

A description of Chilean food and nutrition health policies

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ABSTRACT

Background: Chile has implemented numerous successful food and nutrition initiatives since the early 20th century, aiming to address malnutrition in all its forms. **Aim:** To summarize the major nutrition and food-related policies, strategies, and programs implemented in Chile, using the NOURISHING Framework. **Material and Methods:** The NOURISHING framework proposes a methodology for reporting, monitoring, and categorizing actions to promote healthier eating in three main domains: food environment, food system and behavior change communication. The data collection was carried out reviewing the databases of the Chilean Ministries of Health, Education and Social Development, and the Parliament. Information about nutrition related public health policies, strategies or programs was obtained from peer reviewed articles, official reports, official State websites, as well as interviews with former and current stakeholders. **Results:** Chile has mandatory nutritional labeling that was updated to front-of-package warning labels about critical nutrients. In addition, the advertising of unhealthy foods and breast milk substitutes is restricted, among other food and nutrition policies. Nevertheless, strategies related to mass and social media communication campaigns, or periodic education and information interventions still need to be implemented. **Conclusions:** Using the NOURISHING framework, a comprehensive summary and description of nutrition and food public health policies implemented in Chile is described. An overview of the policy changes required according to the nutritional needs of the population and the nutritional transition in Chile is provided.

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Key words: Chile; Health Policy; Malnutrition; Nutrition Policy; Obesity.

Una descripción de las políticas de nutrición y alimentación en Chile

Antecedentes: Chile ha implementado numerosas iniciativas sobre nutrición y alimentación desde el comienzo del siglo 20, para combatir la malnutrición en todas sus formas. **Objetivo:** Recopilar las principales políticas y programas sobre nutrición y alimentación implementados en Chile utilizando la estructura NOURISHING. **Material y Métodos:** La estructura NOURISHING propone un método para informar, monitorear y categorizar las acciones destinadas hacia una alimentación más saludable en tres dominios: ambiente nutricional, sistemas

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*de alimentación y comunicación para lograr cambios de comportamiento. Se recolectó información desde bases de datos de los Ministerios de Salud, Educación y Desarrollo Social y del Congreso. La información acerca de políticas, programas o estrategias de salud pública se obtuvo de artículos revisados por pares, informes oficiales, sitios de internet del Estado y de entrevistas con quienes están o estuvieron involucrados en estos programas. **Resultados:** Dentro de las políticas de nutrición y alimentos en Chile, se destaca el sistema obligatorio de etiquetado nutricional que ha evolucionado hacia la incorporación de advertencias en envases de alimentos señalando la presencia de nutrientes críticos. En Chile también se ha restringido la publicidad de alimentos no saludables y sustitutos de leche materna, entre otras políticas. Sin embargo, aún falta implementar campañas de comunicación y educación masiva sobre nutrición y alimentación saludable. **Conclusiones:** Utilizando la estructura NOURISHING entregamos un resumen y descripción de los programas de nutrición y alimentación implementados en Chile en las últimas décadas. Se entrega una visión general de los cambios requeridos de acuerdo con las necesidades de la población y la transición nutricional que se ha experimentado.*

Palabras clave: Chile; Desnutrición; Obesidad; Política de Salud; Política Nutricional.

Since the beginning of the 20th century, Chile has implemented multiple public health policies and programs focused on preventing and controlling undernutrition and micronutrient deficiencies¹. However, since the 1990s, Chile has undergone a rapid epidemiologic transition. After reducing the high rates of infectious diseases and chronic and acute childhood undernutrition, which were critical health problems in the 1970s, a new challenge emerged as excess weight and related chronic diseases became widespread throughout the country^{2,3}. According to the 2016-2017 National Health Survey⁴, over 70% of the adult population has excess weight, and over 10% of children under 6 years of age are obese. In addition, the National School Food Program revealed in 2019 that 24,8% of first-year elementary school children are obese⁵. In Chile, as is likely the case globally, a high rate of processed food consumption is a major contributing factor to weight gain, with half of the energy intake in the Chilean diet coming from processed and ultra-processed foods⁶.

In response to rising rates of overweight and obesity, and aligned with international pleas from the United Nations (UN)⁷ and the Pan-American Health Organization (PAHO)⁸, to tackle these health problems as multi-sectorial and comprehensive efforts and the National Health Strategy

Objectives, Chile has launched various structural and individual-level public health policies focused on improving lifestyles and community food environments⁹.

As several countries now face high rates of obesity and related diseases, the World Cancer Research Fund International (WCRF) has proposed the NOURISHING Framework¹⁰ as a template for guiding and monitoring national food and nutrition policies, focusing on three key policy domains: food environment, food systems, and behaviour change communication. NOURISHING allows comparison policies and programs between countries and provides the opportunity to learn from the experiences of other countries. The aim of this report is to describe the major food and nutrition policies, strategies, and programs implemented in Chile over the last 70 years, based on the NOURISHING framework.

Methods

This article describes food and nutrition public policies, strategies, and programs implemented in Chile since the 1950s, using the previously published NOURISHING Framework¹⁰.

The NOURISHING framework was developed in 2015 by a high-level policy advisory group convened by the WCRF to provide guidance to

stakeholders and policymakers in developing and implementing policies to prevent cancer and nutrition-related chronic diseases through diet, nutrition, weight control, and physical activity. The framework proposes a methodology for reporting, monitoring, and categorizing actions to promote healthier eating by three main domains: food environment, food system and behavior change communication, which are reflected in the following ten policy areas: nutrition label standards and regulations on the use of claims and implied claims on foods (N); offering healthy foods and setting standards in public institutions and other specific settings (O); use of economic tools to address food affordability and purchase incentives (U); restriction of food advertising and other forms of commercial promotion (R); improvement of the quality of the food supply (I); setting incentives and rules to create a healthy retail environment (S); harness supply chain and actions across sectors to ensure coherence with health (H); informing people about food and nutrition through public awareness (I); nutrition advice and counselling in health care settings (N); and providing nutrition education (G). The present article will report the recollected information using the NOURISHING Framework in Chile, and will organize it chronologically.

Data collection

The authors identified laws, public policies, programs, and strategies over the last 50 years in Chile that promote a healthy diet and address obesity prevention in Chile by exhaustively searching the databases of the Chilean Ministry of Health, Ministry of Education, Ministry of Social Development, and the Parliament. In addition, information was also obtained from peer reviewed articles, official reports, official State websites, as well as interviews with former and current stakeholders. Furthermore, we included data provided by institutions such as World Health Organization (WHO), PAHO, United Nations International Children's Emergency Fund (UNICEF) and Food and Agriculture Organization (FAO), as well as through the support from recognized Chilean experts and politicians from different fields. The search and subsequent data collection were completed by December 2018.

Interventions were included if they fulfilled the NOURISHING framework, belonging to any of the

schemes mentioned above; if they were fully implemented by the time of data collection and if they were implemented at national or regional level.

On the other hand, health policies, strategies or programs were excluded if they were implemented for less than six months; if no official or peer-reviewed documentation was available to cite them, and if they were implemented as part of pilot interventions or pilot studies. Each health policy, strategy or program included after the search, was carefully analyzed, and placed in the corresponding letter.

Results

A comprehensive summary of the main nutrition public health policies and programs was gathered after obtaining information from several articles, reports, websites and from stakeholders and expert. To have a better representation of the different policies implemented to tackle nutrition related public health problems, this article summarizes these policies in a widespread table that includes the items contained in the NOURISHING framework.

Table 1 shows that Chile implemented promptly obligatory nutritional labelling, which also included regulation of nutritional and healthy claims. The early forcemeat of this obligatory labelling allowed the implementation of innovative and novel strategies such as the Front-of-Package nutritional (FOP) warning labels, food advertising restrictions of unhealthy foods and infant milk formulas, prohibiting the sale of these foods in schools, and the implementation of sugar sweetened beverages (SSB) taxes.

However, Chile still does not have fiscal measures, such as incentives for healthy and sustainable food production, and taxes on solid or other unhealthy foods to strengthen the implementation of healthy environments. Moreover, Chile lacks from having a continuous public health communication, education, and informative campaigns in mass and social media.

The results of this summary showed that during the 1950s and 1960s, the programs and policies (e.g., complementary food programs and fortification programs) were focused on preventing nutritional deficiencies, while programs and policies to tackle obesity and overweight have been implemented only recently.

Table 1. Description of Chilean food and nutrition policies and programs

Nourishing	Policy/program	Description
N	Mandatory nutrition labelling	In 1996, the Chilean Food and Health Regulations ¹¹ established norms for the production, commercialization, and marketing of foods, implementing mandatory nutritional content definitions, which were voluntary until this point. These regulations also included definitions for nutrient content, rules on nutrient claims (e.g. "free of" or "low in"), and specific health messages ¹¹ . Mandatory nutrition labelling was implemented in 2006, including information per 100 g, and portion size for calories, protein, carbohydrates, sugars (since 2014), fats (saturated, monounsaturated, polyunsaturated), and sodium. It also includes information of allergens and the list of ingredients in quantity decreasing order ^{11,12} .
	Front-of-package nutritional (FOP) warning labels	FOP warning labels came into force in 2016 with Law N° 20.606, which requires labels to highlight food and beverage products with high energy, sugars, saturated fat, or sodium content using a black octagon (Figure 2) with the sentence "high in" ^{13,14} . The cut-off points for the aforesaid nutrients were per 100 g or 100 ml of product. This regulation only applies to foods and beverages with added sodium, sugars, or saturated fats. In addition, this regulation prohibits marketing of "high in" foods and beverages directed at children and the sales of these products in schools ¹³ .
O	National Complementary Food Program (PNAC, for its acronym in Spanish)	PNAC is a universal program that started in 1954. This program provides fortified dairy products for all pregnant women and children under 6 years old, who have up-to-date vaccinations and health visits ¹⁴ . PNAC is well-accepted and has effectively increased vaccine and routine health visit adherence among children and pregnant women. It has achieved a significant decrease in acute and chronic undernutrition and anemia ¹⁵⁻¹⁷ .
	National Complementary Food Program for the Elderly (PACAM, for its acronym in Spanish)	PACAM was implemented in 2000. This program is for people over 70 years who are enrolled in the Chilean Public Health System and have up-to-date vaccinations and health visits, supplying a powdered dairy beverage and cream soup, both fortified with vitamins and minerals ^{14,18} .
	National School Food Program	The National School Food Program was created in 1964 for vulnerable pre-school and school-aged children who attend public establishments ¹⁹ , and distributes breakfast, lunch, and snacks. The objective of this program is to reduce absenteeism and school desertion and secondarily to provide healthy foods. Recent studies ²⁰ have shown that its impact has been partial.
	Food and beverage sale restrictions in all private and public schools	A 2016 regulation banned sales of "high in" foods and beverages in all private and public schools ¹³ . This regulation is part of Law 20.606 that prohibits sales and marketing of all foods that exceed the limits established by the MoH for energy, sodium, sugars, and saturated fats.
U	Taxes on sugar-sweetened beverages	Taxes on sugar-sweetened beverages were changed in 2014, increasing from 13% to 18% on sugary beverages with a sugar content above or equal to 6.25 g/100 ml ²¹ , while taxes were decreased from 13% to 10% on beverages with a content of sugar less than 6.25 g/100 ml ²² .

R	Marketing restrictions through Law 20.606	Advertising for foods high in energy, sodium, sugars, or saturated fatty acids, targeting children younger than 14 years of age is prohibited ¹³ as part of Law 20.606. The cut-offs for the above-mentioned nutrients are the same as those used for the FOP warning labels. This regulation applies to packaged and non-packaged products.
	Marketing restrictions through Law 20.869	Law 20.869 ²³ came into force in 2018 and prohibits any kind of television or movie advertising between 06:00 am and 10:00 pm for foods or beverages that exceed cut-off points energy, sugar, saturated fats and sodium determined by the Minister of Health. In addition, Law 20.869 prohibits any kind of advertising of breast milk substitutes ²³ referred to start and continuation formulas in according with International Code of Marketing of Breast Milk Substitutes ²⁴
I	Flour Fortification	Fortification of wheat flour with iron and B-complex vitamins has been mandatory since 1950. Fortification with folic acid became mandatory in 2000 ²⁵ . Studies have shown a 50% decrease in the incidence of neural tube defects in newborns after this regulation was implemented ^{26,27}
	Water Fortification	Water fortification with fluoride began in 1953, aiming to prevent and control dental cavities ²⁵
	Salt fortification	Salt fortification with iodine began as a voluntary measure in 1960, becoming mandatory in 1979 ²⁵ . Given the increasing rates of excess salt consumption in the population, concern about potential iodine overconsumption emerged and fortification levels were reduced in 2000 ^{28,29}
	Regulation of trans-fat content in food	Regulation of trans-fat content of foods was implemented in 2010, establishing that the maximum amount of trans-fat-acid cannot exceed 2% of the total fat quantity in the final food product ¹² . This regulation was implemented gradually, extending to all food products by 2015 ¹²
S	There are currently no policies on this topic in Chile.	
H	"Chile Crece Contigo" (Chile Grows with You)	Chile Crece Contigo is a multi-sectoral welfare program, launched with a new law in 1999 ³⁰ . This program is part of the social protection system that provides comprehensive protection and support to all children and their families.
I	"Elige Vivir Sano" (Choose to Live Healthily)	Elige Vivir Sano is a system created under the Law 20.670 in 2013, aiming to coordinate the different actors that promote healthy lifestyles, focusing mainly on healthy eating, physical activity, and family life ³¹
I	Food-Based Dietary Guidelines (FBDG)	The Chilean FBDG were developed in 1999 and modified in 2013 and 2015. The FBDG define food recommendations for chronic-disease prevention and healthy lifestyles through 11 guidelines ³² and reader-friendly graphics ³³
N	"Programa Vida Sana" (Healthy Lifestyle Program)	This program was created in 2004, aiming to offer a multidisciplinary intervention for overweight individuals from 2 to 64 years old, enrolled in the public health system. This 6-month program includes appointments with dietitians, psychologists, and physical activity instructors ³⁴
G	Food Labeling and Advertising Law (20.606)	The Law 20.606 stipulates that preschool, primary, and middle school establishments should include, in all grades and at all teaching levels, physical and didactic activities that contribute to developing healthy lifestyle habits ¹³

Many of the programs implemented in the years were undernutrition predominated have been maintained, but they have been reformulated to adapt to the epidemiological changes. For example, flour fortification with folic acid, and modifications of complementary food programs with zinc and iron fortification and reduction of sodium and fats.

The timeline presented in Figure 2 provides a visual summary of the main nutrition public health policies and interventions across decades, which were grouped in two groups: policies targeting undernutrition and micronutrient deficiencies, and policies addressing mainly overweight, obesity and related chronic diseases.

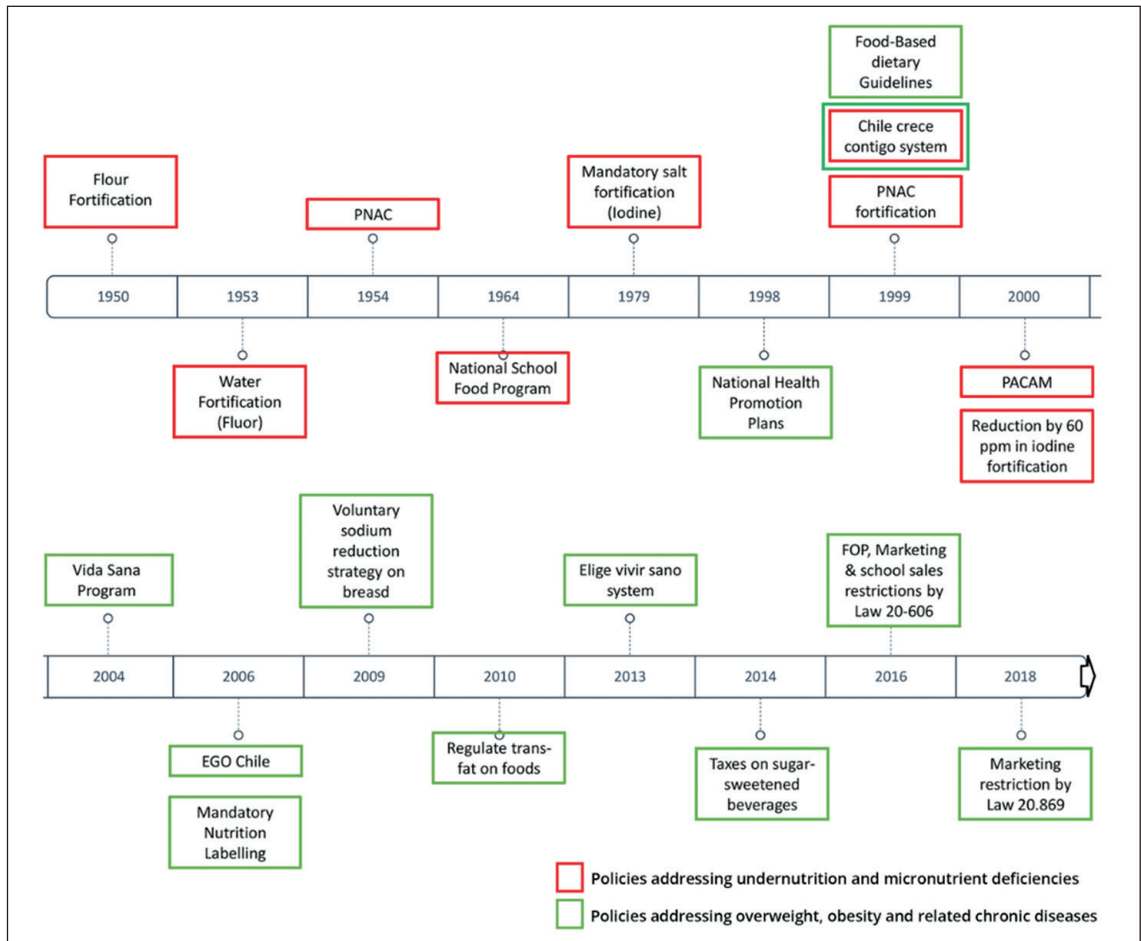


Figure 1. Timeline of Chilean nutrition public health policies in the last 70 years.



Figure 2. Chilean Front of Label signs.

Discussion

This paper presents a comprehensive, graphical and categorized summary of the nutrition public health policy actions implemented in Chile since the 1950s, using the NOURISHING framework. This methodology was developed by WCRF International thinking policymakers to provide them a systematic way to design and monitor evidence for policy.

In the 1950s, 1960s and 1970s, strategies and programs were implemented in Chile to prevent undernutrition and micronutrient deficiency. Iodine in salt and fluoride fortification of water have helped to reduce dental cavities and probably prevented a high incidence of goiter, respectively²⁵. Also, National Complementary Food Programs have shown to reduce the prevalence of iron-deficiency anemia in children aged under 6 years¹⁵, and contributed to reduce the prevalence of undernutrition, which was a concerning public health problem in the 1960 and 1970s. Furthermore, the implementation of the mandatory fortification of wheat flour with folic acid (2-2.4 mg/100 kg), decreased in more than 40% the rate of neural tube defects in Chilean newborns²⁷. Evidence from developing and developed countries have shown that factors involved in the success of these strategies are related to the mandatory implementation of these programs, the high consumption of the staple foods chosen for fortification (i.e., wheat flour and salt) as well as the high coverage of the Chilean public health care system, which ensures access to National Food Programs to the population³⁵⁻³⁷.

Despite the aforementioned positive strategies, Chile has faced an alarming increase in obesity and related chronic diseases in the last two decades, which is characterized by high consumption of ultra-processed foods, and a high prevalence of a sedentary lifestyle in all age and socio-economic groups^{6,38-40}. Structural interventions such as FOP warning labeling, taxes to beverages high in sugar and calories, food advertising prohibitions, and school environment improvements have shown promising results. For example, the purchase of high-in beverages significantly decreased in Chilean households after the implementation of labeling, marketing, and school food sales strategies⁴¹.

The need for a transdisciplinary approach to tackle public health problems, such as malnutrition and chronic diseases is a great challenge posed

by the complexity of these nutrition problems. In this sense, the NOURISHING Framework gathers useful information from several countries around the world related to nutrition and food policies⁴² related to ten main policies. According to the NOURISHING framework, Chile has implemented nutrition policies in all the schemes included in the framework, other than Setting incentives and rules to create a healthy retail environment. Most countries have reported having policies related to the NOURISHING framework schemes of "Nutrition label standards and regulations on the use of claims and implied claims on food", with 74 countries, Inform people about food and nutrition through public awareness" with 93 countries, and "Offering healthy food and set standards in public institutions and other specific settings", 57 countries with related policies. On the other hand, the policies were fewer countries have emplaced policies are "Set incentives and rules to create a healthy retail and food service environment" with only 8 countries, "Nutrition advice and counselling in healthcare settings" with 15 countries, and "Give nutrition education and skills" with 21 countries.

To our knowledge, there is no published scientific literature that compares other countries experiences with the NOURISHING framework, making this manuscript the first published article detailing a NOURISHING framework country experience. Moreover, this piece is the most updated summary of nutrition related health policies in Chile.

The NOURISHING framework presented in this work is a key opportunity to inform policymakers about the current policies and programs that have been successfully implemented in Chile, as well as the challenges faced especially in the initiatives focused on the prevention of obesity and chronic diseases. Furthermore, the present NOURISHING framework provided useful information regarding the monitoring and evaluation of the programs, policies, and actions (or the lack of it) implemented in Chile to prevent malnutrition in all its forms.

Given the complexity of malnutrition in all its forms, policymakers must go beyond classic thought and action models to develop policies, strategies, plans, programs to monitor and eventually overcome the overweight and obesity public health problem in the coming decades⁴¹⁻⁴⁵. It is

well-known that malnutrition in all its forms and chronic diseases related to nutrition are characterized as multifactorial health conditions where nutrition, food systems, and food environments play a crucial and interrelated roles⁴⁴. Therefore, this challenge should be tackled using strategies that involve different disciplines. Undoubtedly, the implementation of the Chilean Food Labelling and Advertising Law¹³, which mandates FOP labeling, regulates food marketing, and governs school food environments, was a central starting point, however, implementing policies and interventions focused on health promotion and prevention of malnutrition will demand a new perspectives and innovative efforts from policymakers^{46,47}.

Finally, the NOURISHING framework provides a thorough summary and description of nutrition and food public health policies, highlighting the changes according to the needs of the population and the nutritional transition in Chile, and unresolved challenges.

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ARTE Y FOTOGRAFÍA



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