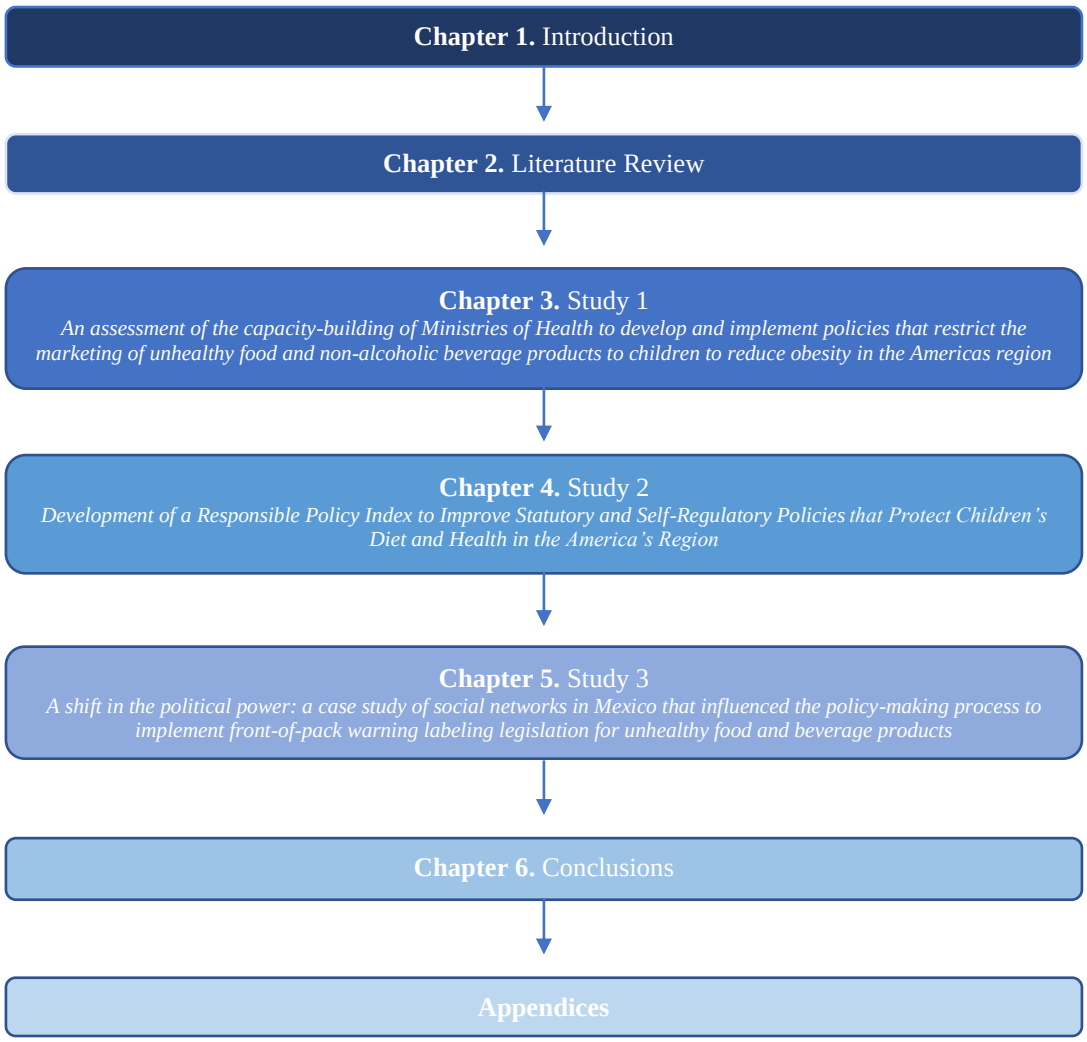
### 1.3 Research Contribution

This PhD research made a scholarly contribution to knowledge, the novel application of theories, and has several implications to inform policy at global, regional and national levels. By addressing the research questions described above, this academic work built a body of evidence that expanded knowledge through the identification of factors, challenges and opportunities for Member States to fully implement the Resolution WHA63.14 to restrict the marketing of HFSS food and beverage products to children. The application of several theoretically grounded conceptual frameworks related to nutrition governance allowed me to draw conclusions from empirical and published evidence to develop and implement comprehensive policies to restrict the marketing of HFSS food and beverage products to children. Finally, this PhD dissertation has policy implications because it may inform government agencies, non-governmental organizations (NGO) and civil society organizations, academic researchers and private foundations about the policy gaps, areas of improvement needed, and promising or best practices and policies that should be adopted or enhanced aimed to prevent and reduce obesity and NCDs related to food and beverage marketing to children.

### 1.4 Dissertation Structure

This PhD dissertation contain six chapters including an introduction, a literature review, conducted research studies, conclusions, references and appendices. Figure 1 depict the outline of this PhD dissertation.

**Figure 1.1 PhD dissertation outline**




Chapter one describes the background and rationale of the research. Chapter two synthesize published evidence on the topic through a comprehensive literature review. Chapter three, four and five contains the manuscripts developed for each of the studies, respectively, and presented in table 1. Chapter six provides conclusions and future research based on the findings and contributions of the PhD research. Supplemental material developed for this research are presented in the Appendices.

**Table 1.1 Manuscripts submitted to peer-reviewed journals for review and publication**

**Study 1.** Original research paper submitted to *Food Policy* on September 21, 2020 (under review)

| |
|---|
| **Title**<br>An assessment of the capacity-building of Ministries of Health to develop and implement policies that restrict the marketing of unhealthy food and non-alcoholic beverage products to children to reduce obesity in the Americas region |
| **Authors**<br>Sofía Rincón Gallardo Patiño, MSc, RDN[1], Fabio Da Silva Gomes, PhD[2], Steven Constantinou, MSc[2], Robin Lemaire, PhD[3], Valisa E. Hedrick, PhD[1], Elena Serrano, PhD[1], Vivica I. Kraak[1] |
| **Author information**<br>[1]Department of Human Nutrition, Foods, and Exercise; College of Agriculture and Life Sciences; Virginia Polytechnic Institute and State University, Blacksburg, VA, USA<br>[2]Department of Non-Communicable Diseases and Mental Health; Pan American Health Organization, World Health Organization, Washington, DC, USA<br>[3]Center for Public Administration and Policy, School of Public and International Affairs; Virginia Polytechnic Institute and State University, Blacksburg, VA, USA |
| **Author contributions**<br>S.R.G.P led the study conception and design, analysis, data collection and writing of the draft manuscript. The coauthors contributed as follows: conceptualization, V.K. and F.S.G.; methodology, V.K and F.S.G; software, S.C.; validation, V.K. and F.S.G.; investigation, V.K. and F.S.G; editing, F.S.G, S.C, V.H, E.S, V.K.; visualization, V.K; All authors read and approved the final manuscript. F.S.G. is a staff member of the Pan American Health Organization. The authors alone are responsible for the views expressed in this publication, and they do not necessarily represent the decisions or policies for the Pan American Health Organization. |
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**Study 2.** Published research paper in the *International Journal of Environmental Research and Public Health* (2020)

| |
|---|
| **Title**<br>Development of a Responsible Policy Index to Improve Statutory and Self-Regulatory Policies that Protect Children's Diet and Health in the America's Region |
| **Authors**<br>Sofía Rincón Gallardo Patiño, MSc, RDN [1], Srijith Rajamohan, PhD[2], Kathleen Meaney, PhD[3], Eloise Coupey, PhD[4], Elena Serrano, PhD[1], Valisa E. Hedrick, PhD[1], Fabio da Silva Gomes, PhD[5], Nicolas Polys, PhD[2] and Vivica Kraak, PhD, RDN[1] |
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| **Author contributions**<br>S.R.G.P led the study conception and design, analysis, data collection and writing of the draft manuscript. The coauthors contributed as follows: conceptualization, V.K. and E.C.; methodology, V.K.; software, S.R.; validation, |

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|---|
| K.M., N.P. and V.K.; formal analysis, S.R.; investigation, V.K.; editing, E.C., V.H, E.S, F.S.G, V.K.; visualization, K.M., S.R. and N.P.; All authors read and approved the final manuscript. F.S.G. is a staff member of the Pan American Health Organization. The authors alone are responsible for the views expressed in this publication, and they do not necessarily represent the decisions or policies for the Pan American Health Organization. |
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**Study 3.** Original research paper in progress to be submitted to the *International Journal of health Policy and Management* by November 15, 2020

| |
|---|
| **Title**<br>A shift in political power: a case study of social networks in Mexico that influenced the policy-making process to implement front-of-pack warning labeling legislation for unhealthy food and beverage products |
| **Authors**<br>Sofía Rincón-Gallardo Patiño[1], Robin Lemaire[2], Valisa E. Hedrick[1], Elena Serrano[1], Fabio Da Silva Gomes[3], TBD Eric Crosbie[4], Angela Carriedo[5], Simón Barquera[6] and Vivica I. Kraak[1] |
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| **Author contributions**<br>S.R.G.P led the study conception and design, methodology, analysis, data collection and writing of the draft manuscript. The coauthors contributed as follows: conceptualization, V.K. and R.L.; methodology, R.L.; formal analysis, V.K and R.L.; editing, R.L., V.H, E.S, F.D.S.G., E.C., A.C., S.B., and V.K. |
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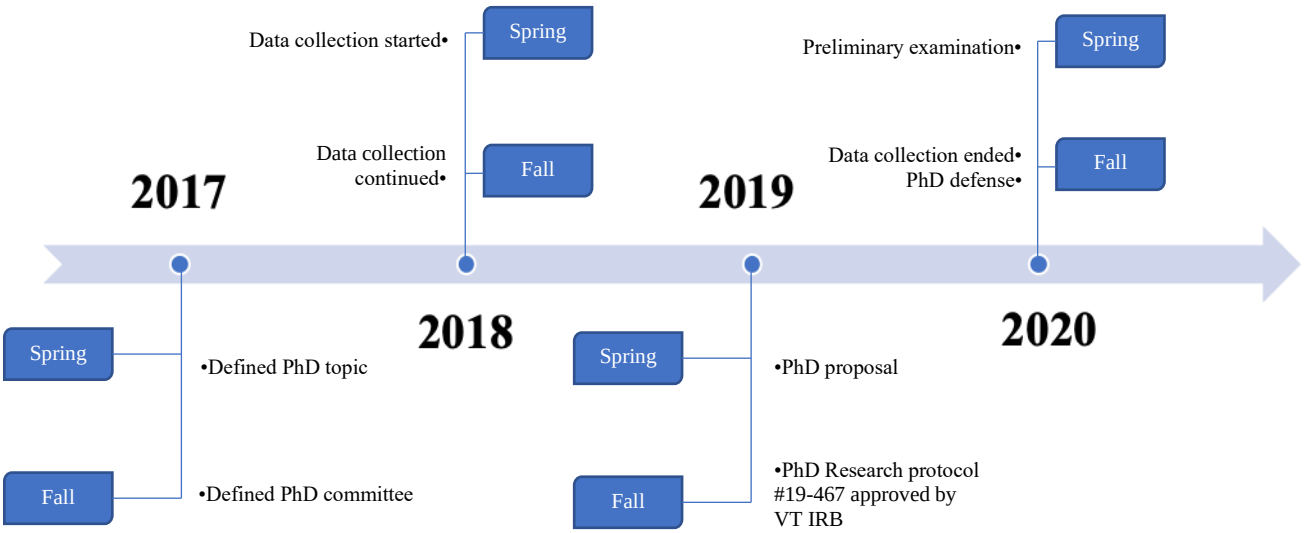
## 1.4 Research Timeline

Figure 2 shows the outline for this PhD research. The PhD program began in January 2017 by mapping and defining the PhD goal and studies to be undertaken. During the Spring 2017 semester, the PhD committee was established that comprised four Virginia Tech professors; three from the Department of Human Nutrition, Foods and Exercise (Dr. Vivica Kraak, Dr. Valisa Hedrick, and Dr. Elena Serrano) and one from the Center of Public Administration and

Policy, School of Public and International Affairs. An external committee member from the Pan American Health Organization (Dr. Fabio Da Silva Gomes) due to his policy expertise for the topic. The PhD research plan was proposed and finalized to my committee in March 2019, and the data collection process for the PhD research started in Spring 2018 and concluded during the Summer 2020. In the Fall 2019, the Virginia Tech Institutional Review Board (IRB) approved the study protocol (protocol #19-467) for study one and three, that included human subjects (Appendix A). Recruitment for this study took place between May and July 2020, and the data collection tools are presented in the Appendices B-F. The entire data for this dissertation were analyzed and summarized by October 2020 and the results will be presented to my advisory committee on November 19, 2020.

My scholarly work has been presented at several venues at international conferences (e.g., 17th International Society of Behavioral Nutrition and Physical Activity – *ISBNPA* in Hong Kong 2018, World Public Health Nutrition [WPHN] Congress in Brisbane 2020, Australia [online due COVID-19]) and the ISBNPA in Auckland 2020, New Zealand [online due COVID-19]; academic seminars (e.g., "*Transdisciplinary Collaboration to Visually Map Government Policies to Restrict the Marketing of Unhealthy Food and Beverage Products to Children*" at Virginia Tech's Institute for Creativity, Arts and Technology [ICAT]); and as a guest speaker invited by the University of Costa Rica in April 2020. Details of these presentations are summarized in the Appendices G-I.

**Figure 1.2 PhD timeline**



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# Chapter 2 . Literature Review

This literature review summarizes research for the following topics: (1) global trends in overweight and obesity among children; (2) global and national government recommendations for healthy diets and healthy food environments; (3) marketing of food and beverage products to children as a commercial determinant of health that drives obesity and NCDs; (4) influence of children's exposure to food and beverage industry marketing practices on their diet and health; (5) global governance to support healthy diets and healthy environments to reduce the marketing of HFSS food and beverage products to children; (6) capacity-building to help governments reduce the marketing of HFSS food and beverage products to children; (7) current actions taken by Member States to restrict the marketing of HFSS food and beverage products to children; (8) role and influence of social networks in food and nutrition policy-making processes; and (9) accountability for policies and practices to protect children's right to healthy food environments. The final section identifies knowledge gaps used to inform the research questions for this PhD dissertation presented in chapter 1.

## 2.1 Global trends in overweight and obesity among children

Since 1980, obesity rates have doubled in over 70 countries worldwide, which have progressed more rapidly among children than adults.(1) The Global Burden of Disease 2015 data suggest that by 2025, nearly 268 million and 124 million children in 200 countries will be overweight and obese, respectively. Moreover, three quarters (72.3%) of NCD-related illness and deaths will occur in low- and middle-income countries (LMIC).(1, 2)

Children worldwide experience malnutrition in many forms. In 2019, the United Nations Children's Fund (UNICEF), the World Health Organization (WHO) and World Bank (WB) estimated that 47 million children under 5 years are wasted (low weight for height), 144 million are stunted (low height for age) and 38 million are overweight or obese.(3) According to a 2019 Lancet publication, 18% of adolescents worldwide were overweight or obese, and 24% had anemia in 2016.(4)

During the last four decades, the obesity prevalence has increased in every country in the world, with proportional rise smallest in high-income regions and largest in LMICs.(1) The Latin American and the Caribbean region has one of the highest prevalence rates of children who are overweight or obese.(5) Rivera and colleagues 2014 estimated in a systematic review with data between January 2008 and April 2013 that about 20-24% of the children from birth to age 19 years were overweight or obese, respectively, representing between 42.5 and 51.8 million children, in the Latin American region.(6)

### 2.2 Global and national government recommendations for healthy diets and healthy food environments

Governments have a key role for creating healthy diets and healthy food environment for populations to address malnutrition in all its forms. However, government must engage with multiple stakeholders or actors from diverse sectors (e.g., public and private sectors) to achieve this goal.(7) Healthy food environments have been defined as "*the collective, economic, policy and socio cultural conditions and opportunities across sectors and settings that provide people*

*with regular access to a healthy diet to achieve a healthy weight to prevent obesity and diet-related NCDs.*"(8)

According to the United Nations (UN) WHO and Food and Agriculture Organization (FAO), food-based dietary guidelines (FBDGs) are defined as the "*expression of the principles of food-based nutrition education whose purpose is to educate the population and to guide the national food and nutrition policies, as well as the food industry*".(9)

Most countries worldwide have developed principles and specific nutrient targets embodied in FBDGs that are informed by the latest science. Many of these guidelines are developed by governments appointed expert committees that consider the technical recommendations of policy documents to promote healthy diets and healthy food environments. According to the WHO, the promotion of healthy diets to address malnutrition in all its forms must promote an increase in the consumption of fruit and vegetables to at least 400 grams (g) or five portions per day, reduce the amount of total fat to less than 30% of the total energy; limit the consumption of sodium to less than 2g of sodium or 3g of salt per day; and decrease free or added sugars intake to less than 10% of total daily energy intake.(7)

The Pan American Health Organization (PAHO) is the WHO's regional office for the Americas, which provides evidence-based nutrition guidance for countries to develop fiscal policies and regulations for multiple purposes to promote optimal diet and health. PAHO has developed a nutrient profile model (NPM) to classify food and beverage products with excess of critical nutrients that contributes to the development of obesity and NCDs. This model separated processed products and ultra-processed products as a guide to help design and implementation

strategies to improve nutrition.(10) Other WHO regional offices provide NPM guidelines specifically to restrict the marketing of food and beverage products to children based on nutrients of concern (Table 2.1).(11)

**Table 2.1 Nutrient profile models by the WHO regional offices for Member States to restrict the marketing of HFSS food and beverage products to children**

| | **African Region (AFRO)** | **Eastern Mediterranean Region (EMRO)** | **European Region (EURO)** | **Region of the Americas (PAHO)** | **South-East Asia Region (SEARO)** | **Western Pacific Region (WPRO)** |
|---|---|---|---|---|---|---|
| **Member States** | 46 countries | 22 countries | 53 countries | 35 countries | 11 countries | 27 countries |
| **Year issued** | 2019 | 2017 | 2015 | 2016 | 2017 | 2016 |
| **Food & beverage categories** | 18 | 18 | 17 | 3* | 18** | 18*** |
| **Permitted food and beverage categories** | Fresh and frozen vegetables and animal products | Fresh and frozen fruit, vegetables and legumes | Fresh and frozen meat, poultry, fish and similar; Fresh and frozen fruit, vegetables and legumes | "*Unprocessed*" or "*minimally processed*" foods | Fresh and frozen fruit, vegetables and legumes | Fresh and frozen fruit, vegetables and legumes |
| **Prohibited food and beverage categories** | Products that do not comply with the nutrient criteria including food products that contain >1% of total energy in the form of industrially produced trans-fatty acid (1% of energy =20 kcal = 2.2g trans-fat) | Products that do not comply with the nutrient criteria and: chocolate and sugar confectionery, energy bars, and sweet toppings and deserts; fruit Juices, energy drinks; edible ices; cakes, sweet biscuits and pastries; other sweet baked goods, and dried mixes for making such goods | Products that do not comply with the nutrient criteria and: chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; pastries; croissants; cookies/ biscuits; sponge cakes; wafers; fruit pies; sweet buns; chocolate-covered biscuits; cake mixes and batters; Juices and energy drinks; edible ices | Products that falls under the "*processed products"* or *"ultra-processed products*" categories that do not comply with the criteria | Products that do not comply with the nutrient criteria | Products that do not comply with the nutrient criteria and: chocolate and sugar confectionery, energy bars, and sweet toppings and desserts; cakes, sweet biscuits and pastries, and other sweet bakery products and dry mixes for making such; energy drinks, tea and coffee |
| **Nutrients of concern** (n=8) | | | | | | |
| 1) Total fat | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2) Total sugars | ✓ | ✓ | ✓ | | | ✓ |
| 3) Added sugars or Free sugars | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4) Non-sugar sweeteners or Other sweeteners | n/a | ✓ | ✓ | ✓ | n/a | ✓ |
| 5) Energy | ✓ | ✓ | ✓ | | | ✓ |
| 6) Saturated Fat | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 7) Salt or Sodium | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8) Trans Fat or Trans Fatty | ✓ | n/a | n/a | ✓ | ✓ | n/a |

| | | | | | | |
|---|---|---|---|---|---|---|
| acids | | | | | | |

*n/a: not available*
* *PAHO categories:* minimally processed foods (unprocessed foods), processed foods (products manufactured by industry with two or three ingredients), and ultra-processed foods (industrial formulations manufactured with several ingredients)
** Based on the World Health Organization and Food and Agricultural Organization's *CODEX* food category code
*** 17 categories in the European nutrient-profiling system added a category for products made from soybeans
**Adapted from:** Kraak VI, Rincón-Gallardo Patiño S, Sacks G. An accountability evaluation for the International Food & Beverage Alliance's Global Policy on Marketing Communications to Children to reduce obesity: A narrative review to inform policy. Obes Rev 2019;20 Suppl 2:90-106.(11)

The United States (US) Department of Health and Human Services and the US Department of Agriculture launched the 2015-2020 Dietary Guidelines for Americans that provide key recommendations, nutritional targets, and dietary limits to help policymakers, health professionals and the American population eat a healthy diet.(12)

The Ministry of Health in Canada developed the first set of dietary guidelines in 1942 and updated since then, specifically in 2011 the "Eating Well with Canada's Food Guide" that offered recommendations of food servings per day for children (2-13 years old), teens (14-18 years old), and adults (19-50 and 51+ years old).(13) In early 2019, the Canadian federal government introduce a simplified approach that encouraged a plant-based diet and to reduce meat and dairy consumption to promote health and environmental sustainability goals.(14)

The National Academy of Medicine of Mexico launched in 2015 technical and general recommendations to prevent nutrient deficiencies and excess among the population in the country. The guidelines are summarized in 10 recommendations that were developed by an intersectoral and interdisciplinary committee of national experts and external advisors based on reviewed national and international evidence recommendations. The Mexican FBDGs include information to help people reduce dietary fats, sugar, and sodium consumption; increase their physical activity and avoid sedentarism behaviors; and review food labels to select healthier food and beverage options.(15)

FAO has reported that by 2018, over 25 countries in the region of Latin America and the Caribbean have developed national dietary guidelines. Most of the countries' FBGDs offer nutrition objectives and messages that have shifted from the prevention of undernutrition and micronutrient deficiencies to the prevention of obesity and diet-related NCDs.(16) A published study that reviewed FBGDs from 30 countries in the region of the Americas represented 97% of the entire North and South American population. Findings showed that despite the dietary patterns resulting from geographic and cultural conditions the main key points were consistent, and recommended that individuals and populations consume large amounts of fruits, vegetables, whole grains and cereals, and to limit their intake of calories, fats, simple sugars, and salt.(17)

Overall, FBGDs are regularly updated with the latest available evidence based on nutrition to the general population every five to 10 years. Although there is a general agreement on the basic nutrition messages, the use of these FBGDs to improve heathy diets and healthy environments through policies remains inconsistent.(17)

### 2.3 Marketing of food and beverage products to children as a commercial determinant of health that drives obesity and NCDs

The rise of overweight, obesity and diet-related NCDs worldwide over the last decade is mainly driven by the prioritization of the global economic growth and wealth over the protection and promotion of health.(18-20) For example, the production of processed, affordable, available and effectively marketed food and beverage products had shaped the environment to influence cultural desirability, consumers' preferences, purchasing and consumption behaviors to favor HFSS food and beverage products.(19-22)

According to the 2011 Lancet Obesity series, obesity is the "*result of people responding normally to the obesogenic environments in which they find themselves in*".(22) Nowadays, food systems are not designed to deliver optimal human diets or promote healthy environments. Instead the combined factors of increased supply, and more persuasive and pervasive marketing of HFSS food and beverage products constrain population to adopt unhealthy diets.(19, 20, 23) Therefore, the marketing of HFSS food and beverage products has been considered as a commercial determinant of health (Figure 2.1).(18)

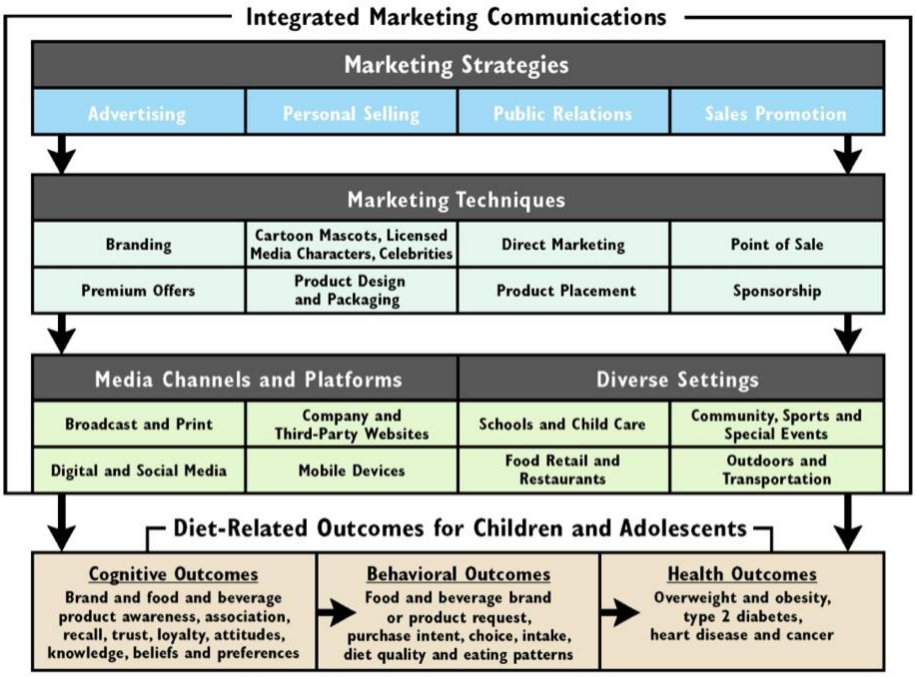
**Figure 2.1 Drivers and channels for the commercial determinants of health**


**Source:** Kickbusch I, Allen L, Franz C. The commercial determinants of health. *The Lancet Global Health*.2016;4(12):e895 - e896.(18)

The commercial interests from industries has driven the marketing of processed HFSS food and beverage products to create environments where consumers, specially children, are constantly exposed and persuaded to develop brand loyalty creating consumers for life.(24, 25) Previous literature have demonstrated how private businesses such as food and beverage manufacturers, food retailers, restaurants, entertainment and media use combined techniques referred as integrated marketing communications (IMC) to influence children brand and product awareness,

attitudes, preferences, purchase desire, and consumption. The use of IMC on food and beverage products has a consequence on the diet quality and health of the population.(26, 27) This last is explained with the power and reach of IMC, which are implemented through various marketing strategies (i.e. advertising, personal selling, public relations and sales promotion) that use persuasive techniques (i.e. branding, product design and packaging, product placement) through media channels, platforms (i.e., broadcast, print, mobile devices) and settings (i.e., schools, food retail and restaurants, outdoors) to create consistent and compelling messages that by consequence influence children's diet-related cognitive, behavioral and health outcomes(Figure 2,2).(28-30)

**Figure 2.2 Integrated marketing communications: strategies, techniques, channels and platforms, and diverse settings used by food, beverage, restaurant and entertainment companies to market branded food and beverage products to children**

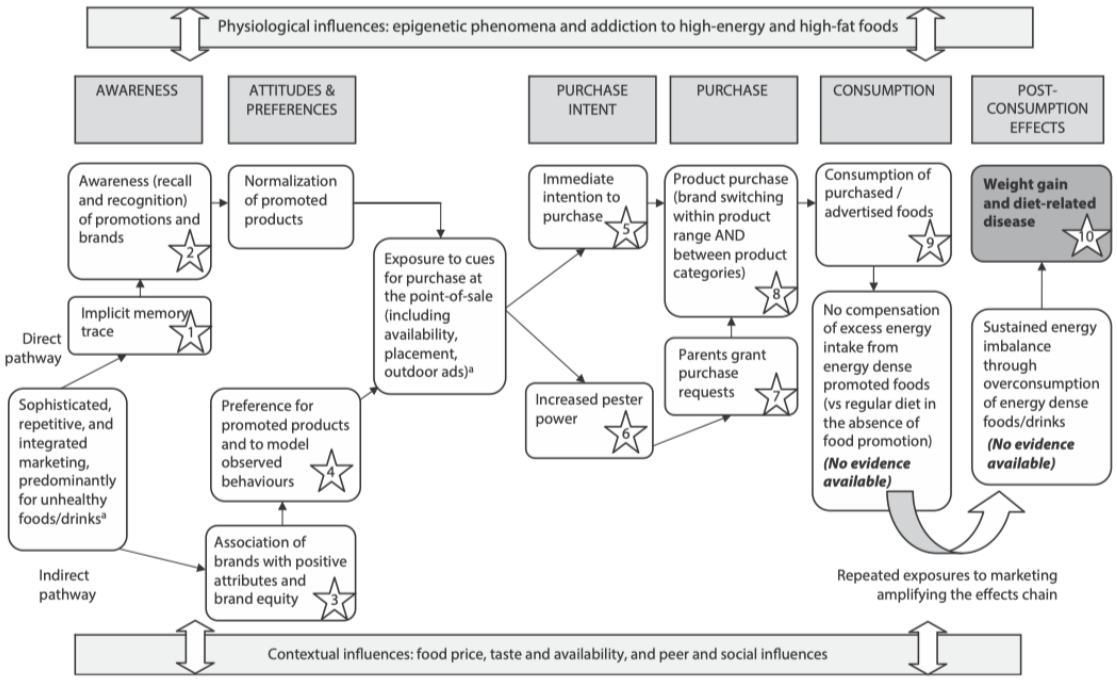



**Source:** Kraak VI, Rincón-Gallardo Patiño S, Sacks G. An accountability evaluation for the International Food & Beverage Alliance's Global Policy on Marketing Communications to Children to reduce obesity: A narrative review to inform policy. Obes Rev 2019;20 Suppl 2:90-106.(31)

## 2.4 Influence of children's exposure to food and beverage industry marketing practices on their diet and health

Current food environments exploit the psychological and economic vulnerabilities of children thereby fostering a demand for HFSS food and beverage products.(24, 27) Kelly et al. 2015 offer a logic model that describes the influence that HFSS food and beverage marketing have on children's awareness, attitudes and preferences, purchase intent, purchases, consumption and health outcomes (Figure 2.3).(26)

**Figure 2.3 Logic model of HFSS food and beverage products promotion effects**




**Source:** Kelly B, King ML, Chapman Mnd K, Boyland E, Bauman AE, Baur LA. A hierarchy of unhealthy food promotion effects: identifying methodological approaches and knowledge gaps. *Am J Public Health*. 2015;105(4):e86-95.(26)

Children aged 2-12 years are hyper-vulnerable for HFSS food and beverage products due to the lack of cognitive maturity and ability to discern the purpose of advertising or persuasive marketing. Between these ages they develop knowledge and brand recognition, that fosters

purchase requests for HFSS food and beverage products.(32, 33) Until the age of 12 years, children lack the cognitive capacity to identify persuasive intent and do not have psychological behavioral control to regulate innately desires to resist appealing messages.(34) The adults are also considered vulnerable and susceptible to products that use IMC.

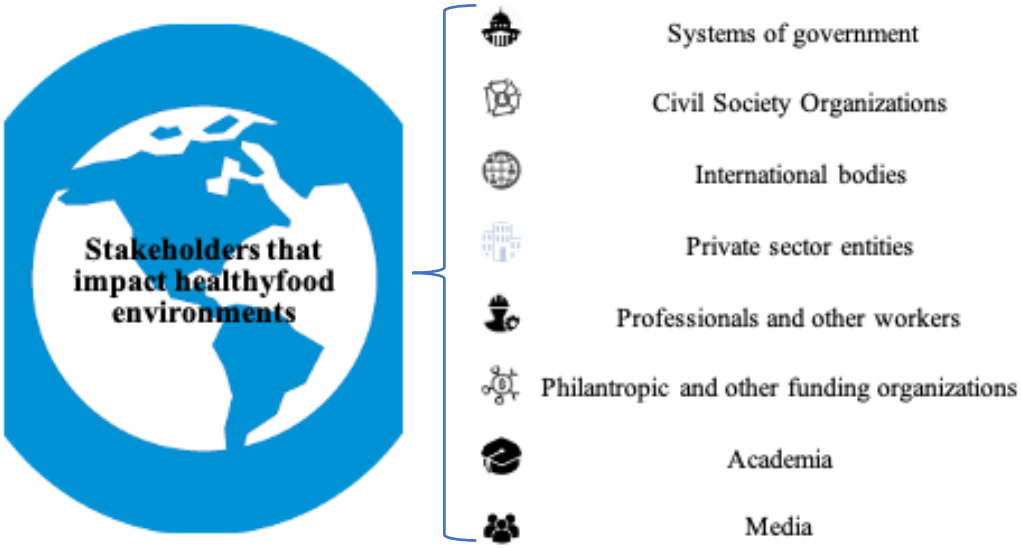
Food and beverage industries have been implementing effective marketing practices targeted to children to attract their attention including cartoon or celebrity characters shaping preferences, desires, and consumption of HFSS food and beverage products.(35, 36) One of the latest preferred channels where food and beverage businesses constantly persuade consumers are the digital and interactive social media. These channels are characterized by personalized and deep engagement that has ubiquitous connectivity of brands and companies where children are constantly influenced to adopt HFSS food and beverage product into their diets, placing them as an hyper-vulnerable population worldwide.(37, 38)

Marketing of HFSS food and beverage products to children has been associated with poor quality diet, unhealthy eating patterns in LMICs.(39, 40) Inexpensive and accessible HFSS food and beverage products widely promoted through IMC strategies(39, 41-43) vary between LMICs, socioeconomic characteristics and race or ethnicity.(2, 23) The 2009-2013 Global School-Based Student Health Survey results revealed that more than half (54.3%) of adolescents' aged 12-15 years consumed carbonated beverages daily.(39) A study on sugary beverages intake based on 62 national dietary surveys over 30 years across 51 countries, showed that three quarters (76%) of sugary beverages-related mortality occurred in LMICs,(44) eight of those countries were in Latin America and the Caribbean Region.(44)

## 2.5 Global governance to support healthy diets and healthy environments to reduce the marketing of HFSS food and beverage products to children

According to a 2014 Lancet publication, the food and nutrition global governance process involves the distribution of economic, intellectual, normative, and political resources through the participation of stakeholders.(45) *Governance* is the "processes that are formally or informally applied to distribute responsibility or accountability among actors in a given system."(46) The WHO define stakeholders as actors, persons, groups or institutions with a vested interest in a specific policy.(47) The World Cancer Research Fund International (WCRFI) identifies different stakeholder categories that play an important role in creating healthier food environments for populations (Figure 2.4).

**Figure 2.4 Stakeholders involved in the creation of healthy food environments**




**Adapted from:** World Cancer Research Fund International dietandcancerreport.org. 2018.

The UN System organizations form an international and intergovernmental body comprised of stakeholders who may influence healthy food environments through setting norms and standards and providing technical support to Member States or national governments.(48) In 1989, the UN

System urged Member States to ratify a legally binding Convention on the Rights of the Child (UNCRC), which obligates Member States to respect, protect and promote children's right to health, and adequate food as stated in article 24 "*right to nutritious food, a clean and safe environment, and information to help them stay healthy*". This provision includes the creation of healthy food environments free of persuasive advertisements of HFSS food and beverage products.(49)

In 2006, the International Obesity Taskforce (renamed World Obesity in 2013), developed seven "*Sydney Principles*" to guide government actions to reduce HFSS food and beverage marketing practices to children. These principles encouraged governments to use strong policy tools, such as statutory and legal measures, to support the rights of children and guarantee commercial-free childhood settings.(50)

In May 2010, 193 Member States of the WHO endorsed the Resolution WHA63.14 to restrict the marketing of HFSS food and non-alcoholic beverage products to children to reduce overweight, obesity and NCDs globally.(51) In December 2010, the WHO released a set of recommendations(52) and an evaluation framework for governments(28) to restrict such practices. Since then, different stakeholders (e.g. civil society, UN agencies, international bodies and private sector entities) started issuing guidelines, recommendations, and policy documents that address the marketing restriction of HFSS food and beverage product marketing to children.(31) In 2013, the WHO launched a global action plan for the prevention and control of NCDs for 2013-2020.(53) This global action plan provides Member States a set of policy options

to achieve nine targets and a 25% reduction in mortality from NCDS by 2025, including the marketing restriction for HFSS food and beverage products to children.(53)

Voluntary recommendations had emerged from a high-level intergovernmental meeting organized by FAO and the WHO in 2014 that focused global attention on addressing malnutrition in all its forms.(54) The UN Decade of Action Nutrition 2016-2025 (Nutrition Decade) is a framework(55) for governments to implement commitments made at the Second International Conference on Nutrition (ICN2), from the six action areas of the UN Decade of Action on Nutrition (Table 2.2).(55)

**Table 2.2 Action areas of the UN Decade of Action on Nutrition (20015-2025)**

| Six Action Areas | | | | | |
|---|---|---|---|---|---|
| 1. Sustainable, resilient food systems for healthy diets | 2. Aligned health systems providing universal coverage of essential nutrition actions | 3.Social protection and nutrition education | 4.Trade and investment for improved nutrition | 5.Safe and supportive environments for nutrition at all ages | 6.Strengthened governance and accountability for nutrition |

**Source:** Food and Agriculture Organization (FAO), World Health Organization. United Nations Decade of Action on Nutrition 2016-2025. Rome:FAO. 2016.(55)

Under the Action Area 5 "Safe and supportive environments for nutrition at all ages", two recommended actions have a food marketing focus. Recommendation 15 suggests that governments should "*Explore regulatory and voluntarily instruments – such as marketing, publicity and labeling policies*", and to "*Regulate the marketing of food and non-alcoholic beverages to children in accordance with WHO recommendations.*"(55)

FAO and WHO developed a resource guide(56) for countries based on the policy recommendations of the ICN2 to meet global nutrition and NCD targets, based on the global WHO nutrition targets, the WHO NCD targets. The action guide(56) contains SMART (specific, measurable, achievable, relevant and time-bound) commitments, created by the Global Nutrition report, an accountability mechanism for progress and action on nutrition. Two SMART commitments address the marketing of HFSS food and beverage products to children:

1. SMART commitment for recommendation 15: *"By December 2020, the government has implemented legislation that prohibits marketing and sale of foods and beverages high in saturated fat, trans-fat, free sugars, and/or salt in school settings where children gather, such as nurseries, primary and secondary schools, school grounds, sports facilities and preschool centers and playgrounds."*

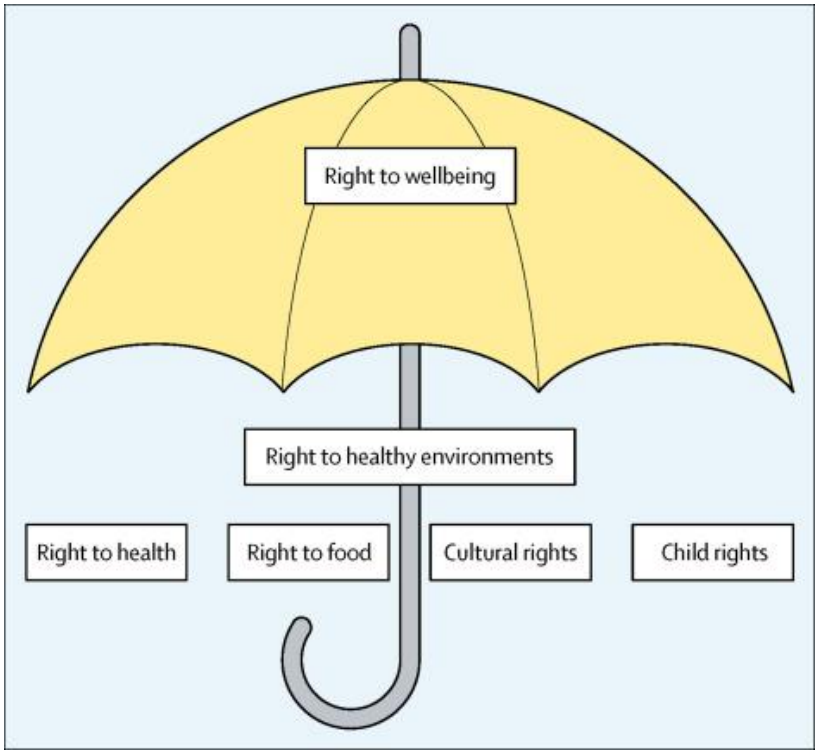
2. SMART commitments for recommendation 40: *"By December 2018, the Ministry of Health has assessed the impact of all national legislation, regulations and guidelines to tackle the marketing of foods high in fat, free sugars and/or salt and non-alcoholic beverages to children up to 18 years of age."*

In 2015, 17 Sustainable Development Goals (SDGs) were adopted by the UN Member States.(57) The SDGs involve monitoring the marketing of HFSS food and beverage products through in three goals. The goal 2 "*zero hunger*" that aims to end hunger and all forms of malnutrition; SDG goal 3 "*good health and well-being*" that seeks to ensure health and well-being at every stage of life promoting healthy environments; and SDG 12 "*responsible*

*consumption and production*" that aims to create a conducive social, physical, infrastructure and markets environments change.

As evidenced above, widespread actions across the WHO headquarters and its six regional offices have issued relevant policy documents to be adapted and implemented by regions. These documents include policy tools,(58) recommendations,(52, 59) frameworks,(60) guidelines and actions,(37, 61-63) nutrient profile models (Table 1),(10, 64-67) and monitoring progress reports.(68-71) Most of the documents suggest that governments should use mandatory and comprehensive policies to restrict children's exposure to HFSS food and beverage products to children as the strongest policy approach. Nutrition and food policies are constantly encouraged to use a human right lens(54, 63, 72, 73) as articulated in Article 24 of the UNCRC.(49) All Member States, except the US have ratified the treaty. Thus, countries are obligated to protect children including their diets and surrounding environments. The Lancet commission on the Global Syndemic of obesity proposed a wellbeing framework where intersects human rights including the right to health, right to food, cultural rights and children rights that implied the right to a healthy environment (Figure 2.5).(74)

**Figure 2.5 Intersection of human rights that comprise the overarching right to wellbeing framework**




**Source:** Swinburn BA, Kraak VI, Allender S, Atkins VJ, Baker PI, Bogard JR, et al. The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report. The Lancet 2019;393(10173):791-846.(74)

Most of the Latin American countries include rights to children in their national constitution, therefore have enacted more marketing legislative actions.(75) Countries have other national laws, constitutions and legislations that recognize the right to health and adequate food. Hence, governments are responsible for proactively protecting public health and encourage healthy environments, including the restriction of HFSS food and beverage products associated with poor diet quality, obesity, and NCDs.(76)

Besides UN agencies, civil society and NGOs have also played a role to encourage governments to enact mandatory policies and strong accountability structures to restrict the marketing of HFSS food and beverage products. As an example, in 2014, the World Obesity Federation and Consumers International outlined guiding principles, general obligations and 14 articles for a model WHO Framework Convention to Protect and Promote Healthy Diets.(77)

Food and beverage industries are also recognized as major actor through their lobbying actions, political activities used to frame policies in their favor.(78-83) Corporations often set voluntary commitments and milestones to diminish the promotion of HFSS food and beverage products to children.(84-86) Voluntarily initiatives by food and beverage companies have been assessed by the Access to Nutrition Foundation (ATNF). In 2013, 2016, and 2018, the ATNF measured the policies and performance of the top 20 food and beverage firms worldwide to address malnutrition in all its forms using the Access to Nutrition Index.(31, 87)

The restriction of HFSS food and beverage marketing that influence children's food preferences and diet-related behaviors is an example of an intervention with a broader focus on environments to achieve multiple goals and targets to produce double-duty actions through policies that reduce the risk and burden of both undernutrition and overweight, obesity and NCDs.(88, 89)

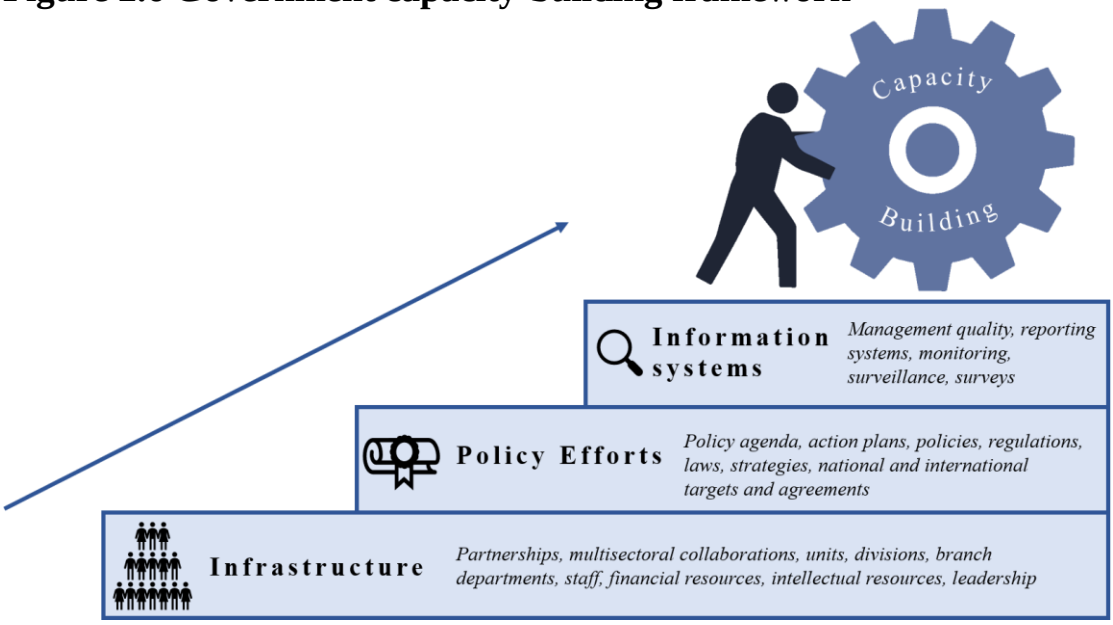
### 2.6 Capacity-building to help governments reduce the marketing of HFSS food and beverage products to children

Over time, the awareness of the urgent need to address the aggressive marketing of HFSS food and beverage products to children has become an increasingly important topic among the global

public health community and national leaders.(28, 32, 63, 90) The successful strategies to prevent and control obesity and NCDs lies in the effective capacity of governments to develop and implement national plans and to enforce policies. (91) Magnusson et al 2019, highlighted that governments legal and regulatory capacities are needed for the prevention and control of obesity and diet-related NCDs.(92) The WHO defines *capacity-building* as "the development of knowledge, skills, commitment, structures, systems and leadership to enable effective action."(93) Member State or national government capacity involves the procedures and government bodies with the authority and autonomy to develop policies.(94)

Figure 2.6 shows how several theories, models and frameworks used in capacity-building in public health are based in three main elements: 1) public health infrastructure (i.e., organizational development, human and financial resources); 2) policy efforts (i.e., status of policies and action plans and partnerships or coalitions); and 3) information systems, monitoring, surveillance and surveys.(95-99)

**Figure 2.6 Government capacity-building framework**




**Adapted from:** World Health Organization. Assessing national capacity for the prevention and control of noncommunicable diseases: report of the 2019 global survey, WHO; 2020 (95);World Health Organization. Health Promotion Glossary. Geneva: Health Promotion, WHO; 2006 (93); Bergeron K, Abdi S, DeCorby K, Mensah G, Rempel B, Manson HJBPH. Theories, models and frameworks used in capacity-building interventions relevant to public health: a systematic review. BMC Public Health.2017;17(1):914 (100); Delisle H, Shrimpton R, Blaney S, Du Plessis L, Atwood S, Sanders D, et al. Capacity-building for a strong public health nutrition workforce in low resource countries. Bull World Health Organ.2017;95(5):385-388 (96). Preskill H, Boyle S. A Multidisciplinary Model of Evaluation Capacity-building. 2008;29(4):443-459. (98)

Public officials in Departments or Ministries of Health, Education, and Social Welfare of children often lack sufficient resources, technical skills, and infrastructure. Furthermore, evidence states that support from policymakers who prioritize international trade and economic interests over population health goals results in a low priority for diet and health.(101) A major threat to government capacity is that industry actors often oppose any type of statutory regulations.(102) The UN Secretary General has acknowledged that industry actors often pre-empt strong government policy development, and most Member States have limited capacity to address “industry interference that has impeded the implementation of best buys and other recommended interventions.”(103, 104)

Since 2015, the WHO has assessed national capacity for the prevention and control of NCDs with a survey that contains a marketing component..(71, 94, 99) Governments from Brazil, Chile, Canada, Ecuador, Iran, India and Peru have shown strong capacity-building leadership by framing HFSS food and beverage marketing as both a child health and human-rights protection issue, using scientific evidence to justify policies, and consulting with public health experts to shape comprehensive policy implementation.(105) Despite advances in policies to reduce marketing of HFSS food and beverage products to children, there is still a high prevalence of countries with increasing rates of obesity and NCDs, in both HIC and LMICs, which have not yet implemented polices. The lack of adequate governance capacity is a major barrier for national governments to develop, implement, and enforce effective policies to prevent and control obesity and diet-related NCDs(106) including HFSS food and beverage products marketing restrictions(107) to achieve SDG 3 and WHO nutrition-related goals by 2025.(108)

### 2.7 Current actions taken by Member States to restrict the marketing of HFSS food and beverage products to children

Initiatives to restrict the marketing of HFSS food and beverage products to children are gaining momentum as some business have implemented self-regulatory programs and national governments have limited or banned marketing of HFSS food and beverage products to children.(71, 94, 99, 109) Self-regulation policies are led, founded and voluntarily administrated by industries. In contrast, statutory regulations or fiscal policies are statues, laws, rules or guidelines recommended or mandated by legislation and their enforcement are responsibility of governments.(90)

Since 2010, policies have been introduced in countries such as Australia, Canada, Chile, Ireland, Mexico, Norway, Sweden, the United Kingdom, the US to protect children either through industry self-regulatory initiatives or government statutory regulations.(109) In the 2015, 2017, and 2019 NCDs progress monitor, the WHO identified that more countries had adopted voluntarily policies.(68, 71, 99) More specifically, a report released in 2018, point that policies exist in 63 countries (33% of the UN Member States) and 30 use fiscal policies.(110) The reports show that since 2015 the European Region has been the leading region. Nevertheless, most of the actions are voluntarily, whereas the Americas Region in proportion has applied the most government mandatory policies.(68, 71, 75, 99)

Business approaches without government or health advocates' input, that apply permissive nutrition and marketing standards developed by companies exclude the public health perspective, thereby exacerbating childhood obesity.(90, 111, 112) Industry compliance with self-regulatory codes and guidelines have proof to be weak and studies suggest that regulations need to be mandatory, closely monitored, and more tightly enforced (113, 114) by governments or other institutional bodies with experience and expertise, including NGOs and academic institutions.(28) Therefore, the limitations of industry self-regulatory programs point to government mandatory policies as the best possible option to reduce the exposure of children to the marketing of HFSS food and beverage products that increases their obesity and NCD risks, as recommended by WHO.(28, 60, 75, 115, 116)

In regards mandatory polies, most of the government actions have focused on restricting product advertisements on television and in school settings.(109, 115) However, the marketing of HFSS

food and beverage products cover a wider range of techniques and channels from the IMC, where children are constantly exposed. Efforts in Latin America demonstrate attempts to protect children restricting the marketing of HFSS food and beverage products on multiple IMC techniques, media channels and settings. The Chilean government has instituted one of the most comprehensive approach, restricting marketing of HFSS food and beverage products in schools, front-of-pack labels, and directed to children under 14 years old.(117) Mexico also implemented a regulation issued by the Mexican Ministry of Health to restrict marketing of HFSS food and beverages products in Television and cinemas.(118) Brazil, has an ongoing resolution with specific criteria for marketing aimed at children for any form of market communication.(119) Peru has enforced a law to promote healthy eating for children that includes restriction of marketing aimed at children under 16 years, details of this restriction includes portion sizes, gifts, prizes, use of characters and in 2018 they included the nutritional front-of-pack labeling.(120) The government of Uruguay as well has worked and adopted a law for schools that bans all forms of marketing of HFSS food and beverages products that do not meet specific nutrition standards.(121) Bolivia and Ecuador are other countries that have implemented policies on labeling for processed HFSS food and beverage products.(122) Mexico and Chile are among the few countries that are conducting evaluations of their policies.(123, 124)

Despite the several ongoing efforts to reduce children exposure to HFSS food and beverage products, these actions still have legal loopholes, lack of monitoring, enforcement and accountability mechanisms in both government mandatory policies and voluntary commitments and pledges from the industry sector.(27, 71) There is a major gap that needs future research to examine policy characteristics across countries to enhance their development, implementation

and evaluation to restrict marketing of HFSS food and beverage products to protect children's diet and health.(125)

**2.8 Role and influence of social networks in the food and nutrition policy-making processes**

WHO has recommended to addressing childhood obesity through a set of multi-sector and multilevel policies based on the best available evidence to actively promote healthy food environments and achieve the targets to halt the rise in obesity and reduce NCDs mortality 25 percent by 2025.(53, 126-128) Moreover, the UN Decade of Action on Nutrition (2016-2025) recommended the need to "*Reconfigure global, national and subnational governance to ensure good policy-making processes to coherently address all forms of malnutrition*."(129) Policy-making is influenced by actors from various sectors who are involved in the nutrition governance that is fundamentally shaped by their interactions within social networks, and use their resources to influence the policy decision-making process based on different interests to achieve specific goals.(130, 131) The term *actor* is used to represent individuals, organizations or entities that influence actions within the nutrition policy-making and governance process.(48)

Existing research suggests that health policy is not solely based on the existence of cost-effective interventions but also attributable to the power dynamics of actor social networks involved in public policy development.(132-134) Power plays a central role due to the influence and reputation on the actors that can determine the dynamics, relations, and results in such network. For example, the exchange and use of research evidence, and consensus among specific concerns in policy-making can be partly explained by the relationships of actors within the social network.(135, 136)

The expanded roles from the actors involved in the nutrition policy-making processes shape policy outcomes according to their minimal or strong interrelationships, interests, power and resources.(137, 138) Governments and politicians are the lead actors responsible for setting national policy agendas.(48) Academic researchers, NGOs and civil society organizations may influence the public debate and political agenda through advocacy efforts and by providing scientific evidence to inform policy decisions.(48) The role of UN agencies or international bodies is to support Member States or national governments by setting norms and standards and providing technical support to build institutional capacity and catalyze change that promotes the health and well-being of populations.(48) Aside from the political sector and the government representatives, private industry entities such as food and beverage manufactures, retailers and trade associations are actors that have more power to influence the national nutrition and public health policy process. Existing research suggests that these private-sector actors are highly influential through their corporate political activities and strategies such as lobbying legislators, using financial resources to oppose public health policies and frame political debates that enables these actors to leverage their commercial interests over population health.(78-83, 139-141)

The effectiveness and success of social networks relies on different determinants that affect the performance through the policy process.(142) The structural network characteristics (i.e. centralized or decentralized) can define mechanisms between participants that determine political outcomes. (143) Connection between actors within a network facilitates coordination toward common goals.(144) More specifically, well-connected actors that inform other stakeholders provide influence and opportunities within the network acting as brokers in the structure. There

is an assumption that actors located on the periphery of the networks with less ties have less influence and impact on policy outcomes.(145) Other evidence suggests that having many connections is only one way to influence outcomes.(140) Actors with fewer but stronger ties with well-connected people or groups are more effective because they link separated sections of the network.(140) Position in the network demonstrate that roles have different purposes and levels for policy-making.(146)

Over the past years network analysis have proliferated on the public health sector(147), specifically, on tobacco(148) and alcohol(149, 150), pneumonia(151), tuberculosis(152), that provides useful insights toward understanding how networks operate. Other related research focuses on and food systems(153-156), and little research on nutrition policy(140, 146, 157). Cullerton et al 2016 have demonstrated that in the nutrition policy space, power is a factor that plays an important role inside networks that influence political ideology and beliefs of policymakers to create consensus between actors, oppose pressure, and/or influence political will.(140)

A range of cost-effective strategies, documents, frameworks and other relevant tools are available to restrict HFSS food and beverage products and engage in responsible marketing to children.(31) However, despite the evidence limited progress and changes have been sustained.(27) The lack of effective and comprehensive actions is occurring within a policy space characterized by a network comprised with diverse actor with high opposition and low supportive conditions that influence and impact nutrition policies to promote healthy diets and healthy environments.(156) Effective policy networks have the capacity to promote partnership

at all stakeholder levels to improve public health outcomes through synergies and sharing learned lessons from past experiences to implement best practices to advance nutrition and food policy.(158) Therefore, networks could be considered opportunities for actors to move forward to advance nutrition policy initiatives to improve public health.(140, 146)

## 2.9 Accountability for policies and practices to protect children's right to healthy environments

The WHO has described the policy-making process using four steps: policy development, policy implementation, policy monitoring and evaluation, and policy revision.(28) This entity recommend national governments to use their legal authority to engage and hold accountable actors in the implementation of policies to improve public health.(159) Accountability goes beyond responsibility; it entails actors' performance responding to other stakeholders with authority to assess the intended or achieved policy to improve desirable outcomes.(127, 160, 161) The accountability framework proposed by Kraak and collaborators take into account the policy-making process described by the WHO(28) and also the performance from all actors involved in the creation of healthy food environments to improve diets and public health through five steps (Figure 2.5).(8, 31)

**Figure 2.7 Accountability framework to promote healthy food environments**


**Source:** Kraak V, Swinburn B, Lawrence M, Harrison P. An accountability framework to promote healthy food environments. *Public Health Nutrition*. 2014;17(11):2467-2483.(8) Kraak VI, Rincón-Gallardo Patiño S, Sacks G. An Accountability Evaluation for the International Food & Beverage Alliance's Global Policy on Marketing Communications to Children to Reduce Obesity: A Narrative Review to Inform Policy. *Obesity reviews : an official journal of the International Association for the Study of Obesity* 2019;20 Suppl 2:90-106.(31)

Accountability assessments guide governments and other actors (i.e., civil society, private industry, academic researchers, UN agencies) engagement to address through formal mechanisms strategies for the implementation of policies to restrict marketing of HFSS food and beverage products to children.(8, 31) Moreover, it improves the transparency of the governance process increasing credibility and opening a space to manage conflicts of interest for the creation of healthy food environments to prevent and manage obesity and NCDs.(8)

*Step 1 "Appoint an independent body"*

The first step is to empower an independent body to complete the next four steps of the accountability framework; take account through assessment, shares the account communicating

results, holds to account by enforcing and responds to the account improving strategies and actions to promote healthy food environments and healthy diets.(8)

*Step 2 "Take the Account"*

The second step involves the collection of available evidence, assessment, evaluation and monitoring of ongoing policies by independent bodies.(8) For the marketing restriction of HFSS food and beverage products to children different actors have worked at this level. For example, UN system bodies such as the United Nations Children's Fund (UNICEF), WHO and its regional offices, have developed several documents with evidence and monitoring reports.(31)

Private foundations and civil society organizations have also contributed significantly with the monitoring component. The monitoring and evaluation are systematic processes that have the ability to provide strategic information from complex data of enacted or new policies. Besides, this process allows to identify gaps, needs and track compliance to furnish policy makers to make informed decisions.(28) Resources for monitoring marketing of HFSS food and beverage products targeted to children have been developed by several groups, such as protocols, frameworks, indexes and other tools that quantifies, qualifies and describes the extent and nature of the problem (Table 2.3).

## Table 2.3 Available resources to monitor and evaluate the marketing of HFSS food and beverage products

| Body | Year | Tools | Objective | Outcome |
|---|---|---|---|---|
| World Cancer Research Fund International(162) | 2013 | NOURISHING database | To report, categorize and monitor policy actions worldwide systematically that includes a "Restriction food advertising and other forms of commercial promotion" component | Database |
| International Network for Food and Obesity/ non-communicable Diseases Research, Monitoring and Action Support (INFORMAS)(163) | 2013 | Protocol and tools | To monitor unhealthy food promotion to children to guide systematic collection of data for comparison between jurisdictions and over the time based on exposure (media type) and power (promotional techniques) | Systematic data collection |
| World Health Organization(164) | 2016 | Noncommunicable Disease Document Repository | To provide access of NCDs policies, strategies and action plans implemented by Member States including marketing policies | Repository |
| Rudd Center for Food Policy and Obesity(165) | Updated through the end of 2014 | Industry pledges on Food and Beverage Marketing to Children | To list and describe voluntary pledges issued by global food and beverage companies and industry trade organizations | Database |
| Nordic Council of Ministers(166) | 2018 | A joint Nordic monitoring protocol for marketing of HFSS food and beverage products towards children and young people | To monitor marketing communication of HFSS food and beverage products for comparison of data from Nordic countries | Systematic data collection |
| Access to Nutrition Foundation (ATNF)(87) | 2013, 2016 and 2018 | Access to Nutrition Index | To rate food and beverage manufacturers' nutrition-related policies including responsible marketing, and compliance worldwide | Index |
| Consumers International(167) | 2011 | Manual for countries to monitor food and beverage marketing to children | To provide guidance to gather evidence on the marketing to children of HFSS food and beverage products for researchers from diverse organizations and national contexts | Systematic data collection |
| World Health Organization(60) | 2012 | Framework for implementing the set of recommendations on the marketing of food and non-alcoholic beverage products to children | To guide policy makers to apply the WHO recommendations on the marketing of food and non-alcoholic beverage products to children | Framework |

**Sources:** World Health Organization. A Framework for Implementing the Set of Recommendations on the Marketing of Foods and Non-alcoholic Beverages to Children; 2012.(60) Access to Nutrition Foundation. Access to Nutrition Index; 2018.(87) Hawkes C, Jewell J, Allen K. A food policy package for healthy diets and the prevention of obesity and diet-related non-communicable diseases: the NOURISHING framework.

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*Step 3 "Sharing the account"*

This is the accountability step where actors are empowered by receiving and sharing information through an inclusive process aimed to engage and provide insight from diverse perspectives and positions to implement evidence informed policies.(8) To achieve the goal of equitable and effective evidence-informed health policy it is fundamental the exchange and use of research evidence in policy-making.(135) However, incorporating research into policy and practice integrates barriers such as the communication of research findings to policymakers.(168)

The generation of dialogue from civil society and WHO agencies with a diverse range of actors including academic researchers, government representatives, private industry and others have resulted in the development of guidelines, frameworks and reports to enhance actions aimed to protect children of the marketing of HFSS food and beverage products. For example, the International Network for Food and Obesity/Non-communicable diseases Research, Monitoring and Action Support (INFORMAS) developed and approach that supports the monitoring of food and beverage marketing that allows comparison across countries.(163) As result, INFORMAS have share the account with a publication that compares food and beverage television advertisements across 22 countries. Kelly et al. shares data that can be used as part of an evidence-based policy-making to restrict advertisements on television of HFSS food and beverage products that undermine children's health.(169) In the other hand, the private sector is

also taking step for sharing the account. IFBA had adopted a Global Policy and marketing practices targeted to children under 12 years based on the WHO and FAO guidelines since 2009.(170)

*Step 4 "Holding to account"*

This step involves an empowered group to recognize successful or failure performance of enforcing policies.(8) For example, the Nordic Council of Ministers, [43] INFORMAS, [44] ATNF, [45] and WHO[46] offer monitoring frameworks, protocols, and metrics to monitor and evaluate food and beverages marketing practices.[47 49 50] to determine the extent to which governments had implemented recommended food environment policies compared to international best practices.[42]

In 2018, INFORMAS released the first Business Impact Assessments on Obesity and Population Level Nutrition (BIA-Obesity) that evaluated the marketing commitments for the largest food and beverage companies in New Zealand and Australia.[47] INFORMAS used internal resources to monitor and evaluate food and beverage marketing practices to young people. Each report documented limited progress by their national government to restrict HFSS food and beverage products to children, and ranked this issue among the top three priorities for their governments moving forward to address unhealthy food environments.

Reports from 2010-2018 were released by IFBA showing progress regarding their performance on the Global Policy and marketing practices targeted to children under 12 adopted since 2009.(171) Then, the ATNF developed monitor reports (2013, 2016 and 2018)(87, 172, 173) that uses an index to rate and grade IFBA firms of its marketing practices, that showed how companies are influencing policies.(87)

*Step 5 "Responding to the account"*

At this level stakeholders are required to take remedial actions to enhance actions and encourage accountability among actors for the creation of healthy food environments.(8) The 2018 ATNF Index showed that many of the world's largest food and beverage manufacturers firms (IFBA members) have taken some positive steps to strengthen internal policies, strategies and commitments through different strategies such as nutrition labeling, marketing of food and beverage products in schools, among other activities but without transparency.(87) However, a 2019 evaluation on IFBA's accountability on marketing practices targeted to children found no progress by any actor to improve accountability with UN best-practice recommendations.(31)

The design, implementation, monitoring and evaluation of policies to restrict marketing of HFSS food and beverage product to children by Member States or national government requires transparent and independent accountable structures to achieve WHO and UN Decade of Nutrition targets in a timely manner by 2025.

**2.10 Knowledge gaps**

The UN and WHO agreed that Member States or national governments require to response with effective strategies to tackle obesity and NCDs such as the implementation of regulatory policies including restricting the marketing of HFSS food and beverage products to children as part of the global action plans to reduce NCDs by 2025.(52, 55, 63, 174) The marketing restriction of HFSS food and beverage products to children had gain momentum with the implementation of mandatory and self-regulatory policies among countries. However, despite the most recent

evidence showed that 33% of the UN Member reported having adopted a policy to restrict the marketing of HFSS food and beverage products to children to reduce their risk of obesity and NCDs(110) there is limited information about Member States' technical and political capacity to fully implement Resolution WHA63.14.(27) Therefore, the first study objective was to address the knowledge gap for Member States' capacity-building needs of Ministries of Health (MoH) in PAHO/WHO States to fully implement Resolution WHA63.14 to restrict the marketing of HFSS food and beverage products to children.

As discussed earlier, Latin America is one of the regions that has implemented the most mandatory policies by governments(75) to reduce the marketing of HFSS food and beverage products to children. (28) The different restrictions, scopes and approaches provide a wide variety of ways to protect children from the exposure to HFSS food and beverage products. Currently, there is no international consensus about the most appropriate and effective policies to fully implement Resolution WHA63.14 (175) in part, due to the different purposes and contexts in which each policy is developed. To better identify the best practices, my second study objective was to develop a monitoring and evaluation tool to compare and rate the quality of the ongoing policies in the WHO/PAHO regional office of the Americas. Moreover, no published study has used big data analysis and data visualization tools to assist policymakers to understand and compare the effectiveness of policies within and across countries. Thus, the second study uses interactive data visualization tools to inform policy makers and other actors about how to improve the food marketing landscape and move forward to create a healthy food environment for children.

Effective obesity prevention actions to achieve the 2013 WHO commitments to reduce NCD-related mortality rates by 2025 require effective networks comprised by different stakeholders that influence positively the process of decision-making in policy.(138) Nonetheless, little is known about the spread and connectedness of diverse actors in the nutrition policy landscape. Few researches have studied power using social network analysis in the nutrition policy-making process to promote healthy diets and healthy food environments to address obesity and NCDs. My third study objective was to identify and analyze the complex set of inter-connected social networks and their dimensions of power that influence nutrition policy-making through a case study in Mexico.

The present PhD dissertation addresses these research gaps through three research studies by examining the challenges and opportunities for Member States to implement Resolution WHA63.14 to restrict the marketing of HFSS food and beverage products to children and achieve WHO and the UN Decade Action of Nutrition targets in a timely manner by 2025.

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# Chapter 3 .

## Study 1. An assessment of the capacity-building of Ministries of Health to develop and implement policies that restrict the marketing of unhealthy food and non-alcoholic beverage products to children to reduce obesity in the Americas region


### Abstract

The Pan American Health Organization (PAHO) Strategic Plan 2020-2025 committed to reduce children's consumption of energy-dense nutrient-poor food and beverage products high in fat, sugar, and salt (HFSS) and promote healthy eating patterns to reduce malnutrition in all forms. PAHO is the World Health Organization's (WHO's) regional office that provides technical support to 35 Member States in the Americas region. This paper describes the capacity-building needs of Ministries of Health (MoH) in PAHO/WHO States to restrict the marketing of HFSS food and beverage products to children. We requested MoH officials or country representatives through PAHO's network complete a 28-item web-based survey (January to July 2020). Capacity-building needs were assessed using three modules: public health infrastructure, policies, and information systems. Results showed that nearly half (48.6%; n=17) of 35 States responded. State representatives reported strong infrastructure and information systems were in place; however, policy improvements are needed to increase effective national responses to protect children from HFSS food and beverage marketing, especially through digital media. Insufficient resources limited States' research, monitoring and evaluation efforts. Non-state actors (e.g., civil society and United Nations agencies) enable States to create partnerships to address HFSS marketing to children. Strengthening infrastructure, comprehensive policies, and information systems is critical to build States' capacity to regulate HFSS marketing to children in

national policies and action plans. This study provides baseline data to strengthen the capacity of PAHO States to achieve nutrition targets in WHO Action Plan, UN Decade of Action (2016-2025) and Sustainable Development Goals 2030 Agenda.

### 3.1 Introduction

Noncommunicable diseases (NCDs) and their risks factors are the leading causes of morbidity and disability globally representing 70% of deaths worldwide. NCDs account for 80.7% of all deaths in the 35 countries that comprise the region of the Americas that includes countries in North America (e.g., Canada and United States), Central America (e.g., Mexico) and South America (e.g., Brazil and Colombia), hereafter called the Americas region.(1) Overweight and obesity are risk factors for children, adolescents and adults associated with diet-related NCDs including type 2 diabetes, cardiovascular disease and cancer, which are major public health problems. The combined overweight and obesity prevalence rates in the Americas region is 62% for adults and 20% and 25% for children and adolescents.(2)

Between 2010 and 2020, United Nations (UN) System agencies issued several technical advisory documents that recommended Member States to the World Health Organization (WHO) protect children (birth to age 18 years) from the marketing of high in fats, sugar, and salt (HFSS) food and beverage products to reduce obesity and NCD risks. This paper will use the UN's definition of *children* defined as individuals from birth to 18 years.(3) In May 2010, 193 Member States unanimously endorsed the World Health Assembly (WHA) Resolution 63.14 to restrict the marketing of HFSS food and non-alcoholic beverages to children as part of a broader call to action by States (national governments) to address the growing obesity and NCD pandemics.(4)

In 2011, Resolution WHA 63.14 was adopted by the UN General Assembly that advised States (national governments) worldwide to implement action-oriented policies to prevent and control NCDs.(5) The WHO developed a NCD Progress Monitoring framework in 2012 with 10 indicators that was updated and expanded to reflect cost-effective "best buys."(6) This monitoring framework included a metric for States to reduce unhealthy diets (indicator 7) that integrated the WHO's 2010 recommendations to restrict the marketing of HFSS food and non-alcoholic beverage products to children(7) by food and beverage industry actors including manufacturers, distributors, restaurants, entertainment and digital technology companies.

In 2015, the UN System released 17 Sustainable Development Goals (SDGs) to encourage Member States, the private sector, and civil society to address unhealthy diets as part of a broader agenda to achieve by 2030.(8) SDG 3 is to "*Ensure healthy lives and promote wellbeing for all at all ages.*" To achieve the 169 targets for the 17 goals, the WHO encouraged States to adopt a whole-government approach, including collaboration with non-state actors, and set commitments with strong capacity to allocate adequate resources to implement and enforce the NCD policies, strategies, and actions.(9) Non-State actors include civil society organizations, academic institutions, and private-sector actors such as food, beverage, and agricultural companies, industry trade organizations, business alliances, and private or corporate foundations.

The WHO and its six regional offices, including the Pan American Health Organization (PAHO) based in Washington, DC, have issued guidance documents to enable Member States to develop and strengthen national policies, actions, and plans adapted to the specific policy context and national priorities to protect vulnerable children's exposure to marketing practices that promote

HFSS food and non-alcoholic beverage products linked to obesity and other diet-related NCDs.(10, 11) These recommendations have been included in the 2013 PAHO's Plan of Action for the Prevention and Control of NCDs(12) and the 2014 PAHO's Plan of Action for the Prevention of Obesity in Children and Adolescents.(13) The 2020-2025 PAHO Strategic Plan committed to reduce the consumption of energy-dense nutrient-poor HFSS products marketed to children, while also promoting healthy eating patterns aligned with national dietary guidelines to reduce malnutrition in all forms.(14) These three PAHO documents highlighted the need for States (national governments) to take a systematic approach, including enactment of comprehensive regulations and policies to address malnutrition in all forms that affect children in the Americas region.

Successful strategies to prevent and control obesity and NCDs will depend on the effective capacity of governments in countries and territories to develop and implement national plans and to enforce policies, including international agreements and treaties; and regional or national legislation, laws and regulations.(15) Member States in the Americas region currently have developed strong NCD policies(16) but there is limited information about each country's governance and capacity-building needs to implement these policies. This paper specifically focuses on the capacity-building needs of the Ministries of Health in the 35 countries in the Americas region to fully implement the 2010 Resolution WHA63.14 to restrict the marketing of HFSS food and non-alcoholic beverages to children.

The WHO defines *capacity-building* as "the development of knowledge, skills, commitment, structures, systems and leadership to enable effective action."(17) National government capacity

involves the procedures of government bodies that have the authority and autonomy to develop effective policies.(17) *Governance* is the "processes that are formally or informally applied to distribute responsibility or accountability among actors in a given system."(18) In combination, *Governance capacity* is defined as the constitutional or state-sanctioned mandated process to enable effective actions taken by governments to achieve stated objectives. Sheikh et al., 2020 have identified various dimensions of governance roles and capacities for the staff of departments or Ministries of Health (MoH) in Member States that encompass the hard governance (i.e., explicit and functional based on laws) and soft governance (i.e., tacit and relational) dimensions, which reflect diverse mandates to achieve the SDG 2030 Agenda.(19) The lack of adequate governance capacity is a major barrier for national governments to develop, implement, and enforce effective policies to prevent and control obesity and diet-related NCDs(20) to achieve SDG 3 and other nutrition-related goals by 2030.(19)

*Study Purpose*

This study assessed the national governance roles and capacity-building needs of MoH in Member States in the Americas region to fully implement the 2010 Resolution WHA63.14 to restrict the marketing of HFSS foods and non-alcoholic beverages to children. First, we describe two conceptual frameworks used to map the governance responsibilities of MoH and various food and beverage marketing practices used by industry actors. Thereafter, we describe a cross-sectional online survey conducted, in 2020, through a web-based survey among Member States to document the policy and regulatory environment in the Americas region. We identified information regarding specific policies, strategies, and actions that will serve as a baseline to strengthen the development, implementation, and monitoring of progress by MoH government

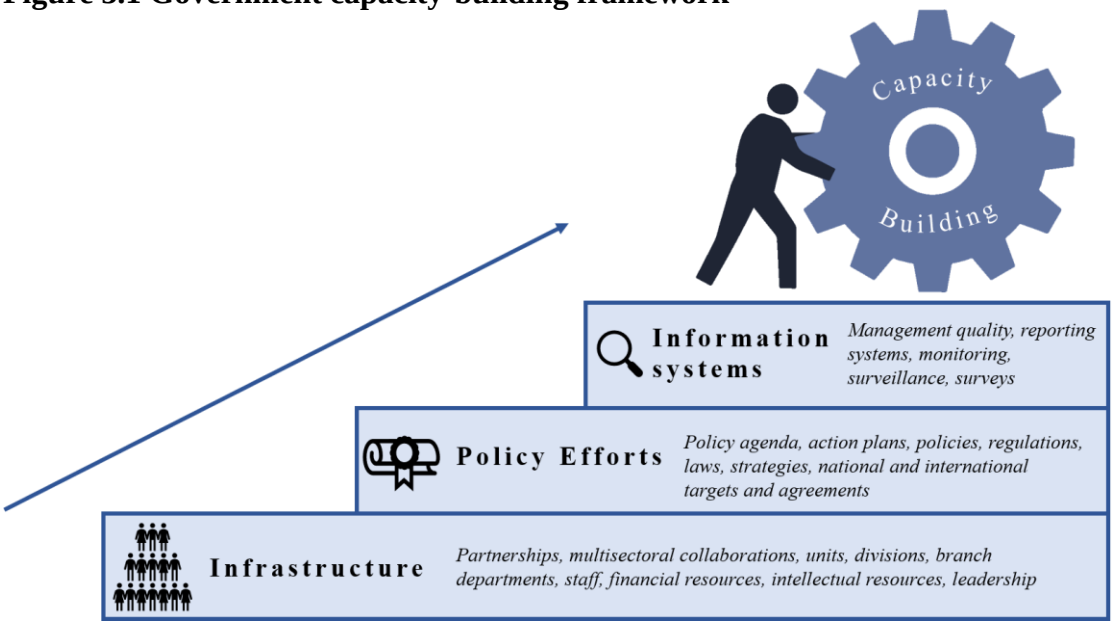
representatives to regulate the marketing of food and non-alcoholic beverages to children to enable Member States to achieve relevant WHO and UN SDG targets.

## 3.2 Materials and methods

### 3.2.1. Capacity-Building Framework

Several capacity-building definitions, models, and frameworks have been used in public health that highlight common elements needed at various levels to achieve goals. Many capacity-building frameworks are intended to enhance the workforce to support qualified professionals to implement actions; to strengthen institutional mechanisms to facilitate intersectoral engagement and knowledge between stakeholders; to expand intellectual or economic resources; and to assess and analyze specific actions.(21-25) This study used an adapted version of the WHO's government capacity-building framework(26) (Figure 3.1) that depicts three common elements to assess the capacity-building needs of MoH including: 1) public health infrastructure (i.e., organizational development, workforce, multisectoral collaboration, human and financial resources); 2) policy efforts (i.e., status of policies and action plans); and 3) information systems (i.e., management quality assessment, monitoring, surveillance and surveys).

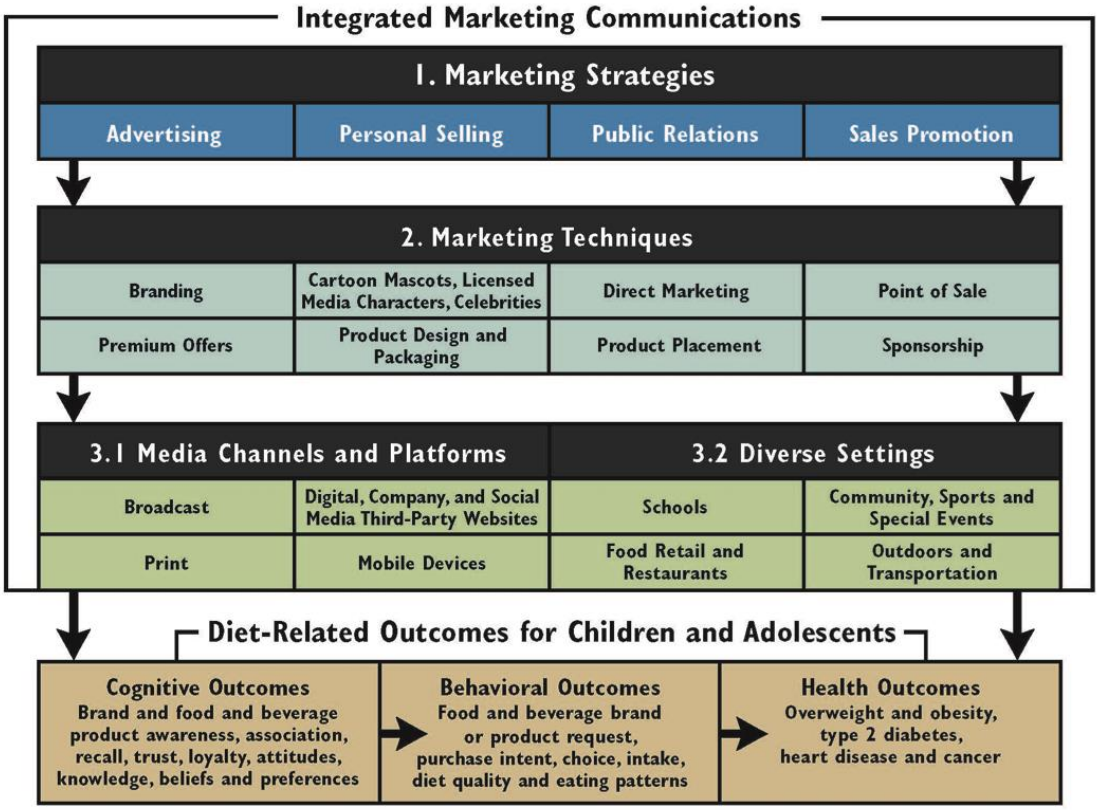
**Figure 3.1 Government capacity-building framework**




**Adapted from:** World Health Organization. Assessing national capacity for the prevention and control of noncommunicable diseases: report of the 2019 global survey, WHO; 2020 (26);World Health Organization. Health Promotion Glossary. Geneva: Health Promotion, WHO; 2006 (17); Bergeron K, Abdi S, DeCorby K, Mensah G, Rempel B, Manson HJBPH. Theories, models and frameworks used in capacity-building interventions relevant to public health: a systematic review. BMC Public Health.2017;17(1):914 (21); and Delisle H, Shrimpton R, Blaney S, Du Plessis L, Atwood S, Sanders D, et al. Capacity-building for a strong public health nutrition workforce in low resource countries. Bull World Health Organ.2017;95(5):385-388 (25).

This study also used an integrated marketing communications (IMC) framework(27) (Figure 3.2) to identify and assess specific marketing practices that were addressed by each State's Action Plan to restrict the marketing of food and non-alcoholic beverages to children in the Americas region. The IMC framework describes how different marketing strategies and techniques used to influence the diet-related cognitive, behavioral and health outcomes for children and adolescents.(27)

**Figure 3.2 Integrated marketing communications framework of marketing strategies that influence diet-related outcomes for children and adolescents**




**Source:** Kraak VI, Rincón-Gallardo Patiño S, Sacks G. An accountability evaluation for the International Food & Beverage Alliance's Global Policy on Marketing Communications to Children to reduce obesity: A narrative review to inform policy. Obes Rev 2019;20 Suppl 2:90-106.

### 3.2.2 Data collection

Through PAHO Regional Office, SRGP requested each of its 35 Member States in the Americas to designate MoH officials or alternate representatives of national institutes, departments of health or agencies responsible for addressing the diet-and health-related NCD challenges to respond to a 28-item web-based survey. Designated representatives who had policy expertise and knowledge completed the online survey between January 14, 2020 and August 18, 2020. Each respondent country received unique details to access the online platform through PAHO. In order to validate and verify the answers, respondent countries were asked to submit supporting

documentation for selected questions. Member States were also requested to provide clarification for their responses as needed.

### 3.2.3 Online survey

A 28-item web-based survey was developed and adapted from the WHO Global Survey to Assess National Capacity for the Prevention and Control of NCDs(26) after completing a consultative process with technical experts on policies to restrict the marketing of HFSS foods and non-alcoholic beverages to children. The PAHO's Plan of Action for the Prevention of Obesity in Children and Adolescents(13), WHO Global Action Plan 2013-2020(28), and the PAHO's Plan of Action for the Prevention and Control of NCDs(12) were also considered in the development of the survey that was available for completion in English and Spanish.

The web-based 28-item survey consisted of a general information section and three modules to assess MoH governance capacity including: 1) public health infrastructure; 2) policies, strategies and action plans; 3) health information systems, monitoring, surveillance and surveys. Specific components of the questions were as follows: general information: country, date of completion, and contact information from the respondent country; module 1) public health infrastructure included questions relating the unit or division within the MoH dedicated to staff, funding and synergies to restrict marketing of food and non-alcoholic beverages to children; module 2) policy efforts asked about the presence of specific components addressed in the policies, strategies and action plans to restrict marketing of food and non-alcoholic beverages to children, including national health plans targets, entities or bodies that oversees and enforce, accountability

mechanisms, and cross-border marketing strategies; and module 3) information systems included questions related to the collection, monitoring, and surveillance activities.

### 3.2.4 Data Analysis

The data were downloaded and coded directly from the web-based platform to an Excel-readable file, and were cleaned to ensure consistency with responses within question across each respondent country. Proportion and frequencies were calculated, with the denominator as the total number of respondent countries. Responses of "do not know" or unanswered were treated equally.

## 3.3 Results

Responses were received by 17 of the 35 countries and territories in the PAHO Americas region, representing a response rate of 48.6%. However, the web-based survey was only completed by 16 countries. One country responded it is making significant efforts and progress in this area, yet was unable to complete the survey. Tables 1 and 2 list the PAHO countries and territories that responded to the PAHO survey.

### 3.3.1 Public health infrastructure

Public health infrastructure addressed organizational development, workforce, multisectoral collaboration, human and financial resources (Table 3.1). The web-based survey revealed that the availability of a unit, branch, or department within the MoH responsible for addressing the marketing of HFSS food and beverage products to children was reported by 68.8% ($n$=11) of the countries and territories. All respondent countries reported having at least one full-time technical

or professional staff working within the unit, branch or department, and nearly two-thirds (63.6%; *n*=7) reported more than five full time technical or professional staff members.

Overall, two-thirds (68.7%; *n*=11) of the countries and territories reported having funding earmarked in the national government's budget to support activities to address the marketing of HFSS food and non-alcoholic beverages to children, and more than half of the countries (54.5%; *n*=6) reported having budgetary funding for all measured components including policy design and implementation; surveillance, monitoring, and/or evaluation; capacity-building; and research. Surveillance, monitoring, and/or evaluation was the most frequent component reported by countries and territories (90.9%, *n*=10); followed by policy design and implementation (81.8%, *n*=9), capacity-building (63.3%, *n*=7), and research (54.5%, *n*=6).

Three-quarters (75%; *n*=12) of the countries and territories reported having partnerships or multisectoral collaborations with other institutions, companies, business alliances, industry trade associations, or individuals to enhance the policies, strategies, and actions that address the marketing of HFSS food and non-alcoholic beverages to children. The reported multisectoral collaborations or partnerships with other government Ministries outside the health sector included academic institutions (91.7%, *n*=11), UN agencies (83.3%, *n*=10), a civil society organization or public-interest non-governmental organization (NGO) (75%, *n*=9), and private-sector firms or organizations (16.7%, *n*=2).

Most of the countries and territories (87.5%, *n*=14) reported using evidence sources to develop, implement, or modify policies, strategies, or actions to address the marketing of HFSS food and non-alcoholic beverages to children. All indicated using sources from the government as

recommended guidelines or standards, with 64.3% (*n*=9) using UN documents and 42.8% (*n*=6) using scientific evidence. More than two-thirds of the respondent countries (68.7%; n=11) affirmed having effective leaders, policymakers, champions, or advocacy organizations that assisted in the development of strategic directions, motivating staff, and aligning goals to implement policies, strategies, or actions to address the marketing of HFSS food and non-alcoholic beverages to children. More than two-thirds of the respondent countries (72.2%; *n*=8) reported being a government representative, 72.2% (*n*=8) an NGO representative, 36.4% (n=4) an UN agency representative, and 27.3% (n=3) an academic representative.

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## Table 3.1 Public health infrastructure characteristics from countries and territories in the Americas region to restrict marketing of foods high in fats, sugar, and sodium and non-alcoholic beverages to children

| Country | [1]Funding | | | | [2] Partnerships* | | | | | [3]Evidence resources | | | [4]Leaders | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Policy design and implementation* | *Surveillance systems* | *Capacity-building* | *Research* | *Government Ministries besides the health sector* | *UN agencies* | *Academic institutions* | *NGO's or civil society organizations* | *Private-sector firms or organizations* | *Government* | *UN documents* | *Scientific evidence* | *Academia* | *Government* | *NGO* | *UN agency* |
| Bahamas | No | No | No | No | No | No | No | No | No | - | - | - | - | - | - | - |
| Brazil | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | Yes | Yes | No |
| Canada | No | Yes | No | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No | Yes | No |
| Chile | Yes | Yes | Yes | No | Yes | No | Yes | Yes | No | Yes | Yes | Yes | No | Yes | Yes | No |
| Costa Rica | No | Yes | No | No | No | No | No | No | No | Yes | Yes | No | No | Yes | No | No |
| Cuba | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | No | No | Yes | No | No |
| Dominican Republic | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No | No | No | Yes | No |
| Ecuador | Yes | Yes | No | No | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | No | No | Yes | No |
| Guatemala | No | No | No | No | Yes | Yes | Yes | Yes | No | Yes | Yes | No | Yes | Yes | Yes | Yes |
| Guyana | Yes | Yes | Yes | Yes | Yes | Yes | No | No | No | Yes | No | No | - | - | - | - |
| Haiti | No | No | No | No | No | No | No | No | No | - | - | - | - | - | - | - |
| Honduras | No | No | No | No | No | No | No | No | No | Yes | No | No | - | - | - | - |
| Mexico | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Paraguay | Yes | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes |
| Uruguay | No | No | No | No | Yes | Yes | Yes | No | No | Yes | Yes | Yes | - | - | - | - |
| Venezuela | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | No | Yes | No | No | No | Yes | No | Yes |

Responses were categorized as *Yes* to indicate a positive and *No* to indicate negative actions within the specific items related to public health infrastructure. The questions asked for each item were as follows:

[1]**Funding sources**: Indicate with yes or no whether there is funding allocated in the national government's budget to support any policies to address the marketing of HFSS food and non-alcoholic beverage products to children in your country.

[2]**Partnerships**: Select the options that apply (Other government ministries, United Nations agencies, Academia, Private-sector firms) on partnerships or multisectoral collaborations to address the marketing of HFSS food and non-alcoholic beverage products to children in your country.

[3]**Evidence resources**: Indicate below the type of evidence resources used to develop, implement, or modify policies, strategies, or actions to address the marketing of HFSS food and non-alcoholic beverages to children in your country.

[4]**Leaders:** Indicate if there are effective leaders (policymakers, advocacy champions, public organizations) who create strategic directions, motivate staff, and align goals to implement policies, strategies, or actions to address the marketing of HFSS food and non-alcoholic beverage to children in your country. Please, specify.

*Other government Ministries or agencies besides the health sector (i.e., Ministry of Education, Ministry of Finance. Ministry of Social Welfare); UN: United Nations agencies (i.e., The World Bank, Pan-American Health Organization / World Health Organization (WHO), Food and Agricultural Organizations [FAO], United Nations Children's Fund [UNICEF]); Academia (i.e., research centers, or universities); Private-sector firms or organizations (i.e., food and beverage manufacturers, restaurants, retailers, food service companies, entertainment and media companies, corporate foundations, business alliances, and industry trade organizations); NGO: non-governmental organization

### 3.3.2 Policy efforts

Policy efforts addressed the status of policies, strategies and action to restrict marketing of HFSS food and non-alcoholic beverages to children, including the presence or absence, national targets, and enforcement mechanisms (Table 3.2). While most of the countries and territories include in their national constitution explicit language on children's rights to food and health, 81.2% (*n*=13), not all reported prioritizing a rights-based approach or having an explicit policy, strategy, or action to address the persuasive marketing of HFSS food and non-alcoholic beverages to children, 68.7% (*n*=11). Two countries reported prioritizing this issue on their national agenda, however, did not currently have a government action but reported plans to take further steps in the future. More than half of the countries and territories that responded to the web-based survey, 56.2% (*n*=9), reported having implemented government policies, strategies, or actions. Only 37.5% (*n*=6) reported having included a measurable and time-scaled objective for a national target specifically to restrict or reduce the marketing of HFSS food and non-alcoholic beverages to children under the implementation of the SDG Goal 3 "*Ensure healthy lives and promote well-being for all the ages*."

**Table 3.2 Policy characteristics that restrict the marketing of foods high in fats, sugar, and sodium and non-alcoholic beverages to children from countries and territories in the Americas region**

| Country | Explicit language on children's rights to food and health in the national constitution | Policies, strategies, or actions | Body, entity, or institution in charge to enforce | Accountability measures | Cross-border measures | Marketing strategies | Media channels, platforms, and settings | Nutrition criteria |
|---|---|---|---|---|---|---|---|---|
| Bahamas | - | - | - | - | - | - | - | - |
| Brazil | Yes | Yes | National Health Surveillance Agency (Anvisa)<br>Ministry of Justice, Public Ministry and National Consumer Protection System | Fines<br>Public complaints<br>Verbal warnings<br>Media reports | No | Cartoon characters and celebrities<br>Direct marketing<br>Premium offers<br>Product design and packaging | Broadcast<br>Digital and social media<br>Food retailers and restaurants<br>Mobile and digital devices<br>Outdoors and transportation<br>Schools<br>Websites | National dietary guidelines<br>Independent criteria<br>PAHO nutrient profile model<br>Food and beverage categories |
| Canada | - | - | - | - | - | - | - | - |
| Chile | Yes | Yes | Ministry of Health | Fines | Yes | Cartoon characters and celebrities<br>Direct marketing<br>Point of sale<br>Premium offers<br>Product design and packaging<br>Sponsorship | Broadcast<br>Community, sports and special events<br>Digital and social media<br>Food retailers and restaurants<br>Mobile and digital devices<br>Outdoors and transportation<br>Schools<br>Websites | National dietary guidelines<br>Independent criteria |
| Costa Rica | Yes | - | - | - | - | - | - | - |
| Cuba | Yes | Yes | National Standardization Office<br>Ministry of Public Health | Fines<br>Media report | Yes | Point of sale<br>Product design and packaging<br>Sponsorship | Broadcast<br>Schools | National dietary guidelines<br>Food and beverage product categories |
| Dominican Republic | Yes | Yes | Ministry of Public Health and Social Assistance<br>General Attorneys Office of the Republic<br>Ministry of the Interiors Police | Fines | No | Not specified | Outdoors and transportation<br>Schools | National dietary guidelines<br>Independent criteria<br>PAHO Nutrient profile model<br>Food and beverage product categories |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ecuador | Yes | Yes | National Agency for Health Regulation, Control and Surveillance (ARCSA) | Fines | Yes | Direct marketing<br>Point of sale<br>Product design packaging<br>Product placement | Food retailers and restaurants<br>Schools | National dietary guidelines<br>Independent criteria<br>PAHO Nutrient profile model<br>Food and beverage product categories |
| Guatemala | Yes | - | - | - | - | - | - | - |
| Guyana | Yes | - | - | - | - | - | - | - |
| Haiti | - | - | - | - | - | - | - | - |
| Honduras | Yes | - | - | - | - | - | - | - |
| Mexico | Yes | Yes | Federal Consumer Protection Agency<br>Federal Commission for Protection against Health Risks (COFEPRIS) | | Yes | Branding<br>Cartoon characters and celebrities<br>Premium offers<br>Product design and packaging<br>Product placement<br>Sponsorship | Broadcast<br>Food retailers and restaurants<br>Schools | National dietary guidelines<br>Independent criteria<br>PAHO Nutrient profile model<br>Food and beverage product categories |
| Paraguay | Yes | Yes | National Institute of Food and Nutrition (INAN)<br>Ministry of Public Health | | No | N/A | N/A | National dietary guidelines |
| Uruguay | Yes | Yes | None | | No | Branding<br>Direct marketing<br>Point of sale | Schools | National dietary guidelines<br>PAHO Nutrient profile model |
| Venezuela | Yes | Yes | Ministry of the Popular Power for Health | Fines | Yes | Product design and packaging<br>Product placement | Food retailers and restaurants | National dietary guidelines<br>Independent criteria<br>PAHO Nutrient profile model |

*N/A= not available; PAHO: Pan American Health Organization; "-": no data reported.

Within the government policies, strategies, or actions there are specific mandatory (i.e., required) and voluntary (i.e., free will) components that private businesses are required to follow in order to market their food and beverage products in countries. Among Member States that reported having a policy, strategy, or action (*n*=9) for mandatory components, product design and packaging was the marketing strategy most prevalent (66.7%, *n*=6) whereas sponsorship was the least prevalent (22.2%, *n*=2). Schools were the most common setting with primary focus (77.8%, *n*=7), and digital marketing and media platforms (i.e., websites, social media, mobile and digital devices) and settings (i.e., outdoors, sporting events) were addressed less often (22.2%, *n*=2). Three countries included the most marketing strategies for diverse media channels, platforms and settings in their mandatory national government policies (Table 3.3).

**Table 3.3 Marketing strategies, channels, platforms, and settings covered in countries and territories in the Americas region that have enacted policies, strategies, or actions to restrict marketing of foods high in fats, sugar, and sodium and non-alcoholic beverages to children**

| | Brazil | Chile | Cuba | Dominican Republic | Ecuador | Mexico | Paraguay | Uruguay | Venezuela |
|---|---|---|---|---|---|---|---|---|---|
| ***Marketing Strategies*** | | | | | | | | | |
| Branding | ○ | - | - | ○ | - | ● | N/A | ● | ● |
| Cartoon characters and celebrities | ● | ● | - | ○ | - | ● | N/A | - | - |
| Direct Marketing | ● | ● | - | ○ | ● | ○ | N/A | ● | ● |
| Point of Sale | ○ | ● | ● | ○ | ● | ○ | N/A | ● | ● |
| Premium offers | ● | ● | - | ○ | - | ● | N/A | - | - |
| Product design and packaging | ● | ● | ● | ○ | ● | ● | N/A | - | ● |
| Product Placement | ○ | - | - | ○ | ● | ● | N/A | - | ● |
| Sponsorship | ○ | ● | - | ○ | - | ● | N/A | - | - |
| ***Media channels, platforms, and settings*** | | | | | | | | | |
| Broadcast | ● | ● | ● | ○ | - | ● | N/A | - | ○ |
| Community, sports, and special events | - | ● | ○ | - | - | ○ | N/A | - | ○ |
| Digital and social media | ● | ● | ○ | - | - | ○ | N/A | - | ○ |
| Food retailers and restaurants | ● | ● | | ○ | - | ● | N/A | - | ● |
| Mobile and digital devices | ● | ● | ○ | - | - | ○ | N/A | - | ○ |
| Outdoors and transportation | ● | ● | - | ● | - | ○ | N/A | - | ○ |
| Schools | ● | ● | ● | ● | ● | ● | N/A | ● | ○ |
| Websites | ● | ● | - | ○ | - | ○ | N/A | - | ○ |

*N/A: not available; "- ": no data reported

● Mandatory

○ Voluntarily

For the Member States that have a policy, strategy or action in place (*n*=9), all have used national dietary guidelines to limit or restrict the food and non-alcoholic beverages that were allowed to be marketed to children. Two-thirds, (66.7%, *n*=6), also used the PAHO's model that discouraged ultra-processed foods and encouraged minimally processed foods and beverages; 66.7% (*n*=6) used independent nutrient criteria (i.e., non-commercial or scientific); and 55.5% (*n*=5) reported using specific food and beverage categories (e.g., breakfast cereals, sweet and savory snacks, sugar-sweetened beverages, etc.) to restrict unhealthy marketing to children. Results also showed that different nutrition criteria were used in distinct policies, strategies, or actions within the same country or territory.

### 3.3.3 Information systems

Information systems addressed accountability mechanisms such as management quality assessment, monitoring, surveillance and surveys (Table 3.4). The survey found that accountability mechanisms were reported by 56.2% (*n*=9) of the countries and territories to enforce policies, strategies, and actions to address the marketing of HFSS food and non-alcoholic beverages to children. The majority reported using financial penalties (43.7%, *n*=7) to enforce policies and laws. The availability of a national and governmental entity responsible for overseeing and enforcing the policies, strategies, and actions was reported by 80% (*n*=12) of the MoH staff in the countries and territories. Policies to address cross-border marketing was mentioned by 37.5% (*n*=6) of the countries and territories (Table 3.4).

**Table 3.4 Information systems from countries and territories in the Americas region to restrict marketing of foods high in fats, sugar, and sodium and non-alcoholic beverages to children**

| Country | Monitoring system | | | Entities responsible to collect data and report results | | | | |
|---|---|---|---|---|---|---|---|---|
| | *Surveillance* | *Surveys* | *Industry and media reports* | *Government* | *Industry corporations and trade associations* | *Research institutions* | *Public-interest and civil society organizations* | *Investigative journalists in the media* |
| Bahamas | - | - | - | - | - | - | - | - |
| Brazil | No | Yes | No | Yes | No | No | Yes | No |
| Canada | No | No | Yes | Yes | No | No | No | No |
| Chile | Yes | No | No | Yes | No | Yes | No | Yes |
| Costa Rica | - | - | - | - | - | - | - | - |
| Cuba | No | No | Yes | No | No | Yes | No | No |
| Dominican Republic | No | No | Yes | Yes | Yes | No | No | Yes |
| Ecuador | Yes | No | No | Yes | No | Yes | No | No |
| Guatemala | - | - | - | - | - | - | - | - |
| Guyana | No | Yes | No | Yes | No | No | No | No |
| Haiti | - | - | - | - | - | - | - | - |
| Honduras | - | - | - | - | - | - | - | - |
| Mexico | No | Yes | No | Yes | No | Yes | No | No |
| Paraguay | No | Yes | No | Yes | No | No | No | No |
| Uruguay | No | Yes | No | Yes | No | No | No | No |
| Venezuela | No | Yes | No | Yes | No | Yes | No | No |

*"- ": no data reported

## 3.4 Discussion

This study assessed the national governance roles and capacities of MoHs in Member States in the Americas region to restrict the marketing of HFSS foods and non-alcoholic beverages to children. We identified major policy gaps and suggest priorities for further action (Table 3.5).

**Table 3.5 Priorities for further action to increase government capacity-building to restrict and regulate the marketing of foods high in fats, sugar, and sodium and non-alcoholic beverages to children in the Americas region**

| | |
|---|---|
| **Infrastructure** | |
| ***Funding*** | *Greater leveraging resources of funding is required for policy design and implementation, surveillance and monitoring, capacity-building and research on marketing of food and non-alcoholic beverages to children across the region.* |
| ***Multisectoral collaborations*** | *The adoption of mechanisms to resolve conflict of interest maintain the nations accountable, ensure good governance and effectiveness of multisectoral collaborations.* |
| ***Resources*** | *Documents released by UN agencies and scientific evidence should be used further as main sources to design, develop, and implement policies, strategies or actions.* |
| **Policy** | |
| ***Policy efforts*** | *Using constitutional rights is suggested to open an avenue and claim remedies for actions to protect health-related rights by nations. Alignment of national targets and priorities on the national agendas by integrating the UN goals and plans to achieve global and regional targets is a critical need to ensure policy coherence and accelerate the response to address obesity and NCDs.* |
| ***Policy components*** | *There is a need to include a broader scope to design and develop policies, strategies and actions that addresses the marketing of food and non-alcoholic beverages.*<br>*Priority should be given to implement more comprehensive policies including digital marketing and media that exert influence on children.*<br>*Robust nutrition criteria such as the PAHO nutrient profile model to define food and non-alcoholic beverages that may or may not be marketed to children is encouraged to accelerate coordinated progress and reduce trade barriers across national borders.*<br>*It is suggested to integrate cross-border marketing into multilateral, regional, and unilateral trades to avoid weakening restrictions and instead strengthen efforts to include public health interests to increase positive effects of the policies.* |
| ***Policy implementation*** | *There is a need to reinforce and improve financial coercive measures, other complaints mechanisms and fiscal powers to hold industry to account for its food and beverage marketing practices.* |
| **Information systems** | |
| ***Information systems*** | *Efforts and resources are crucial to establish robust surveillance systems capable to monitor and assess the progress to facilitate countries' capacity to strength and develop policies, actions and strategies that address the marketing of food and non-alcoholic beverages to children.* |

*NCDs: noncommunicable diseases; PAHO: Pan American Health Organization; UN: United Nations

### 3.4.1 Infrastructure

Evidence have shown that the investment on infrastructure (e.g., technical assistance or workforce; research, monitoring and evaluation plans) helps to effectively enforce and enact policies.(1, 2) Most of the countries and territories in the Americas region demonstrated an adequate infrastructure (i.e., available unit, branch or department responsible for addressing the marketing of food and non-alcoholic beverages to children with full-time staff) that facilitates policies, strategies, and actions to address the issue. However, despite funding being available in most countries and territories, grater leveraging resources of funding is required for policy research design, implementation, surveillance and monitoring across the region. The absence of budgetary resources is a common limitation that negatively affects the support in implementing best evidence into the law.(1) Greater leveraging resources of funding is required for policy design and implementation, capacity-building, research, surveillance, and monitoring on marketing of food and non-alcoholic beverages to children across the region.

Aligned with the PAHO's 2014 Plan of Action for the Prevention of Obesity in Children and Adolescents,(3) the PAHO's 2020-2025 Strategic Plan: Equity at the Heart of Health(4) encourages Member States to use an integrated multisectoral approach applying evidence-based public health strategies. Multisectoral collaborations with non-state actors (e.g., UN agencies, academia, NGO's) in the Americas region demonstrates progress towards PAHO's plans of action. Despite this progress, there remains a persisting challenge to resolve conflict of interest situation due the current partnerships with the private-sector firms or organizations in the Americas region. Thus, understanding motives and actions of the actors involved is necessary to ensure good governance and effectiveness of multisectoral collaboration holding stakeholders

accountable.(5) Member States should consider practical solutions, as the WHO's risk assessment tool,(6) for developing and implementing ways to manage conflict of interest in the nutrition governance to effectively achieve policy coherence across government sectors and maintain accountability on regulation of HFSS food and non-alcoholic beverage marketing practices.

The development of policies, strategies, and actions are also determined by the nature of the used resources. Evidence-based policy promotes use of the best available evidence on the effectiveness of best practices by identifying key characteristics that have been shown to be successful.(7) In the Americas region, government documents were the resources most used in the development and implementation of policies, strategies, or actions that address the marketing of HFSS food and non-alcoholic beverages to children. Nonetheless, UN documents and scientific evidence without conflict of interest should also be considered as resources due their commitment to provide guidance to improve populations health.

### 3.4.2 Policies

Many national constitutions guarantee health rights to their populations.(8) Most of the countries and territories in the Americas region have ratified international human rights agreements and have included in their national Constitutions explicit language to protect children's rights to adequate and nutritious food and health. However, not all reported prioritizing a child rights approach to protect children from the persuasive marketing of HFSS food and non-alcoholic beverages. Nonetheless, constitutional rights open an avenue to claim actions to protect health rights by nations that civil society can use to hold state actors accountable, as seen in Colombia

and Mexico. In Colombia, an NGO “Educar Consumidores” defeated a regulatory order aimed to ban a broadcast campaign that highlighted the health risks and sugar content of sugar-sweetened beverages, using arguments based on health rights to the consumers.(9) In 2015, a Mexican consumer rights organization, “El Poder del Consumidor”, urged the government to eliminate an ineffective front-of-pack nutrition labeling that was in place, stating that the system violated the consumers rights.(10) Later in 2020, Mexico passed a law that required the food and beverage industry to add warning labels to the front-of-pack of food and non-alcoholic beverage products following recommendations issued by PAHO/WHO and expert recommendations.(11) Civil society can use constitutional human rights to improve policies for children’s health.

Although the majority of countries and territories were implementing government policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children; fewer countries were incorporating national targets to achieve UN/WHO global targets. The absence of goals, targets and policy coherence is a common challenge that obstructs or undermine actions taken at diverse government dimensions rather than supporting each other to achieve objectives.(12, 13) Governments should ensure policy coherence between national policies across sectors to identify gaps and where action is needed to leverage opportunities to accelerate response to address obesity and NCDs.

The Americas region is taking action towards the line of action 2 (prevent the availability of energy-dense nutrient products and sugar-sweetened beverages in schools) and 3 (regulation of food marketing and labeling by enacting actions to protect children and adolescents from the impact of sugar-sweetened beverages and energy-dense nutrient poor products) from the

PAHO's Plan of Action for the Prevention of Obesity in children and adolescents.(3) According to the results of this study, schools were the most prevailing setting included in the policies, strategies, or actions; whereas digital marketing platforms, social media, and websites were scarcely addressed. The marketing technique mostly frequently addressed was product design and packaging, whereas sponsorship was the most infrequently addressed; and digital marketing through social media platforms was barely addressed. Similar results have been shown in previous studies where digital platforms and techniques were rarely found in the assessed policies.(14, 15)

The absence of policies, strategies, or actions to address digital marketing and media is a major policy gap that does not adequately protect children from the exposure to HFSS food and beverage products through these platforms. In recent years, digital marketing in social media has grown rapidly, distributed through mobile devices and online platforms.(16, 17) The COVID-19 pandemic is accentuating online food purchases and indirectly affecting eating behaviors towards higher consumption of HFSS food and beverage products(18, 19) Obesity increases the risk of complications from COVID-19,(20) which makes the achievement of relevant nutrition global targets (e.g., WHO, UN Decade of Action and SDGs) more urgent to reduce due to the obesity and COVID-19 pandemics.

Changes are recommended to adopt more comprehensive actions, including digital technology and media platforms that exert influence on children.(14, 21) The inclusion of marketing strategies that have little public health attention, such as sponsorship, need to be considered, since it is prominently impacting the marketing of energy-dense poor products.(22, 23) Efforts

exclusively focused in a specific setting or on specific marketing technique leaves children exposed to many communication channels, settings, platforms and techniques where HFSS food and non-alcoholic beverage products are promoted. Member States should therefore include a broader scope using the IMC strategies when designing and developing comprehensive policies.

Nutrition criteria aims to identify foods and beverages adequate to market to children. The nutrition criteria used in the Americas region varies widely from national dietary guidelines, PAHO nutrient profile model,(24) independent nutrient criteria, or overall food and beverage categories. Differences in classification have significant policy and health-related consequences, given that different products could be categorized as "healthy" to be marketed for children depending on the model used. The different use of nutrient criteria could be explained due the evolutionary progress of polices and political timing, which might be resolved bringing the most strict standards to all policies. PAHO's nutrient profile model has been demonstrated to have one of the strongest criteria, and therefore a suitable model to underpin regulations.(25-29)

Applying PAHO's nutrient-profile model in the region have the potential to accelerate coordinated progress and reduce trade barriers across national borders of policies that regulates marketing of HFSS food and non-alcoholic beverages. However, countries should be caution of not bringing the better standards to lower levels to make them harmonized. Furthermore, there is still considerable work to be done across the Americas region to integrate cross-border marketing effects into the policies, with less than half of the countries and territories considering this factor. International trade agreements can affect obesity and NCD risk factors by facilitating trade in energy-dense nutrient poor products. Multilateral, regional, and unilateral trades should be

strengthened to include public health interests and ensure that trade policy is coherent with nutrition action and avoid weakening the ongoing efforts.(12, 30, 31)

Accountability mechanisms used to enforce policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children in the Americas region vary widely, with fines being the most common. Government and industry actors have the greatest capacity to impact and influence the food environment. Previous research has encouraged governments to strengthen financial coercive measures, complaints mechanisms, and fiscal powers to hold actors accountable for their practices.(32, 33) Experience with violations to laws in Brazil and Chile shows that coercive measures holds food industry to account. In 2018, McDonald's was fined in Brazil with R$6 million for abusive advertising directed to children for using an educational venue to encourage the consumption of McDonald's HFSS products.(34) In Chile, the national service for the consumer (SERNAC by its acronym in Spanish) sued Nestle, Kellogs and Masterfoods for violating the law by using brand mascots to promote products HFSS to children and each company received a $110,000 USD fine.(35) The impact of the policies relies on the implementation; therefore, Member States should consider coercive measures to enhance accountability and compliance with policies that regulate marketing of HFSS food and non-alcoholic beverage products to children.

### 3.4.3 Information systems

Monitoring systems allows correction of unforeseen flaws facilitating countries' capacity to strengthen, develop and implement nutrition policies.(31, 36) Substantial efforts were found on information systems in the Americas region. Over half of all countries and territories that

participated in this study utilize surveys as their surveillance system to collect data and report progress results of policies, strategies, and actions that addressed the marketing of HFSS food and non-alcoholic beverage products to children. Results shows compliance with the strategic line of action 5 of the PAHO's Plan of Action for the Prevention of obesity in children and adolescents (use national information systems to monitor and generate available evidence for policy decision-making).(3) Civil society and researchers should contribute to the monitoring and evaluation process using standardized and systematic analytical tools (15, 36) that could be used across countries to address gaps and inform policy makers.

### 4.4. Study strengths and limitations

The main strength of this research was the adapted web-based survey from the WHO, used to assess the national capacity-building needs to prevent and control NCDs. This web-based survey developed a methodology to collect information in a systematic, repeatable way that could be used by other WHO regions to identify priority areas of action by region and globally. Moreover, it offers a unique and useful tool that enables identifying specific policy components, areas, and elements to strengthen the development, implementation, monitoring, and evaluation to protect children from the persuasive marketing of food and non-alcoholic beverages comprehensively. Nonetheless, the breadth of the survey had disadvantages because it was not possible to request supporting documentation for every single item. However, the combined capacity-building and IMC frameworks captured a clearer picture to provide context for the different policies, strategies, and actions that governments in countries and territories of the Americas region used to address the marketing of HFSS food and non-alcoholic beverage products to children.

Despite the response rate of only 48.6%, the completed surveys represented a wide geographic area from the Americas region with countries and territories from North, Central, and South America and the Caribbean that provided a panorama of the region. While definitions were available, one possible study limitation was that respondent countries may have interpreted the questions differently. However, responses were reviewed and validated through triangulation by cross-verification with the supporting documents. Further research should assess the quality of implementation of the policies, which have a strong impact on their effectiveness. Another limitation was that this survey did not examine quality of the policy, implementation or health promotion educational efforts described in the 2020-2025 PAHO Strategic Plan.

### 3.5 Conclusions

Strengthening public health infrastructure, comprehensive policies, and information systems is critical to build States' capacity to move the marketing of HFSS food and non-alcoholic beverages to children into national policies, strategies, and action plans. This study highlights notable achievements with regards to the PAHO's Plan of Action for the Prevention of Obesity in Children and Adolescents and the PAHO's 2020-2025 Strategic Plan: Equity at the Heart of Health. Despite relatively strong public health infrastructure and information systems, many areas of growth and improvement for policy efforts are needed in the Americas region to increase comprehensive national responses. These include the declaration of conflict of interest, use of constitutional health and human rights, and efforts on digital media platforms. Member States should be more ambitious and implement comprehensive policies at a faster pace in order to achieve relevant WHO and UN SDG targets timely, especially during the dual pandemic of obesity and COVID-19. The findings suggest priorities for further action to strengthen and accelerate the development, implementation, and monitoring progress to regulate the marketing

of HFSS food and non-alcoholic beverages to children in the Americas region and other WHO regions.

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# Chapter 4 .

## Study 2. Development of a Responsible Policy Index to Improve Statutory and Self-Regulatory Policies that Protect Children's Diet and Health in the America's Region

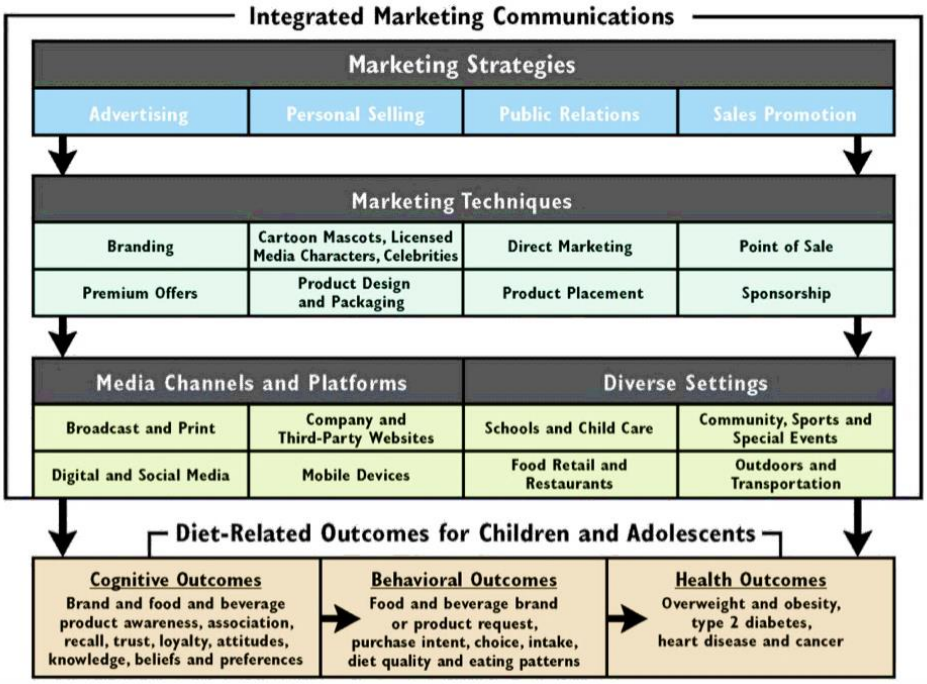

### Abstract

In 2010, 193 Member States of the World Health Organization (WHO) endorsed World Health Assembly Resolution WHA63.14 to restrict the marketing of food and beverage products high in fat, sugar and salt (HFSS) to children to prevent obesity and non-communicable diseases (NCDs). No study has examined HFSS marketing policies across the WHO regional office countries in the Americas. Between 2018-2019, a transdisciplinary team examined policies to restrict HFSS food and beverage product marketing to children to develop a responsible policy index (RESPI) that provides a quality score based on policy characteristics and marketing techniques. After designing the RESPI, we conducted a comprehensive literature review through October 2019 to examine policies in 14 countries in the WHO Americans Region. We categorized policies (n=38) as either self-regulatory or statutory and calculated the RESPI scores, ranked from 0 (lowest) to 10 (highest). Results showed Brazil, Canada, Chile, and Uruguay had the highest RESPI scores associated with statutory policies that restricted point of sale, cartoon, licensed media characters and celebrities; and HFSS products in schools and childcare settings, and broadcast and print media. Policymakers can use the RESPI tool to evaluate marketing policies within and across geopolitical boundaries to protect children's diet and health.

## 4.1 Introduction

Food and beverage products high in fat, sugar and salt (HFSS) are a major risk factor for obesity and diet-related non-communicable diseases (NCD).(1-5) The globalization of the food supply has fostered the widespread marketing of processed HFSS food and beverage products to children worldwide. Robust evidence shows that food and beverage manufacturers, restaurants, food retailers, entertainment and media companies use integrated marketing communications (IMC) to influence young people's brand awareness, loyalty, attitudes, preferences, purchasing and consumption behaviors that contribute to poor diet quality and health risks.(6-8) This influence operates directly through the environment to affect the conditions in which the population live, which represent the social determinants of health. Marketing practices have been recognized as a *commercial determinant of health* due the strategies, approaches, and power imbalance that corporations exert.(9, 10) The power and reach of IMC are implemented through strategies, techniques, various media channels and platforms, and settings to create consistent and compelling messages that influence children's diet and health through a cognitive and behavioral process (Figure 4.1).(11-14)

**Figure 4.1 Integrated marketing communications framework of marketing strategies that influence the diet-related outcomes for children and adolescents**




**Source:** Kraak VI, Rincón-Gallardo Patiño S, Sacks G. An accountability evaluation for the International Food & Beverage Alliance's Global Policy on Marketing Communications to Children to reduce obesity: A narrative review to inform policy. Obes Rev 2019;20 Suppl 2:90-106.(13)

The World Health Organization (WHO) endorsed a set of recommendations in 2010(5) and released a policy framework in 2012(11) to support the efforts of Member States to implement comprehensive policies that would restrict the marketing of HFSS food and beverage products to children, birth up to age 18 years. This strategy aimed to improve the complex environmental issues to reduce obesity and diet-related NCD risks. Self-regulatory policies are initiated, led and voluntarily adhered to by private-sector businesses or industry firms often independent from government and civil society input. In contrast, statutory regulations are laws, rules, procedures or voluntary guidelines initiated, recommended, mandated, implemented and enforced by national governments to promote a healthy food environment for children.(15) Since 2010,

government and industry have introduced policies in Australia, Canada, Chile, Ireland, Mexico, Norway, Sweden, the United Kingdom and United States (US) to protect children from unhealthy marketing exposure.(16, 17)

The WHO Global Action Plan to prevent and control NCDs aims to reduce mortality from obesity and NCD by 25% by 2025. This plan included an indicator that tracks weather Member States have adopted policies to restrict the marketing of HFSS food and beverage products to children.(18) In 2015 and 2017, the WHO found that more countries had adopted self-regulatory policies than statutory policies.(19, 20) A 2018 WHO report documented that policies exist in 63 (33%) of 193 Member States that had endorsed the 2010 Resolution WHA63.14 to restrict the marketing of HFSS food and beverage products to children, of which almost half (*n*=30) are government statutory policies.(21) The WHO European Region has the greatest number of policies, but most actions are voluntarily, whereas the WHO Americas Region has the most government statutory policies.(19, 20, 22)

The evidence shows that a majority of policies within and across countries and regions have reduced product advertisements on television and in school settings.(16, 17, 23) However, the marketing of HFSS food and beverage products worldwide has shifted to other IMC techniques, media channels and platforms and settings. This study selected countries from the Americas region due to the recent enactment of government statutory policies and laws to address unhealthy food marketing to children. No study has examined the content of government statutory and industry self-regulatory policies in the WHO/PAHO regional office of the Americas. Moreover, no published study has used big data analysis and data visualization tools

to assist policymakers to understand and compare the effectiveness of policies within and across countries. More comprehensive approaches are needed to protect children and youth from HFSS food and beverage marketing.(17)

The present research addresses these research gaps by examining the characteristics of various policies to restrict HFSS food and beverage product marketing. First, we used a WHO policy framework and IMC strategy framework to develop a responsible policy index (RESPI) to assess characteristics of HFSS food and beverage product marketing to children. Second, we conducted a comprehensive literature review of literature through October 2019, to examine the policies of a purposive sample of 14 countries in the WHO Regional Office of the Americas (i.e., North, Central, South America and the Caribbean). Third, we categorized the relevant evidence on the policies and calculated the RESPI score to reflect the overall quality of the collective policies. Fourth, we created a web-based platform to use data visualization tools to display the RESPI scores of the policies across the 14 countries. Our research indicated that government policymakers and other non-State actors can use the RESPI tool to evaluate marketing policies across countries and regions, to help Member States more fully implement WHA63.14 to protect children's diet and health.

### 4.2 Materials and Methods

A transdisciplinary team science approach integrates researchers who have expertise in different disciplines to collaboratively identify new solutions for complex problems.(24) In 2018, we convened a transdisciplinary research team comprised of five academic faculty and two students with expertise in nutritional sciences, policy, business, marketing, visual arts and information

technology, to develop a the RESPI for the marketing of HFSS food and beverage products to children. In the present research, a *policy* is a law, procedure, regulation, rule or standard that guides how government, business and organizations operate and how citizens live their lives.(25)

4.2.1 Responsible Policy Index (RESPI) for the marketing of HFSS food and beverage product to children

An *index* is a numeric way of expressing the difference between two measurements, often resulting in a rank-ordering of relevant measures or entities. An index can be used to draw attention to issues, inform publics and policymakers, and stimulate thinking.(26) Indexes that distill large amounts of information into fewer, pertinent numbers are gaining popularity among researchers and policy advocates to facilitate and improve decision making, and to ensure appropriate communication with stakeholder groups that may on food nutrition knowledge and expertise.(27, 28)

We developed the RESPI for the marketing of HFSS food and beverage products to children to track and rate policy quality, where *quality* is defined as the standard of something measured against the degree of excellence.(29) We used two conceptual frameworks to construct and select the components and indicators within the index. The WHO policy framework(11) to implement a set of recommendations on the marketing food and non-alcoholic beverage products to children for the policy characteristics. The Integrated Marketing Communications IMC framework (Figure 1)(13) was used to identify the marketing strategies and techniques covered in the policy design. Each policy is assessed through two equally weighted components: 1) policy characteristics, and 2) marketing techniques covered in the policy design.

To select the policy characteristics, we chose the 2012 WHO policy framework(11) for two reasons. First, the WHO provides technical assistance to Member States by providing guidance based on the best available evidence. Second, the WHO policy framework was intended for policymakers in Member States to guide the policy cycle (i.e., policy development, implementation, and monitoring and evaluation) to implement Resolution WHA63.14. The document describes that the policy development process as the first step to determine the policy approach, define the terms and scope of the policy. If the policy has a rationale based on a *child-rights approach*, the country should use the definition of a child outlined in Article 1 of the UN Convention on the Rights of the Child that defines a child as a person below 18 years of age, (30) and which foods to include or exclude (i.e., *nutrient criteria*).(11) The policy implementation section recommends to the governments *statutory* regulations, which requires uniform implementation ensuring full coverage.(11) Lastly, the framework highlighted that the WHA urged Member States to establish an accountability system that included monitoring, evaluation and enforcement (i.e., punish or sanctions to infringements).(11)

The marketing techniques were selected from the IMC framework(13) that describe marketing strategies, techniques, media channels and platforms, and diverse settings (Figure 1). These factors were constructed based on evidence from the marketing literature and combined with the 2012 WHO policy framework.(11)

The index provides a single score, that reflects the quality of any given policy, based on calculating the number of points from two components: component 1 (policy characteristics) and component 2 (marketing characteristics). Policies are able to obtain up to five points from each

component for an overall score of 10 that indicates the highest quality against the consensus reflected in the WHO policy framework and IMC conceptual model. A score of 0 reflects the lowest quality policy. There are three steps working out the overall score of each policy described below (Table 4.1).

I. **Step 1:** Calculate the total points from the component 1 "policy characteristics"

*A maximum of five points can be awarded for this component. The total points are the sum of the points from each indicator of this component.*

II. **Step 2:** Calculate the total points from the component 2 "marketing techniques"

*A maximum of five points can be awarded for this component.*

[[total marketing techniques points] * 100 / 8] /20]

*Exceptions: if the policy covers the following media channel, platform or setting*

Broadcast and print: [[total marketing techniques points] * 100 / 6] /20

By default, these settings do not cover the marketing techniques of direct marketing and point of sale

Outdoors and transportation: [[total marketing techniques points] * 100 / 4]/20

By default, these settings do not cover the marketing techniques: direct marketing, product placement, point of sale

III. **Step 3:** Calculate the overall RESPI score for each policy on the marketing of HFSS food and beverage products to children.

[total policy characteristics points] + [total marketing technique points]

**Table 4.1 Overview of the RESPI methodology**

| Indicators | Description | Points |
|---|---|---|
| ***Component 1: *Policy characteristics*** | | |
| Policy type | Statutory regulatory policy<br>Industry self-regulatory policy | 1<br>0 |
| Rights approach | Policy has a right approach<br>Policy does not have a right approach | 1<br>0 |
| Monitoring and evaluation | Policy has a monitoring and/or evaluation plan<br>Policy does not have a monitoring and/or evaluation plan<br>Policy has a sanction component for non-compliance<br>Policy does not have a sanction component for non-compliance | 0.5<br>0<br>0.5<br>0 |
| Definition of children | Policy use the United Nations age definition of children***<br>Does not use the United Nations age definition of children | 1<br>0 |
| Nutrient criteria | Policy use nutrient criteria to define which food and beverage products are restricted or allowed<br>Policy does not use nutrient criteria to define which food and beverage products are restricted or allowed | 1<br>0 |
| Total points (component 1) | | 0-5 |
| ***Component 2: **Marketing techniques*** | | |
| Branding | Technique that represents a visual name or symbol that legally differentiate and identifies services, products and companies to build economic value, experiences and brand loyalty for the consumer.<br>Included in the policy<br>Not included | <br><br><br>1<br>0 |
| Cartoon mascots, licensed media characters, celebrities | Technique that use third-party, movie-tie-ins, media characters and public figures to promote a product or brand.<br>Included in the policy<br>Not included | <br><br>1<br>0 |
| Direct marketing | Technique that involves sending a promotional message regarding products directly through direct channels such as mail, email, text messages, catalogues, vouchers, word-to-mouth, samplings, among others<br>Included in the policy<br>Not included | <br><br><br>1<br>0 |
| Point of sale | Technique that includes communications activities that take place where products are bought and sold in any sale setting such as on-shelf displays, pay-points, schools and vending machines<br>Included in the policy<br>Not included | <br><br>1<br>0 |
| Premium offers | Technique that use promotional items such as toys, gifts, coupons, special pricing that can be received for a small fee when redeeming proofs of purchase which come with or on retail products<br>Included in the policy<br>Not included | <br><br>1<br>0 |
| Product design and packaging | Techniques to attract through image, composition and look of a product that comprise colors, shapes, size and messages used such as cartoon-shaped products, king size, limited edition, and colors<br>Included in the policy<br>Not included | 1<br>0 |
| Product placement | Technique that pays for actively seeking to place, promote, or procuring | |

| | | |
|---|---|---|
| | the integration of any message, brand logo<br>Included in the policy<br>Not included | <br>1<br>0 |
| Sponsorship | Technique that involves any form of monetary or in-kind payment that contributes to an activity, event, organization to achieve corporate or marketing-related objectives and directly or indirect promote a product<br>Included in the policy<br>Not included | <br><br><br><br>1<br>0 |
| Total points (component 2) | | **0-8** |
| ***Media channels, platforms and settings*** | | |
| Broadcast; and/or company and third-party websites; and/or company and third-party websites; and/or digital and social media; and/or mobile devices; and/or schools and child care; and/or mobile devices; and/or community, sports and special events; and/or food retail restaurants; and/or outdoors and transportation | | Yes<br>No |

*Based on the WHO 2012 framework.(11)

**Based on the integrated marketing communication framework.(31)

*** United Nations definition of children: human being below the age of 18 years.(30)

### 4.2.2. Data collection

To describe the policy landscape in countries of the Americas Region, we used a purposive sample of 14 countries out of 35 countries that represent Member States from the Pan American Health Organization (PAHO) which also serves as the WHO Regional Office of the Americas. A purposive sample is a non-probability sample that can be logically representative of a population.(32) The 14 countries were selected based on a broad geographical spread across the region of North, Central, South America and the Caribbean. The countries included: Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Mexico, Peru, USA and Uruguay.

To identify the policies in the 14 countries mentioned above, we used the WHO Global database on the Implementation of Nutrition Action (GINA).(33) We also conducted a comprehensive review of relevant peer-reviewed and gray literature sources (i.e., websites of governmental ministries, industry alliances and trade associations, legal databases, published papers, and governmental and nongovernmental reports) in English, Portuguese and Spanish. We selected

policies with extensive data at no cost and without restriction. The obtained data were triangulated and verified using a cross-checked consultation process against each policy source and the primary documentation from government websites. Identified policies without the primary source documents were excluded.

Information for each identified policy was included, extracted, coded and summarized into an Excel database using key words for each policy component and indicators (Table 4.2). The evidence was coded twice (October 2018 and 2019) to ensure consistency. Thereafter, a joint consensus coding by data and investigator triangulation with another author (VK) was followed. After gathering the information, the transdisciplinary research team met in person to resolve any discrepancies in coding the data.

**Table 4.2 Search terms used to identify policies from selected countries of the Americas Region for data inclusion, extraction, and coding for the RESPI for the marketing of HFSS food and beverage products to children**

| Policy component | Indicator | Key words |
|---|---|---|
| Policy Characteristics | Policy type | mandatory, obligated, statutory |
| | Rights | rights |
| | Monitoring, evaluation and accountability | accountable, assess, compliance, enforcement, evaluate, fines, monitor, progress, sanctions, surveillance |
| | Age | age, years |
| | Nutrient Profile Models | calories, cut off, energy, fat, guidelines, nutrient criteria or profile, sodium, standard, threshold, |
| Marketing Techniques | Branding | brand, logo, symbol |
| | Cartoon Mascots, Licensed Media Characters, Celebrities | actor, actress, brand mascot, cartoon, celebrity, famous, movie-tie-in, media characters, public figure, singer, sport player |
| | Direct Marketing | catalogues, email, face-to-face, mail, sample, text messages, vouchers, word-to-mouth |
| | Point-of-sale | on-shelf displays, pay-points, vending machines |
| | Premium offers | coupon, gift, offer, promotion, special price, sale, toy |
| | Product design and packaging | color, design, edition, package, product shape, size, |
| | Product Placement | place, product, product placement |
| | Sponsorship | donation, monetary, organization, sponsor |
| Media Channels, Platforms and Diverse Settings | Broadcast and print | books, comic books, cinema, film, flyers, magazines, newspaper, package, posters, radio, television, video games |
| | Community, Sports and Special Events | entertainment, event, institution, organization, program, social event, sport event |
| | Company and Third-Party Websites | digital, electronic, internet, networks, official site, web page |
| | Digital and Social Media | digital, electronic, Facebook, internet, Instagram, networks, snapchat, social media, twitter |
| | Food Retail and Restaurants | convenience store, farmers market, fast food, market, quick service, retailer, restaurant, supermarket |
| | Mobile Devices | apps, cellphone, laptop, mobile, phone, portables, smartphone, tablet |
| | Outdoors and Transportation | billboards, moving vehicles |
| | Schools and Child Care | school property, facility, school district |

The key words were developed based definitions from the following sources: World Health Organization: A Framework for Implementing the Set of Recommendations on the Marketing of Foods and Non-alcoholic Beverages to Children; WHO, 2012; (11) Healthy Eating Research Recommendations for Responsible Food Marketing to Children; 2015; (14) Pickton D; Broderick A. Integrated Marketing Communications. Pearson Education: 2005(12). Selected countries of the Americas Region: *Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Mexico, Peru, Uruguay, and USA*.

4.2.3. Data analysis

We analyzed data from policies that restrict the marketing of HFSS food and beverage products to children from a purposive sample of countries (*n*=14) from the PAHO region. Descriptive statistical analyses were conducted using frequencies, proportions, means, modes, distributions and standard deviations. After the RESPI scores were calculated for each policy, the transdisciplinary research team developed a ***web-based platform*** (Appendix L) to depict the results using interactive data visualizations. *Data visualization tools* help to reduce a large and complex database, as of relevant indexes, into an intuitive and easily understood, interactive web-based display to help decision-makers analyze the existing policy landscape, facilitate comprehension, and identify policy solutions based on relevant evidence.(34)

The coded data from the Excel spreadsheets were uploaded to the Open Science Framework cloud to manage the data and create the data visualizations. Data extraction was conducted using a Python programming language, mining and querying framework. The interactive web-based querying and visualization framework was created in Ploty Dash. Using the Dash framework also allows us to use the Ploty package for visualizations efficiently. Processing data was using Python Pandas. We used descriptive statistics based on the STATA statistical software package version 16.0.(35)

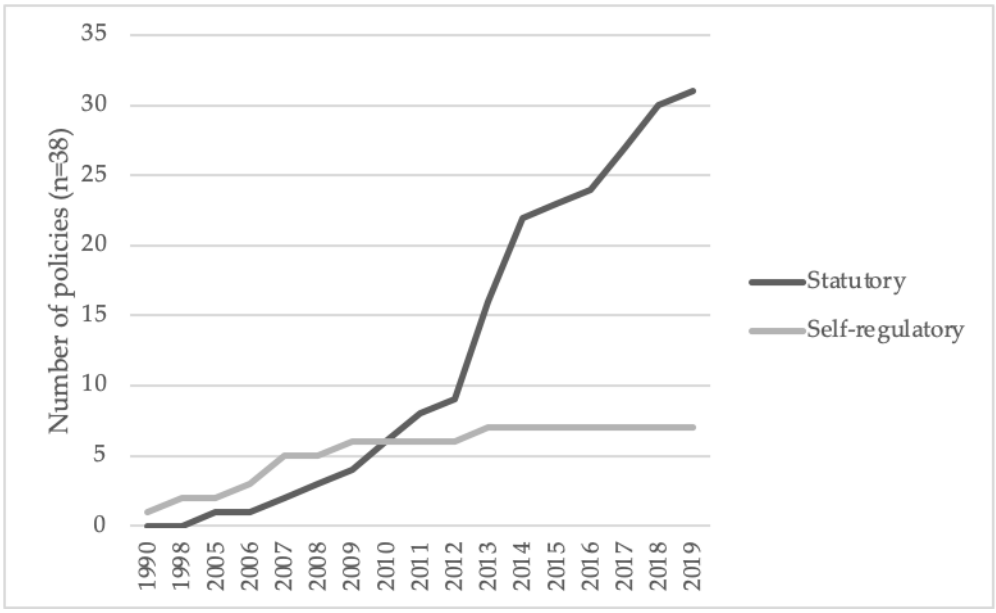
For visualizations, bar charts, pie charts, scatterplots, histograms and choropleths (color-coded maps) were automatically generated from the data in an interactive manner based on the user selection. The framework consisted of three sections: the top section has dual panes with the choropleth displaying metrics of interest as well as allowing for context selection for country-based statistics in the right-hand pane. The right-hand pane in this section allows for the selection

of various metrics from a drop-down menu. The middle section consists of comparative visualizations for the countries involved. Boxplots were used to display the policy mean, variance and quantile information whereas an overlaid line chart was used to represent the variation in policies over time for all the countries. The bottom section is a filter-enabled data table that displays the raw information for the user.

### 4.3 Results

We identified 38 policies to reduce the marketing of HFSS food and beverage products to children in a purposive sample of 14 countries of the WHO's Region of the Americas (Table 4.3). Nearly three quarters (68%, *n*=26) of the policies were implemented after the Resolution WHA63.14 was endorsed in 2010, (Figure 2). The highest RESPI scores (i.e., the highest quality policies) were for statutory regulations in Brazil, Canada, Chile, and Uruguay, (RESPI score = 7 to 8). Of these, Brazil and Uruguay had the most recent policies, both from 2018 as described in the Appendix J. Colombia, Costa Rica and the Dominican Republic had the lowest quality policies (RESPI score=1). Colombia had one of the oldest policies, introduced in 1998, that had not been updated.

**Figure 4.2 Type of implemented policies that restrict the marketing of food and beverage products in 14 countries from the WHO Americas Region*, 1990-2019**




Data show policies characteristics from a purposive sample of 14 countries of the World Health Organization (WHO) Americas Region including: *Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Mexico, Peru, Uruguay, and USA.*

**Table 4.3 Policies to restrict the marketing of HFSS** food and beverage products to children in 14 countries of the WHO Americas Region*, 1990 – 2019**

| Country | Name | Year introduced - updated | Statutory | RESPI Score |
|---|---|---|---|---|
| Argentina | Disposición ANMAT No 4980 | 2005 | ✓ | 3 |
| Bolivia | Ley No 755 de Promoción de Alimentación Saludable | 2016 | ✓ | 5 |
| Brazil | Resolução -RDC No- 24 | 2010 | ✓ | 7 |
| Brazil | Resolução 163 Conanda | 2014 | ✓ | 6 |
| Brazil | Código Brasileiro de Autorregulamentação Publicitária del Conselho Nacional de Autorregulamentação Publicitária | 1990 | × | 3 |
| Canada, British Columbia | Guidelines for Food and Beverage Sales in B.C. Schools | 2013 | ✓ | 7 |
| Canada, Quebec | Advertising Directed at Children Under 13 Years of Age: Guide to the Application of Sections 248 and 249 Consumer Protection Act | 1980-2012 | ✓ | 5 |
| Canada, New Brunswick | Healthier Foods and Nutrition in Public Schools | 2005-2008 | ✓ | 5 |
| Canada, all except Quebec | Canadian Children's Food and Beverage Initiative | 2007 | × | 3 |
| Canada, all except Quebec | The Broadcast Code for Advertising to Children of the Canadian Code of Advertising Standards | 2004-2007 | × | 2 |
| Chile | Ley 20.606 Sobre la Composición de los Alimentos y | 2016-2018 | ✓ | 8 |

| | | | | |
|---|---|---|---|---|
| | su Publicidad | | | |
| Chile | Código Chileno de Ética Publicitaria | 2013 | × | 2 |
| Colombia | Ley 1355 | 2009 | ✓ | 2 |
| Colombia | Decreto 975 | 2014 | ✓ | 2 |
| Colombia | Código Colombiano de Autorregulación Publicitaria | 1998 | × | 1 |
| Costa Rica | Decreto No 36910 MEP S Reglamento para el Funcionamiento y Administración del Servicio de Soda en los Centros Educativos Públicos | 2012-2013 | ✓ | 3 |
| Costa Rica | Decreto No 36868-S Reglamento para la autorización y control sanitario de la publicidad de productos de interés sanitario | 2015 | ✓ | 1 |
| Dominican Republic | Ley que Prohíbe la Publicidad Engañosa, Ilícita, Desleal, Subliminal y Discriminatoria en República Dominicana | 2011 | ✓ | 1 |
| Ecuador | Reglamento Sanitario Sustitutivo de Etiquetado de Alimentos Procesados para el Consumo Humano | 2014 | ✓ | 6 |
| Ecuador | Reglamento para la autorización y control de la publicidad y promoción de alimentos procesados | 2013 | ✓ | 5 |
| Ecuador | Reglamento de bares escalares del sistema nacional de educación | 2014 | ✓ | 4 |
| Ecuador | Ley Orgánica de Consumo, Nutrición y Salud Alimentaria | 2013 | ✓ | 4 |
| El Salvador | Acuerdo No 15-0733 | 2017 | ✓ | 5 |
| Mexico | Proyecto de Modificación a la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010 | 2019 | ✓ | 6 |
| Mexico | Lineamientos a que se refiere el artículo 25 del Reglamento de Control Sanitario de Productos y Servicios que deberán observar los productores de alimentos y bebidas no alcohólicas preenvasadas para efectos de la información que deberán ostentar en el área frontal de exhibición | 2014 | ✓ | 5 |
| Mexico | Lineamientos generales para el expendio y distribución de alimentos y bebidas preparados y procesados en las escuelas del Sistema Educativo Nacional | 2013 | ✓ | 4 |
| Mexico | Lineamientos por los que se dan a conocer los criterios nutrimentales y de publicidad que deberán observar los anunciantes de alimentos y bebidas no alcohólicas para publicitar sus productos en televisión abierta y restringida, así como en salas de exhibición cinematográfica | 2014 | ✓ | 4 |
| Mexico | Código de Autorregulación de Publicidad de Alimentos y bebidas No Alcohólicas dirigida al Público Infantil | 2009 | × | 2 |
| Peru | Ley de Promoción de la Alimentación Saludable para Niños, Niñas y Adolescentes incorporando el Semáforo Nutricional | 2018 | ✓ | 5 |
| Peru | Ley de Promoción de la Alimentación Saludable para Niños | 2013 | ✓ | 4 |
| Uruguay | Rotulado de los alimentos envasados en ausencia del cliente, librados al consumo en el territorio nacional | 2018 | ✓ | 7 |
| Uruguay | Ley no 19.140 Alimentación Saludable en los Centros de Enseñanza | 2013 | ✓ | 6 |
| USA, Santa Clara County | Ordinance No NS 300-820 | 2010 | ✓ | 4 |

| | | | | |
|---|---|---|---|---|
| USA, San Francisco | Health Food Incentives Ordinance | 2011 | ✓ | 4 |
| USA, California | Assembly Bill No 841- An act to add Section 49431.9 to the Education Code, relating to pupil nutrition | 2017 | ✓ | 4 |
| USA | Children's Food and Beverage Advertising Initiative | 2006 | × | 3 |
| USA, Maine | Brand-specific advertising | 2007 | ✓ | 3 |
| USA, California | Legislation - Restricted Marketing of Unhealthy Foods in Schools | 2017 | ✓ | 5 |

**HFSS: high in fat, sugar and salt; *Data show policies characteristics from a purposive sample of 14 countries of the World Health Organization (WHO) Americas Region including: *Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Mexico, Peru, Uruguay, and USA. Policy* was defined: as a law, procedure, regulation, rule or standard that guides how government, business and organizations operate and how citizens live their lives. (25). *Statutory*: laws, rules, procedures or voluntary guidelines initiated, recommended, mandated, implemented and enforced by national governments to promote a healthy food environment for children. If the policy was marked with a cross mark it means that is *self-regulatory*: initiated, led and voluntarily adhered to by private-sector businesses often independent from government and civil society input.

### 4.3.1. Policy characteristics

Fifteen policies (40%) scored more than 3 out of 5 possible points on this component of the RESPI, and all were statutory regulations. The more prevalent indicator from policy characteristics across countries was statutory regulations (82%), followed by using nutrient criteria (60%), monitoring and/or evaluation (76%), using a child-rights approach (45%). The UN definition of children from birth up to 18 years was used infrequently (18%).

*Statutory policies vs. self-regulatory policies*

We found several differences between ongoing government statutory and self-regulatory policies to restrict the marketing of HFSS food and beverage products to children (Table 4.4). None of the self-regulatory policies used a child-rights approach or the UN definition of children from birth up to 18 years. However, there was a difference for monitoring and evaluation, which was more common for self-regulatory (86%) than statutory (58%) policies. Fewer than one third (28%) of the self-regulatory policies compared with statutory (68%) policies used a nutrient criteria or nutrient profile model to determine the products allowed to be marketed to children.

The marketing techniques covered by the policies were broad. Overall, the most popular policies addressed point of sale, cartoon mascots, licensed and media characters, celebrities, premium offers, and product design and packaging. However, marketing through mobile devices, digital and social media were covered infrequently by both statutory.

**Table 4.4 Comparison of statutory and self-regulated policies that restrict the marketing of HFSS food and beverage products to children of 14 countries in the Americas Region***

| **Policy elements** | **Statutory (n=31, 82%)** | **Self-regulatory (n=7, 18%)** | **Total (n=38, 100%)** |
|---|---|---|---|
| High quality<br>**RESPI scores of 6 and above* | 8, 26% | 0, 0% | 8, 21% |
| Low quality<br>**RESPI scores of 5 and below* | 23, 74% | 7, 100% | 30, 79% |
| Rights approach | 17, 55% | 0, 0% | 17, 45% |
| Monitoring and evaluation | 18, 58% | 6, 86% | 29, 76% |
| Nutrient criteria or nutrient profile | 21, 68% | 2, 28% | 23, 60% |
| United Nations definition of children (birth up to 18 years) | 7, 23% | 0, 0% | 7, 18% |
| ***Marketing Techniques*** | | | |
| Branding | 8, 26% | 1, 14% | 9, 24% |
| Cartoon mascots, licensed and media characters, celebrities | 11, 35% | 4, 57% | 15, 40% |
| Direct marketing | 5, 16% | 2, 28% | 7, 18% |
| Point of sale | 19, 61% | 1, 14% | 20, 53% |
| Premium offers | 14, 45% | 1, 14% | 15, 39% |
| Product design and packaging | 14, 45% | 1, 14% | 15, 39% |
| Product placement | 7, 23% | 3, 43% | 10, 26% |
| Sponsorship | 9, 29% | 1, 14% | 10, 26% |
| ***Media channels, platforms and settings*** | | | |
| Broadcast and printed | 13, 42% | 6, 86% | 19, 50% |
| Company and third-party websites | 10, 32% | 5, 71% | 15, 39% |
| Schools and childcares | 20, 65% | 2, 28% | 22, 58% |
| Community sports and special events | 11, 35% | 2, 28% | 13, 34% |
| Digital and social media | 3, 10% | 1, 14% | 4, 11% |
| Mobile devices | 3, 10% | 2, 28% | 5, 13% |
| Food retail and restaurants | 12, 39% | 0, 0% | 12, 32% |
| Outdoor and transportation | 7, 23% | 3, 43% | 10, 26% |

Policies characteristics (*n*=38) that restricted the marketing of high in fat, sugar, and salt (HFSS) food and beverage products to children of 14 countries of the World Health Organization (WHO) Americas Region including: *Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Mexico, Peru, Uruguay, and USA.*

*Child-rights approach*

None of the self-regulatory policies contained explicit language to protect children's right to food and health aligned with the 1989 UN Convention on the Rights of the Child(30), compared with the statutory policies (55%). The lowest quality RESPI scores (range: 1-2) were policies that did not use child-rights language.

*Monitoring and evaluation*

We found 52% (*n*=15) of policies that described both a monitoring or evaluation system to ensure compliance along with sanctions in case of violation; 86% (*n*=25) included a monitoring or evaluation system; and 66% (*n*=19) included government sanctions for non-compliance with statutory policies.

Of the policies with the lowest RESPI scores (range: 1-3), only three policies from Colombia, Costa Rica and Mexico included both a monitoring or evaluation and sanction indicators. In contrast, five of the eight policies with the highest RESPI scores that (range: 6-8), included both a monitoring or evaluation and a sanction component. Three-quarters of the policies that contained a monitoring and/or evaluation indicator (73%, *n*=11) were designed to restrict the marketing of HFSS food and beverage products to children at schools and in child-care settings.

*Nutrient criteria or nutrient profile*

Twenty-three (60%) policies indicated using nutrient criteria or nutrient profile to define which food and beverage products were allowed or restricted for marketing to children. The RESPI scores of the policies that defined nutrient criteria ranged from 1-8; however, the majority of

these policies were statutory (91%, *n*=21). These policies mainly restricted the marketing of HFSS food and beverage products to children at schools (74%, *n*=17) and through point-of-sale in retail locations (70%, *n*=16). Uruguay(36) and Peru(37) were the only countries that had considered PAHO-recommended nutrient profile(38) system to determine which food and beverage products are allowed to be marketed to children.

*Definition of a child*

Statutory policies were most likely to define a child as below the age of 18 years, in line with the UN definition of a child (23%, *n*=7). All these policies had a RESPI score that ranged from 5 to 8. One third of the policies (32%, *n*=12) defined a child as up to 12 years; a quarter of policies (29%, *n*=11) did not specify the age; and the remaining policies varied the definition of a child between 13 and 17 years old. Policies using the UN definition of a child were generally designed to restrict the marketing of HFSS food and beverage to children in schools up to high school and childcare settings (Canada(39, 40)), and on the product design and packaging as front-of-pack labeling (Uruguay(36), Ecuador(41), Mexico(42)). These front-of-pack labeling policies did not specify children age; it was implied that the policy protect this population. Brazil(43) and Bolivia(44) were the only two countries with policies that fully specified the protection of children up to 18 years of age.

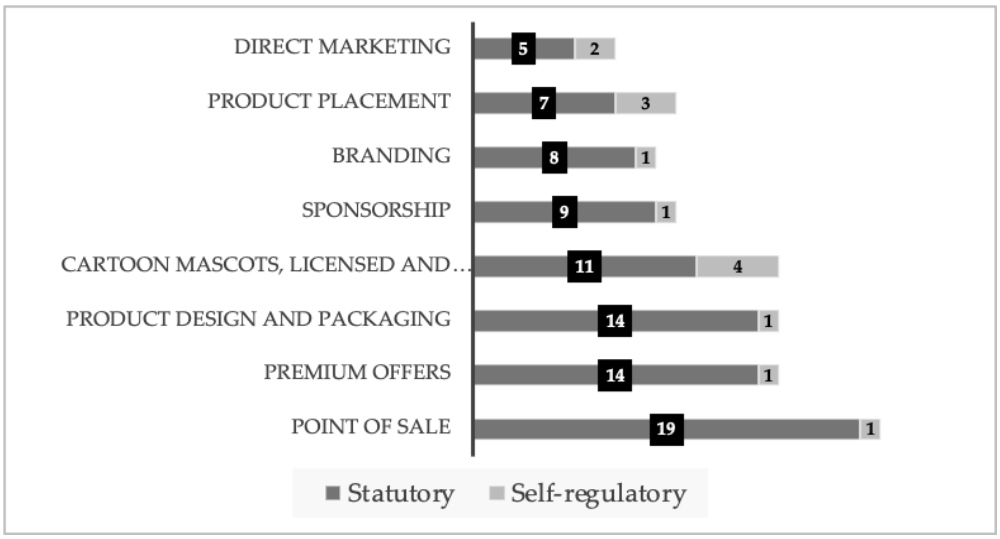
### 4.3.2 Marketing techniques

The most common marketing techniques addressed by the policies were point-of-sale (53%, *n*=20), followed by restrictions for the use of cartoon mascots, licensed media characters and celebrities, (40%, *n*=15) (figure 4.3). Statutory policies were more likely to restrict point-of-sale

(61%, n=19) than self-regulatory policies, which were more likely to restrict the use of cartoon mascots, licensed media characters and celebrities, (57%, *n*=4). Overall, direct marketing (18%, *n*=7) and branding (24%, *n*=9) were the marketing techniques covered the least often by the policies reviewed.

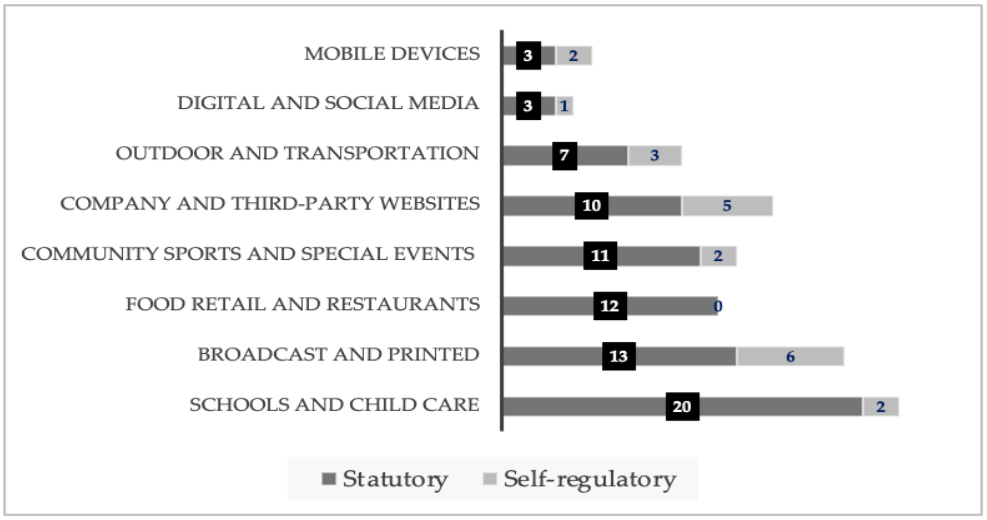
Results shows that policies regulated marketing in various media channels, platforms and diverse settings simultaneously, being the most covered by policies, schools and child care settings (58%, *n*=22), followed by broadcast and print media (50%, *n*=19). In contrast, digital and social media, and mobile devices were the least included (11%, *n*=4; 13%, *n*=5, respectively) in both type of policies (figure 4.4). Policies with the highest RESPI scores ranged from 6-8, and were developed to protect children from HFSS food and beverage products at schools and child care settings. In comparison, policies with the lowest RESPI scores ranged from 1-2 and were developed to restrict the marketing of HFSS products through broadcast and print media.

**Figure 4.3 Media channels, platforms, and diverse settings covered by policies that restrict the marketing of food and beverage products of 14 countries in the Americas Region***




Data show policies characteristics(*n*=38) of 14 countries of the World Health Organization (WHO) Americas Region including: from 14 countries of the Americas Region including: *Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Mexico, Peru, Uruguay, and USA.*

**Figure 4.4 Marketing techniques covered by policies that restrict the marketing of food and beverage products of 14 countries in the Americas Region***




*Data show policies characteristics (*n*=38) of 14 countries of the World Health Organization (WHO) Americas Region including: *Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Mexico, Peru, Uruguay, and USA.*

## 4.4 Discussion

This is the first study to provide a regional representation and comprehensive overview of statutory and self-regulatory policies to restrict the marketing of HFSS food and beverage products to children in the WHO Region of the Americas. Previous evidence has provided information on the marketing of food and beverage products within a specific media channel(45, 46) and reported progress data in implementing the WHO Recommendations.(47)

We developed and tested a RESPI tool to assess the quality of the government and industry policies and compare the scores across policies within the several IMC techniques, channels, media, and platforms that industry uses to influence young consumers. This study yields three major findings. First, higher-quality policies (i.e., higher RESPI score) were statutory, and lower-quality policies were self-regulatory. Second, most of the policies covered advertising and marketing of food and beverage products in schools and child-care settings; as well as through broadcast and print media channels. Third, the most frequently restricted marketing techniques covered by these policies were point-of-sale and the industry's use of cartoon mascots, licensed media characters, and celebrities.

We identified that across the America's region, most of the statutory policies were implemented starting in 2010, which suggested that these policies gained momentum over time as food and beverage marketing to children became a more prominent issue highlighted by the WHO(4, 5, 11, 18-20, 45-47), and by other UN system organizations such as UNICEF.(48, 49) Over the time period reviewed, we found that industry developed self-regulatory policies before 2010 in

Brazil, Colombia, and Mexico and subsequently governments developed a comprehensive statutory policy.

Higher RESPI scores were found for statutory policies, while industry self-regulatory policies had the lowest RESPI scores. For example, the self-regulatory program and voluntary code of conduct to reduce the marketing of HFSS food and beverage products to children called Publicidad de Alimentos y Bebidas Dirigidas al Púbilco Infantil (PABI, by its acronym in Spanish) was put in place by industry in Mexico(50). The PABI had a RESPI score of 2. By 2014, the Mexican government had developed and implemented a statutory policy(42) that banned the marketing of HFSS food and beverage products not aligned with specific food category thresholds on broadcast channels, which had a RESPI score of 5. By 2019, the Mexican government approved a more comprehensive policy of improved quality (RESPI score=6), including more detailed criteria about the front-of-pack labels, use of cartoon mascots, licensed media characters, celebrities, and use of premium offers.(51)

These findings reveal the weak quality of existing self-regulatory policies, which had the lowest RESPI scores, and indicate a shift over time to improved policy quality. The results are aligned with previously published evidence regarding the ineffectiveness of self-regulatory policies to effectively reduce children's exposure to HFSS food and beverage product marketing for several reasons: the vague or selected definition of a child; unclear nutrient criteria or nutrient profile guidelines; and a limited scope of specific marketing techniques, media channels, platforms and settings covered by these policies.(23, 52-54)

Generally, the examined regulatory frameworks are primarily focused on schools and child care settings, broadcast and print media, whereas digital and social media, mobile devices, and food retail and restaurants were channels least covered by the policies. Many of the other media channels and platforms, and settings depicted in Figure 3 were included least often in the policies. Our results are consistent with other studies published research.(17, 55)

Marketing techniques covered varied across policies, with point-of-sale, the use of cartoon mascots, licensed media characters and celebrities, along with premium offers the more popular techniques. The high amount of policies that included point of sale was due to the 22 policies that restricted the marketing of HFSS food and beverage products in school settings. Point-of-sale is a marketing strategy that places items in high-traffic areas such as pay-points, on-shelf displays, and vending machines.

A body of research shows that children are constantly exposed to HFSS food and beverage products marketed to them through multiple IMC media channels, platforms and settings (Figure 1). Therefore, Member States that have endorsed the 2010 Resolution WHA63.14 should design and adopt more comprehensive policies to fill the gaps considering the diverse media channels, platforms and settings where marketing takes place to protect children from all HFSS food and beverage marketing. Without comprehensive strategies to tackle this complex environmental issue, the prevalence of children with obesity across the countries examined in the Americas region is estimated to increase substantially by 2030(56) as described in the Appendix K.

Chilean food marketing policy had one of the highest RESPI scores (RESPI score=8). This was unsurprising, as the 2015 statutory policy(57) is one of the few that covered marketing techniques (i.e., branding, direct marketing and sponsorship) that were not included in the other countries' statutory policies. Other published studies also found that the Chilean statutory policy is one of the strongest and most promising to protect children from unhealthy product exposure and reduce their future obesity and NCD risks.(17, 55)

The results of the present research suggest that high-quality statutory policies are politically feasible in the WHO region of the Americans, and that weak policies can be improved by adding specific elements assessed in the RESPI tool. For example, 13 of the 14 countries (except the USA) have ratified the 1989 UN Convention on the Rights of the Child(30) to protect children's right to adequate food and a healthy diet. Over half (55%, *n*=17) of the statutory policies used child-rights language to reflect these Member States' commitment to implement the principles and articles of the Convention as part of their legal obligation to protect and promote children's rights. Three additional steps that Member States in the PAHO region could take to strengthen existing statutory policies include: 1) defining the age of children as up to 18 years to align with the UN system definition of a child; 2) adopting effective, evidence-based PAHO-recommended nutrient profile system(38) to determine which food and beverage products are allowed to be marketed to children; and 3) appointing an empowered body to monitor and evaluate policies that restrict HFSS food and beverage product marketing to children.(31) Lastly, governments could strengthen statutory policies beyond advertising by including all IMC strategies, techniques, channels, platforms and setting addressed(31) in the RESPI tool.

These results can be used to inform government policy-making to identify the weakest components of existing policies; share insights across countries about policies with the highest quality and identify key elements to adopt and improve their policies. Furthermore, the index and visualization system can be used by Member States that plan to adopt, design and implement new policies. This study also provided a panoramic view of the diverse IMC strategies that countries are covering by a single policy or multiple policies. This research suggests that the nutrient criteria and narrow scopes on marketing techniques covered in policies are some of the potential loopholes. The nutrient criteria delimit the products that are allowed to be marketed to children, therefore week standards will result in higher exposure of HFSS food and beverage products as previous research have demonstrated.(58-61) On the other hand, narrowing the scope to a single marketing technique and/or media channels, settings and platforms leaves room for food and beverage companies to continue to market HFSS food and beverage products to young people. This study may encourage policymakers and other decision-makers to reflect on efforts needed to broadly reduce children's exposure to HFSS food and beverage marketing and diminish its power and negative influence on young people's dietary choices and health outcomes. Furthermore, since the RESPI was developed using two conceptual frameworks (i.e., the WHO policy framework to implement a set of recommendations on the marketing of food and non-alcoholic beverage products to children, and the integrated marketing communications framework), this tool could be use in any country or region of the world.

This study had several limitations. The analyses used available and official online sources and documents but did not have access to proprietary industry documents or government documents that were not available online. A second limitation was that the RESPI was developed to assess

the quality of policies to restrict the marketing of HFSS food and beverage products. However, the study also assessed policies to promote healthy diets using IMC strategies (i.e., food and beverage standards in schools, front-of-pack nutrition label standards) that Member States have implemented. The RESPI tool does not account for the effectiveness of policies and does not provide extra points for the type of nutrient profile model used and differentiate between a profiling model developed by industry versus a government-appointed body with authority to monitor and evaluate policies. For example, if a Latin American country enacted a policy to ban the advertisement of all sugary drinks to children up to age 18 years, would not receive maximum RESPI points despite the comprehensiveness of this policy. While this tool may be valuable to reduce children's obesity risk, obesity is such a complex multi-factorial disease where the environment and political context is important to consider, it is not possible to correlate changes in children's obesity prevalence based on these policies alone.

Strengths of this study include the novel use of two theoretically grounded conceptual frameworks including the WHO policy framework(11) and IMC framework,(13) and official UN definitions used to develop the RESPI. This enabled the exploration and assessment of the quality and comprehensiveness of policies over time and across the 14 countries examined. Furthermore, the transdisciplinary research team leveraged different skills and perspectives to develop a tool capable of capturing the complex components of elements of the food and beverage marketing, as well as policy development and assessment.

Future research should test and adapt this tool to include in the scale points for the product-based criteria (i.e., sugary drink restrictions) and the source and quality of the nutrient criteria or

nutrient-profiling model used (i.e., PAHO/WHO nutrient-profiling model(38) versus industry models). Further studies could also empirically test the web-based platform and data visualization tools developed for this study among policymakers and a non-scientific audience to understand how different stakeholder groups will interpret and translate the results into policies and advocacy efforts. We recommend that the RESPI tool should be tested across all 35 countries in the WHO Region of the Americas, and potentially other WHO regional offices.

### 4.5 Conclusions

The RESPI tool for marketing of HFSS food and beverage products to children is a proof of concept and a promising tool that government policymakers, researchers and non-State actors could use to review and rate the quality of the government statutory and self-regulatory policies. This study developed and tested a RESPI tool in 14 countries or the WHO Region of the Americas. The results showed that government statutory policies in Brazil, Canada, Chile, and Uruguay had the highest RESPI scores that restricted point of sale and the use of cartoon mascots, licensed and media characters and celebrities; and HFSS products in schools and childcare settings, and broadcast and print media. Although the WHO Americas Region has many existing policies intended to restrict the marketing of HFSS food and beverage products, our results show that children remain exposed to diverse commercial and marketing practices. Because it takes a comprehensive approach to policy characteristics and marketing techniques, our policy assessment tool can abet development, implementation and evaluation of policies to restrict marketing of HFSS food and beverage products to protect children's diet and health. The web-based platform and data visualization tools can be used to provide valuable metrics and can display trends and data in readily understandable formats that enable benchmarking and tracking

progress toward the use and impact of comprehensive and robust policies within and across geopolitical boundaries.

## Appendices

Appendix J. Highest RESPI scores from policies that restrict the marketing of HFSS food and beverage products to children in eight countries in the America's Region, 2010 to 2019. Appendix K. Obesity prevalence for boys and girls aged 5-19 years in 14 countries of the Americas Region, 2016 and predicted by 2030. Appendix L. Web-based platform: http://pluto.sv.vt.edu:8084.

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# Chapter 5 .

## Study 3. A shift in political power: a case study of social networks in Mexico that influenced the policy-making process to implement front-of-pack warning labeling legislation for unhealthy food and beverage products


### Abstract

Background: The World Health Organization (WHO) has advised governments to use comprehensive policies to create healthy food environments to halt the rise in obesity and diet-related noncommunicable diseases (NCDs) by 2025. This study explores power dimensions among actors in Mexico's social networks that enabled the government to implement front-of-pack (FOP) warning label legislation for unhealthy food and beverage products in 2019.

Methods: This case study conducted semi-structured interviews using a seed sample of actors to start the data collection. A snowball sample technique through a nominative process was used to reach data saturation. Analyses were conducted using the software UCINET Version 6 to calculate centrality measures (i.e., in-degree, betweenness, and eigenvector); faction and quadratic assignment procedures (QAP) analysis were conducted. Transcribed interviews were analyzed using Gaventa's power cube (i.e., level, form and space).

Results: The research identified a network of 80 actors perceived to be powerful by their peers. Results revealed the power of engagement at local, national and international levels; the need to open spaces for actor network engagement; and to enhance the visibility of power used to influence the policy-making process. Two key brokers from the academic and political sectors in the Mexican actor network strategically influenced the policy-making process, supported by

advocacy and coalitions contributing to an alignment on the dimensions of power that enabled policy change.

Conclusions: Social network analysis revealed two main brokers and multisector actor relationships within the network who shifted political power to enable the Mexican government to enact FOP warning labels legislation to protect population health. Results suggest a shift in the political power from a commercial interest to an evidence-based policy. This research may inform policy and advocacy efforts to promote healthy food environments in other countries to meet the WHO targets to prevent and manage obesity and NCDs.

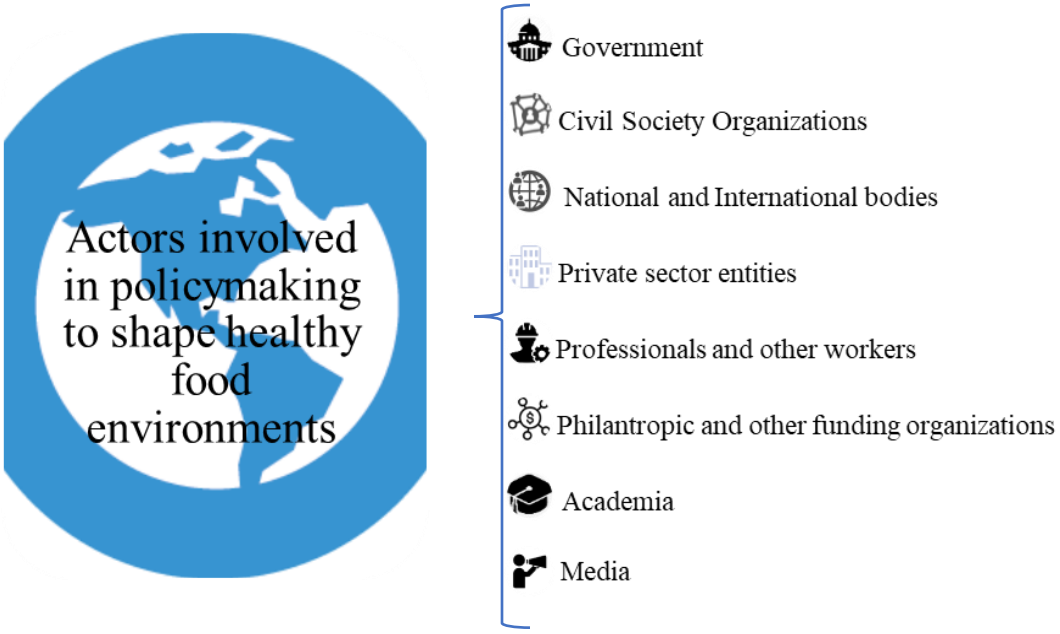
## 5.1 Introduction

The World Health Organization (WHO) has recommended that national governments in Member States actively promote healthy food environments through comprehensive policies and actions to achieve the targets to halt the rise in obesity and reduce non-communicable disease (NCD) mortality by 25 percent by 2025.(1-3)

Moreover, the United Nations (UN) Decade of Action on Nutrition (2016-2025) recommended the need to "Reconfigure global, national and subnational governance to ensure good governance mechanisms to coherently address all forms of malnutrition."(4) By 2020, many countries worldwide have implemented food environment policies, regulations, and programs at national, state, and local levels such as mandatory front-of-pack (FOP) labeling, restrictions on the marketing of unhealthy food and beverage products to children, and taxes on unhealthy foods and sugary beverages to promote healthy diets and healthy food environments to reduce obesity and NCDs risks.(5, 6)

Figure 5.1 identifies diverse actors from various sectors who are involved in the nutrition governance and the policy-making process that is fundamentally shaped by their interactions within social networks, and use their resources to influence the policy decision-making process based on different interests to achieve specific goals.(7, 8) The term *actor* is used to represent individuals, organizations or entities that influence actions within the nutrition policy-making and governance process.(9)

**Figure 5.1 Actors involved in nutrition policy-making networks**




A social network consists of 'ties' that represent patterns of associations that link one or more actors in a social structure.(10) Rhodes and Marsh 1992 define a policy network as linkages or connections among a diversity of resources between the political sector, government bodies, non-governmental organizations (NGOs) or civil society organizations, and other actors (e.g. academic researchers, private sector entities, investors, international bodies and media) involved in shaping the policy-making.(11) Existing research suggests that health policy is not solely

based on the existence of cost-effective interventions but also attributable to the power dynamics of actor networks involved in public policy development.(12-14) Ties (i.e., connections or links) between actors can determine one's ability to exert different forms of power to influence political outcomes or the actions of other actors in a social network.(15) Governments and politicians are the lead actors responsible for setting national policy agendas.(9)

Academic researchers, NGOs and civil society organizations may influence the public debate and political agenda through advocacy efforts and by providing scientific evidence to inform policy decisions.(9) The role of UN agencies or international bodies is to support Member States or national governments by setting norms and standards and providing technical support to build institutional capacity and catalyze change that promotes the health and well-being of populations.(9) Aside from the political sector and the government representatives, private industry entities such as food and beverage manufactures, retailers and trade associations are actors that have more power to influence the national nutrition and public health policy process. Existing research suggests that these private-sector actors are highly influential through their corporate political activities and strategies such as lobbying legislators, using financial resources to oppose public health policies and frame political debates that enables these actors to leverage their commercial interests over population health.(16-24)

Power is conceptualized in a range of different ways. Historically Dhal 1957 defined power as 'the ability to achieve desired results.'(25) The French historian Foucault challenged the concept of power recognizing that it is distributed rather than concentrated and enacted as isolated episodes, and suggested that power is expressed through different forms of knowledge, scientific

understanding and discourses.(26) Nutrition is a discipline built upon health and food systems where the diversity of actors involved are interconnected but many have different agendas, priorities and interests that results in contested power that causes debate, tension and conflict in the policy-making process.(27)

Parashar et al. 2020 examined health policy implementation and practices of power and showed that the complex nature of policy-making is shaped by the combined effect of power across actors to control, dominate, resist, negotiate or collaborate.(28) Power often results in positive benefits such as collaboration or represent a struggle due to actors' control and resistance.(28) Lewis 2006 conducted a study to identify power and influence in the health policy-making process and found that actors who pursued power used resources and influence over actors to share information, economic resources, and provide or receive advice to brings them closer to their ideal endpoints.(29) However, the flow of resources between actors only reflects one form of exerting power, whereas other power dimensions including spaces and levels must be considered.(15, 30)

The policy network literature demonstrates that power is inherently a structural phenomenon that operates within a network.(15) Recently, social networks of actors have proliferated globally as distinct organizational forms to address many health issues.(31) Mapping policy networks using social network analysis allows researchers to identify and analyze relationships between and among actors, to understand how various actors may influence the policy-making process.(10, 32, 33) Social network analysis is a methodology that uses a systematic approach to gather and analyze data to understand the relationships and linkages to various actors' power, influence,

control and reputation.(10) Network science is useful to understand policy-making and enhance global and national efforts to prevent and manage obesity and NCDs.(34) Nutrition and public health policy scholars have focused attention on national and subnational contexts to understand the important role of actor networks to mobilize power to coordinate responses across different levels and public and private sectors to tackle obesity and NCDs.(17, 21, 35-37) Yet few research have studied power using social network analysis in the nutrition policy-making process to promote healthy diets and healthy food environments to address obesity and NCDs.

*Mexican case study*

Mexico has one of the highest prevalence rates of obesity and diet-related NCD morbidity and mortality in the world.(38) The 2018 Mexican National Health and Nutrition Survey documented that 35.6% of children aged 5-11 years and 75.2% of adults over 18 years were overweight or obese.(39) Environmental factors in the Mexican food system have contributed to these high rates causing unhealthy dietary patterns characterized by the excessive consumption of unhealthy food and beverage products high in energy, fats, salt and sugar.(20)

Since 2005, the Mexican government has attempted to implement diverse strategies and programs to tackle the increase in obesity and NCDs.(20) In 2010, a strategic National Agreement for Healthy Nutrition was developed to address environmental factors that increased the risk of obesity and diet-related NCDs, and providing more informed food labeling legislation for consumers was a key objective in this plan.(20) In 2014, the Mexican government enacted the front-of-pack (FOP) Guideline Daily Amount (GDA) labeling system as a public health strategy to provide consumers with nutrition information to promote healthy food choices.

Nevertheless, evaluations demonstrated that the GDA system is ineffectiveness.(40-44) Therefore, the Mexican government reformed the General Health Law in October 2019 to modify the GDA with a FOP labeling law to introduce warning labels to inform Mexicans' purchases in the marketplace.(45)

The FOP warning label requires food and beverage products to display icons to indicate excessive content of energy, sugar, salt, and fat above government-recommended dietary targets. In addition, statements are required on packages to indicate whether a product contains caffeine or non-caloric sweeteners are required to highlight that those products are "not recommended for children." Businesses are prohibited from marketing food and beverage products that display the FOP warning label to children and cannot use cartoon brand mascots or licensed media characters, drawings, celebrity athletes or pets to promote the consumption of these products.(46)

The WHO 2017 Best Buys report that provides policymakers a list of recommended actions to address NCDs identified the FOP sodium label as a cost-effective action to reduce sodium intake. Despite the report indicates not available cost-effective analysis for other nutrients of concern, it recommends the implementation of labeling to reformulate unhealthy products and reduce the total intake from energy, sugars, and fats as one of the best buy strategies to reduce NCDs.(47)

The FOP warning label has shown significantly reduced consumers' purchase of unhealthy products that display this label in Latin America, which suggests that it is an effective strategy to promote healthy diets and prevent and reduce obesity and diet-related NCD risks.(48) In 2016,

Chile was the first nation in Latin America to enact the warning FOP label.(49) Peru and Uruguay implemented similar FOP warning labels for unhealthy food and beverage packaged products, Brazil and Canada are other countries in the region of the Americas currently deliberating to enact legislation to support a similar approach. Evaluations have shown that FOP warning labels on food and beverage products are understood by low-income adult populations who experience overweight or obesity in several Latin American countries.(40)

In Mexico, enacting legislation for FOP warning labels was a complex and contentious process involving many different actors, including: the Mexican National Institute of Public Health (Instituto Nacional de Salud Publica or INSP), the Ministry of Economy and Ministry of Health; representatives of academic institutions, civil society organizations, food and beverage industry actors; and international nutrition experts. Modifying the reformed General Health Law involved the Mexican government holding a public hearing with over 5, 200 contributions, followed by more than 20 sessions coordinated by the Ministry of Economy, where diverse actors provided arguments and evidence to change the food and beverage products labeling Regulation NOM-051-SCFI.

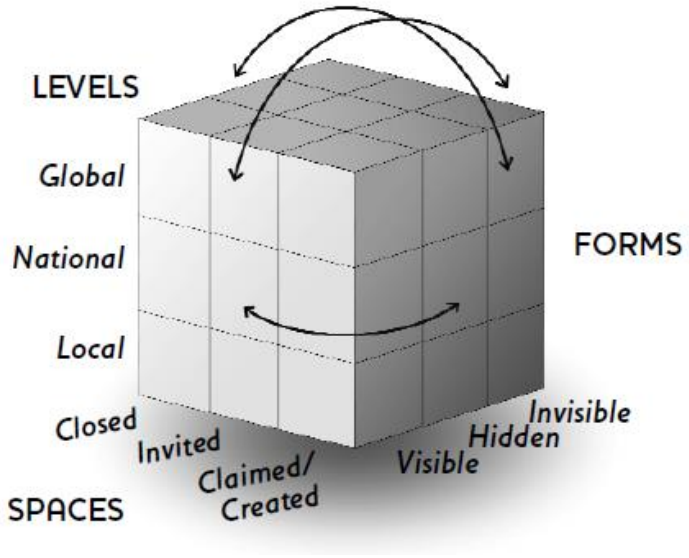
In 2020, the Mexican government was recognized internationally its leadership for implementing a robust FOP warning label system developed through a successfully transparent and democratic process.(50-52) The use of the Pan American Health Organization (PAHO) nutrient profile model, labels on non-sugar sweeteners and restriction on nutrition claims have placed the Mexican FOP warning label as the most advanced standard worldwide for the prevention and control of NCDs.  The multifactorial nature of obesity and NCDs require the active improvement

of food environments through comprehensive policies and actions to achieve WHO targets to halt the rise in obesity and reduce diet-related NCDs by 2025 and achieve the UN Decade of Action on Nutrition (2016-2025)(53) policy recommendations to address all forms of malnutrition. This study aimed to provide empirical evidence by exploring the dimensions of power in the Mexican social networks that influenced the policy-making process that enabled the national government to enact legislation to implement FOP warning labels on unhealthy food and beverage products.

### 5.2 Materials and Methods

This study followed a case study approach using semi-structured interviews that gathered data from actors involved in the policy-making process for the FOP warning labeling law enactment in Mexico. This research was guided by the Gaventas' power cube framework developed by the Institute of Development Studies (Figure 5.2 and Table 5.1).(30) Gaventa's conceptual power cube framework clarifies three different dimensions of power manifested differently by level, forms and space.(30) For example, actors involved in the policy-making process may work at many different levels (i.e., global, national, or local); participate via different forms or power (i.e., visible, hidden, and invisible); and within different spaces (i.e., closed, invited, claimed or created).(30)

**Figure 5.2 Gaventa's power cube framework**




**Source:** Gaventa J. Finding the spaces for change: a power analysis. Institute of Development Studies Bull. 2006.(30)

**Table 5.1 Gaventa's framework for the three dimensions of power**

| Power | Definition |
|---|---|
| Level | Actors engagement context, how arenas of power are created |
| *1. Global* | International influence beyond the nation state |
| *2. National* | Federal government, political parties, coalitions or other forms of authority at a country or nationwide level |
| *3. Local* | Associations, community, neighborhood or groups that act at a local level |
| Forms | The degree of visibility of power, how power manifests itself |
| *4. Visible* | Focuses on who participates and predominates in observable decision-making process, mainly at distinct aspects of political power regarding the formal rules, structures, authorities, institutions and procedures of decision making |
| *5. Hidden* | Controls and sets the political agenda by keeping certain issues, interests and voices in or out the decision-making table with any types of resources |
| *6. Invisible* | Shapes meaning and what is acceptable, internalize beliefs and norms, and influences ideological boundaries of participation |
| Space | Opportunities, moments and channels where actors can act to potentially affect policies, discourses, decisions and relationships |
| *7. Closed* | Decisions are made by a set of actors behind closed doors, without broad consultation or involvement |
| *8. Invited* | People into to participate in public arenas within set boundaries as a form of consultation by various kinds of authorities, government, supranational agencies or non-governmental organizations |
| *9. Claimed/ created* | Less powerful people or groups that create their own spaces which emerge 'out of sets of common concerns or identifications' to debate, discuss and resist, outside of the institutionalized policy arenas |

**Source:** Gaventa J. Finding the spaces for change: a power analysis. Institute of Development Studies Bull. 2006.

### 5.2.1 Data collection

A comprehensive literature review was conducted by a trained researcher (SRGP) on the policy-making process to implement FOP warning label legislation in Mexico to identify a seed sample of seven participants to start the interviews using a stakeholder mapping methodology. The seed sample included actors from seven different categories identified as influential who were chosen purposively to represent all domains that had participated in the policy-making process for the FOP warning label legislation in Mexico (Table 5.2). By purposively choosing representatives from different sectors, we aimed to gain their collective insight and responses to construct an accurate and comprehensive social network. The initial seed sample of participants were contacted by email to schedule an online interview using Zoom conducted by the lead investigator (SRGP). After identifying the seed sample, a snowball sample technique was followed through a nominative process until data saturation was reached. Actors who agreed to be interviewed participated voluntarily. No gratuity was provided to the participants.

A 12-item interview guide (Appendix E) to conduct semi-structured interviews was developed by two researchers, (SRGP) the lead investigator and (RL) expert on social network analysis, based on Gaventa's conceptual power cube framework.(30) The semi-structured interview guide was shared with potential participants in advance to increase the participation rate. Each interview was audio-recorded using Zoom after obtaining verbal consent from each participant. All participants received an electronic pdf file that described the consent process and highlighted that their participation was entirely voluntary. Completed interviews were transcribed and double coded into square matrices to ensure consistency. A random code was generated for each

participant to maintain the highest level of anonymity and confidentiality. A deductive coding was followed by two trained coders. Codes were created based on the results, categorized, and organized by themes using the three dimensions of power (i.e., level, space and form). After completing the coding process, an investigator triangulation between two authors (SRGP and RL) was followed to resolve discrepancies.

**Table 5.2 Seed sample for network analysis**

| Category of actors | Chosen actors | Roles of actors |
|---|---|---|
| 1. Academic | Senior public health academic | Researchers from national institutes or universities that played in sustainable role on generating science |
| 2. Government | Senior health bureaucrat | Government officials, representative or employees involved in public administration or government |
| 3. International agency | United Nations representative | International organizations that coordinated their work to contribute to the public benefit |
| 4. Journalist | Journalist | Correspondent, reporter or columnist that processed edited or commented on broadcasted news |
| 5. Civil society organization or NGO* | Director of an advocacy group | Civil societies organized on community, national and international levels independent of government that served for the public interests |
| 6. Private industry | Health advisor | Food and beverage industries, organizations and associations that acted toward business interest |
| 7. Political sector | Deputy | Decision makers, politicians or bureaucrats who had the power to make decisions |

*NGO: Non-governmental organization

5.2.2 Data analysis

All participants from the seed sample and subsequent nominees were grouped into seven predefined categories summarized in Table 5.2. A two-dimensional square matrix was developed, where each cell served to indicate the dimensions of power of each nominee by using numbers from 1 to 9, as indicated in table 5.1. This research analyzed the dydad/whole network level. Descriptive statistics and overall network metrics were calculated, including number and proportion of actors, and centralization measures. Quotes from the transcribed interviews were used to highlight the different dimensions of power.

Centrality measures (i.e., in-degree, betweenness, and eigenvector) were calculated for each actor within the network. The degree centrality indicates the activity of actors and their popularity in a network, and measures direct ties between different actors.(54) Betweenness centrality captures the brokers, defined as the actors who occupy a privileged position and bridge the network across other actors.(54) In-degree centrality captures the number of actors that nominated the actor as influential.(54) The last centrality measure, eigenvector, provides information regarding the centrality of actors due to being connected to powerful and influential actors.(54) Faction analysis was used to fit the data into block models employing the network-subgroup-faction function. This last measure examined the network by subgroups density or overall level of connectedness within the social network.(55) Quadratic assignment procedures (QAP) analysis was used to correlated the networks based on the three dimensions of power to identify differences in structure based on each dimension of power. Other analytical techniques were used to discern the pattern of ties, groups and how were they connected to each other. The data were analysed using UCINET Version 6,(55) and network visualizations were generated using NetDraw from the UCINET software for Social Analysis.(56)

### 5.2.3 Ethical Issues/Statement

The Human Research Protection Program under the Institutional Review Board at Virginia Polytechnic Institute and State University (Virginia Tech) provided ethical approval for this study protocol #19-467 in November 6, 2019 prior contacting or collecting any data from the participants. Interviewed actors provided oral consent after reading the consent form, and authorized the audio-recording of each interview. Participants were informed that their answers

and personal information would remain private and confidential. Participants were advised that they could end the interview at any time.

### 5.3 Results

Following the snowball sampling process, 43 invitations were extended to potential participants and 22 participants responded, which represented a response rate of 51.2%. The range of category groups for participants and their corresponding response rate are outlined in Table 5.3. The response rate was higher among journalists (100%), academics (80%), and international agencies (71.4%) and lowest for private industry (14.3%) representing food and beverage manufacturers, retailers or industry trade associations.

**Table 5.3 Participants response rate**

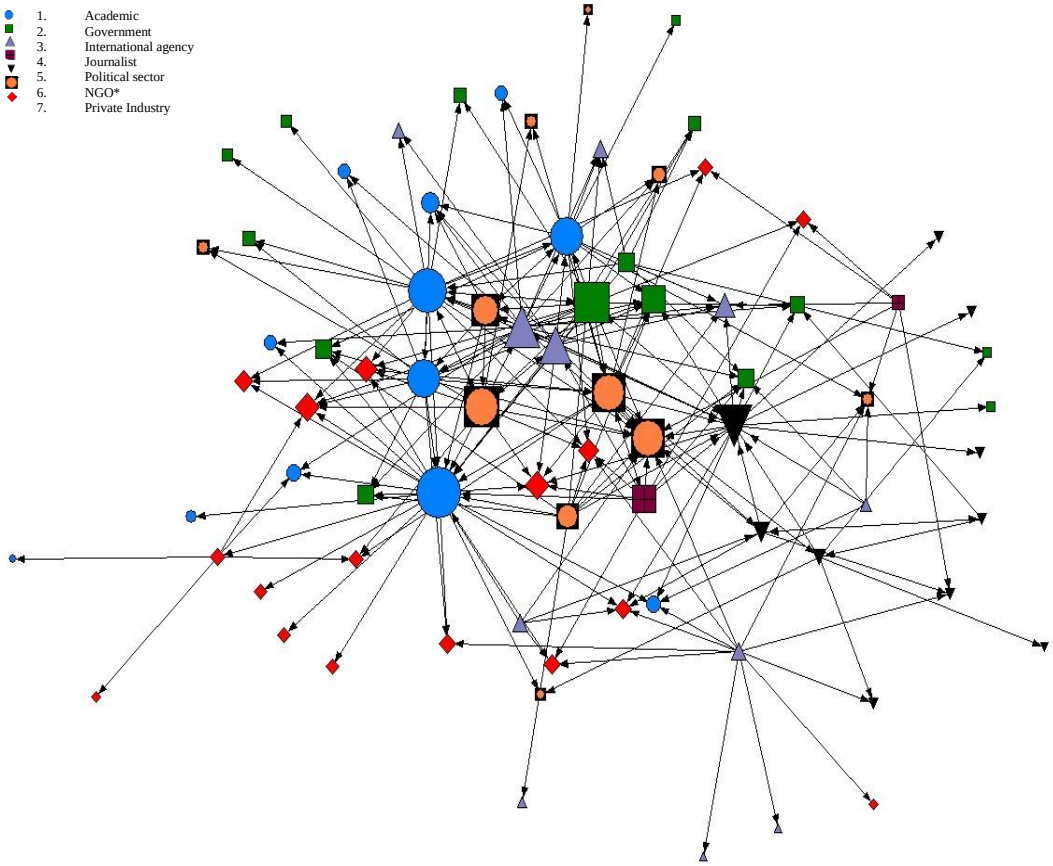
| Category of actor | Contacted (*n*) | Participants (*n*) | Response rate (%) |
|---|---|---|---|
| 1. Academic | 5 | 4 | 80 |
| 2. Government | 9 | 2 | 22.2 |
| 3. International agency | 7 | 5 | 71.4 |
| 4. Journalist | 2 | 2 | 100 |
| 5. Civil society or NGO* | 7 | 4 | 57.1 |
| 6. Private industry | 7 | 1 | 14.3 |
| 7. Political sector | 6 | 4 | 66.6 |
| *Total* | 43 | 22 | 51.2 |

*NGO: Non-governmental organization

Overall, the interviews provided 131 actor nominations. Actors received a wide range of nominations, ranging from 1 to 14 nominations for the most frequently nominated actor. The most nominated actors were an individual representing an NGO (14 nominations), followed by an academic representative (12 nominations), and a deputy from the political sector (11 nominations). The majority of the actors identified through the network analysis were actors from the food or beverage industry (*n*=17, 21.2%), government representatives (*n*=16, 20%), and

academics (*n*=12, 15%). Other actors in the network represented international agencies (*n*=11, 13.8%), the political sector (*n*=11, 13.8%), NGO's (*n*=11, 13.8%), and journalists (*n*=2, 2.5%). Figure 5.3 presents a visual representation of the identified network, depicting actors who influenced the policy-making process to implement FOP warning label legislation on unhealthy food and beverage products in Mexico. The network identified a total of 80 nodes (i.e., individual actors) with 228 directed ties (i.e., representing a relationship between a pair of actors) between the nominated actors.

**Figure 5.3 Network mapping of actors who influenced the policy-making process to implement front-of-pack (FOP) warning label legislation for unhealthy food and beverage products in Mexico**




Note: Network mapping of actors (*n*=80); shape is the categories of actor (*n*=7); node size is ranked by eigenvector values; node color is partitioned by category of actor (*n*=7). Each figure on the map reflects the actors involved in the policy-making process to implement front-of-pack warning labels on unhealthy products in Mexico. *NGO: Non-governmental organization.

Actors who were more centrally situated in the network were predominantly academics (i.e., blue circle), government representatives (i.e., green square), and representatives of international agencies (i.e., purple triangle) and NGOs (i.e., orange circle in square). Actors representing the private industry sector were more peripheral in the social network (i.e., red rhombus).

The network displayed a low-density score of 0.036, indicating that a high number of actors were nominated as powerful by few respondents within the network. The largest proportion of ties were with academics (69 ties), followed by NGO representatives (49 ties) and private industry actors (41 ties) (Table 5.4). We examined the density by category of actor and the lowest density score among groups was the journalist group (0), followed by the political sector (0.04) whereas the academic group was the highest (0.52). Overall, the political sector had the highest betweenness in the network (55.10%), followed by the academic group (48.69%), compared to the least central group, which was the private industry (2.47%). The actors with the highest levels of betweenness centrality acted as key brokers in the network due their privileged positions.

**Table 5.4 Characteristics of the social network that influences the policy-making process to implement front-of-pack (FOP) warning label legislation for unhealthy food and beverage products in Mexico**

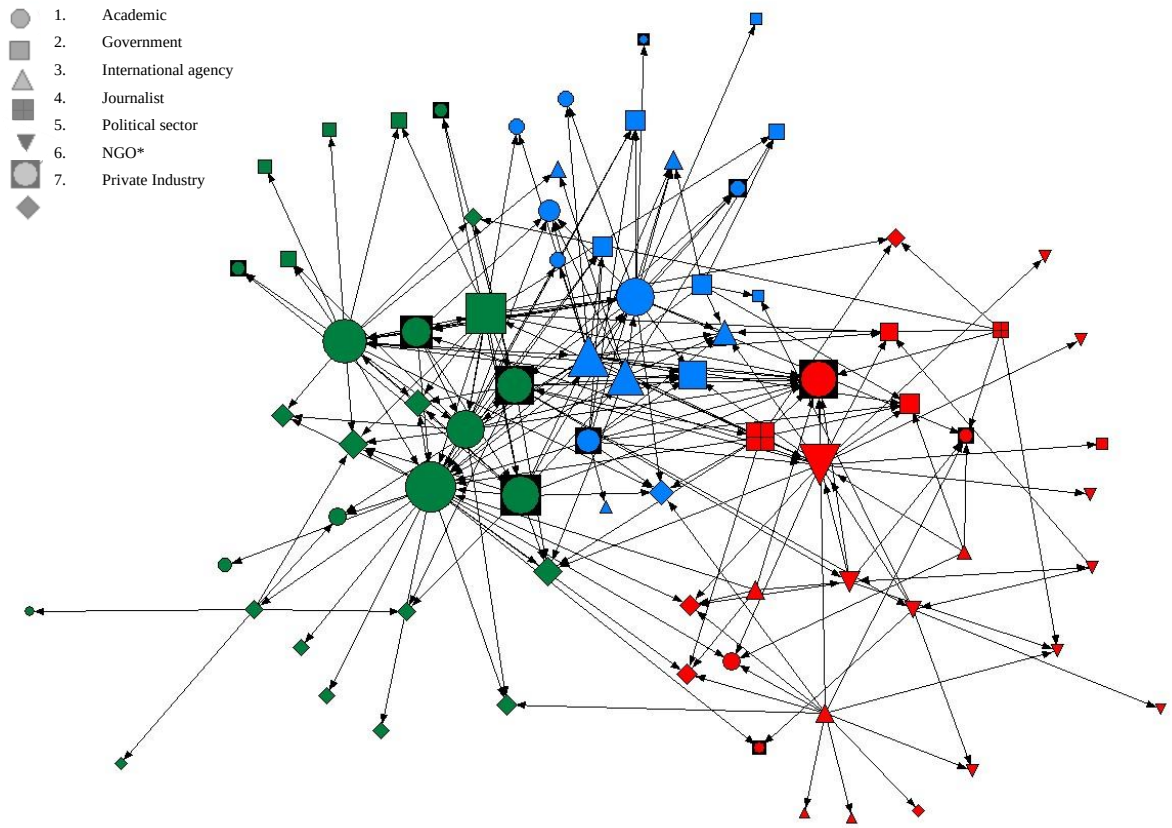
| Category of actor | Ties (*n*) | Density | Betweenness (%) | In-Degree (%) | Eigenvector |
|---|---|---|---|---|---|
| Academic | 69 | 0.52 | 48.69 | 18.75 | 0.14 |
| Government | 38 | 0.16 | 13.34 | 10.19 | 0.08 |
| International agency | 18 | 0.16 | 5.24 | 5.27 | 0.10 |
| Journalist | 0 | 0 | 9.75 | 9.50 | 0.03 |
| NGO | 49 | 0.44 | 33.08 | 14.27 | 0.13 |
| Private industry | 41 | 0.37 | 2.47 | 4.35 | 0.02 |
| Political sector | 13 | 0.04 | 55.10 | 9.73 | 0.06 |

*The density and centrality measures were calculated using normalized scores

Figure 5.4 shows the analysis of the network by subgroups, consisting of three factions (fitness 0.96) with actors that were more tightly nominated by each other. The green faction consists of

28 individuals, predominantly actors from the private industry (*n*=12, 42.8%), academia (*n*=6, 21.4%), government and NGO representatives (*n*=5, 17.8%; respectively). The blue faction is the most central and comprised of 22 actors, the majority of which are government representatives (*n*=7, 31.8%), international agencies (*n*=6, 27.2%), academia (*n*=5, 22.7%), and NGOs (*n*=3, 13.6%). The red faction includes the largest number of actors from the political sector (*n*=10, 33.3%), five actors from international agencies (16.6%), four actors from the political sector (13.3%) and the remaining actors of this faction belonged to government (*n*=3, 10%) and NGO's (*n*=3, 10%).

**Figure 5.4 Factions of the social network that influenced the policy-making process to implement front-of-pack (FOP) warning label legislation for unhealthy food and beverage products in Mexico**




Note: Network mapping of actors (*n*=80); shape is the categories of actor (*n*=7); node size is ranked by eigenvector values; node color is partitioned by faction (*n*=3). Each figure on the map reflects the actors involved in the policy-making process to implement front-of-pack warning labels on unhealthy products in Mexico. *NGO: Non-governmental organization.

*Dimensions of Power*

In this section we analyzed the interviews with actors based on Gaventa's power cube that describes three dimensions of power that differ by level, form and space.(30)

*Level of power*

The level dimension refers to the context where the engagement and roles of the diverse actors took place as described below.

*10. Local power*

NGO actors were identified as the only group who enforced power at local, national and global level. Interviews highlighted the important role of NGOs with their engagement at a local level, which started in 2004 with social marketing campaigns before the FOP warning label law was approved in 2012 through social marketing campaigns.

*11. National power*

The research identified the academic actors as the first group that started to mobilize for the FOP labeling legislations as a public health strategy at a national level. As this was a case study of a federal law, most of the actors were identified to have enacted power of some kind of power at a national level (e.g., government, industry, and political sector representatives).

*12. Global*

Turning to the global level, the interviews revealed that NGOs, academia and government have had engaged regarding FOP labeling legislation for unhealthy food and beverage products by deliberating about this policy issue at international congresses, high-level meetings, and participation in expert advisory groups. Interviewed actors consistently emphasized the key role of international agencies, such as United Nations Children's Fund (UNICEF), PAHO, Food and Agriculture Organization (FAO), and the World Obesity Federation (WOF) as being credible international institutions that supported the FOP warning labeling legislation. The following quote from a participant with the highest in-degree, betweenness and eigenvector scores of the network, clearly captures the international power exerted by a private industry:

> "*A Swiss multinational food and beverage manufacturer sent a letter demanding its suppliers to oppose and disapprove the FOP warning labels to influence the Mexican policy*." Academic representative

*Form of power*

The form dimension consists on how the power was manifested itself through the actors' participation as described below.

*13. Visible power*

All the interviewees acknowledged that the adoption of FOP warning labeling legislation in Mexico was possible due the support form representatives of the political sector (the group with the highest betweenness score) and government representatives. An actor with the highest in-degree and eigenvector scores highlighted that the agenda-setting circumstances combined with the role of the political sector was crucial for success:

> "*It was clear that the (Mexican) Congress, Senate and (National) Government predominated in the decision-making process. This would not have been possible without the disposition of the Ministry of Health, the Ministry of Economy and COFEPRIS (Federal Commission for Protection against Sanitary Risks). The strong voices and power of two women in the (Mexican) Congress that presented the first initiative and fought to keep the topic on the political agenda that was a determining factor that helped to pass and approve the law*." International agency representative

*14. Hidden power*

We also found that hidden power was exercised mainly by three actors, including academics, representatives from private industries and NGOs. Evidence was the main resource used by actors who held structurally important positions (e.g., senior public health academic, director of an advocacy group) to keep the issue as a priority at the decision-making table. This contrasted

with the peripheral actors (e.g., private industry representative) that used lobbying strategies to target the political sector to maintain their interest and voice in the policy-making process. An interviewed deputy remarked that:

> "*A very well-known multinational beverage corporation created a private event just for me. There, they showed me the ongoing industry social programs committed to improve health and the environment. During this event they discredited the proposed warning label (legislation) and emphasized how it would affect the Mexican economy tremendously. At the end, they offered me support for (political) campaigns that I am involved [in], which was very tentative*." Political sector representative

*15. Invisible power*

The study found that academia, international agencies, journalists, and NGOs were the actors who exercised invisible forms of power. PAHO and UNICEF enacted hidden power by influencing acceptable norms and standards by sharing the best practices for food labeling, and highlighting the previous experiences with warning label legislation in Chile, Peru and Uruguay. Journalists and NGOs shaped meaning and internalized the beliefs about food labeling. Journalist gathered information, wrote editorial pieces, and present the news, and NGOs were involved in social media advocacy campaigns. Furthermore, coalitions were created between actors that shared similar policy core beliefs:

> *"The industry presence was overrepresented in the working groups; therefore, we created our own coalition not with just people form NGOs but with others that had a*

*public health vision instead of a business orientation. This helped to gain strength, voice and overcome the way much more than the sectors… therefore we created our own coalition to gain strength and overcome the disproportion of views at the table."* NGO representative

*Space of power*

The space dimension consists on those opportunities, moments, and different channels where actors influenced the policy-making process.

16. *Closed power*

The interviews revealed that actors from the government started making efforts behind closed doors to adopt a FOP labeling legislation on unhealthy food and beverage products in 2010 with the development of a national agreement for healthy nutrition. In 2014, GDA labeling was implemented as a government mandate against the guidance of public health leaders. Between 2014 and 2019, government actors shifted their approach by involving other actors to be part of the decision-making process.

*17. Invited power*

The FOP warning label law that was passed by the Mexican Congress in 2019 involved multisectoral collaboration across many actors. Government was the main moderator and created appointed committees comprised of invited actors from the academia, private industry, representatives from international agencies, and NGOs. Interviews of government representatives showed that this group was generated to discuss the appropriate and most effective modifications to the regulation NOM-051 that was in place.

"*The National Institute of Public Health won a space at the (policy-making) table thanks to the published evidence, experience with the topic, and all the research that had been done for years until now. These factors allowed the invitation to academics from the Ministry of Economy to participate in the working groups and contribute their view with the best available evidence*." Government representative

"*The extended invitation to PAHO and UNICEF was mainly to receive technical advice, worldwide experiences, align postures and receive any needed backup from international institutions that had high credibility*." Government representative

*"To ensure an inclusive and transparent process the private industry and civil society were also invited to have all the voices heard at the decision-making table."* Government representative

*18. Claimed/created power*

Informal spaces for deliberation in FOP labeling policies were found within the academia, journalists, private industry and NGOs. The created spaces were identified at different points of time since the issue was set on the political agenda in Mexico in 2010. Selected quotes from various actors with high eigenvector scores are summarized below.

"*From 2012 to 2017 the unique spaces where we had the chance to somehow create awareness on the topic was through social media, mass media, and conference press*

*which we organized. It was the only way that we could generate conversation and public debate."* NGO representative

"*When the GDA was proposed as a FOP label system to manage and prevent obesity, we had an important task to demonstrate with evidence the deficiencies of this system. We collected the needed resources and started generating evidence to show that it wasn't the correct strategy. Then we disseminated the results in conferences generating a critical mass with the civil society and academia*." Academic representative

*"Since 2017, we have used a civil platform that promotes healthy lifestyles among the population to inform the community. Mainly we defend the consumers interest by providing information on people's perceptions of the different FOP labeling systems."* Industry representative

*"The media opened a public space to debate and discuss about the FOP warning label policy and all its implications. Different broadcast media had invited deputies, senators, academics, civil society leaders and senior-executive leaders from food and beverage companies to speak on the topic."* Journalist

When analyzing the networks by dimensions of power (Table 5.5), the space network has correlated with the form network (0.908, $p$=0.001). This correlation suggests that there is a pattern of actors who enforced power within the dimension of space and form, also demonstrated with the results described above. Actors that influenced the policy-making process within a

closed space seems also enforce visible power (e.g., government representatives). Actors that influenced the policy-making process within a created space seems also enforce hidden power (e.g., academics, industry and NGO representatives).

**Table 5.5 QAP correlations between the networks that influenced the policy-making process to implement front-of-pack (FOP) warning label legislation for unhealthy food and beverage products in Mexico by dimension of power**

| | **Level Network** | | **Form Network** | |
|---|---|---|---|---|
| | QAP correlations | *p* value | QAP correlation | *p* value |
| **Level network** | - | - | - | - |
| **Form network** | -0.283 | 0.177 | - | - |
| **Space network** | -0.268 | 0.203 | 0.908 | 0.001 |

## 5.4 Discussion

Social network analyses were used to explore the dimensions of power in the policy-making process to implement FOP warning labels on unhealthy products in Mexico. Combining this case study with Gaventa's power cube framework, results suggest that the complex nature of power has dynamic and structural transformations that are slow and take time. It required action from diverse actors and sectors, convergence and alignment of the power dimensions as spaces, levels and forms to bring a change and shift from commercial interest-based into an evidence-based policy-making process.

We identified a network of 80 key actors deemed powerful by their peers. These actors represented seven group categories from the academia, government sector, international agencies, journalists, political sector, NGOs, and private industry. Previous literature has shown that the UN global targets to tackle obesity and NCDs have broadened actors' engagement to

make nutrition political commitments in space where academic researchers, governments, international agencies, NGOs and private industry continuously interact.(35)

The policy network described in this case study from Mexico revealed two main brokers (defined as having the highest betweenness centrality scores), one from the political sector, and the other from an academic setting. It is well documented that brokers have a significant impact on decision making processes due their privileged structural positions.(33) Broker 1, the actor from the political sector who worked in the Congress served with a brokering role among the social network. The interviews revealed that NGOs and academic representatives advocated collectively for public health policies and engaged being similar concerns, and engaged with the political sector and policy agendas that showed strong leadership to respond to these challenges. We suggest that the coordinated efforts particularly from NGOs and academia, which also had the highest betweenness centrality scores, created the political will and took advantage of the opportunity for the Mexican Congress to vote in favor of the warning label legislation.(57) This explains the high visibility and broker role of the political sector, recognized as a key powerful player in the network.

Broker 2, an actor from the academic setting, held a commanding and strategic position that facilitated the network connections and gave meaningful power to influence the policy-making process and mobilized other actors to shape the political agenda. This observation implies that academic researchers have a big role to translate evidence into policy. Participants who were interviewed reported that academic actors exerted power through their engagement in research-policy relationships by working with other actors such as NGOs and international agencies to

present relevant and independent unbiased scientific findings to the policy-making table. Previous social network research found similar results, where individuals from academia had successfully shaped public opinion and national policy to address obesity and diabetes in New Zealand.(58)

Our results can also be explained by the lessons learned from previous experiences (e.g., GDA, sugary beverage taxes, regulating the sale of unhealthy food and beverage products in school), which helped to leverage advocacy efforts from the academic and NGO settings to overcome the challenge of invisible and hidden forms of power. This is supported with literature that highlights Mexico's attempts to promote healthy food environments and healthy diets through policies. Barker et al describes how coalitions with academic institutions, lobbyists, NGOs and the technical support from the international agency PAHO played a key role on the adoption of sugary beverage taxes.(59) A review published by Barquera et al. 2013 described efforts undertaken in Mexico to tackle obesity that revealed how expert coalitions comprised of actors from academia, civil society organizations and international agencies legitimized actions that helped to mobilize similar issues prioritized by the government's policy agenda.(20) As shown by previous research(60-62), this study revealed how strategic coalitions may bridge relationships with local, national and international actors that increase legitimacy, accountability, and transparency to expose and counteract the hidden power exerted by private industry actors. Creating strategic partnerships enhanced leverage among policymakers to promote an evidence-based rather than a process influenced by commercial interest. The two key brokers in the social network were part of coordinated coalition efforts that revealed the power of engagement at multiple levels (i.e., local, national and international); enabled the opening spaces for

engagement (i.e., invited); and exposing forms of power (i.e., visible, hidden and invisible) used to influence the policy-making process.

The Mexican government scored high in-degree score and was identified as the fourth main broker in the social network. Scores can be explained by the role of the government in this policy-making process. Interviews highlighted that government mediated the power in the network at all levels and opened the invited spaces to include multisectoral actors in the policy-making process. For example, the government sector invited UN agencies including FAO, PAHO, and UNICEF that played a critical role in providing the Mexican government with the best available evidence and best-practice recommendations to improve the healthfulness of the diet for Mexican citizens.(9) Previous literature also demonstrates the power of international agencies to accelerate the process in similar processes to promote healthy food environments through policies such as implementing sugary beverage taxes.(59) The faction analysis also demonstrated the power of international agencies. Despite, faction subgroups had considerable overlap of actor's, international agencies were found to be predominant in two out of the three factions (i.e., blue and red subgroups).

The visibility of power is also shaped by actors who create spaces for power.(30) The change of the national government with the presidential election that occurred in 2018 moved to a leftist political party that sustained a discourse of anticorruption, and enhancing transparency in governance that shifted the space of power to favor the implementation of FOP warning labeling legislation in Mexico. The opening of previously closed spaces created a multisectoral and coordinated collaboration led by representatives of the Mexican government. Strong advocacy

efforts and the creation of new coalitions may have created momentum for many new actors who had not been considered in the previous process to implement the GDAs as a mandatory FOP label system, to participate in this newly opened policy-making process. Opening the invited spaces enhanced the legitimacy and credibility of the process that received international media recognition. The Mexican Ministry of Health was recognized internationally(50) and given an award by the WHO Director General for implementing a FOP warning label legislation using a transparent evidence-based policy-making process.(51, 52)

The corporate political activity undertaken by the private industry actors has been well documented, where they have shaped public policy and public opinion to benefit their commercial interests.(17-19, 22-24, 58) Although, this network analysis does not provide clear evidence of a privileged position for this group of actors in the social network, the analysis showed a significant density indicating that the private industry had high presence and connectedness. It is important to note that our results were likely influenced by the low participation rate from the private industry. However, the interviews with diverse actors demonstrated an exerted hidden power in created spaces dominated by private industry actors, that created barriers and attempted to block the implementation of the FOP warning label legislation for unhealthy food and beverage products in Mexico. This result is not surprising since similar results have been found in other countries and for other policy topics in Mexico.

A 2020 commentary points that corporate political power in nutrition policy is constantly shifting to adopt actions to influence policy in response to changing institutional norms by identifying available political opportunities to build shape policy.(63) Carriedo et al identified in

a case study that marketing campaigns, price architecture and linking social responsibility actions to governments as the strategies used the strategies that food industry used to influence the narrative and political agenda.(21) Similar, McKee found four main ways that private industry influence health (e.g., defining the narrative, setting the rules, using trade arguments to block initiatives, and undermining social and economic rights).(64)

Nutrition labeling is a regulatory measure that faces international trade barriers as a common thread. Private industries currently rely on the argument that the public health strategy interfere with international trade.(19, 65) Despite, the strategies used by the private industry in this policy-making process, the results did not favor their commercial interests. Coalitions between academic researchers, NGOs and UN agencies leveraged advocacy efforts and increased credibility in the evidence presented to the policymakers undermining the hidden power exerted by the private industry. This case study implies a shift in the dynamics of power in the policy-making towards an evidence-based rather than commercial interest-based process.

A policy victory in the visible arena of power may be important, but may not be sustained, if those outside the arena are not aware that it has occurred(34). Set up networks are often difficult to sustain due the dynamic setting where actors change job roles, agendas, and national priorities.(34) Actors seeking change should be aware of the need to engage and be accountable. For effective governance, network actors need to create collaborative and collective actions to be accountable and tackle complex problems.(66) Power needs to be acknowledged as a factor when declaring conflict of interest for all actors in the nutrition space, not only private industries to build accountability and transparency, as suggested in previous literature.(67, 68)

Governments and actors from the political sector should be aware of the power that is exerted in the policy-making process and hold all the actors accountable.

Social networks are dynamic, complex systems in which power is constantly evolving through actors' behaviors, interests, and engagement activities. The QAP analysis reveal that in the social network actors' power connected and simultaneously interacted in the dimensions of form and space, with a high correlation (0.908, *p*0.001). This suggests that when alignment on the dimensions of power successful change happens. The manifested power was shaped through the interconnections with national (e.g., government and NGOs) and global actors (e.g., international agencies) that could have influenced agenda's alignment at all levels creating an effective and rapid way to influence the policy environment. This suggests that local and national actors may use global forums arenas for action, as showed in previous published evidence.(9)

Mexico's current complex problem facing obesity and attempts to tackle the issue is happening similarly in other countries across the Americas, whose embrace democracy as their preferred form of government (e.g. Brazil, Colombia, Uruguay). It should be underscored that democracy frequently involves diverse range of actors that exert power to shape policy-making processes. Mexico's political and socio culture may compare and contrast with other countries due the nature of lobbying, government capacity to influence the space, and involvement of similar actors across disciplines. This last, give the social network analysis a powerful merit as a method that could be uses across broader public health contexts at local, state and national levels.

*Study strengths and limitations*

This case study research may be applicable to understand nutrition policy-making in other country settings. The principles and applicability of networks hold true across a variety of settings that could serve as an example for other countries worldwide. The incorporation of qualitative data enabled to reflect and analyze where and how power has been enacted in the nutrition policy-making landscape. Moreover, the framework used can help to identify specific and contextually political factors to be considered by actors seeking to shape similar policies. With careful attention, researchers trying to use the Gaventa's power cube framework must capture the nuances of hidden and invisible power. Hidden must be acknowledge as power exerted to set the political agenda by maintaining relationships to control who gets to the policy-making table; whereas, the invisible power must be understand by exerted power that shapes meaning by influencing actors' beliefs and ways to think. The data collection process was conducted during the coronavirus (COVID-19) lockdown. Therefore, some groups of actors were more likely to respond. However, government representatives were harder to ger them participate, since the priority at those times were to control the emergency situation of COVID-19 in the country. We acknowledge that a higher response rate, specifically from the political sector and private industry representatives, would have given greater confidence in the data. Although, the private industry response was low, we received four responses that declined the interview. Industry actor may have suspected a possible political implication for this study that could cause a low participation rate. Actors could have decided to over- or under report nominations and roles to appear more or less powerful causing response bias. The study is also limited due its cross-sectional design as a point-in-time analysis. While the research captured key moments through several years since FOP labeling was placed at the national agenda, most interviewees focused their answers on 2019 and 2020. This limit the study to capture one

snapshot form the whole timeframe when efforts started to implement an effective FOP label system based on evidence.

### 5.5 Conclusions

This study adds a new perspective on the nutrition policy-making process by providing empirical data on the power of the social networks that enabled the government to enact FOP warning labeling legislation for unhealthy food and beverage products in Mexico. Our results showed two dominant brokers, whose structural positions within the social network were strategic to make a shift in the political power from a commercial interest-based into an evidence-based policy process. This case study enhances our understanding of multisectoral actor relationships and practices that contributed to an alignment on the dimensions of power that enabled policy change. Building coalitions and collaborative power opened invited spaces for participation of actors at multiple levels (e.g., local, national and global). Coalitions between academic researchers, NGOs and UN agencies leveraged advocacy efforts with the political sector, increased credibility in the evidence presented to the policymakers, and undermined the hidden power exerted by the private industry. The Mexican case study emphasizes the need for multiple checks and balances throughout level, form, and spaces of power to accelerate similar processes aiming to promote healthy food environments and healthy diets through policy. Social network analysis provides a powerful method that can be used to engage global and national efforts aiming to prevent and manage obesity and NCDs.

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# Chapter 6 . Conclusions

## 6.1 General Conclusions

The multicausal factors that influence obesity and NCDs rates have placed policies to restrict the marketing of HFSS food and beverage products as an important strategy worldwide, and integrated into the WHO's action plans, the UN Decade of Action on Nutrition to address all forms of malnutrition, and relevant SDG's goals. The fact that the world is currently facing a dual pandemic of obesity and COVID-19 combined with the UN global targets opens an opportunity to implement robust and comprehensive policies to create healthy environments and ensure the right to wellbeing. However, policymakers in Member States must demonstrate political will and be more ambitious to implement Resolution WHA63.14, and ensure that non-State actors are engaged in reducing the marketing of HFSS food and beverage product to children at a faster pace to achieve WHO and UN targets by 2025.

The IMC strategies used on HFSS food and beverage products to persuade children is a challenge that Member States or national governments should overcome using evidence-based decision-making. Comprehensive policies need to be developed because children are constantly exposed to the marketing of HFSS food and beverage brands and products that undermines their diet quality and health, and exploits their cognitive vulnerabilities for growing and developing at a healthy weight. This research is highly relevant to urge policymakers in UN agencies to provide Member States with technical assistance to regulate and restrict commercial marketing and adhere to the UNCRC ensuring the right to wellbeing. By promising and prioritizing the protection and promotion of children's health, Member States must use their political authority and legitimacy to justify the development of strong and comprehensive policies and place this

issue on the national political agenda worldwide. Strong regulatory approaches and coercive measures will enhance policies and hold accountable all State and non-State actors and institutions.

Member States' Ministries of Health capacity-building of public health infrastructures, policies and information systems plays an important role in the governance process to fully implement resolution WHA63.14 to reduce the marketing of HFSS food and beverage products to children. The inclusion of multisectoral actors into the governance process is a challenge that brings different agendas and interests in the decision-making table. However, the involvement of multiple actors will help to drive policy development and policy coherence for the creation of healthy environments, which is an opportunity for Member States to achieve WHO action plan, UN Decade of Action on Nutrition (2016-2025), and the 2030 SDGs targets.

A balanced power from actors in the social networks represents an opportunity that enable governments to enact legislations to create healthy food environments based on evidence-based policy processes. Transnational industry corporate lobbying and conflicts of interest challenge the policy-making process by prioritizing profits and commercial interests over healthy diets for children worldwide. Building coalitions and collaborative power open spaces for participation of actors at multiple levels creating opportunity to leverage advocacy efforts to engage global and national efforts aiming to prevent and manage obesity and NCDs.

This body of research suggests that Member States are making some progress to implement restrictions on the marketing of HFSS food and beverage products targeted to children. However,

the adoption of a policy does not mean that children are fully protected from the commercial marketing practices. Member States face the challenge of adopting comprehensive and robust policies within and across geopolitical borders to address the integrated marketing communications strategies used to persuade children to purchase and consume HFSS food and beverage products. To effectively prevent obesity and NCDs through the restriction of marketing of HFSS food and beverage products to children, enacted policies must to be monitored and evaluated. Academic and NGOs should use current monitoring frameworks, protocols and metrics (such as the RESPI tool described in study 2 of this PhD dissertation), to examine diverse marketing practices, increase data availability, and overcome challenges to monitor and evaluate food and beverage marketing practices.

Many areas of growth and improvement remains to protect children from widespread marketing of HFSS food and beverage products to children. Member States face a challenge on the implementation of nutrient criteria due its wide variety (e.g., nutrient profile models and national dietary guidelines) to classify products as "healthy" to be marketed. Applying standardized criteria is an opportunity to accelerate coordinated progress and reduce trade barriers across national borders of policies that regulate marketing of HFSS food and beverage products. However, countries should be cautious to not lower standards but to harmonize strong nutrition standards across countries and regions. The rapid adoption of digital technologies in food retail driven by COVID-19, represent a challenge to overcome the pronounced lack of regulatory policies for digital marketing and media platforms that influence childhood obesity risk.

### 6.2 Research strengths, limitations and future needs

One of the main strengths of this research was the partnership created with PAHO, which helped to collect data through its regional office based in Washington D.C. Therefore, results from study one served as proxy results of the whole region of the Americas. A second strength was the use of several conceptual frameworks for the three studies that helped to clearly defined the scope of each study and guided the analysis to reduce interpretation bias. The mixed-methods approach gave a voice to the participants and ensured accuracy between the quantitative and qualitative results. Lack of resources and time limited the sample size of study one and three, software packages for deeper analysis, and the opportunity to validate the developed web-based with visualization tools.

Future research could (1) explore the capacity-building needs of Ministries of Health in PAHO States to monitor, progress and compare results across time; (2) test and adapt the RESPI in other countries and WHO regions; (3) validate the web-based platform with data visualizations tools among a non-academic audience; (4) expand research on the network analysis across time, sustainability of the networks and prove causality on the shift of power; and (5) examine effective policy response for governments to restrict digital marketing practices that promote HFSS food and beverage brands and products to children globally.

### 6.3 Policy implications

Overall, this body of research provides empirical evidence on the opportunities and challenges for Member States, including actors involved in the policy-making process (e.g., government representatives, UN agencies, NGOs, and industry) to timely achieve the implementation of the Resolution WHA63.14 to reduce the marketing of unhealthy food and beverage products to

children to reduce global obesity and NCDs by 2025. Specifically, study one provides baseline data to strengthen the capacity Member States to achieve WHO nutrition targets. Furthermore, results from study two provides an overall panorama of the progress achieved by selected countries (*n*=14) in the Americas region (i.e., Canada, US, Mexico and other Latin American or South American countries) that inform the general audience and policymakers through an interactive Web-based tool called the Responsible Policy Index (RESPI) that used data visualizations to present the results to inform future actions. The RESPI tool may be used by national policymakers, WHO offices, international civil agencies, and non-governmental organizations (NGOs). This study also helped to translate and communicate research with diverse actors outside the academic environment through interactive data visualizations to adopt successful elements into policies to restrict the marketing of HFSS food and beverage products to children. Finally, the results of study three contribute to policy by using social network analysis to explain the dimensions of power that diverse actors enact in the policy-making process that enhance or undermine global and national coordinated efforts to shape policies that prevent and manage obesity and NCDs.

# Appendices

## Appendix A. IRB Approval

VIRGINIA TECH

Division of Scholarly Integrity and
Research Compliance
Institutional Review Board
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Blacksburg, Virginia 24061
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**MEMORANDUM**

**DATE:** November 6, 2019

**TO:** Vivica I Kraak, Sofia Rincon Gallardo Patino, Robin Hargroder Lemaire

**FROM:** Virginia Tech Institutional Review Board (FWA00000572, expires January 29, 2021)

**PROTOCOL TITLE:** Challenges and Opportunities for Member States to Implement Resolution WHA63.14 to Restrict the Marketing of Food and Beverage Products to Children to Reduce Global Obesity and Non-Communicable Disease Risks by 2025

**IRB NUMBER:** **19-467**

Effective November 6, 2019, the Virginia Tech Human Research Protection Program (HRPP) and Institutional Review Board (IRB) determined that this protocol meets the criteria for exemption from IRB review under 45 CFR 46.104(d) category(ies) 2(ii).

Ongoing IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit a new request to the IRB for a determination.

This exempt determination does not apply to any collaborating institution(s). The Virginia Tech HRPP and IRB cannot provide an exemption that overrides the jurisdiction of a local IRB or other institutional mechanism for determining exemptions.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

https://secure.research.vt.edu/external/irb/responsibilities.htm

(Please review responsibilities before beginning your research.)

**PROTOCOL INFORMATION:**

| | |
|---|---|
| Determined As: | **Exempt, under 45 CFR 46.104(d) category(ies) 2(ii)** |
| Protocol Determination Date: | **November 6, 2019** |

**ASSOCIATED FUNDING:**

The table on the following page indicates whether grant proposals are related to this protocol, and which of the listed proposals, if any, have been compared to this protocol, if required.

## Appendix B. Study 1: Recruitment Material

***PAHO/WHO INTEROFFICE MEMORANDUM***

***Date:*** 17 December 2019

***From:*** Adriana Blanco, Unit Chief, NMH/RF

***To:*** Those Listed Below*

***Through:*** Anselm Hennis, Director, NMH

***Our Ref.:*** NMH-RF-19-171

***Your Ref.:***

***Originator:*** Fabio da Silva Gomes, NMH/RF

***Attention:***

***Subject:*** Questionnaire to assess government capacity to restrict the marketing of unhealthy food and beverage products to children

The Pan American Health Organization/World Health Organization (PAHO/WHO) has established as a priority, the reduction of obesity in children and adolescents in the Region.

In this sense, PAHO's Plan of Action for the Prevention of Obesity in Children and Adolescents demonstrated the concern and commitment by the Member States on the rise of obesity. In order to support Member States in achieving the targets in the Plan of Action the Department of Noncommunicable Diseases and Mental Health (NMH) has prepared a questionnaire to develop a Regional baseline of government capacity to regulate the marketing of unhealthy food and beverage products to children, which provides a situational analysis that allows the identification of priorities for technical assistance.

The questionnaire collects information on the marketing of unhealthy food and beverage products, which are not always readily available or detailed enough, on Member States' websites or other secondary sources of information, in a manner that allows PAHO to monitor the progress of the Region towards the Plan of Action. It is important to highlight that the questionnaire only covers the essential information for strategic line of action 3 of the Plan of Action.

The questionnaire should be completed online by a person who has knowledge of the regulation of products, including any regulatory initiatives underway. Ideally, it should be someone from a food regulatory agency or a noncommunicable disease program with knowledge of unhealthy food and beverage products. The person will additionally need support from officials responsible for the regulation and marketing of products; furthermore, because countries need to improve coordination with different levels of the governance of food regulations in the country, where it relates to unhealthy food and beverage products in order to implement the Plan of Action.

In this context, we would like to kindly ask for your support to request the national health authorities of your country to nominate a focal point to coordinate the data collection and validation process. Kindly send the name and contact details of the nominated focal point to Dr. Fabio da Silva Gomes, Nutrition and Physical Activity Advisor, (gomesfabio@paho.org), no later than 10 January 2020.

## Appendix C. Study 1: 28-item Web-based Survey

*Government capacity to address marketing of food and non-alcoholic beverages to children in the Region of the Americas*

Instructions

Dear Colleague,

Please help to complete the full questionnaire, your input is very valuable. The questionnaire should be completed by a person with knowledge of the food regulatory process, including any regulatory initiatives underway regarding marketing of unhealthy food and beverage products to children, in the country; ideally someone from the food regulatory agency or from the noncommunicable disease program with knowledge of any marketing of unhealthy food and beverage products to children regulatory work. The questionnaire collects information on policies and practices and does not require any field data collection. This questionnaire consists of four sections and three modules with a total of 28 questions. The questionnaire will take approximately 25 minutes to complete, depending on the extent of the regulatory actions on marketing of unhealthy food and beverage products to children in your country.

The answers to the questionnaire will guide Member States in the Pan American Health Organization (PAHO) Region to plan future actions and technical assistance to fully implement the 2010 Resolution WHA63.14 to address the marketing of unhealthy food and beverage products to children. The information collected will be used to monitor the progress and accountability of Member States to the UN General Assembly and World Health Assembly (WHA). The use of standardized questions will allow comparisons across countries.

General Information on those who completed the web-based questionnaire

1. Name and country
2. Position
3. E-mail address

Module I. Public Health Infrastructure

This module includes questions related to the presence of a unit or division in the Ministry of Health or other national organization focused on population health, as well as staff and funding. It assesses the existence of a formal multisectoral mechanism to address the marketing of food and non-alcoholic beverages to children.

4. Is there a unit/branch/department in the Ministry of Health or equivalent with responsibility to address the marketing of unhealthy food and beverage products to children in your country? Please specify.

- Yes
- No
- Do not know

Please specify:

5. Indicate the number of full-time equivalent technical/professional staff in the government agency unit, branch or department who are responsible for addressing the marketing of food and non-alcoholic beverages to children.

- 0
- 1
- 2-5
- 5 or more
- Do not know

6. Indicate below whether there is funding allocated in the national government's budget to support any policies to address the marketing of food and non-alcoholic beverage products to children in your country.

| | Yes | No | Do not know |
|---|---|---|---|
| Policy design and implementation | | | |
| Surveillance, monitoring and/or evaluation | | | |
| Capacity-building | | | |
| Research | | | |

7. Indicate the major sources of regular funding for policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children in your country.

- General government revenues
- International donors
- Earmarked budgets from taxes on sugar sweetened beverages, alcohol, tobacco, snack foods
- Subsidies for healthy foods such as fruits and vegetables
- Other, please specify below

Please specify:

8. Are there any partnerships or multisectoral collaborations with other institutions, companies, business alliances, industry trade associations, or individuals to enhance the policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children in your country?

- Yes
- No
- Do not know

9. Select all the boxes that apply below on partnerships or multisectoral collaborations to address the marketing of food and non-alcoholic beverages to children in your country.

- Other government Ministries or agencies besides the health sector (i.e., Ministry of Education, Ministry of Finance. Ministry of Social Welfare)
- United Nations agencies (i.e.,The World Bank, Pan-American Health Organization / World Health Organization (WHO), Food and Agricultural Organizations [FAO], United Nations Children's Fund [UNICEF])
- Academia, including any research centers, or universities
- Non-governmental or civil society organizations
- Private-sector firms or organizations (i.e., food and beverage manufacturers, restaurants, retailers, food service companies, entertainment and media companies, corporate foundations, business alliances, and industry trade organizations)
- Do not know

10. Indicate in the box below the type of evidence sources (i.e., reports, studies or other resources) used to develop, implement, or modify policies, strategies, or actions to address the marketing of food and non-alcoholic beverages to children in your country.

11. Indicate if there are effective leaders, policymakers, champions or advocacy organizations who create strategic directions, motivate staff, and align goals to implement policies, strategies, or actions to address the marketing of food and non-alcoholic beverages to children in your country. Please specify.

- Yes
- No
- Do not know

Please specify:

Module II. Policy efforts

This module includes questions relating to the presence of policies, strategies, or action plans that address the marketing of food and non-alcoholic beverages to children in your country.

12. If your country includes policies, strategies or actions to address the marketing of food and non-alcoholic beverages to children in the national plan to reduce and prevent obesity and/or diet-related non-communicable diseases, please attach file.

Choose File

Web links:

13. Does your country prioritize on the current national agenda any policies, strategies, or actions to address the marketing of food and non-alcoholic beverages to children?

- Yes
- No
- Do not know

14. List in the box below the specific policies, strategies, or actions to address the marketing of food and non-alcoholic beverages to children on the current national agenda in your country.

15. Attach files of the policies, strategies, or actions to address the marketing of food and non-alcoholic beverage products to children on the current national agenda in your country

Choose File

Web links:

16. Does your country have national targets or specific, measurable and time-scaled objectives to address the marketing of food and non-alcoholic beverages to children under the implementation of the Sustainable Development Goal 3 “Ensure healthy lives and promote wellbeing for all at all ages”?

- Yes
- No
- Do not know

17. Specify the national targets or specific, measurable and time-scaled objectives that address the marketing of food and non-alcoholic beverages to children in your country.

18. Select all the boxes that apply below on the type of policies, strategies, and actions that address the marketing of food and non-alcoholic beverages to children in your country.

- Voluntarily/self-regulated by industry
- Government guidelines, legislation or laws
- No policies, strategies or actions
- Do not know

19. Select the boxes that apply below on the marketing strategies and techniques that your country includes to address food and non-alcoholic beverages to children.

| | Mandatory | Voluntarily | None | Do not know |
|---|---|---|---|---|
| Branding | | | | |
| Cartoon mascots, licensed or media characters, celebrities | | | | |
| Direct marketing | | | | |
| Point of sale | | | | |
| Premium offers | | | | |
| Product design and packaging | | | | |
| Product placement | | | | |
| Sponsorship | | | | |

20. Select the boxes that apply below on the communication channels and settings that your country includes in policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children.

| | Mandatory | Voluntarily | None | Do not know |
|---|---|---|---|---|
| Broadcast (TV and radio) and print media | | | | |
| Community, sports and special events | | | | |
| Digital and social media | | | | |
| Food retailers and restaurants | | | | |
| Mobile and digital devices | | | | |
| Outdoors and transportation | | | | |
| Schools | | | | |
| Websites | | | | |

21. Select the boxes that apply below on the nutrition criteria or guidelines does the policies, strategies, and actions use to address the marketing of food and non-alcoholic beverages to children in your country.

| | Yes | No | Do not know |
|---|---|---|---|
| National dietary guidelines | | | |
| Independent criteria (i.e., non- commercial or scientific) | | | |
| Nutrient profile model (i.e., PAHO) | | | |
| Food and beverage product categories | | | |
| Company names and brands | | | |

22. Indicate in the box below the explicit language of your national Constitution about your government protecting children's rights to food and health based on the United Nations Convention on the Rights of the Child.

23. Indicate in the box below the body, entity, or institution that is in charge to enforce the policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children.

24. Select the boxes below for the accountability mechanisms that your country use to enforce the policies, strategies, and actions to address the marketing of food and non-alcoholic beverage products to children.

- Fines
- Public complaints
- Verbal warnings
- Media reports
- Do not know

- Other (please specify):

25. Select the boxes that apply below to show the entities that are responsible for overseeing the investigation of complaints and enforcement of policies, strategies, and actions used to address the marketing of food and non-alcoholic beverages to children in your country.

- Government
- Industry
- Independent regulator
- Other (please specify):

26. Does your country's policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children consider the effects of cross-border marketing for other countries or your region? Please specify.

- Yes
- No
- Do not know

Please specify:

Module III: Information systems

The questions in this module assess surveillance related to the policies, actions or strategies to address the marketing of food and non-alcoholic beverages to children for each country, and whether data are included in their national health reporting systems.

27. Indicate below whether your country has a national surveillance or monitoring system, uses ongoing surveys, or depends on industry or media reports to collect data on the policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children?

| | Surveillance system | Surveys | Industry and media reports |
|---|---|---|---|
| Yes | | | |
| No | | | |
| Do not know | | | |

28. Select below all the entities that are responsible to collect the data and report results of the policies, strategies, and actions to address the marketing of food and non-alcoholic beverages to children in your country.

- Government agencies
- Industry corporations and trade associations
- Independent regulator
- Research institutions
- Public-interest and civil society organizations
- Investigative journalists in the media
- Do not know

This is the end of the questionnaire.
Thank you for your time.

## Appendix D. Study 3: Recruitment Material

COLLEGE OF AGRICULTURE AND LIFE SCIENCES
HUMAN NUTRITION, FOODS, AND EXERCISE
VIRGINIA TECH

**Department of Human Nutrition, Foods, and Exercise**
Blacksburg, VA 24060

**Subject line**: Research study participation invitation
Date, 2020

**Participant name**
Participants institution/affiliation

I would like to invite you to be in a research study that involves an interview to collect opinion and ideas of key actors that are involved in the policy development, implementation, monitoring and evaluation of foods and non-alcoholic beverages high in saturated fats, trans-fatty acids, free sugars, or salt. The research leader for this study is Professor Vivica Kraak in the Department of Human Nutrition, Foods, and Exercise at Virginia Tech, in Blacksburg, Virginia.

### A research study to explore the dimensions of power in the Mexican social networks that influence the policymaking process to address unhealthy food and beverage products

**Why is this research being done?**
This study will help to guide the planning of future actions and technical assistance required to develop, implement, and evaluate public health policies to address unhealthy food and beverage products to children. The information collected will also be used to provide key information to policymakers, public health officials, state departments, industry actors, and non-governmental organizations, and civil society to improve the policymaking process.

**Who can join this study?**
We are seeking key actors from the food and beverage industry, media, academia, government, civil society, foundations, or international organizations that have been involved in the process to develop, implement, monitor, or evaluate policies to restrict unhealthy food and beverage products in Mexico between 2012 and 2019.

**What are you asked to do?**
The interview will take about 45 minutes. If you are interested in learning more, please contact the research coordinator Sofía Rincón Gallardo, (contact information below).

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu , (540) 231-3732 or the Principal Investigator (contact below). IRB #19-467.

Sincerely,

**Sofía Rincón Gallardo Patiño**, MSc, RDN
Research Coordinator, and PhD Student
Department of Human Nutrition, Foods, and Exercise
Virginia Tech
330 Wallace Hall, Blacksburg, VA 24061
mobile: (540) 831-9719
email: sofiargp@vt.edu

Principal Investigator, Assistant Professor of Food and Nutrition Policy
Department of Human Nutrition, Foods, and Exercise
Virginia Tech
257 Wallace Hall, 295 West Campus Drive
Blacksburg, VA 24061
Work phone: (540) 231-9638
email: vivica51@vt.edu

**Vivica Ingrid Kraak,** PhD, RDN

## Appendix E. Study 3: Semi-structures Interview Guide

| # | Questions |
|---|---|
| **Background** | |
| **1.** | Please, can you provide the following information:<br>Name, organization, position, professional expertise, gender, age |
| **2.** | Have you been involved in the process to develop, implement, monitor, or evaluate policies to regulate foods and non-alcoholic beverages high in saturated fats, trans-fatty acids, free sugars, or salt in Mexico? |
| **3.** | For which policies you were involved in the process to develop, implement, monitor, or evaluate policies to regulate foods and non-alcoholic beverages high in saturated fats, trans-fatty acids, free sugars, or salt in Mexico? |
| **Power** | |
| **4.** | Does your participation in the topic is at a local, national or global level? |
| **5.** | Can you briefly explain how do you participate in the process to modify the front-of-pack (FOP) label law NOM-051? This mean the range of your actions.<br>If needed provide some examples: advocate, observe, advise, have a decision in the formal rules, provide financial or intellectual resources, shaping ideas, providing guidance of what is acceptable |
| **6.** | Can you describe your participation including the moment where you had opportunity to contribute, channel of communication you used, where did it take place, and if you were invited who extended the invitation? Have you had the need to create a space out of the policy arena to debate, discuss and be involved? |
| **Personal perception** | |
| **7.** | Let's define power as "the ability to reach your goals". How powerful do you consider yourself in process to modify the front-of-pack (FOP) label law NOM-051, and why?<br>If needed provide some examples: changing the rules, having action in the procedures of policy-making, control the political agenda, keeping issues on the table, have a voice outside the decision-making, influencing the resources, shaping ideas, internalizing beliefs and norms |
| **8.** | What is your opinion about process to modify the front-of-pack (FOP) label law NOM-051? In terms of how supportive or unsupportive you are. |
| **Nomination** | |
| **9.** | Given that you have been identified as a key person, please nominate three people that you consider important in the process to modify the front-of-pack (FOP) label law NOM-051. If you are unable to name a person, please name the position or organization.<br>Please rank them 1 being the most powerful and 3 being the least powerful by using power as the "ability to reach one's goal." This nomination process would allow us to identify other actors that have a role in the policy-making process to restrict unhealthy food and beverage marketing to kids. |
| **10.** | In the process to modify the front-of-pack (FOP) label law NOM-051, what are the main roles (i.e., give advice, make decisions and funding) of your nominees? |
| **11.** | How often (i.e., never, daily, weekly, monthly, quarterly, semesterly, or yearly) are you in direct contact with your nominees? |
| **Wrap-up** | |
| **12.** | Is there anything else related to the process to develop, implement, monitor, or evaluate policies to regulate foods and non-alcoholic beverages high in saturated fats, trans-fatty acids, free sugars, or salt that you would like to add? |

## Appendix F. Study 3: Consent Form

VIRGINIA TECH

**VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY**

**Informed Consent for Participants**
**in Research Projects Involving Human Subjects**

**A research study to explore the dimensions of power in the Mexican social networks that influence the policymaking process to regulate unhealthy food and beverage products**

*November 2019*

**Adult Consent Form**

**I. Study Purpose**
The purpose of this study is to explore the Mexican social network involved in the policy development, implementation, monitoring and evaluation of unhealthy foods and non-alcoholic beverages.

**II. Procedures**
This interview consists to collect opinion and ideas of key actors that are involved in the policy development, implementation, monitoring and evaluation of unhealthy foods and non-alcoholic beverages to children.
If you agree to be in this study, you will be asked 12 questions where there are no wrong answers. The interview will take about 45 minutes to complete and will be audio recorded.

**III. Risks**
There are small risks related to the participation of you in this study. Your responses, opinions and ideas will ask you basic information about you that will be kept private and confidential. Your participation in this study is not required. You may end your participation at any time. A summary of your responses with everyone else who participate may be reported in publications and at academic conferences. The study has been reviewed and approved by the Virginia Tech Institutional Review Board (IRB).

**IV. Benefits**
The results of the study will guide in planning future actions and technical assistance required to develop, implement, opinion and evaluate public health policies. The information collected will also be used to provide key information to policymakers, public health officials, state departments and industry actors to improve the building policy process. No promise or guarantee of benefits has been made to encourage you to participate. A summary of the results will be shared with you upon the research completion.

**V. Confidentiality**
Your answers and personal information will be kept confidential at all times and will be known only to the research team. Your personal contact information will be coded, stored separately from your responses and would not be used as part of the analysis. Direct quotes from this interview might be used for presentations or publications. Only trained researchers involved in this study will have access to information about you. At no time will the research team release information from the study or survey to anyone other than people working on the project. It is possible that the Virginia Tech IRB may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

☐I give my permission for the interview to be audio recorded.



Virginia Tech Human Research Protection Program
Protocol #19-467
Reviewed on November 6, 2019

VIRGINIA TECH

☐I DO NOT give my permission for the interview to be audio recorded.

**VI. Freedom to Withdraw**
Your participation in this study is voluntary. You are free to withdraw from this study at any time without penalty. You are not obligated to answer all of the questions. If either of you choose not to answer a question, you will not be penalized.

**VIII. Questions or Concerns**
Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research participant, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu or (540) 231-3732. IRB #19-467

**VII. Participant's Consent**
I have understood the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

Name of the person obtaining consent: _____

Date(mm/dd/yyyy): _____

Name of the participant providing verbal consent:_____

Date (mm/dd/yyyy): _____

**Sofia Rincon Gallardo Patino, MSc, RDN**
Research coordinator, Graduate Assistant and PhD Student
Department of Human Nutrition, Foods, and Exercise
**Virginia Tech**
330 Wallace Hall, Blacksburg, VA 24061
mobile: (540) 831-9719
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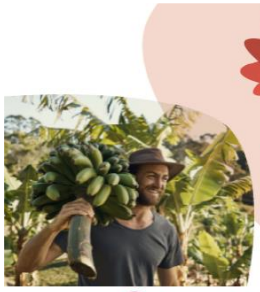
**Vivica Ingrid Kraak, PhD, RDN**
Principal Investigator, Assistant Professor of Food and Nutrition Policy
Department of Human Nutrition, Foods, and Exercise
**Virginia Tech**
257 Wallace Hall, 295 West Campus Drive
Blacksburg, VA 24061
phone: (540) 231-9638
email: vivica51@vt.edu

**Appendix G. Selected Abstract for Oral Presentation for Study 1**



WORLD PUBLIC HEALTH NUTRITION CONGRESS 2020

# Government Capacity to Restrict Marketing of Unhealthy Products in the Americas Region

*Brisbane Queensland, Australia*


**Sofia Rincon Gallardo Patino, MSc, RD**
PhD Candidate, Human Nutrition, Foods and Exercise, Virginia Tech

**Vivica I. Kraak, PhD, RD**
Assistant Professor, Virginia Tech

**Fabio Da Silva Gomes, PhD**
Advisor, Pan American Health Organization


## Abstract


Marketing of unhealthy food and beverage products is a significant driver of poor diet quality, obesity and non-communicable diseases (NCDs). The 2030 Sustainable Development Goals recognize the importance of addressing NCDs including a goal to reduce mortality from NCDs. National governments require strong actions to achieve targets such as implementing policies to reduce the impact of marketing of foods and non-alcoholic beverages on children, that contributes to unhealthy and unsustainable produced food and diets. This strategy may also help to achieve the Global Nutrition target 4 "No increase in childhood overweight", and to three of the Global NCD targets: i) target 4 "Reduction in sodium"; ii) target 6 "Reduction in the prevalence of blood pressure"; and iii) target "Halt the rise in diabetes and obesity".

This work aims to assess the national capacity and response of the Americas Region (n=35 countries from North, Central and South America) to implement this policy through a web-based questionnaire, adapted from the World Health Organization (WHO) Global Survey to Assess National Capacity to prevent and control NCDs, using the WHO 2012 framework for implementing the set of recommendations on the marketing of foods and non-alcoholic beverage to children. Detailed information is asked on three modules of national capacity building: i) Public health infrastructure; ii) Status of policy; and iii) health information systems, monitoring and evaluation.

Results will determine regional progress and challenges to achieve global targets. Findings will also offer insights to address the gaps on national capacity and strength accountability of national governments into building policies to create healthy food environments.


VIRGINIA TECH

## Appendix H. Selected Poster Presentation for Study 2

# Responsible Food and Beverage Marketing Policies to Restrict Marketing of Unhealthy Food and Beverage Products to Children in Countries in the Americas Region


*Sofia Rincón-Gallardo Patiño, MSc, RDN*; Vivica I. Kraak, PhD, RDN; Srijith Rajamohan, PhD; Amit Ramesh; Nicholas Polys, PhD; Kathleen Meaney, PhD; Eloise Coupey, PhD,*

**Contact: sofiargp@vt.edu; 338 Wallace Hall, 295 West Campus Drive Virginia Tech, Blacksburg, VA 24061, USA*


## Background

- The globalization of the food supply has fostered the widespread transnational marketing of highly processed food and beverage products to young people worldwide.[1,2]
- The pervasive marketing of unhealthy food and beverage products to children is associated with poor quality diet, unhealthy eating patterns, overweight and obesity, and diet-related NCDs including type 2 diabetes, heart diseases, and certain cancers.[3,4]
- Since 1980, obesity rates have doubled in over 70 countries worldwide, and rates among children have progressed more rapidly than adults.[5]
- In May 2010, 192 Member States of the World Health Organization endorsed the World Health Assembly Resolution WHA63.14 to restrict all forms of marketing of foods and non-alcoholic beverages to children (birth to 18 years).[6]

## Objective

To assess the current policy landscape in the Americas Region to fulfill international commitments to restrict the marketing of unhealthy food and beverage products to help reduce children's future obesity risk.

## Methods

- We conducted a scoping review of scientific published evidence and gray literature for voluntary and mandatory policies related to food and beverage marketing to children in 13 countries from the Americas Region.
- We used *a priori* definitions from a World Health Organization policy framework and the Integrated Marketing Communication conceptual model to create a Responsible Policy Index (RESPI) for food and beverage marketing to children.
- RESPI rates policy quality based in two main components that influence children's diet-related cognitive, behavioral and health outcomes: marketing techniques covered (i.e. media channels and marketing techniques) in the policy design and policy characteristics (i.e. regulatory vs. self-regulatory).
- Policies can obtain up to 5 points from each component. A score of 10 indicates the highest quality and 0 the lowest quality.
- A transdisciplinary team (n=7) participated on the coding consensus and formative evaluation processes.

## Results

***Countries assessed (n=13)** : Argentina, Brazil, Bolivia, Canada, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Mexico, Peru, United States and Uruguay*

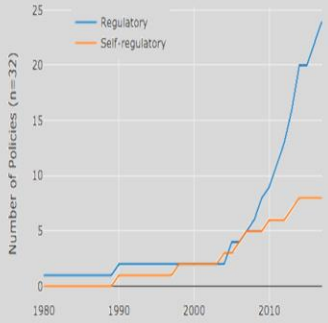
**Highest *RESPI scores:**
The highest scores belonged to regulatory policies


*8.3

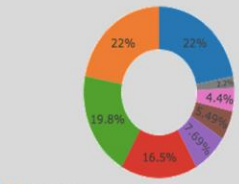

*8.1


*7.8

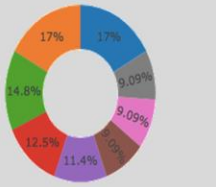
Type of food and beverage marketing policies in countries of the Americas by year




Proportion of Policies by Media Channels




Proportion of Policies by Marketing Techniques




## Conclusions

- Regulatory policies to restrict unhealthy food and beverage marketing to children in the Americas Regions are rising and address specific elements of the integrated marketing communications.
- The combination of assessed indicators from policies can provide valuable metrics to enable national governments to benchmark and track progress toward the development, implementation, monitoring and evaluation of country progress to restrict unhealthy food and beverage marketing to children.
- Future testing is needed to determine the feasibility and adaptability of the tool for other countries and regions.


***References**: 1. Roberto CA et al. Lancet. 2015 ; 2. Baum FE, et al. Global Health. 2016; 3.Yang L et al. Am J Public Health. 2017; 4. Pries AM et al. Matern Child Nutr. 2017; 5.GBD 2015 Obesity Collaborators. N Engl J Med. 2017; 6. World Health Assembly. Resolution of the Sixty-third World Health Assembly. 21 May 2010; 7. ; Pham MT et al. Research Synthesis Methods. 2014.*



***Funding & Disclosures**: This research was supported by* the Department of Human Nutrition, Foods, and Exercise and the Institute for Creativity, Arts and Technology from Virginia Tech.

## Appendix I. Selected Abstract for Oral Presentation for Study 3


# A social network analysis of power in the policymaking process to restrict unhealthy food and beverage products in Mexico

**Sofia Rincon Gallardo Patino, MSc, RD**
PhD Candidate, Human Nutrition, Foods and Exercise, Virginia Tech

**Vivica I. Kraak, PhD, RD**
Assistant Professor, Virginia Tech

**Dr. Robin Lemaire, PhD**
Associate Professor, Virginia Tech

Abstract area: J. Assessment and Methodologies in Behavioral Nutrition and Physical Activity Research on intervention development and evaluation frameworks, research methods and measurement innovations, and statistical innovations (e.g. EMA, MLM)

**Background:** Social network theory offers explanations for how relationships among actors' influence action. Effective policies to prevent obesity and achieve the 2013 World Health Organization goal to reduce non-communicable diet-related (NCD) mortality rates by 25% by 2025 are dependent on social networks composed of actors able to enact power and positively influence the policymaking process. However, there is limited evidence on the nature of the connections among actors involved in food and nutrition policies. The goal of this study is to explore the dimensions of power in the social and professional networks of actors who influence the policymaking process to restrict unhealthy food and beverage products to children in Mexico.

**Methods:** The study uses the Gaventa's powercube framework developed by the Institute of Development Studies. We will collect social network data using semi-structured interviews based on a snowball sampling method to identify relevant actors in networks of interest. We will conduct 2-mode analysis to examine which actors are most powerful and how correlated various power networks are with one another. To do these analyses we will use measures of centrality (in-degree, betweenness, and eigenvector) and Quadratic assignment procedures (QAP). Networks graphs will also be generated using UCINET to visualize the network structures and actor relationships.

**Results:** The results will map actors into power networks (e.g. levels, spaces and forms of power) and connectedness networks (e.g. relationships). This study will highlight the dynamics of power in the policymaking process between and within actors from Mexican government, academia, civil society, private foundations, international non-governmental organizations, media, and food and beverage firms or industry trade associations. The network analysis has the capacity to identify interactions and power dynamics between the actors that may influence decisionmakers and the policy process.

**Conclusion:** Social network analysis provides a powerful method that can be used in policy research to improve nutrition, physical activity, and sedentary behaviors among populations. This study may provide insights to help policymakers and other actors to develop strategies to increase support to effectively implement supportive policies that prevent and manage obesity and diet-related non communicable diseases.

VIRGINIA TECH

## Appendix J. Study 2: Highest RESPI Scores from Policies that Restrict the Marketing of HFSS Food and Beverage Products to Children in Eight Countries in the America's Region, 2010 to 2019

**Supplemental Table S1.** Highest RESPI * scores for policies that restrict the marketing of HFSS ** food and beverage products to children in eight countries in the America's Region, 2010 to 2019

| Country | Policy Document | Year *** | Policy Characteristics | | | | | | | Marketing Techniques Covered | | | | | | | | | RESPI * Score |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Policy type | Rights approach | Monitoring and evaluation | Sanctions | Nutrient criteria | Age of children | ***Policy score*** | Branding | Cartoon mascots, licensed and media characters, celebrities | Direct marketing | Point of sale | Premium offers | Product design and packaging | Product placement | Sponsorship | ***Marketing score*** | 0 = lowest 10 = highest |
| Chile | Ley 20.606 Sobre la Composición de los Alimentos y su Publicidad | 2018 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 5.0 | 8.0 |
| Brazil | Resolução-RDC No- 24 | 2010 | 1 | 1 | 0 | 0.5 | 0.5 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 3.8 | 7.3 |
| Canada | Guidelines for Food and Beverage Sales in B.C. Schools | 2013 | 1 | 0 | 0.5 | 0.5 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 3.1 | 7.1 |
| Uruguay | Rotulado de los alimentos envasados en ausencia del cliente, librados al consumo en el territorio nacional | 2018 | 1 | 1 | 0.5 | 0 | 0.5 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 2.5 | 7.0 |
| Ecuador | Reglamento Sanitario Sustitutivo de Etiquetado de Alimentos Procesados para el Consumo Humano | 2014 | 1 | 1 | 0.5 | 0.5 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1.9 | 6.9 |
| Mexico | Proyecto de Modificación a la Norma Oficial Mexicana NOM-051-SCFI/SSA1-2010 | 2019 | 1 | 1 | 0.5 | 0 | 0.5 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 2.5 | 6.0 |
| Brazil | Resolução 163 Conanda | 2014 | 1 | 1 | 0.5 | 0.5 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 2.5 | 6.5 |
| Uruguay | Ley no 19.140 Alimentación Saludable en los Centros de Enseñanza | 2013 | 1 | 0 | 0.5 | 0.5 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 3.1 | 6.1 |

* RESPI: Responsible Policy Index (RESPI) to assess the strength of policies that restrict the marketing of HFSS food and beverage products to children. Highest RESPI scores = policies with a score of 6 and above. ** HFSS: high in fat, sugar and salt. *** Year: date of last amendment or modification to the policy. To calculate the RESPI scores three steps were followed: Step 1: Calculate the total points from the component 1 "policy characteristics". The total points are the sum of the points from each indicator of this component. Step 2: Calculate the total points from the component 2 "marketing techniques". [[total marketing techniques points] × 100/8]/20]. *Exceptions*: if the policy covers the following media channel, platform or setting: Broadcast and print: [[total marketing techniques points] × 100/6]/20; Outdoors and transportation: [[total marketing techniques points] × 100/4]/20. Step 3: Calculate the overall RESPI score for each policy on the marketing of HFSS food and beverage products to children. [total policy characteristics points] + [total marketing technique points].

## Appendix K. Study 2: Obesity Prevalence for Boys and Girls Aged 5-19 Years in 14 Countries of the Americas Region, 2016 and Predicted by 2030

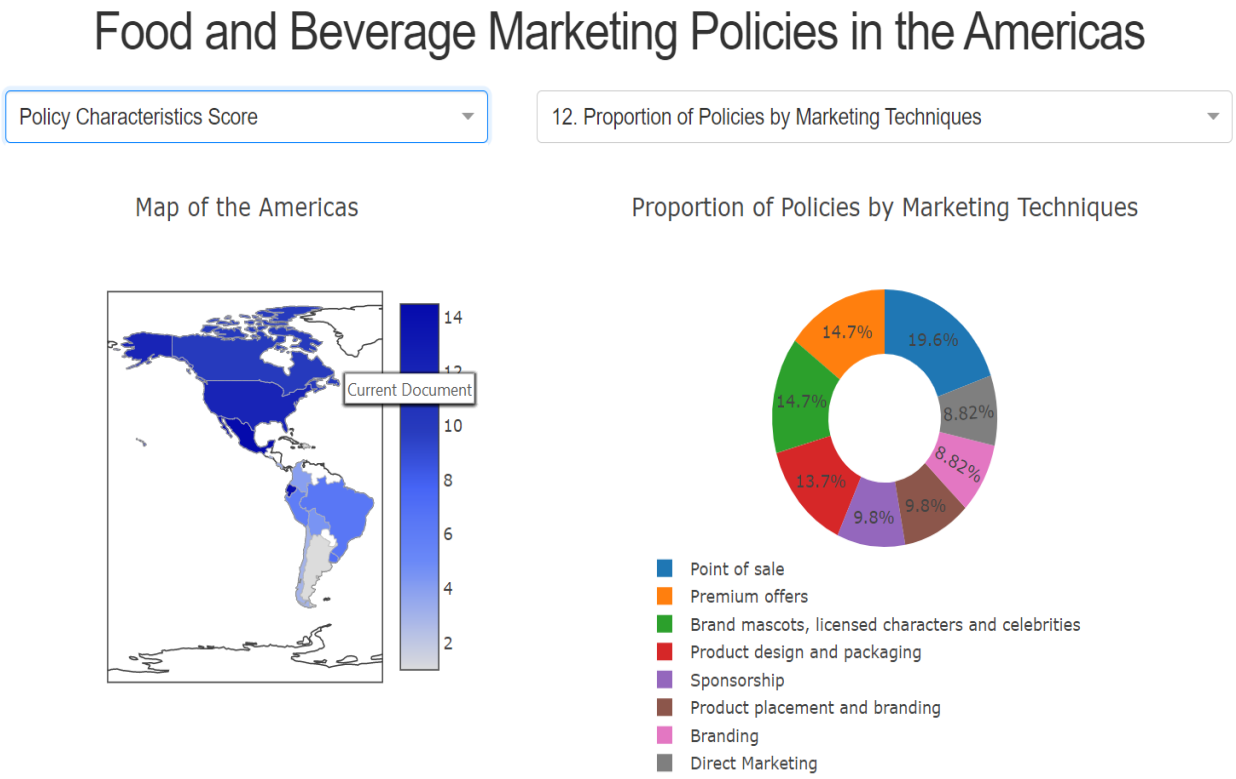
**Supplemental Table S2**. Obesity prevalence for boys and girls aged 5–19 years in 14 countries of the Americas Region, 2016 and predicted by 2030.

| Country | Obesity Boys 5–9 Years 2016 (%) | Obesity Girls 5–9 Years 2016 (%) | Obesity Predicted in Children 5–9 Years by 2030 (%) | Obesity Boys 10–19 Years 2016 (%) | Obesity Girls 10–19 Years 2016 (%) | Obesity Predicted 10–19 Years by 2030 (%) | Children with Obesity 5–19 Years Predicted by 2030 |
|---|---|---|---|---|---|---|---|
| Argentina | 25.6 | 17.8 | 27.2 | 18.3 | 10.4 | 20.0 | 1,262,281 |
| Bolivia | 12.7 | 10.8 | 18.3 | 8.2 | 7.3 | 13.6 | 600,564 |
| Brazil | 17.6 | 12.4 | 22.8 | 10.1 | 7.8 | 15.7 | 1,757,471 |
| Canada | 16.8 | 11.5 | 18.0 | 13.6 | 9.1 | 15.0 | 1,109,002 |
| Chile | 21.4 | 15.8 | 24.8 | 15.6 | 11.5 | 19.8 | 774,647 |
| Colombia | 9.8 | 7.4 | 14.4 | 6.3 | 6.0 | 11.1 | 1,583,123 |
| Costa Rica | 16.2 | 15.0 | 24.2 | 11.0 | 10.5 | 18.9 | 224,250 |
| Dominican Republic | 19.7 | 17.4 | 27.7 | 13.7 | 12.5 | 22.0 | 719,596 |
| Ecuador | 13.8 | 10.5 | 18.9 | 8.9 | 7.2 | 14.0 | 750,556 |
| El Salvador | 14.2 | 15.3 | 22.1 | 9.4 | 11.1 | 17.2 | 329,047 |
| Mexico | 19.9 | 15 | 23.6 | 15.2 | 11.7 | 19.3 | 6,550,276 |
| Peru | 12.3 | 8.9 | 16.1 | 7 | 5.8 | 10.9 | 1,079,543 |
| Uruguay | 20 | 14.4 | 22.4 | 14.2 | 10.0 | 17.2 | 133,317 |
| USA | 25.1 | 20.3 | 26.3 | 22.3 | 19.0 | 24.2 | 16,986,603 |

*Source:* World Obesity Federation. *Global Atlas on Childhood Obesity*. October 2019. https://www.worldobesity.org/nlsegmentation/global-atlas-on-childhood-obesity.

**Appendix L. Study 2: Web-based Platform**

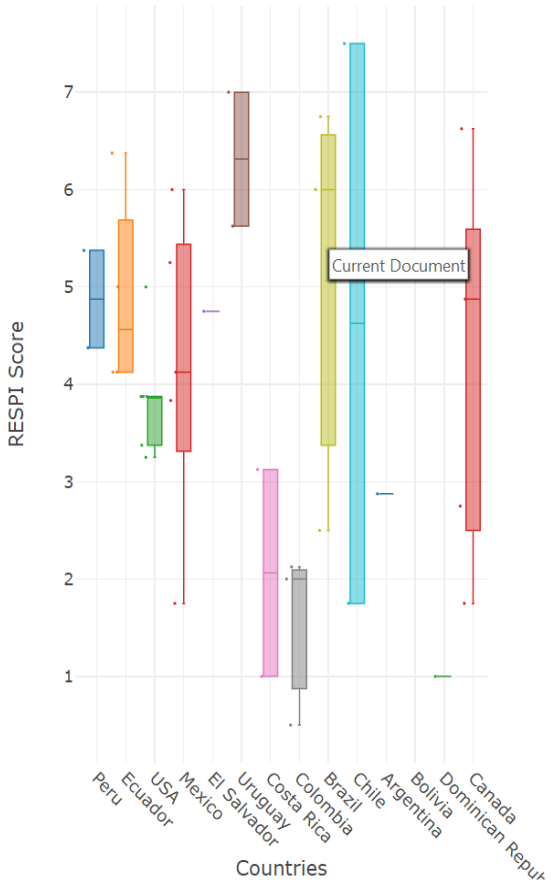
**http://pluto.sv.vt.edu:8084/**




A policy can cover several marketing techniques.

**Marketing techniques** are defined as "*range of strategies designed with appealing characteristics for children to persuade, influence attitudes and preferences of food and beverage products*"

RESPI Score distribution across countries




BMI for Countries