



## UvA-DARE (Digital Academic Repository)

### Cultures of Nutrition: Classification, Food Policy, and Health

Cuj, M.; Grabinsky, L.; Yates-Doerr, E.

**DOI**

[10.1080/01459740.2020.1826475](https://doi.org/10.1080/01459740.2020.1826475)

**Publication date**

2021

**Document Version**

Final published version

**Published in**

Medical Anthropology

**License**

CC BY-NC-ND

[Link to publication](#)

**Citation for published version (APA):**

Cuj, M., Grabinsky, L., & Yates-Doerr, E. (2021). Cultures of Nutrition: Classification, Food Policy, and Health. *Medical Anthropology*, 40(1), 79-97.  
<https://doi.org/10.1080/01459740.2020.1826475>


**General rights**

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

**Disclaimer/Complaints regulations**

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

## Cultures of Nutrition: Classification, Food Policy, and Health

Miguel Cujá<sup>a</sup>, Lisa Grabinsky<sup>b</sup>, and Emily Yates-Doerr<sup>c</sup> 

<sup>a</sup>Department of Anthropology, Vanderbilt University, Nashville, United States; <sup>b</sup>School of Language, Culture, and Society, Oregon State University, Corvallis, United States; <sup>c</sup>Amsterdam Institute for Social Science Research, University of Amsterdam, Amsterdam, Netherlands

### ABSTRACT

Nutrition policymakers frequently treat their knowledge of nutrition as acultural and universal. We analyze food guidelines in Mexico and Guatemala to draw attention to embedded, but often unrecognized, cultural values of standardization and individual responsibility. We suggest that nutrition policy would be improved by attending to the cultural values within nutrition science, and that nutrition guidelines should attend not only to other people's cultures but to what we are calling "cultures of nutrition." We conclude by offering an example of an adaptive approach to policy-making that may be useful for handling situations where many different cultures of nutrition collide.

### KEYWORDS

Guatemala; Mexico; categorization; health policy; public health nutrition; values

Medical practitioners often hold the science of medicine apart from cultural practice. Practitioners must become competent in other cultures to carry out good medicine, but they believe their own work is governed by universal principles. Janelle Taylor, who has studied medical practice as an anthropologist, describes medicine's orientation as a "culture of no culture" (2003). This phrase captures how clinicians may be inclined to treat culture as a belief-set that patients possess, but not something that influences their own orientation to medical practice – subjective knowledge in contrast to medicine's objective and timeless truths. Taylor is one of several anthropologists who have argued that medical practice would be improved by taking seriously a range of complex cultural negotiations that shape the assembly and dissemination of medical knowledge (see also Traweek 1988; B. Good 1994; M., 1995; Kleinman and Benson 2006; Metzl and Hansen 2014).

In this article, we suggest that nutrition policy would be similarly improved by attending to the cultures that operate *within* the field of nutrition science. We analyze nutrition guidelines in two countries: Mexico and Guatemala. In each, policy makers and practitioners are grappling with a culturally diverse food landscape. In each, health workers tailor their guidelines to serve communities with diverse languages and distinctive food traditions. and in each, they fall short of being able to best serve these communities because they ignore the values that structure their own expert cultures, including values of universalism, standardization, and individual responsibility. We develop the argument that nutrition guidelines should not only attend to other people's cultures, but to what we are calling *cultures of nutrition*.

We develop the phrase *cultures of nutrition* to draw attention to the way that cultural values come to shape nutrition policy-making. It is a phrase meant to highlight that nutrition is not a "culture of no culture," to borrow from Taylor, but that nutrition guidelines are influenced by cultural values. Culture, as we use it, refers to patterned or structured systems that follow some, albeit often loose or fluid, internal logic. Cultures are always full of internal contradictions and competing goals, but they are also guided by often-historical, national, regional, linguistic, or conceptual principles that give some degree of coherence to the practices that take place.

**CONTACT** Emily Yates-Doerr  [E.J.F.Yates-Doerr@uva.nl](mailto:E.J.F.Yates-Doerr@uva.nl)  Amsterdam Institute for Social Science Research, University of Amsterdam, Roeterseiland Campus, Nieuwe Achtergracht, 1661018 WV, Amsterdam, Netherlands

© 2020 The Author(s). Published with license by Taylor & Francis Group, LLC.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

Important critiques of the culture concept require that we be careful with the term. Gershon and Taylor (2008), for example, show how institutional practitioners use culture in a way that essentializes and flattens the heterogeneity of communities. Todd's trenchant critique of the culture concept (2018) analyzes how "culture" has been mobilized by European and US governments to invalidate non-Western legal orders. As she explains, westerners are understood as governed by scientific, rational laws whereas those "others" whom they want to conquer have mere customs, myths, beliefs, and stories (see also Barker 2011; Wynter 2003). Naming something "culture" served to deprioritize and invalidate.

To address the discriminatory potential in using the term 'culture,' a researcher might show how Indigenous communities adhere to rational and scientific, albeit non-western, laws in their food and farming practices (e.g. González 2001; Walter and Andersen 2013). In this article we tack to the inverse, turning culture around. Given the often-stated interest in cultural differences on the part of the field of public health nutrition, we shift the nutritionist's gaze inward to show how cultures drive nutrition policy-making. We highlight the cultures of nutrition policy to address how particular hegemonic and elitist beliefs about nutrition are treated as if universal, which contributes to their continued dominance. Calling these beliefs cultural also helps us to name the systemic racism that coheres within nutrition guidelines, opening up for critical inquiry what is otherwise taken as truth.

All authors have carried out participant observation ethnography and interviews in the regions we write about. Miguel Cuj and Lisa Grabinsky might be doubly titled "native anthropologists" (Narayan 1993), having worked for years within the field of nutrition science as citizens of the countries described (eg. Cuj et al. 2020; Grabinsky 2020). Emily Yates-Doerr has done long-term anthropological fieldwork with nutrition policy makers and the people affected by their policies in Guatemala (eg. 2015). In this article, we collectively examine commonly used nutrition-policy devices in Guatemala and Mexico to draw attention to the cultural values of universalism, standardization, and individual choice that underpin these popular pedagogical tools. This enables us to advocate for an approach to nutrition policy-making that recognizes the importance of diverse systems of value and is responsive to how guidelines will change as they are taken up and reinterpreted in people's lives. We suggest this adaptive approach to nutrition policy may be especially useful for handling the frequently-competing goals within nutrition science and for navigating the many situations where different cultures of nutrition collide.

## Food guidelines and k'iche' maya food

In 2018, Cuj carried out fieldwork in a small K'iche' Maya community in Guatemala's highlands as part of a three-year study of K'iche' food categories. While there, he asked women how they managed to access food in rural areas. One woman responded to his question, saying: "I eat *ichaj*" (a K'iche' Maya word for vegetables). Another woman then said: "I eat *q'ayes*" (also a K'iche' Maya word for vegetables, although we could also translate it as "wild plants").

Cuj, a K'iche'-Maya anthropologist who trained in Guatemala as a nutritionist before seeking a doctorate in the United States, knew that *Ichaj* referred to vegetables that offer sustenance whereas *q'ayes* referred to vegetables that offer healing and comfort. People eat *ichaj* to achieve everyday satiety and they eat *q'ayes* to achieve balance, healing or wellness. Cuj found himself puzzling over the differences: "What would be the implications of using one term over the other when it came to creating food guidelines or recommendations? How might the assumption made by nutrition policy makers that these terms are not meaningfully different – that they can be compressed within the same category "vegetables" – affect the lives of Maya women and their families?"<sup>1</sup>

The question of which languages are used and which guidelines become dominant is especially relevant in the multiethnic and multilingual country of Guatemala, where Indigenous people have survived colonialism, racism, and a recent – and arguably ongoing – genocide in which state forces have targeted Indigenous people (Casaús 2010, 2019; Lovell et al. 2020; Yates-Doerr 2019). Although Spanish is the official national language and the primary language used by nutrition policy makers,

over 23 non-Spanish languages are spoken and an estimated 40% of the total population is Indigenous Maya (Henderson et al. 2014; Peñate et al. 2017).

Most K'iche' speakers understand some Spanish, although people in rural communities may speak only K'iche'. Whereas K'iche' categorizations of sustenance are incredibly diverse most guidelines are designed only in Spanish. Consider, for example, that in K'iche' "food" is not a single category but is broken into four categories: *wa* (hearty, filling food eaten at mealtimes, based on maize), *uk'iya* (small snacks based mostly on processed foods such as chips or candy), *rikil* (side dishes), and *xaq katijowik* (foods eaten in between meals based mostly on local food sources, which seek to satisfy cravings or to encourage sociality) (Henne 1977). None of these strategies for classification are reflected in national (Spanish-language) nutrition guidelines, which classify foods in ways that are not readily intelligible to most Maya people in Guatemala.

As we explore below, Guatemalan food policy makers frequently assume that there is a universally shared category – food (*comida*) – that can then be subcategorized into groups that are universally healthy or not. Experts treat the categories that they deploy as both widely correct and widely intelligible. Their nutrition interventions, which prioritize individual behavior, tend to emphasize individualized dietary changes in these food groups, typically advising people to eat more vegetables and fewer carbohydrates and less fat. But there are many other ways that people value what is eaten to be reckoned with when designing guidelines for good eating or good food.

### Guatemala's family food pot

The Guatemalan Ministry of Health has attempted to design national food guidelines with the objective of improving population-wide nutritional status (Villanueva et al. 2019). The push to improve nutritional status captures the ministry's pervasive idea that there is a correct amount of nutrients needed by the human body to maintain health. Guatemala's Food Guidelines, and *La Olla Familiar* (or "the family food pot") that accompanies them, were developed as part of a wave of food guidelines emphasizing individual dietary health promoted globally by the Food and Agriculture Organization (FAO) and the World Health Organization. "La Olla" resulted from a collaboration between Guatemala's National Commission of Dietary Guidelines and the Institute of Nutrition of Central America and Panama, which created the guidelines as an education tool to be used by nutritionists and public health workers when interacting with community members and to be hung in health clinics as a didactic aid.

*La Olla* was designed for the Guatemalan population, with a generic individual as its imagined target (INCAP 1980; Mozaffarian et al. 2018). The pot's designers divided foods into seven groups that mirrored food groups in US guidelines: grains and cereals, herbs and vegetables, fruits, meat, dairy products and derivatives, sugar, and fat. As summarized by the FAO, "The bottom of the pot is made of cereals, whole grains and tubers, followed by vegetables and fruits. In the next level there are animal-source foods and dairy products. Fats (including avocado and seeds) and sugars can be found at the top."<sup>2</sup> The aim was to guide individuals into choosing to eat the "correct" foods. In 2012, in an attempt to depict the importance of promoting healthy lifestyle habits along with healthy food, the image of a man on a bicycle and a light-skinned woman running in shorts and a sports bra were added to the pot, along with a glass of fresh water (see Figure 1). The water that accompanied the food appears to be sparkling – not from a tap. As we discuss further below, this reflects tremendous economic privilege on the part of the designers, given that the Guatemalan National Statistics Institute estimates that 59.3% of Guatemalans live in conditions of poverty that make sparkling water entirely inaccessible (INE 2015). It also signals a troubling disinvestment in sustainable water infrastructure on the part of public health: it is the individual who is left to make the responsible choice to purchase healthy sparkling water, not the government who should provide it.

In some ways, the bowl shape of *La Olla Familiar* reflects an attempt to depict Guatemalan "cultural" practices; most traditional dishes in Guatemala are stews that combine several ingredients, simmered slowly over fires in large ceramic pots such as the one featured in the picture. Yet whereas

## A. LA OLLA FAMILIAR

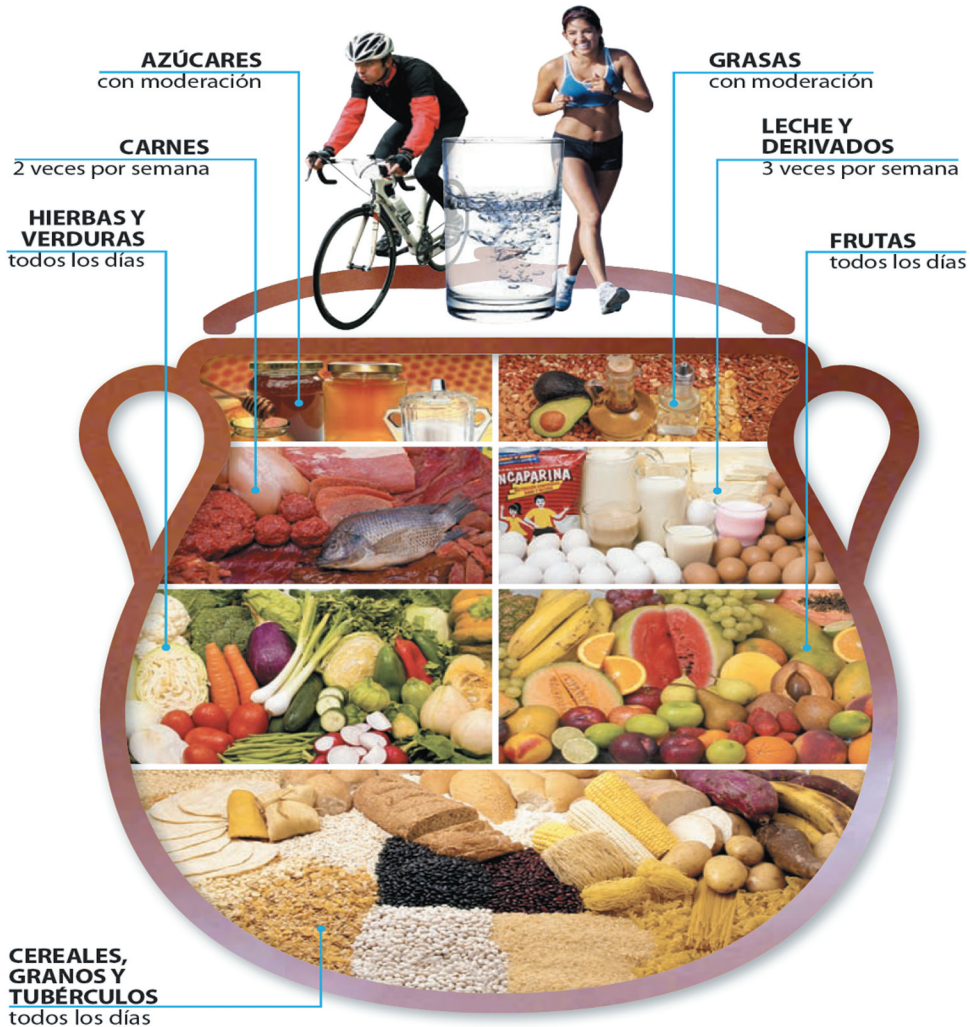


Figure 1. Food Pot, National Food Guideline, Guatemala.

these meals are prepared to serve *families*, the recommendations that accompany *La Olla* are directed at individuals, who are counseled to eat from the meat group twice a week, or from the vegetable group at least every day (see Figure 2). Embedded within the pot are cultural values that treat food as objectively good or bad and that also prioritize individual choice. The figures on the pot do not have any Maya identifiers: the pot erases Indigenous people and Indigenous dietary routines.

Despite the image of a communal pot as opposed to an individual plate, and despite the emphasis on *family* as seen in the title, the Guatemalan Food Guidelines are more resonant with the US Food Pyramid than they are with Guatemalan eating practices (MSPAS, 2012). Both US and Guatemalan guidelines are based on three key elements: food groups, health promotion messages, and didactic illustrations. The assumption built into the message is that individuals control what they eat and that knowledge about food groups is universally shared, such that what works in one community will necessarily be appropriate for and work in another. Their message about proper eating prioritizes

| <b>Food Groups</b>             | <b>Consumption</b>         |
|--------------------------------|----------------------------|
| Grain and cereals              | All mealtimes<br>Every day |
| Herbs/Vegetables               | Every day                  |
| Fruits                         | Every day                  |
| Dairy products and derivatives | Three times per week       |
| Meats                          | Two times per week         |
| Sugar                          | In moderation              |
| Fats                           | In moderation              |

**Figure 2.** Description of Food Groups: Guatemalan Food Guidelines.

institutional values of universalism and efficiency, deploying western assumptions that meals can be broken down and analyzed by their nutrient parts (see Nestle 2002).

Although Maya food categories are not represented in the diagram, they remain extremely important in structuring what and how Guatemalans eat. For example, knowing a food's harvest season and subsequent availability is a key to classifying good food in rural areas of Guatemala because many foods are not available year-round. Policy planners in the United States, where many "global" nutrition policy programs are headquartered, may be accustomed to storage/freezing systems and to trade routes that ensure that commonly eaten foods are always available.<sup>3</sup> But for rural Guatemalans, what to eat is governed by seasonality, weather, and growing patterns.

Guatemala's most commonly eaten foods defy the common food groups used by global nutrition experts (see also Hardin 2019). We noted that *q'ayes* might be translated as "wild plant." Provenance of food – for example, whether it grows wild or is domesticated, whether it is produced locally or afar – does not generally figure into nutrition guidelines (Cuj et al. 2020). But for many people in Guatemala, how and where food is produced is central to whether it can be classified as good to eat. Wild plants are valued differently to cultivated plans and foods are frequently classified by consumption practices and not by either nutrients or tastes (FAO 2012).

Maize presents a good example of the frictions that arise between different classificatory systems. In western nutritional terms, maize might be considered a high-starch carbohydrate, akin to bread or cereal. Yet it might also be considered a vegetable. Peltó (2000) notes that in rural Mexico, maize was traditionally a major source of protein, and 80% of protein came not from meat or dairy but from agricultural produce, which also confuses conventional nutrition categories that associate protein with meat. Tortillas, made by a time-honored pattern of cooking maize in a lime solution in accordance with specific times and temperatures, are the mainstay of the Maya diet, but so too are traditional maize beverages which are consumed regularly in many Maya communities, begging the question of whether a drink is also a food (Muñoz et al. 2013a). The issue is larger than simply assigning maize to the correct food group (e.g. protein or carbohydrate), but of recognizing how it can exceed these groups altogether.

Consider that K'iche' Maya communities value maize not only for its nutritional sustenance but because it is the cornerstone of religious and social life, with deep cosmological importance. The Pop Wuj, a book from the eighteenth century which recorded centuries of oral K'iche' traditions, describes how human flesh was created out of maize, and many Guatemalans consider maize through spiritual

and kinship – not nutrient – values as being essential to life (Tedlock 1985; Yates-Doerr 2015a). The cultivation of maize draws families and communities together to clear, harvest, and sow the land (Cuj et al. 2020). Separate from the role that maize might play in sustaining individual-level nutrition, it also builds and supports affinal and social ties. The example of maize makes clear that there are important discrepancies between *La Olla Familiar* and the food classifications that structure eating practices within Maya communities. The categorization of other commonly eaten and historically significant foods such as avocados, beans, squash, and tomatoes is similarly slippery; there are no K'iche' words for fruit and vegetable because these classifications make no sense given the staple foods grown in Guatemala.<sup>4</sup>

If we return to Cuj's question about which category of vegetables to recommend – *ichaj* (filling vegetables) or *q'ayes* (healing vegetables) – we see the answer is more nuanced than just using the right K'iche' translation. Policy makers must rethink not only which terms they use, but also the categories that underpin their design of food policies. Their own embedded and unacknowledged cultural assumptions about the universality of their categories interferes with designing policies that might be useful in people's lives (see also McMillin et al. 2010). We are here pointing to a double problem of cultural erasure. First, Indigenous cultural languages and knowledges are not respected, engaged with, or integrated into policies. Second, because nutrition policy asserts itself as cultureless, universal, and true, the specific cultural values of standardization, efficiency, or individualization that are embedded into its design are not sufficiently interrogated or considered. As the next case, set in urban Mexico, makes clear, “vegetable” is not a universal or neutral category, but is imbued with cultural values about what constitutes correct or healthy eating. As we show, to create meaningful dietary recommendations nutrition policy makers must find ways of attending to the diversity in cultural and linguistic values, which includes the diversity found in the cultural systems that operate within the field of nutrition science.

### **mexico's *el plato del bien comer* and *la jarra del buen beber***

During the late twentieth century, nutrition experts from the Mexican School of Nutritionists responded to an increasing concern about the rise in metabolic illness in Mexico by hosting a workshop entitled “From Babel to Consensus” (Casanueva et al. 2002). The idea behind the workshop, as its name suggests, was to reach consensus about which dietary guidelines should be adopted for the entirety of Mexico. At the time, several different guidelines were in use, ranging from pyramids and plates to apples (Bacardi-Gascon 2002). A result of the meeting was the ordinance NOM-043, according to which the Mexican Ministry of Health required all health professionals, whether working in public or private settings, to use the same nutrition promotion and education materials. The assumption was that everyone, regardless of region or language, would respond similarly to standardized national advice.

The NOM-043 guidelines emphasized six principles, advocating that diets be: complete, balanced, not-harmful, sufficient, varied, and adequate (see Figure 3). The guidelines also mandated that health professionals and educators use *El Plato del Bien Comer* (The Plate of Good Eating), a graphic tool representing the six dietary principles, when discussing correct eating with patients. Built into *El Plato* was an implicit concern that the overeating of fatty and sugary foods was contributing to Mexico's health problems, and that with this education people could better control the food they ate.

At the time of its design, many countries relied on the image of the pyramid to promote healthy eating. At first, nutrition experts thought that the pyramid might be culturally appropriate in Mexico because pre-Columbian civilizations built pyramids, so they were a local symbol. Yet Mexicans reported that the shape felt incongruous to their diet and objected to its use (Garrett 2005). Food pyramids put staple foods at the base, with special foods that should be eaten in moderation at the top. In Mexico, however, the most important rituals are carried out at the top of pyramids: the top should include the most sacred foods, not foods to be avoided. The pyramid was thus rejected and the plate-shape dietary guide was selected. Yet if the shape of the plate was selected for obvious “cultural”

**Complete (*Completa*):** A diet must provide the three main macronutrients—carbohydrates, lipids, and protein—, as well as all of the vitamins and minerals. In order to accomplish this, one must include in every meal three food groups: fruits and vegetables, cereals, and legumes and foods of animal origin.

**Balanced (*Equilibrada*):** The nutrients must be appropriately distributed, according to the nutritional needs of the individual. Though not stated in the NOM-043, the macronutrient distribution recommendations dietitians in Mexico work with are:

- Carbohydrates:** 55-63% of the total energy intake for adults
- Lipids:** 25-30% for adults and children older than 3 years old
- Protein:** 12-15%, and animal origin foods should not exceed more than a third of the protein consumption (Suverza and Haua 2010).

**Innocuous (*Inocua*):** The diet must not be a risk for the health and wellbeing. For the NOM-043, that the food is free from pathogenic microorganisms, toxins, and contaminants is not enough. It must also be eaten moderately and should not provide an excess of a component or nutrient, which would harm the individual's health in the long term.

**Sufficient (*Suficiente*):** The diet must cover each individual's nutrient requirements, so that adults can have a healthy weight and nutritional status, and children can grow up and develop correctly.

**Varied (*Variada*):** Each meal has to include different foods from each of the three groups.

**Adequate (*Adecuada*):** Diets must be adapted to the individual culture, taste, and financial resources. To be able to accomplish an adequate diet, neither of the other characteristics should be sacrificed (Secretaría de Salud 2013).

**Figure 3.** NOM-043 guidelines, Mexico (translation by authors).

reasons, less obvious cultural logics were also embedded into the plate's design and dissemination – not least the cultural value of standardization that assumed that the same tool might work in diverse settings such as schools, hospitals, and both public and private health clinics.

*El Plato* is evenly divided into three food groups: 1) fruits and vegetables; 2) cereals; and 3) legumes and foods of animal origin (Figure 4). Policy makers used traffic signal colors to represent each of these groups: green for fruits and vegetables; yellow for cereals; and red for proteins. To reinforce the idea of moderation, most of the foods were depicted in single-portion servings (e.g. a chicken leg or a slice of watermelon). *El Plato*'s designers hoped this strategy would simplify the message for children and people who didn't read (Vargas and Long-Solís 2005), but it also created confusion even among dieticians themselves. For example, many saw protein as desirable and did not understand why it was marked as red (signaling "caution").<sup>5</sup> Symbols whose meaning experts had assumed to be universal were, in fact, reinterpreted in varying ways.

Not all misunderstandings were innocent. Many of the cultural assumptions built into the plate set up conditions where the blame for failure in following the guidelines could be directed at Indigenous bodies. Consider that people in rural Mexico commonly eat using *tortillas* instead of silverware. *El Plato*, however, depicts a spoon, knife, and fork on the side of the plate. Elias (2000[1939]) famously argued that enforcing the use of silverware has long been part of a "civilizing process," in which people are stigmatized for practices that do not comply with western norms. While this stigma is fostered by *El Plato*'s promotion of silverware, there is an added twist to the civilizing logic of the diagram. Here, cutlery should be used not only for the sake of manners or decorum, but because eating with tortillas



# El Plato del Bien Comer

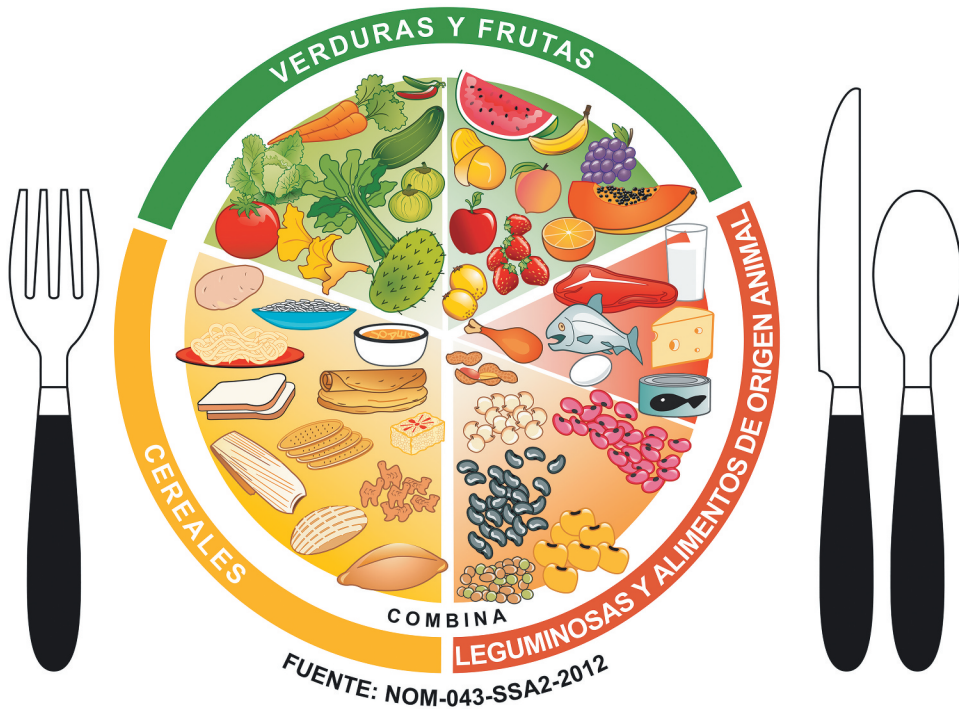


Figure 4. El Plato del Bien Comer, Mexico (Secretaría de Salud 2013).

would add unwanted starchy carbohydrates to a meal. Eating with utensils was promoted as a technique for eating less. While the reference to health might allow the promotion of silverware to appear acultural, in fact it facilitates and sustains settler-colonial institutions and concomitant cultural values of good citizenship that disadvantage and deride Indigenous lives.

Similar cultural logics of good nutrition embedded into *El Plato* can also be seen in the design and implementation of *La Jarra del Buen Beber* (“The Pitcher of Good Drinking”), which advises what and when to drink (Figure 5). *La Jarra* was introduced by the Ministry of Public Education as part of the science curriculum in public elementary schools (Figure 6) in order for children to be educated to make non-sugary, low-calorie drink choices and help prevent obesity. It quickly gained popularity through social media and other mass-communication media, with the opposition of the soft drink industry (Acevedo Tena 2015). Policy makers hoped that messages of healthy drinking from *La Jarra* would complement messages of “correct” eating distributed by *El Plato*, and that changing consumption practices would lead to better health. In the section that follows, we examine how this aspiration played out in practice.

## Successes and failures of plate and pitcher-based guidelines

Grabinsky worked at a nutrition clinic in the middle-income Azcapotzalco delegation of Mexico City from 2016 to 2018. After greeting the predominantly middle-class patients and before taking the expected anthropometric measurements, she would ask a standard question: “Tell me about all the foods and drinks you consume on a typical day in your life.”

**Level 1 - The predominant beverage in a healthy diet: Drinking water.** Water is necessary for metabolism, normal physiological functions, is a natural source of certain minerals —calcium, magnesium, and fluorine—, has almost no adverse effects in healthy individuals, and is non-caloric. Each individual’s water needs are based on age, weight, gender, level of physical activity, and weather conditions. Therefore, the committee gives an estimate of 750-2000 milliliters (ml) per day and even more for people whose physical activity levels are vigorous or when the weather is hot.

**Level 2: Skim milk, 1% milk, and soy drinks with no added sugar.** Milk is the main source of calcium and vitamin D for children, as well as a source of high biological value protein. Therefore, low-fat (or fat free) milk and related dairy products, as well as sugar-free soy drinks —known simply as “soy milk”— may contribute to a healthy diet, even though they are not essential. The recommended daily quantity is from 0 to 500 ml per day, which amounts to two glasses. Whole milk is not recommended because its high levels of saturated fat translate in a higher calorie count.

**Level 3: Coffee and tea with no added sugar.** 0 to 1 liter per day, though it can be replaced by drinking water. Both coffee and tea —referring to *Camellia sinensis* derivatives— contain caffeine, which is a mild diuretic. Consuming less than 400 milligrams (mg) per day does not cause dehydration or water imbalance, and it has no significant relation in increasing the risk of cardiovascular disease, hypertension, osteoporosis, or high cholesterol levels. However, caffeine may have adverse effects in the development of children’s nervous system, and increase the risk of miscarriage and low birth weight.

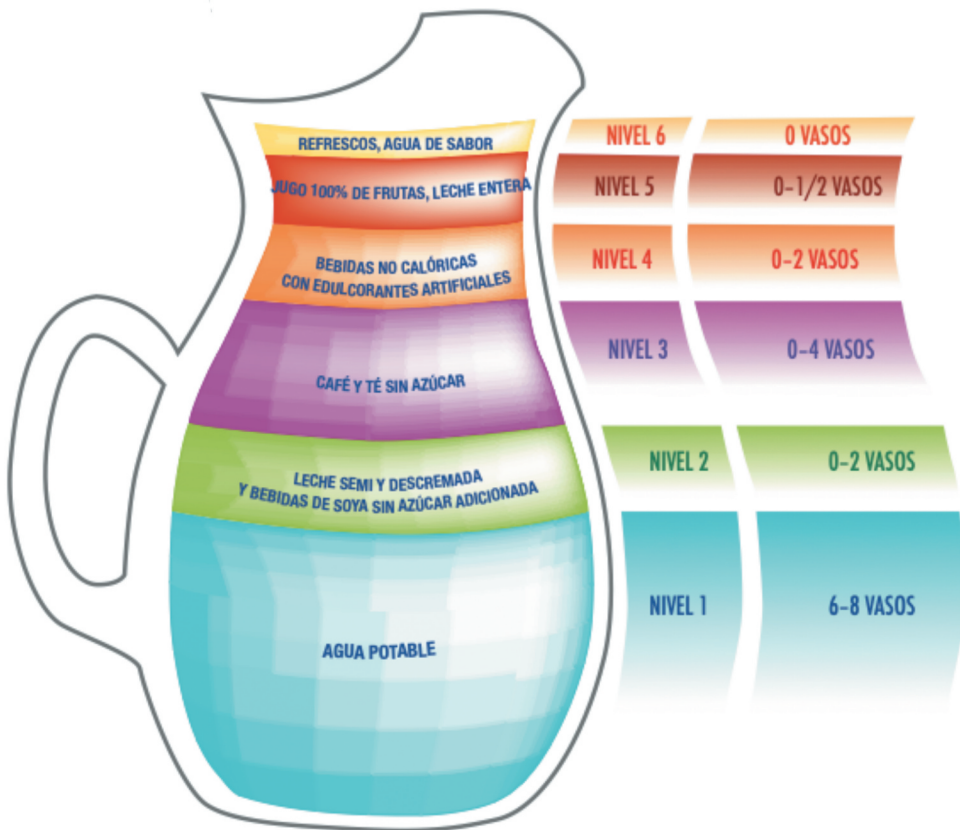
**Level 4: Sugar-free beverages.** 0 to 500 ml per day, and they could be replaced by tea or coffee. These types of beverages are not recommended for children due to the artificial sweeteners they contain.

**Level 5: Beverages rich in calories and limited benefits to health.** For juices that are 100% made from fresh fruit, 0 to 125 ml per day is the recommendation. Alcoholic beverages are not encouraged, but if adults consume them, the recommendation is from 0 to 1 per day (240 ml of beer, 150 ml of wine, or 45 ml of distilled liquor). Whole milk is included in this level.

**Level 6 - Beverages that should be avoided: Sugary beverages with low nutrient content.** Their consumption is not encouraged at all, but if they are consumed, one must not exceed 240 ml per special occasion (Rivera et al. 2008).

**Figure 5.** Guidelines of La Jarra del Buen Beber (translation by authors).

Patients’ responses reflected the hectic character of their lives and the challenges of eating well in a busy urban city. Responses typically focused on fast-paced routines that left no time for the leisurely enjoyment of food. For example, in the morning patients relied on foods like smoothies or yogurt that they could take and eat on their way to work/school, where they sat (from 9am to until 2pm) without consuming anything other than perhaps coffee, cookies, or fruit. Lunch consisted of foods which were accessible in term of time and cost. A common sight in Mexico City’s pre-COVID financial districts were large groups of white-collar workers flocking toward nearby *fondas* that offer three-course homemade meals for a small price. Other workers brought leftovers from home in Tupperware, which they would then re-heat in the office’s microwave oven and eat at their desks. At the end of the day, having snacked on whatever industrialized foods a vending machine might offer, they would



**Figure 6.** La Jarra del Buen Beber, Mexico (Cervera Cobos et al. 2019, 15). D.R. © Secretaría de Educación Pública, 2019, Argentina 28, Centro, 06020, Ciudad de México

jump into Mexico City’s evening rush hour traffic to return home. Once home, exhausted and hungry, they would rely on food services (delivery, take-out, or in-dining), leftovers, or a “light” dinner that required little preparation time. A bowl of cereal with milk was a common dinner.

The food plate and drinking pitcher emphasize changes in dietary habits that individuals can make, with the end-goal of promoting adequate growth and development of children and the maintenance of a healthy body mass index in adults (Mexico 2013: 5). The NOM-043 likewise urges dietitians to provide their patients with meal plans aligned not only for their taste, culture, and income, but also for their lifestyle (see Figure 3 above: “Diets must be adapted to the individual culture, taste, and financial resources”). Yet changing traffic congestion and commute routes, work expectations, or the availability of foods is not a simple matter of individual “lifestyle” choice.

*El Plato* has been the mandatory didactic tool used to teach eating “correctly” in Mexico for over 15 years. However, Grabinsky was among many dietitians who adapted its nutritional recommendations into meals that could be consumed on-the-go (smoothies, foods packed in Tupperware). Even though these changes align with the nutrient guidelines stipulated by the NOM-043, the foods are not necessarily eaten in plate form nor do they resemble *El Plato*’s recommended foods. Different cultural logics within the field of nutrition conflict with one another and the way both *El Plato* and *La Jarra* were used by nutritionists exemplify the ongoing “Babel-like” discourse among dietitians. This is not necessarily because of Mexican food “cultures,” but because different cultural logics within the field of nutrition conflict with one another.

*El Plato* is driven by a logic of fungibility that does not hold up in practice. The plate assumes an equivalence between cereals, when, for example, there are important differences between whole grain cereals and highly refined, sugary cereals (Muñoz et al. 2013b). The plate treats starches as equivalents, with nonfat corn tortillas that are rich in fiber and calcium replacing a concha or tamal, both of which are high in fat and sugar. Although the plate is part of the NOM-043 it also contradicts the NOM-043's stated goal for saturated fat to not amount to more than seven percent of the diet (Secretaría de Salud 2013: 4). *El Plato* intentionally did not include the food group "fats and oils" in order to discourage their consumption; in doing so it failed to include an important source of mono-unsaturated fat and ubiquitous component of diet – avocado. It also treats legumes and foods of animal origin as a single category, eliding the vast differences in taste, cardiovascular health, or environmental impact between a diet based on traditional beans and a NAFTA-era diet reliant on hydrolyzed animal parts (see Gálvez 2018).

Finally, the NOM-043 urges health educators to emphasize the consumption of local and seasonal foods (Secretaría de Salud 2013: 10). This important movement toward the situated specificity of eating practices is, however, undermined by another NOM-043 regulatory guideline which forbids the alteration of *El Plato* (p.22). That these values move at cross purposes becomes especially concerning when it comes to the care offered to Mexico's marginalized peoples. For example, *nopales* – a symbol depicted in the National Emblem – are inaccessible to Maya communities in the Yucatán (Cabrera-Araujo et al. 2018). Yet Maya people are told to eat *nopales*, not the more culturally and locally appropriate *chaya* leaves, when they access biomedical services.

*La Jarra* has also run into academic obstacles. Shortly after Rivera et al. (2008) published the guidelines from which *La Jarra* was created, a group of health professionals launched strong criticism: that these guidelines were based on beverage recommendations from a study designed around a population of the United States (Popkin et al. 2006), and that the guidelines were neither culturally appropriate nor socio-economically feasible in Mexico (Arroyo et al. 2008). The US Dietary Guidelines Advisory Committee (DGAC) critiqued the US-based study, concerned that its rankings were based on negative attributes of the beverages – e.g. added sugar – instead of their "ability to fulfill nutrient needs" (Arroyo et al. 2008: 342). Both the US-based study and *La Jarra* classify beverages on the basis of calories, neglecting their nutritional value, such as vitamin and mineral content.

The Mexican beverage guidelines have similar internal differences. Some of these can be seen in the contradictions in the classifications of sugary or alcoholic drinks. Artificially sweetened beverages are heavily industrialized and many Mexican nutritionists would not recommend them for children, yet *La Jarra* prioritizes them over *aguas frescas*, natural fruit juices, and *atole*. The fact that alcoholic beverages are included within *La Jarra* gives the viewer the idea that they must be a part of a healthy diet, even though the guideline's authors specified that alcohol is discouraged. While antioxidants contained in certain beverages – such as resveratrol in red wine – may provide cardiovascular benefits, these beverages differ greatly in nutritional content from whole milk, which is categorized within the same level (Level 5). It might be misleading to condemn traditional Mexican *aguas frescas* – such as *horchata* and *jamaica* – deeming them unhealthier than alcoholic beverages. It is similarly debatable whether coffee, tea, and beverages with non-caloric sweeteners are healthier than milk and *aguas frescas*. What is less debatable is that the soy milk depicted in *La Jarra* is a commodity affordable only for a few. Many of the recommended foods and beverages are inaccessible to the majority of Mexico's people.

Foods that are healthy in theory are not healthy in practice if people cannot afford them. Our analysis of *El Plato* and *La Jarra* shows that the ideas of "correct" consumption embedded in their designs clash with real-life dietary practices. Hectic urban lifestyles do not allow for meals to be consumed on a plate most of the time, and work productivity and continued employment are prioritized over making healthy food choices. *El Plato*'s lack of adaptability excludes and further marginalizes rural and Indigenous peoples. Both devices disregard the importance of traditional foods and drinks.

But the problem is not only a clash between experts and everyday dietary practice. We have also drawn attention to clashes *within* expert knowledges, showing how *El Plato* and *La Jarra* have internal contradictions, for example, in prioritizing caloric content at times, but, at other times, prioritizing nutrients. That nutritionists cannot agree on whether to emphasize calories or nutrients reflects the different priorities within nutrition science.<sup>6</sup> We are calling these differences cultural to emphasize how policy making and nutrition science are organized not just around adherence to scientific facts (or not), but around differing systems of value. Policy makers, by recognizing these cultural differences, might redesign nutrition policies and programs to make them better suited to people's lives. We conclude with this point.

## Conclusion

*Si me quita las tortillas, me quita la vida*, Yates-Doerr overheard a patient tell a doctor who had advised him to eliminate tortillas from his diet while she was at a Guatemalan diabetes clinic: If you take away my tortillas, you take away my life (2015: 21). The patient's response makes evident that tortillas were not mere nutrients; they were essential to living. Indeed, that "people eat foods, not nutrients" was noted by the US nutrition scientist Doris Calloway, whose guidance helped shape dietary recommendations allowances in the late twentieth century (King 2003).<sup>7</sup> Noel Solomons, a nutrition scientist in Guatemala, is fond of quoting Calloway on this point, advocating the importance of considering food cultures when shaping dietary recommendations and other food policies (e.g. Vossenaar et al. 2018).

Regional and cultural differences in what constitutes good food and good eating are essential for policy makers to consider when designing food guidelines. In the regions we have described, it matters that some people do not feel they have eaten until they've eaten tortillas, that some people prefer tamales or nogales to bread, that some communities cannot afford soy milk, that not all vegetables are the same, or that locally used linguistic classifications do not separate "foods" from "beverages" (the K'iche' verb *-tij(o)* is typically used for both eating and drinking). When differences in categorical registers collide, this can produce confusion, causing guidelines to have unexpected – and frequently undesirable – outcomes.

What we have highlighted above, however, is that "culture" is not only the domain of the communities for whom policies are directed; culture also shapes the making of policy. Consider that there is no universal truth by which to classify maize tortillas as a food that is categorically separate from the maize-based drink of atole.<sup>8</sup> If we are going to point to "culture" as a reason why Guatemalans and Mexicans will interchange frescas and atoles for "healthy food," so too we should look to culture as a reason why policy makers have separated food guidelines from beverage guidelines. In both Guatemala and Mexico, policy makers were influenced by food cultures held by scientific communities, especially those in the United States where food groups clearly reflect the historical lobbying influence of food industries (Biltekoff 2013). The categories that appear on the guidelines are not universally shared, but have been shaped by cultures of nutrition.

Guatemalan scientists who have studied the concordance of US-based dietary guidelines for Guatemalans note that the *Dietary Guidelines for Americans* prioritize North American values, such as targeting changes in personal behavior. They write, "(f)rom the point of view of Latin America, the question of dietary guidelines may not so much be a matter of promoting dietary change, but in maintaining traditional practices in the face of pressures for modernization and 'westernization' of the diet" (Valdés-Ramos et al. 2001: 87). Their point, which we have reiterated, is that although policy makers frequently treat culture as the domain of other communities that food guidelines must seek to manage or mitigate, certain western cultural values such as individual choice or consumer responsibility are also deeply embedded in the making of food policy. The Guatemalans scientists argue that if physiological health was the real target, policies would advocate traditional practices. Instead, what is being targeted is the dissemination of a specific set of western cultural values whose "culture of no culture" appearance helps these values to spread.

We conclude this article by holding open the possibility that by recognizing the cultural frames that shape health policy, policy makers might design policies that better align with people's lives. Rather than thinking of guidelines as representing objectively true expert-driven information that needs to be taught to ignorant lay people – the underlying logic of much existing nutrition education policy, now as in the past – perhaps they can begin to reimagine guidelines to be sites of recursive cultural exchange. The expertise of nutritionists might similarly be understood as dependent on the already-existing expertise of the patient, client, or student. After all, nutritional therapeutics challenge conventional understandings of scientific expertise by resting on knowledge of everyday dietary practices and living conditions, and no one knows these conditions better than those people to whom nutritional therapeutics are intended (Yates-Doerr 2013). In this sense guidelines might indeed guide – but not determine – what information is disseminated and how this process of dissemination takes place.

The work of Susy Menchu, a K'iche' nutrition specialist who Yates-Doerr met during fieldwork, provides an example. When tasked with designing early life nutrition education for women in Totoncopán, the department with the highest reported rate of childhood chronic malnutrition in Guatemala, Menchu took it upon herself to rework the foundation of the region's feeding guidelines for pregnant or nursing women. Instead of employing a “one size fits all” chart listing proper food behaviors, she created an artfully-illustrated notebook of Maya people engaging in different food and feeding practices. The notebook folded out into a triangle, so it could stand alone, leaving the caregiver's hands free to further demonstrate the techniques, which ranged from encouraging a proper latch during breastfeeding, to food milling or mashing corn for tortilla preparation, to boiling water (see Figure 7).

Underlying the design of Menchu's guide was the idea that trained caregivers would use the guide to begin a conversation with women in their counsel. Knowledge of what and how to eat would emerge out of these exchanges and not be prescribed by the guide itself. Whereas some text was shown on the



Figure 7. Susy Menchu designed the educational guide pictured here to encourage interactive care practices.

front page of Menchu's guide, she noted that further iterations of the guide might only use images. The premise of this style of dietary guide was that nutritional information would not be contained within and defined by the guide, but would emerge out of dialogue between the patient and provider. The manual, in other words, was not designed to direct what the patient should eat, but would instead offer scaffolding for a conversation.

The point is not that the particularities of Menchu's guide will work everywhere and that it should now be replicated or scaled up. The point is rather that what will work, in terms of producing meaningful counsel for patients, is locally situated and best determined through interpersonal dialogue, taking account of what kinds of categorical differences matter most for people's lives (e.g. seasonality, cooking for one or many, commensality and conviviality, and feelings of satiety). Those people designing guidelines should not only ask what culturally relevant content should go into them, but should also ask how to build mechanisms for adjustment and learning within the form of the guidelines themselves, so that confusing or unacceptable standards can be re-adapted by patients and providers as they are being put into use.

Let us finally consider a powerful cultural prioritization of the individual that remains embedded in *La Olla Familiar*, *El Plato del Bien Comer*, and *La Jarra del Buen Beber*: that you have the ability to change what you eat. Historians of science have noted how dietary guidelines that emerged at the end of the twentieth century and early twenty first centuries make dietary health a matter of personal responsibility (Mudry 2009; Scrinis 2013). One of the driving cultural logics of much dietary education today is that the individual can make small changes in what they eat which will radically impact their health.

Anthropologist Alyshia Gálvez (2018) has shown how this focus on correct food choices ignores the fact that macro-level trade policies structure which foods Mexican people can access. This extends to Guatemala where highly processed cheap foods such as packaged chips or candies replace the more expensive historic diet of maize, squash, and beans that people, dispossessed of land and without possibilities for employment, can no longer afford (Monroy-Valle et al. 2017; Yates-Doerr 2015b). Policy-level support for good eating, Gálvez argues, is not just a matter of encouraging individuals to make healthy choices but extends to trade regulations as well. Bowen et al. (2019) show how the pressure to cook healthy meals, almost always directed at mothers, reinforces harmful gender norms while eliding the degree to which eating is structured by work and schooling expectations, insurance infrastructures, and social inequality.

Research in nutritional epigenetics challenges an individual-centered approach from a different direction, suggesting that metabolic processing develops over intergenerational time. This epigenetic idea that "we are what our ancestors ate" disrupts the nineteenth century nutritional logic that "man is what he eats" (Ludwig Feuerbach, cited in Landecker 2011: 253). Emergent research on metabolic processing adds a further twist to the expression that "people eat foods, not nutrients," by suggesting that people do not only eat foods, they eat foods in relational contexts. This research – which aligns in many ways with relational understandings of health we encountered in both K'iche' communities and in Mexico City – emphasizes that "eating" is not just a matter of *what* is eaten but of the social and environmental conditions in which eating happens (see Hite 2012; Mendenhall 2019; Saldaña-Tejada and Wade 2019; Warin and Zivkovic 2019).

Recognizing the social aspects of eating moves us away from a concern for calories or nutrients and toward a concern for the environments in which eating occurs. Policy makers have been inclined to call this a "lifestyle" change, thereby re-centering stylistic choices that individuals make (Cannon 2005; Manderson 2020). Our hope is that if they can better identify the value of individualism that has held so much sway over their policies as a cultural value, they would be better positioned to look at other cultural values that could structure their policies. For example, they might ask how to design educational guides that teach people to advocate for improvements in the social systems in which they live, encompassing workday schedules and housing infrastructures, trade agreements, food sovereignty and access to land, police violence and abolition histories (see Garth and Reese 2020), the ongoing effects of traumatic histories – and so much more.

What would it look like to make dietary recommendations that direct people how to act to change social inequities, to mitigate the stress of systematic racial or gender discrimination, or to politically organize to fight against land dispossession, instead of switch around the kind of food one eats? What would change about food policies if dietary choice was deprioritized, with energy directed instead toward strengthening “healthy” social networks or making “healing” reparations for historical abuse? Rather than answer these questions directly we want to suggest that policy makers might take up this line of questioning, challenging the biomedical focus on the individual and the dietary choices that individuals make. These questions ask us to consider the *cultures of nutrition* that animate existing policy approaches toward good eating, while also asking how we might listen and respond to other ways of classifying both food and health.

## Notes

1. In Spanish there are also two words for vegetable: *verduras* and *vegetales*. In Guatemalan Spanish *verduras* and *vegetales* are roughly synonymous, though *verduras* is more colloquial whereas *vegetales* has formal and technical connotations (*vegetales* is the word used in food guidelines, for example).
2. <http://www.fao.org/nutrition/education/food-dietary-guidelines/regions/countries/Guatemala/en>.
3. See Fisher and Benson (2006) for an analysis of how vegetable circulation differs between the United States and Guatemala, with US Americans expecting to be able to eat broccoli year-round. Even so, within US markets, resources remain highly stratified by race, sex, land access, etc., and many communities do not have year-round access to fresh produce (Gross and Rosenberger 2005; Lewis 2018; Reese 2019).
4. This slipperiness is not only the case in Guatemala. High-sugar ketchup was classified as a “fruit or vegetable” during the US Reagan administration’s attempt to make budget cuts in subsidized school lunches, illustrating how state politics influences food categories.
5. Annemarie Mol (2012) notes that Dutch food guidelines often assume that bodies are naturally greedy and in need of modulation. She asks how guidelines might change if nutritionists aimed to help people enjoy their food, instead of working to restrict the body’s pleasure.
6. Vogel (2018) describes a similar case of conflicting normativities in European food guidelines.
7. This is a point that anthropologists of food have made forefully, such as Christine Wilson (1986), who wrote that “food has always been more than something to distill hunger” decades ago, noting how rice serves an essential social function in much of Asia (1986:259; see also Cosminsky and Harrison 1983; Richards 1939).
8. Not only ‘MesoAmerican’ cultures collapse food and drink categories. Many nutritional valuation systems blur boundaries between foods and beverages, with mathematical calculations of calories indifferent to whether the substance in question is solid or liquid (see Yates-Doerr and Mol 2012).

## Acknowledgments

We thank Else Vogel and Mercedes Duff for feedback on a draft of this article. Miguel additionally thanks the academic resources provided through the Latin American Nutrition Society (SLAN) and 8th Leadership Training Workshop in Nutrition for Young Leaders from Latin America and the Caribbean. Special thanks go to Susan Scrimshaw, for the stimulating discussions on K’iche’ Maya language, bio-communicability, Maya culture, and life in general and to Elizabeth Wood for her help with regard to Maya linguistics.

## Funding

Lisa is indebted to the Mexico-US Commission (COMEXUS) for support for graduate training in applied anthropology at Oregon State University through a Fulbright-García Robles scholarship. Emily acknowledges the NWO Veni grant #016.158.020 from the Dutch Science Foundation and the European Research Council’s Starting Grant #759414, which have provided valuable support for research and writing.

## Media teaser

Policymakers frequently treat their knowledge of nutrition as acultural & universal. Drawing from fieldwork in Mexico & Guatemala, Cuj, @lizgraby and @eyatesd show how this approach fails people and offer adaptive policy-making as an alternative approach.



## Notes on contributors

*Miguel Cuj* is a Guatemalan-Maya with an interest in food, health, language, and culture issues in rural Guatemala. His current research project explores K'iche' Maya foodways and their cultures of nutrition, with attention to their culture models, material culture, and language pragmatics.

*Lisa Grabinsky* is a Mexican dietitian and Fulbright scholar with an MA in Applied Anthropology from Oregon State University. Her work focuses on nutrition, public health, and wellbeing in Mexico through actions aimed at food sovereignty and social justice

*Emily Yates-Doerr* is Assistant Professor of Anthropology at Oregon State University and the University of Amsterdam and the PI on a starting grant funded by the European Research Council focused on maternal health interventions. Contact her at: [e.j.yates-doerr@uva.nl](mailto:e.j.yates-doerr@uva.nl)

## ORCID

Emily Yates-Doerr  <http://orcid.org/0000-0002-0895-7136>

## References

- Acevedo Tena, M.  
2015 Recomendaciones, Estrategias e Intervenciones para Promover El Consumo de Água em Niños y Adolescentes em América Latina. Cuernacava, MX: Instituto Nacional de Salud Pública. <https://catalogoinsp.mx/files/tes/54532.pdf>.
- Arroyo, P., J. Pardío, G. Meléndez, and A. Loria.  
2008 Cartas al Editor: Comentarios al Artículo de Rivera y Colaboradores Sobre Consumo de Bebidas. *Salud Pública de México* 50(5):341–44. doi:10.1590/S0036-36342008000500001
- Bacardi-Gascon, M.  
2002 An evaluation of two Mexican Food Guides. *International Journal of Food Sciences and Nutrition* 53 (2):163–69.
- Barker, J.  
2011 *Native Acts: Law, Recognition, and Cultural Authenticity*. Durham, NC: Duke University Press.
- Biltekoff, C.  
2013 *Eating Right in America: The Cultural Politics of Food and Health*. Durham, NC: Duke University Press.
- Bowen, S., J. Brenton, and S. Elliott  
2019 *Pressure Cooker: Why Home Cooking Won't Solve Our Problems and What We Can Do about It*. Oxford, UK: Oxford University Press.
- Cabrera-Araujo, Z. M., V. M. Hernández-Escalante, A. D. Marín-Cárdenas, R. Murguía Argüelles, N. Magaña-Be, K. Ramón-Escobar, J. Hirose-López, et al.  
2018 Opiniones de Adolescentes Sobre El Plato Del Bien Comer Maya Como Herramienta de Promoción de La Salud. *Salud Pública de México* 61(1):72–77. doi:10.21149/9362.
- Cannon, G.  
2005 Out of the Box: Nutrition Science for this Century. *Public Health Nutrition* 8(4):344–47. doi:10.1079/PHN2005743
- Casanueva, E., E. Durán, M. Kaufer, M. Plazas, E. Polo, G. Toussaint, H. Bourges, and R. Camacho  
2002 Fundamentos Del Plato Del Bien Comer. *Cuadernos de Nutrición* 25(1):21–28.
- Casaús, A.  
2010 *Guatemala Linaje y Racismo*. Guatemala City: F&G Editores.
- Casaús, A.  
2019 *Racismo, Genocidio y Memoria*. Guatemala City: F&G Editores.
- Cobos, Cervera, Nelly del Pilar, David Huesca Guillén, Luis Tonatiuh Martínez Aroche, Adolfo Portilla González, Antonio Solís Lugo, Juana Guadalupe Rodríguez Arteaga, Luz María Luna Martínez, and Amaro Moreno.  
2019 *Ciencias Naturales: Quinto Grado*. Fourth. Mexico City: Secretaría de Educación Pública
- Cosminsky, S., and I. Harrison  
1983 *Traditional Medicine: An Annotated Bibliography of Latin America, Caribbean and Africa*. New York: Garland Press.
- Elias, N.  
2000 [1939]. *The Civilizing Process*. Malden, MA: Blackwell Publishers.

- Fisher, E., and P. Benson  
 2006 *Broccoli and Desire: Global Connections and Maya Struggles in Postwar Guatemala*. Palo Alto, CA: Stanford University Press.
- Food Agriculture Organization (FAO).  
 2012 *Cultura y Prácticas Alimentarias en Totonicapán*. Guatemala City: Magna Terra. <http://www.fao.org/3/ar647s/ar647s.pdf>.
- Gálvez, A.  
 2018 *Eating NAFTA. Trade Food Policies, and the Destruction of Mexico*. Oakland: University of California Press.
- Garrett, K. A.,  
 2005 *Pyramid Power: A Modest Proposal for Better Eating*. Mexico City: Business México.
- Garth, H., and A. Reese  
 2020 *Black Food Matters: Racial Justice in the Wake of Food Justice*. Minneapolis, MN: UMN Press.
- Gershon, I., and J. S. Taylor.  
 2008 Introduction to In Focus: Culture in the Spaces of No Culture. *American Anthropologist* 110(4):417–21. doi:10.1111/j.1548-1433.2008.00074.x
- González, R. J.  
 2001 *Zapotec Science: Farming and Food in the Northern Sierra of Oaxaca*. Austin: University of Texas Press.
- Gross, Joan and Nancy Rosenberger.  
 2005 *Food Insecurity in Rural Benton County: An Ethnographic Study*. Oregon, USA: Working Paper: Rural Studies Paper Series. [https://ir.library.oregonstate.edu/concern/technical\\_reports/ff365949n?locale=en](https://ir.library.oregonstate.edu/concern/technical_reports/ff365949n?locale=en)
- Good, B.  
 1994 *Medicine, Rationality and Experience: An Anthropological Perspective*. Cambridge, UK: Cambridge University Press.
- Good, M.D.  
 1995 *American Medicine: The Quest for Competence*. Berkeley: University of California Press.
- Grabinsky, L.  
 2020 “La gente tiene que comer”: Food and COVID-19. Society for the Anthropology of Food and Nutrition Online. <https://foodanthro.com/2020/05/13/la-gente-tiene-que-comer-foodandcovid-19/>.
- Gross, J., and N. Rosenberger  
 2005 Food insecurity in rural Benton County: An ethnographic study. *Rural Studies Paper* 5(2):1–31. <https://ir.library.oregonstate.edu/downloads/5712mb57b>
- Hardin, J.  
 2019 *Faith and the Pursuit of Health: Cardiometabolic Disorders in Samoa*. New Brunswick, NJ: Rutgers University Press.
- Henderson, B., P. Rohloff, and R. Henderson  
 2014 More than Words: Towards a Development-Based Approach to Language Revitalization. *Language Documentation & Conservation* 8(1):75–91.
- Henne, M. G.  
 1977 *Quiche Food: Its Cognitive Structure in Chichicastenango, Guatemala*. Dallas. *SIL International* 3:69–92.
- Hite, A.  
 2012 Why Race Doesn’t Matter in Nutrition Policy. *Earthropology Online*. <https://earthropology.com/2012/11/01/why-race-doesnt-matter-in-nutrition-policy/>
- Instituto de Nutrición de Centro América y Panamá (INCAP).  
 1980 *Canasta familiar de alimentos para el Istmo Centroamericano: Definición y metodología*, March. <https://repositorio.cepal.org/handle/11362/26329>.
- Instituto Nacional de Estadística (Guatemala).  
 2015 *Encuesta Nacional de Condiciones de Vida, 2014: Principales resultados*. Guatemala City: INE. <https://www.ine.gob.gt/index.php/encuestas-de-hogares-y-personas/condiciones-de-vida>
- King, C. K.  
 2003 Doris Howes Calloway (1923–2001). *The Journal of Nutrition* 133(7):2113–16. doi:10.1093/jn/133.7.2113
- Kleinman, A., and P. Benson.  
 2006 Anthropology in the clinic: The problem of cultural competency and how to fix it. *PLoS Medicine* 3(10):e294. doi:10.1371/journal.pmed.0030294
- Landecker, H.  
 2011 Food as exposure: Nutritional epigenetics and the new metabolism. *Biosocieties* 6(2):167–94.
- Lewis, C.  
 2018 Frybread wars: Biopolitics and the consequences of selective United States healthcare practices for American Indians. *Food Culture and Society* 21(4):427–48. doi:10.1080/15528014.2018.1480644
- Lovell, W. G., C. H. Lutz, and W. Kramer  
 2020 *Strike Fear in the Land: Pedro De Alvarado and the Conquest of Guatemala, 1520–1541*. Norman: University of Oklahoma Press.

Manderson, L.

2020 “Lifestyle” disease on the margins. *American Anthropologist* 122(3):655–56. doi:10.1111/aman.13448

McMillin, J., M. Bone, J. K. Pang, V. K. Pang, and A. McEligot.

2010 Native Hawaiian voices: Enhancing the role of cultural values in community based participatory research. *Californian Journal of Health Promotion* 8(SI):52–62. doi:10.32398/cjhp.v8SI.2042

Mendenhall, E.

2019 *Rethinking Diabetes: Entanglements with Trauma, Poverty, and HIV*. Ithaca, NY: Cornell University Press.

Metzl, J. M., and H. Hansen.

2014 Structural competency: Theorizing a new medical engagement with stigma and inequality. *Social Science & Medicine* 103:126–33. doi:10.1016/j.socscimed.2013.06.032

Mexico, Secretaría de Salud.

2013 Norma Oficial Mexicana NOM-043-SSA2-2012, Servicios Básicos de Salud. Promoción y Educación Para La Salud En Materia Alimentaria. Criterios Para Brindar Orientación. Mexico City: Secretaría de Gobernación. [https://www.dof.gob.mx/nota\\_detalle.php?codigo=5285372&fecha=22/01/2013](https://www.dof.gob.mx/nota_detalle.php?codigo=5285372&fecha=22/01/2013).

Ministerio de Salud Pública y Asistencia Social de Guatemala (MSPAS).

2012 Guías Alimentarias para Guatemala: Recomendaciones para una alimentación saludable. <https://www1.paho.org/gut/dmdocuments/guias-alimentarias-corregida.pdf>.

Mol, A.

2012 Mind your plate. The ontogeny of Dutch dieting. *Social Studies of Science* 43(3):379–96. doi:10.1177/0306312712456948

Monroy-Valle, M., W. Coyoy, J. De León, and I. D. Flórez.

2017 Determinantes Dietéticos del Consumo de Zinc en Menores de Cinco Años con Retardo del Crecimiento en Comunidades Mayas de Guatemala. *Revista Peruana de Medicina Experimental y Salud Pública* 34(3):451–58. doi:10.17843/rpmesp.2017.343.2276

Mozaffarian, D., I. Rosenberg, and R. Uauy

2018 History of modern nutrition science—Implications for current research, dietary guidelines, and food policy. *British Medical Journal* 361(k2392):1–6.

Mudry, J.

2009 *Measured Meals: Nutrition in America*. Albany: State University of New York Press.

Muñoz, C., J. Manuel, A. C. Aguilar, and J. C. Hernández.

2013a Lipid Lowering Effect of Maize-Based Traditional Mexican Food on a Metabolic Syndrome Model in Rats. *Lipids in Health and Disease* 12(1):35–35. doi:10.1186/1476-511X-12-35

Muñoz, C., J. Manuel, T. del, and J.M. Salazar.

2013b Los Contenidos de Los Mensajes Para La Salud Alimentaria En Los Libros de Texto de La Escuela Primaria Artículo Original. *Revista de Comunicación y Salud* 3(1):19–33. doi:10.35669/revistadecomunicacionysalud.2013.3-(1).19-33

Narayan, K.

1993 How native is a ‘native’ anthropologist? *American Anthropologist* 95(3):671–86. doi:10.1525/aa.1993.95.3.02a00070

Nestle, M.

2002 *Food Politics: How the Food Industry Influences Nutrition and Health*. Berkeley: University of California Press.

Pelto, G. H.

2000 Social Class and Diet in Contemporary Mexico. In *Food and Evolution: Toward a Theory of Human Food Habits* M. Harris and E.B. Ross, eds., Pp. 517–40. Philadelphia, PA: Temple University Press.

Peñate, M., E. Maldonado, and F. Us.

2017 Inversión en pueblos indígenas: Según el presupuesto ejecutado. Guatemala, C.A.: Mecanismo de Apoyo a los Pueblos Indígenas. [https://www.icefi.org/sites/default/files/inversion\\_en\\_pueblos\\_indigenas\\_0.pdf](https://www.icefi.org/sites/default/files/inversion_en_pueblos_indigenas_0.pdf).

Popkin, B. M., L. E. Armstrong, G. M. Bray, B. Caballero, B. Frei, and W. C. Willett.

2006 A new proposed guidance system for beverage consumption in the United States. *The American Journal of Clinical Nutrition* 83(3):529–42. doi:10.1093/ajcn.83.3.529

Reese, A.

2019 *Black Food Geographies: Race, Self-Reliance, and Food Access in Washington, DC*. Chapel, Hill, NC: University of North Carolina Press.

Richards, A.

1939 *Land, Labour and Diet in Northern Rhodesia: An Economic Study of the Bemba Tribe*. London: Oxford University Press.

Rivera, J. A., O. Muñoz-Hernandez, M. Rosas-Peralta, C. A. Aguilar-Salinas, and B. M. Popkin.

2008 Consumo de Bebidas Para Una Vida Saludable: Recomendaciones Para La Población Mexicana. *Salud Pública de México* 50(2):173–95. doi:10.1590/S0036-36342008000200011

- Saldaña-Tejada, A., and P. Wade.  
 2019 Eugenics, Epigenetics, and Obesity Predisposition among Mexican Mestizos. *Medical Anthropology* 38 (8):664–79. doi:10.1080/01459740.2019.1589466
- Scrinis, G.  
 2013 *Nutritionism: The Science and Politics of Dietary Advice*. New York: Columbia University Press.
- Taylor, J. S.  
 2003 Confronting “Culture” in Medicine’s “Culture of No Culture.”. *Academic Medicine* 78(6):555–59. doi:10.1097/00001888-200306000-00003
- Tedlock, D.  
 1985 *Popol Vuh: The Definitive Edition of the Mayan Book of the Dawn of Life and the Glories of Gods and Kings*. New York: Simon and Schuster.
- Todd, Z.  
 2018 . 1. <Brews come coffee.> <puts on anthropologist hat> <cracks knuckles>. <https://twitter.com/ZoeSTodd/status/1074624197639487488>.
- Traweek, S.  
 1988 *Beamtimes and Lifetimes. The World of High Energy Physicists*. Cambridge, MA: Harvard University Press.
- Valdés-Ramos, R., I. Mendoza, and N. W. Solomons.  
 2001 Concordance of Dietary Intake with the “Dietary Guidelines for Americans” among Adults in Rural “Santa Rosa” Province, Guatemala. *Nutrition Research* 21:81–91.
- Vargas, L. A., and J. Long-Solís  
 2005 *Food Culture in México*. Westport, CT: Greenwood Press.
- Villanueva, G., J. Blanco, S. Rivas, A. L. Molina, N. Lopez, A. L. Fuentes, L. Muller, et al.  
 2019 Nutritional Status at Diagnosis of Cancer in Children and Adolescents in Guatemala and Its Relationship to Socioeconomic Disadvantage: A Retrospective Cohort Study. *Pediatric Blood & Cancer* 66(6):e27647-n/a. doi:10.1002/pbc.27647.
- Vogel, E.  
 2018 Metabolism and Movement: Calculating Food and Exercise or Activating Bodies in Dutch Weight Management. *BioSocieties* 13(2):389–40. doi:10.1057/s41292-017-0076-x
- Vossenaar, M., N. W. Solomons, E. Monterrosa, and K. G. van Zutphen  
 2018 Nutrient Density as a Dimension of Dietary Quality. *Sight and Life* 32(2):172–76.
- Walter, M., and C. Andersen  
 2013 *Indigenous Statistics: A Quantitative Research Methodology*. Walnut Creek, CA: Left Coast Press.
- Warin, M., and T. Zivkovic  
 2019 *Fatness, Obesity and Disadvantage in the Australian Suburbs: Unpalatable Politics*. London: Palgrave Press.
- Wilson, C. S.  
 1986 Social and nutrition context in ethnic foods: Malay examples. In *Shared Wealth and Symbol: Food, Culture, and Society in Oceania and Southeast Asia* L. Manderson, ed., 259–272. Cambridge, UK: Cambridge University Press.
- Wynter, S.  
 2003 Unsettling the Coloniality of Being/Power/Truth/Freedom: Towards the Human, AfterMan, Its Overrepresentation—An Argument. *The New Centennial Review* 3(3):257–337. doi:10.1353/ncr.2004.0015
- Yates-Doerr, E.  
 2013 Complex carbohydrates: On the relevance of ethnography in nutrition education. In *Why We Eat, How We Eat* E. J. Abbots and A. Lavis, eds., Pp. 271–88. London: Routledge.
- Yates-Doerr, E.  
 2015a Does meat come from animals? A multispecies approach to classification and belonging. *American Ethnologist* 42(2):309–23. doi:10.1111/amet.12132
- Yates-Doerr, E.  
 2015b *The Weight of Obesity: Hunger and Global Health in Postwar Guatemala*. Oakland: California Press.
- Yates-Doerr, E.  
 2019 *An Unfinished War. Anthropology Now*.11(1–2):57–73.
- Yates-Doerr, E., and A. Mol  
 2012 *Cuts of Meat: Disentangling Western Nature-Culture*. *Cambridge Anthropology* 30(2):48–64.