



**MAGENTA**  
choose *better*



# *Promoting Environments and Communities that Facilitate Health-Forward Decisions in Colombia, Guatemala, and Mexico*

## **Policy Brief**

Submitted to: UNICEF LACRO

Date: 24/07/2022

By: MAGENTA FZE

# Overview

Latin America has highest rates of overweight and obesity in the world, with adult prevalence of obesity around 23%, adult overweight above 50%<sup>i</sup>, and childhood obesity and overweight over 20%.<sup>ii</sup> The region's high prevalence marks a rapid rise in overweight and obesity in the past thirty years, and it is driven by economic development across Latin America.<sup>iii</sup> As countries in the region develop, urbanize, and become more globalized, people are increasingly moving away from traditional diets of plants, whole grains, legumes, meat, and fish and toward diets rich in processed sugar, fat, oil, and refined grains.<sup>iv</sup> They are also shifting from lifestyles, high in physical activity and physical labor, such as working in fields and manual labor, toward urbanized lifestyles low in physical activity, physical labor, and active commuting, such as walking and biking, and high in sedentarism.<sup>v</sup> Furthermore, while this transition impacts people living in urban areas, it also adversely impacts those living in rural areas,<sup>vi</sup> who increasingly rely on commercial value chains as local natural resources become privatized.<sup>vii</sup><sup>viii</sup><sup>ix</sup> This conjunction of nutrient poor diet and physical inactivity are cornerstones of the region's high rates of overweight and obesity and the corollary increase in nutrition-related noncommunicable diseases.

To inform the regional and country-level implementation of the Nutrition Strategy 2020-2030 and programming to prevent overweight, obesity, and nutrition related noncommunicable diseases, UNICEF LACRO commissioned a qualitative study on social norms around dietary habits and body image. The objective was to generate insights into the nutrition experiences and views about body sizes. Specifically, the study considered decision-making processes, preferences, practices and expectations around food, beverages, and body sizes—together constituting social norms—and the psychological, social, and environmental factors that drive these views and practices.

The study was conducted in Colombia, Guatemala, and Mexico, covering the three major geographic regions of continental Latin America. Each country shows a distinct stage in the transition toward diets high in ultra-processed foods and lifestyles low in physical activity. Figure 1 shows key statistics for each country and across the region.

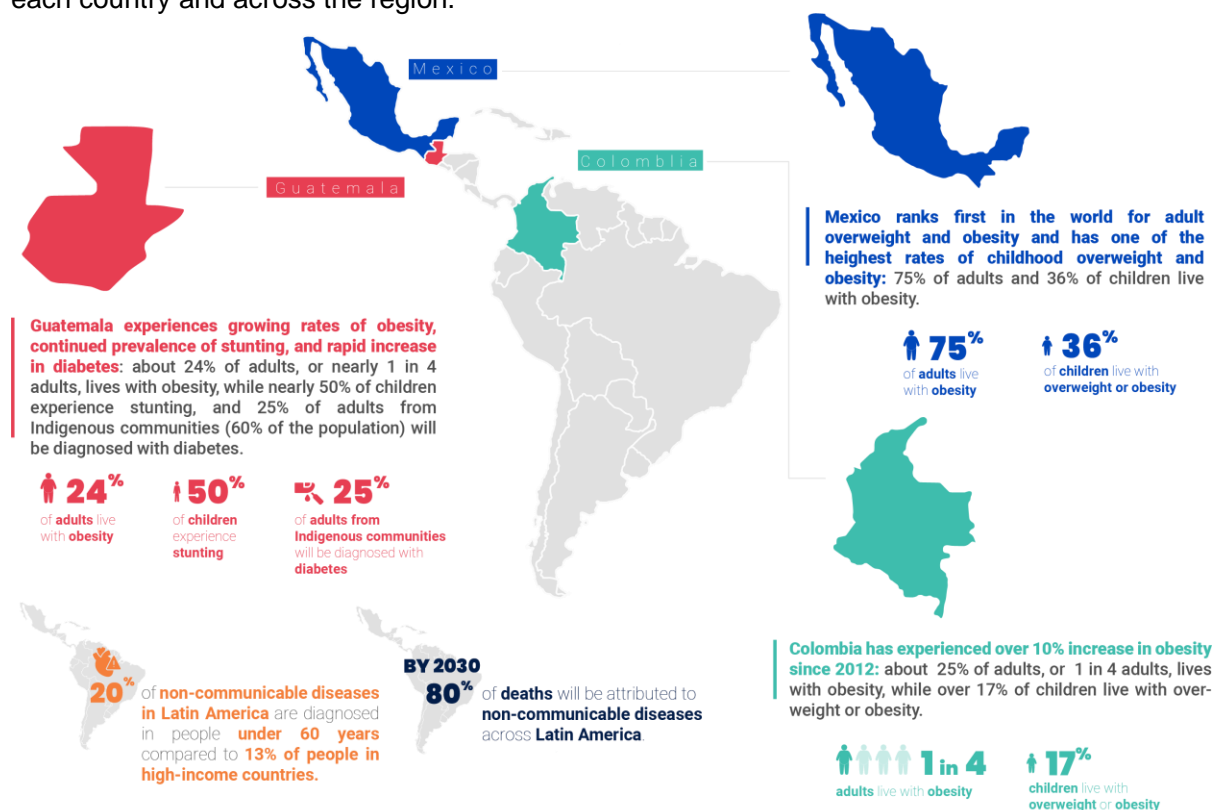


Figure 1 Overview of key statistics on overweight and obesity by countries in the study<sup>x</sup>

To gain social and behavioral insights around this problem, the study gathered data from a literature review, 36 focus group discussions with adolescents and parents, and 30 interviews with key informants across the public, private, and academic sectors. The study participants were drawn from a sample of people who regularly experience financial scarcity in each country. This was a purposeful decision to gain insights into the experiences of people who are most likely to be adversely affected by the region’s nutrition transition.<sup>xi</sup> The three primary research questions and the thematic areas are outlined in Figure 1 below.

Framework	Thematic Area	Research Questions
Social Norms	<b>Environment</b> <ul style="list-style-type: none"> <li>• Governing entities</li> <li>• Infrastructural factors</li> <li>• Structural factors</li> </ul>	<b>1.</b> How are the context and structural elements influencing social norms on dietary practices and body image?
	<b>Sociological</b> <ul style="list-style-type: none"> <li>• Families, friends, and social influence</li> <li>• School and community dynamics</li> <li>• Meta norms and society</li> </ul>	<b>2.</b> How are social determinants influencing social norms on dietary practices and body image?
	<b>Psychological</b> <ul style="list-style-type: none"> <li>• Knowledge, interests, and attitudes</li> <li>• Cognitive biases</li> <li>• Self-efficacy</li> </ul>	<b>3.</b> How are personal characteristics, individual cognitive and emotional drivers influencing social norms on dietary practices and body image?

Figure 2 Study research questions

# Key Findings

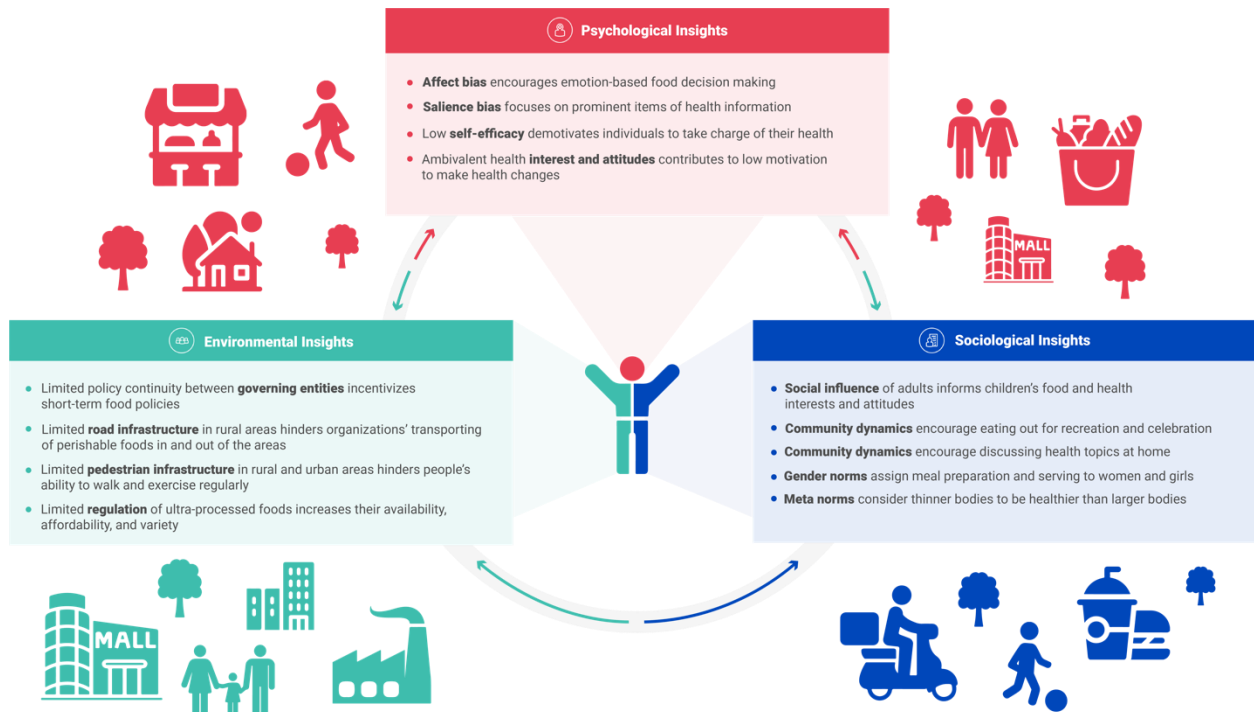


Figure 3 Key findings from the study

Across all three countries, the study found that environmental factors of access to food and health narratives and sociological factors of family, friends, community members, and society impacted the ways that people ate and the attitudes they held about health. Figure 2 summarizes these findings and highlights key insights of the study by behavioral drivers of psychology, sociology, and environment. Importantly, the study found that these drivers are interactive rather than linear: this is to say that each of these drivers influences individual and group behavior to a greater or lesser extent depending on individual and group characteristics and the level of exposure and access they have to alternative options.




Factor	Definition of factor	Finding
 <b>Environmental Insights</b>		
<b>Governing entities</b>	Administrative and regulatory organizations recognized by a community	National public health policies in the three countries are dependent on presidential support. The structure of 4-year government administrations creates a lack of continuity between administrations and incentivizes short-term rather than long-term health policies.
<b>Infrastructural factors</b>	The set of facilities and systems that impact the functionality of an economy and people's participation in it	Limited transportation and pedestrian walking infrastructure create barriers to business' ability to transport perishable foods to and from rural areas and to individuals' ability to exercise outside and to actively commute.
		The privatization of land opposes traditional models of communal land ownership and limits access to natural resources, particularly for Indigenous communities.
		Political insecurity hinders the government's ability to conduct health and nutrition programs in areas with volatile security.
<b>Structural factors</b>	Obstacles (policies, practices, norms) that impact a group disproportionately and contribute to social disparity	The industrialization of agriculture and the promotion and limited regulation of ultra-processed foods has increased the availability, affordability and variety of ultra-processed foods and beverages in local communities.
		People who primarily speak Indigenous languages face barriers to accessing and engaging with public services in Spanish.
 <b>Sociological Insights</b>		
<b>Social influence</b>	Intentional and unintentional efforts to change a person's behavior	The beverage habits of adults drinking carbonated sugar sweetened or caffeinated beverages spurs children's interest and development of the same habit.
<b>Community dynamic</b>	Social and environmental characteristics of a group of people	Eating out is reserved for recreation and occasional celebration, based on financial resources, and it is associated with economic wellbeing.
		Discussions with parents and family are the most important people from whom where children learn about health and wellbeing, while teachers also have a large influence.
<b>Gender norms</b>	Principles governing the behavior of adults and children to do behaviors considered appropriate for their gender	Women and girls are considered responsible for food decision making, ingredient procurement, and meal cooking and serving, while men and boys are expected to help occasionally.
<b>Meta norms</b>	Collectively held beliefs and values that facilitate group cohesion and social order	Thin bodies are considered healthier than larger bodies, despite the fact that thin bodies are not the norm for adults in many communities.
 <b>Psychological Insights</b>		
<b>Saliency bias</b>	Focusing on items of information that are more prominent and ignoring items that are not	Many people use heuristics like "store-bought" and "artificial" as rules of thumb to determine whether foods are healthy, which can make some foods appear healthier than they are.
<b>Affect bias</b>	Current emotions influencing rapid decisions	Many adults and adolescents eat snacks as a reward or to fill cravings for something sweet.
<b>Interest and attitudes</b>	The significance of a characteristic and the perspective around it	Affordability and proximity were the two most important factors in people's food purchasing decisions.
<b>Self-efficacy</b>	Belief in one's own capability to the behaviors to reach a specific goal	Many adults and adolescents were ambivalent about their ability to change their dietary and exercise habits or to prevent non-communicable diseases

Figure 4 Summary of key findings by behavioral driver



## **Research Question 1: How are the environmental context and structural elements influencing social norms on dietary habits and body image?**

**Structural factors like free trade agreements, public policies, and the regulation of food and beverage marketing impact the accessibility and affordability of food** in people's environments. In particular, the industrialization of food and agriculture as a form of economic development contributes to increased reliance on commercial value chains for food purchases, often resulting in increased exposure and access to ultra-processed foods and beverages. This had contributed to the development of neighborhood food swamps, which are areas where there are few options for nutritionally rich foods, but plentiful nutritionally poor food options. Food swamps are more prevalent in less affluent neighborhoods because ultra-processed foods are typically less expensive than perishable foods. This finding is important because previous research has shown that the saturation of ultra-processed foods in people's environments correlates positively with overweight in their communities.

**Infrastructural factors like limited transportation, particularly in rural areas, impact the functionality of local economies and people's ability to exercise easily.** Limited road infrastructure hinders the ability of businesses to transport perishable foods to and from rural areas. The urban design of cities also influences whether and how people exercise: converse to North America and Europe, Latin American and particularly Mexican urbanicity is correlated with less physical exercise due to limited pedestrian infrastructure. Moreover, the industrialization of food and agriculture impacts communities' ability to access natural resources like water and land: in Guatemala, the study found that the privatization of land can oppose traditional practices of communal land ownership and limit access to natural resources. Political insecurity also limits the government's ability to lead health programs across the country. These findings show that infrastructural factors play a large role in shaping the food and exercise environments in which people live and, consequently, their ability to access food and exercise easily.

The findings of the study show that **policies and regulatory actions of governing entities play a role in shaping the communication environment** through public conversations about nutrition and physical activity, in addition to the accessibility of foods and beverages. Particularly in Guatemala and Mexico, national public health policies are dependent on presidential support. These findings indicate that this reliance and the structure of 4-year government term cycles in Guatemala and Mexico hinders continuity of policy between administrations, can incentivize short-term health policies, and can contribute to the politicization of food and public health policies. This finding is important because slowing and reversing current trends in population health across the region requires long-term, evidence-based policy initiatives with clear and consistent messaging to the public.

## **Research Question 2: How are social determinants influencing social norms around dietary habits and body image?**

**Social factors at the household and community levels influence people's behavior about what they consider normal and desirable to eat.** The study found, for example, that parents' social influence plays an outsized role in informing what children consider desirable to eat: in Colombia and Mexico, many children around the ages of 2-3 years old tried carbonated sugar-sweetened beverages when they saw their parents drinking these beverages. Similarly, in Guatemala, 2-3-year-old children similarly started drinking coffee and consumed it regularly with breakfast, which was a practice that many parents considered normal. This underscores that, whether intentional or not, the social influence of trusted individuals, such as parents, informs behavior.

**The dynamics of people's communities also influenced how people ate and purchased food.** In Colombia and Mexico, participants regularly ate out for celebration and recreation. They bought food at food stands or international fast-food restaurants after receiving their salary and, for this reason, many associated eating out with financial wellbeing and family recreation. Adolescents mirrored this practice by purchasing food items at convenience stores, food vendors near their schools and, occasionally, at food stands and cafes when they had spare change or went out with friends. These

findings show that community dynamics influence and contribute to beliefs and practices that are shared by many members of communities.

**At home, collectively held beliefs about gender influenced what people considered appropriate work and behavior for them to do.** Across all three countries, women and girls were considered responsible for food decision making, ingredient preparation, meal cooking and serving. Adolescent boys and men occasionally participated to help women. However, men were more likely to initiate economic decisions. In Colombia and Mexico, they were the ones to take the decision about whether to eat out with their families. In Guatemala, many described their role as that of the primary earner. These findings show that there is a norm of unequal division and expectation of meal preparation labor that impacts women and adolescent girls.

Regarding perceptions about healthy and normal body size, the study found that in all three countries, **the body sizes that people considered “healthy” sizes were smaller than “normal” body sizes that people observed in their communities.** To generate insights into the views around body image, the study used the Stunkard Figure Rating Scale (see Figure 5) to learn about perceptions about healthy and normal body sizes of men and women. The scale in the figure shows a range of body sizes and enables researchers to ask study participants questions about their attitudes and perceptions about both individual body sizes and the range of sizes shown. While perceptions in general about healthy body sizes were smaller than the sizes considered normal, this finding was particularly evident in the comparison of the body sizes of women: across all three countries, participants considered sizes 3 to 5 to be “healthy” for women but tended to rank sizes 5 to 7 as “normal” for women. This finding indicates that most women may have larger bodies than what people consider to be “healthy”, and it suggests that women may experience more social pressure to have smaller or thinner bodies than what is considered normal in their communities.

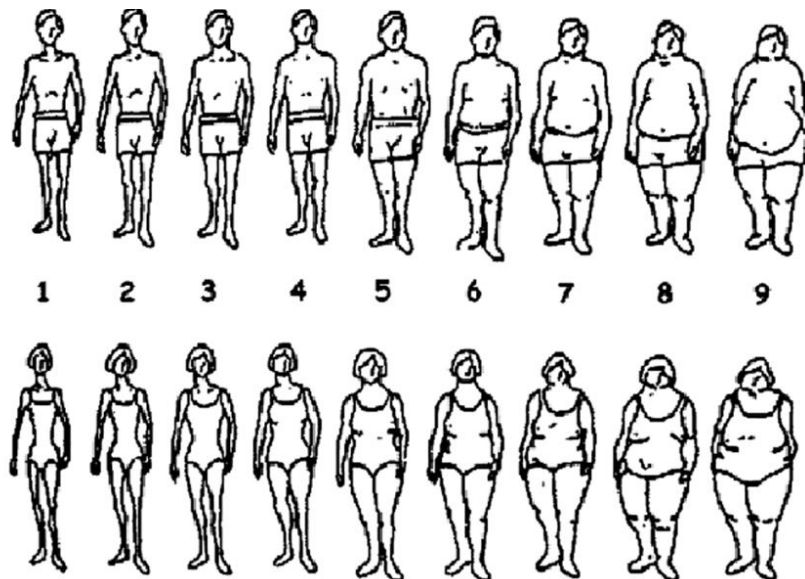


Figure 5 Stunkard figure rating scale<sup>xii</sup>

### Research Question 3: How are personal characteristics, including cognitive and emotional drivers, influencing dietary practices and body image?

**Individuals’ personal characteristics also impacted what and how people ate and perceived health.** Cognitive biases like salience bias played a role in people’s distinction of “healthy” from “unhealthy” foods: in Colombia, they distinguished between “natural” (healthy) and “artificial” (unhealthy), and in Mexico they distinguished between “homemade” (healthy) and store-bought (unhealthy). While this rule of thumb was often an accurate measure, it could sometimes distort the healthfulness of foods and beverages. This was evident for beverages like panela water, a beverage made from boiled cane sugar, and homemade fruit-infused water, both of which many participants

drank daily: by focusing on “natural” or “homemade” qualities of these beverages, the beverages can appear more nutritionally rich than they are. Moreover, in Colombia, many adolescents favored “local” carbonated and uncarbonated sugar-sweetened beverages produced by Colombian brands, which they considered to be more nutritious in comparison with other brands.

**Current emotions influenced participants’ decisions about food consumption. Affect bias played a role in influencing people’s rapid decisions**, such as when people decided what to eat for snacks. In all three countries, people often ate snacks to fill cravings for something sweet or as a reward for hard work, such as when men drank carbonated sugar-sweetened beverages after doing physical labor. People bought at convenience stores or sometimes made at home. Likewise, **people’s economic aspirations also drove perceptions about what they considered desirable to buy**: many participants across the three countries, considered carbonated sugar-sweetened beverages to be a sign of economic wellbeing.

**Participants’ sense of health self-efficacy significantly influenced their beliefs in their capability to take charge of and maintain their health.** In Colombia, participant adults and adolescents in urban areas often felt less capable of changing their habits of drinking carbonated sugar-sweetened beverages. In Mexico participant adults in urban areas described feeling incapable of changing the socio-economic circumstances impacting their ability to buy nutritionally rich foods. In Guatemala, adults expressed strong feelings of ambivalence about their ability to prevent diabetes in themselves and their families, which is an epidemic across the country. Moreover, only a few participants described doing physical exercise regularly, such as playing sports, and most participants who described doing physical exercise were men and adolescent boys. While there is limited data from the study about participants practices around physical exercise, the data suggests that cardio-protective exercise (i.e., strenuous activities like running, vigorous walking, riding a bicycle, etc.) may not be a common practice among most participants and that there may be individual and gendered barriers to regular exercise.

**While many people felt ambivalent about their capability to maintain health, all participants valued buying fresh, nutritionally rich foods that were affordable, high quality and close to where they lived.** For example, many people valued the reciprocal relationships that they built with local food purveyors at green grocers and butcher shops. These relationships were drivers of customer loyalty. In Mexico, for instance, participants shared that they often expressed their gratitude for affordable foods by giving tips and spare change to shopkeepers. Likewise, in Colombia and Guatemala, affordability and quality particularly drove purchasing decisions, where participants sought the highest quality product for the lowest price. This finding shows that participants value access to nutritionally rich foods; the individual relationships that they build with shopkeepers; and that for many people affordability is one of the key barriers to optimal nutrition.

## Conclusion

The study findings show that environmental and sociological factors create contexts that hinder health-forward decisions to eat nutrition-rich foods and to exercise regularly. In particular, the environments in which participants live facilitate decisions to eat ultra-processed foods and to exercise irregularly. The built infrastructure, from roads to sidewalks, and structural factors of food policies and regulatory frameworks created friction in accessing nutrition-rich foods and exercising. At the sociological level, conversations and social influences at home and in people’s communities are strong indicators of the dietary practices and the attitudes about body size that people have, as well as of the beliefs about health that they hold. Socio-economic factors like affordability of food are also among the primary barriers to eating nutrition-rich foods, and participants regularly felt the need to prioritize affordability over quality. Moreover, while participants valued eating nutrition rich foods, as evidenced by their cognitive biases such as using cognitive heuristics like “homemade” and “natural” to identify nutritious foods, it is often easy to make the decision to eat processed foods. This is because the environments and social contexts in which they live make eating processed foods easy, accessible, social, and timely. These findings underscore the importance of creating environments and social contexts that enable people to easily make decisions that prioritize and preserve their health.



# Recommendations

MAGENTA recommends social and behavior change interventions that address the environmental and sociological drivers of dietary habits contributing to overweight and negative perceptions about body size and that are in line with diets and practices to support optimal nutrition, growth, and development. Such interventions address the root causes contributing to overweight, obesity, and nutrition-related noncommunicable diseases by creating environments and social contexts that make health-forward decisions easy, accessible, social, and timely. MAGENTA's recommendations are organized by environmental, sociological, and psychological driver to facilitate reference against the findings.

## Environmental Level

**Develop governing instruments to regulate exposure and access to ultra-processed foods and beverages and expand food policy initiatives.**

### Recommendations directed to the public sector:

- Generate health and food policies free of conflict of interest by the industry, including the regulation of the availability of ultra-processed food and beverages, especially in schools and nurseries.
- Create or reinforce the necessary legal instruments (laws, rules, regulations) to guarantee the right of the population, especially children, to continuous and sufficient drinking water and healthy eating, especially in the most vulnerable groups of the population.
- Generate pertinent regulatory instruments free of conflict of interest, to guarantee and monitor the sale and distribution of healthy and sustainable food in schools and childcare centers.
- Ensure financing for actions or interventions that promote healthy and sustainable nutrition and physical activity.

### Recommendations directed to the public sector and UNICEF regional and country offices:

- Promote coordination between institutions to address the problem of malnutrition in all its forms, through a common agenda between government agencies, health organizations, the media, industry, and civil society organizations.

**Create and promote built infrastructure that facilitates health-forward decisions.**

### Recommendation directed to the public sector:

- Ensure the availability of drinking water for consumption in communities, health facilities, schools, nurseries, and homes

### Recommendation directed to the public and private sectors:

- Create, improve parks and public sports spaces for the practice of physical activity and healthy and sustainable eating.

### **Recommendation directed to the public sector and UNICEF country and regional offices:**

- Expand and scale existing UN programming for planting school vegetable gardens at elementary and secondary schools.
- Implement intersectoral strategies to transform educational centers to promote healthy and sustainable nutrition and hydration and physical activity for children and adolescents.

### **Incorporate structural enablers of health-forward decisions by reducing exposure to ultra-processed foods in school settings and increasing access to physical exercise and active commuting.**

#### **Recommendations directed to the public sector:**

- Reduce the availability of sugar-sweetened beverages in nurseries and schools and consider the prohibition of this type of food in schools.
- Promote healthy and safe environments for exercise in schools and local communities.

#### **Recommendation directed to the public and private sectors:**

- Frame healthy food options to be attractive to food decision makers: Reframe school menus to nudge nutritious decisions.

## **Sociological Level**

### **Foster public discourses and community dynamics that promote nutrition-forward and body-neutral conversations around health.**

#### **Recommendations directed to UNICEF regional and country offices:**

- Carry out communication campaigns focused on behavioral changes, based on formative research, to promote public discourses among the population about what a healthy and sustainable diet is, emphasizing the most relevant messages for each country.
- Carry out communication campaigns focused on body neutrality and self-empowerment, based on formative research, to promote public discourses among the population about what is a healthy body and about how thinness and perceptions about thinness is not equivalent to health

#### **Recommendations directed to the public sector and UNICEF country offices:**

- Implement communication strategies through mass media in indigenous languages to promote healthy and sustainable eating, favoring the consumption of locally produced food.

- Built capability programs among teachers and health personnel dedicated to promoting healthy and sustainable eating so that they can be information channels for students and patients.

## **Promote gender equality and increase men and adolescent boy’s engagement in meal preparation and in creating healthy habits early and often at home.**

### **Recommendations directed to UNICEF regional and country offices:**

- Promote gender equality in food programs, such as by developing campaigns and targeting programming for men and adolescent boys that promote gender equality in the purchase, preparation and serving, dish washing, etc. and other activities related to food.
- Highlight the importance of the role model of parents in the formation of healthy habits in children and create capability-building programming for men and adolescent boys to create gender-neutral associations with health, nutrition, and household labor.

## **Psychological Level**

### **Increase interest, positive associations, and cultural identification with nutritionally rich foods.**

#### **Recommendations directed to UNICEF country offices:**

- Develop a social marketing campaign that evokes emotions, feelings and traditions related to healthy eating and emphasizes preparing and sharing meals together as a form of affection.
  - Incorporate messages into social marketing that highlight how it was celebrated in past decades, with traditions, with the family, with homemade food, family recipes, etc.
  - Show physical activity in family, as a way of showing love, recreation etc. Recreation and love not only linked to food.

#### **Recommendations directed to UNICEF country offices:**

- Create a social marketing campaign that shows how consuming fruits and vegetables is not necessarily more expensive, that highlights the "price" or barriers of soft drinks in terms of health risks and environmental pollution and that highlights the benefits of consuming plain water.
  - Augment existing or develop social marketing campaign that emphasizes helpful heuristics to use when determining whether a food is nutritionally rich and that can bring attention to the ways that “natural” or “homemade” foods are not always nutritionally rich.
  - Highlight the consumption of seasonal and local fruits and vegetables as a strategy to reduce costs.
    - In Colombia: Recognize that natural food is better than ultra-processed food, but that natural food is not always nutritious, for example a natural juice with a lot of sugar.
    - In Guatemala: Conduct a campaign about what ultra-processed foods are, their health risks, among others.
    - In Mexico: Recognize that homemade is always better, but adding lots of cream, fat, and sugar to homemade foods also makes them less nutritious.

## **Increase individuals' self-efficacy to support their health through initiatives aimed at building capability and motivation to include health-forward habits**

### **Recommendations directed to the public sector and UNICEF country offices:**

- Develop educational programs, such as culinary workshops or a food-centered mobile application, that increase adults' and adolescents' capability to include nutrition-rich foods and beverages a part of their daily habits and to identify satisfying alternatives to nutrition-poor foods and beverages
- Develop social programming that makes physical exercise easy, accessible, social, and timely and dismantles barriers to exercising regularly through social exercise groups, e.g., hiking, running, yoga, and sports, in local parks and community centers and programs aimed toward gender inclusion and increasing participation among people less likely to be



- 
- <sup>i</sup> PAHO, January 2017. Overweight affects almost half the population of all countries in Latin America and Caribbean except for Haiti. PAHO Press Release. [https://www3.paho.org/hq/index.php?option=com\\_content&view=article&id=12911:overweight-affects-half-population-latin-american-caribbean-except-haiti&Itemid=1926&lang=en#gsc.tab=0](https://www3.paho.org/hq/index.php?option=com_content&view=article&id=12911:overweight-affects-half-population-latin-american-caribbean-except-haiti&Itemid=1926&lang=en#gsc.tab=0)
- <sup>ii</sup> Corvalan, M.L., et al. 2017. "Nutrition Status of Children in Latin America," *Obesity Reviews*: 18, 2. <https://onlinelibrary.wiley.com/doi/10.1111/obr.12571>
- <sup>iii</sup> Baker, P. et al. 2020. Ultra-processed foods and the nutrition transition: Global, regional, and national trends, food systems transformations and political economy drivers. *Obesity Reviews*, 21, 12. [https://onlinelibrary.wiley.com/doi/full/10.1111/obr.13126?casa\\_token=Z79Aakd3UpIAAAA%3AurtcK4Uug1ILgdpY-KqSYBuUbfelYh\\_LsB88f3-q-JLVc5hgwOfwxBQjn5udgno2gin4pNZC09Xx-w](https://onlinelibrary.wiley.com/doi/full/10.1111/obr.13126?casa_token=Z79Aakd3UpIAAAA%3AurtcK4Uug1ILgdpY-KqSYBuUbfelYh_LsB88f3-q-JLVc5hgwOfwxBQjn5udgno2gin4pNZC09Xx-w)
- <sup>iv</sup> Popkin, P. and Reardon, 2018. T. Obesity and Food System Transformation in Latin America. *Obesity Reviews*, 19, 8. <https://onlinelibrary.wiley.com/doi/full/10.1111/obr.12694>
- <sup>v</sup> De Moraes Ferrari, G. et al. 2019. Socio-demographic patterning of objectively measured physical activity and sedentary behaviors in eight Latin American countries: Findings from the ELANS study. *European Journal of Sport Science*, 20, 5. [https://www.tandfonline.com/doi/full/10.1080/17461391.2019.1678671?casa\\_token=rq7H2ma1E6YAAAA%3Ax-tSFNB-tStGAdRjB3ha6PH-AXsY7Tj9LU9EbT3ktGCKJK3wlc-AF9OcHC3VnjfycWY2J54VKjX](https://www.tandfonline.com/doi/full/10.1080/17461391.2019.1678671?casa_token=rq7H2ma1E6YAAAA%3Ax-tSFNB-tStGAdRjB3ha6PH-AXsY7Tj9LU9EbT3ktGCKJK3wlc-AF9OcHC3VnjfycWY2J54VKjX)
- <sup>vi</sup> Ablard, J. 2019. Framing the Latin American Nutrition Transition in a Historical Perspective, 1850 to the present. <https://www.redalyc.org/journal/3861/386166331012/html/>
- <sup>vii</sup> Oestreicher, J. 2020. Rural development and shifts in household dietary practices from 1999 to 2000 in the Tapajós River region, Brazilian Amazon: empirical evidence from dietary surveys. *Globalization and Health*, 16, 36. <https://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-020-00564-5>
- <sup>viii</sup> Le Coq, J.F. et al. 2022. Public Policies and Food Systems in Latin America. Versailles, Quae. <https://agritrop.cirad.fr/600484/1/ID600484.pdf>
- <sup>ix</sup> Nellis, J. et al. N.D. Policy Brief: Privatization in Latin America: the rapid rise, recent fall, and continuing puzzle of a contentious economic policy. Center for Global Development. [https://www.files.ethz.ch/isn/36104/2004\\_01\\_01.pdf](https://www.files.ethz.ch/isn/36104/2004_01_01.pdf)
- <sup>x</sup> Global Nutrition Report, 2021, Guatemala: the burden of malnutrition at a glance. <https://globalnutritionreport.org/resources/nutrition-profiles/latin-america-and-caribbean/central-america/guatemala>
- University of Pennsylvania School of Medicine, 2018, Alarming diabetes epidemic in Guatemala tied to aging, not obesity: Type 2 diabetes and pre-diabetes found in 25% of the large indigenous population in Guatemala. <https://www.sciencedaily.com/2018/08/180814101416.htm>
- Pagaza, C. 2021. Childhood and adult obesity: Mexico's other epidemic, *Equal Times*. <https://www.equaltimes.org/childhood-and-adult-obesity-mexico#Yw7PDi2B2u4>
- Parra, D.C., et al. 2015. The nutrition transition in Colombia over a decade: a novel household classification system of anthropometric measures. *Archives of Public Health*, 73, 12.
- Gonzalez-Casanova, I, et al. 2014. Individual, Family and Community Predictors of Overweight and Obesity Among Colombian Children and Adolescents. *Preventing Chronic Disease*. [https://www.cdc.gov/pcd/issues/2014/14\\_0065.htm](https://www.cdc.gov/pcd/issues/2014/14_0065.htm)
- Population Reference Bureau, 2013. Noncommunicable disease in Latin America and the Caribbean: Youth are Key to Prevention. Policy Brief. <https://www.prb.org/wp-content/uploads/2013/06/noncommunicable-diseases-latin-america-youth-datasheet.pdf>
- <sup>xi</sup> Jiwani, S. et al. 2019. The shift of obesity burden by socioeconomic status between 1998 and 2017 in Latin America and the Caribbean: a cross-sectional series study. *The Lancet Global Health*. [https://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(19\)30421-8/fulltext](https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(19)30421-8/fulltext)
- <sup>xii</sup> Stunkard, A., Sorensen, T., Schulsinger, F. (1983). Use of the Danish adoption register for the study of obesity and thinness. *Res. Publ. Assoc. Res. Nerv. Ment. Dis.* (60), 115-120.