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To cite this article: Mariana Carvalho de Menezes, Paulo Cesar Pereira de Castro Junior, Maria Fernanda Kroker-Lobos, Carolina Pérez Ferrer, Natalia Tumas, Inês Rugani Ribeiro de Castro & Letícia Oliveira Cardoso (2023) Is it appropriate to import existing food retail environment definitions for the Latin American context? A systematic search and expert knowledge, *Cities & Health*, 7:1, 46-58, DOI: [10.1080/23748834.2022.2112502](https://doi.org/10.1080/23748834.2022.2112502)

To link to this article: <https://doi.org/10.1080/23748834.2022.2112502>



Published online: 26 Sep 2022.



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COMMENTARY AND DEBATE



Is it appropriate to import existing food retail environment definitions for the Latin American context? A systematic search and expert knowledge

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RESUMEN

La investigación sobre el ambiente alimentario en América Latina ya no puede considerarse incipiente. Sin embargo, Todavía tenemos importantes desafíos metodológicos que enfrentar, incluyendo la comprensión de los tipos de comercios de alimentos. Hemos desarrollado un inventario de los tipos de comercio de alimentos más relevantes en América Latina, utilizando el conocimiento de expertos y la búsqueda de literatura para identificar la terminología comúnmente utilizada en los artículos científicos en América Latina. Finalmente, se desarrolló una lista de tipos de comercio de alimentos, seguida de sus respectivas definiciones, y similitudes y diferencias entre Estados Unidos y América Latina. La taxonomía puede ser útil para facilitar las comparaciones, desarrollar repositorios de datos que evalúen la disponibilidad de los tipos de comercios de alimentos, generar datos empíricos para clasificar el comercio de alimentos en saludables/no saludables y desarrollar marcos teóricos para la región.

RESUMO

Pesquisas sobre ambiente alimentar na América Latina não podem ser mais consideradas incipientes. Mas ainda temos importantes desafios metodológicos a enfrentar, incluindo estudos sobre a tipologia dos estabelecimentos comerciais de alimentos. Desenvolvemos um inventário dos tipos de estabelecimentos comerciais de alimentos na América Latina, usando conhecimento de especialistas e uma revisão na literatura para identificar a terminologia comumente utilizada na ciência da América Latina. Desenvolveu-se uma lista de estabelecimentos comerciais de alimentos, seguida por suas respectivas definições, e semelhanças e diferenças entre EUA e América Latina. A taxonomia pode ser útil para facilitar comparações, desenvolver repositórios de dados avaliando a disponibilidade dos tipos de comércio de alimentos, gerar dados empíricos para classificar o comércio de alimentos em saudáveis/não saudáveis e desenvolver modelos teóricos para a região.

ABSTRACT

Food environment research in Latin American may not be considered incipient anymore. We still have important methodological challenges, including understanding food retail typology. We developed an inventory of types of food stores in LA, using a literature review to identify the terminology used in LA scientific papers and expert knowledge. A list of food store types was constructed, followed by definition and similarities of US-Latin America differences. The taxonomy may be useful to facilitate comparisons, to develop data repositories evaluating availability of store types, to generate empirical data to classify food stores in healthy/unhealthy, and to develop frameworks for the region.

ARTICLE HISTORY

Received 20 December 2021
Accepted 8 August 2022

PALABRAS CLAVE

Ambiente alimentario; Venta de alimentos; América Latina

PALAVRAS-CHAVE

Ambiente alimentar; Comércio varejista de alimentos; América latina

KEYWORDS

Food environment; food retail; Latin america

Introduction

Since the late 1990s researchers proposed the term “food environment”, and since then, the science related to the subject has dynamically evolved, in a living process that has become denser. Now food environment is considered the physical, economic, political, sociocultural environment that can enable or restrict healthy dietary choices (Swinburn *et al.* 2013). Also, recently, food environments have been

postulated as the link between food systems and food choices in cities, thus influencing subsequent health and environmental sustainability (HLPE 2017, Swinburn and Kraak *et al.* 2019).

In this process, two main theoretical models developed in high-income countries (Swinburn *et al.* 1999, Glanz *et al.* 2005) have influenced early research on food environment conducted in Latin American (LA) countries (Espinoza *et al.* 2018, Pérez-Ferrer *et al.*

2019). These models and frameworks are important to guide research questions, new hypotheses and data collection. However, food retail environments vary greatly around the world and adaptations to the frameworks and definitions are often required. For example, what is considered a healthy food retail environment in the US may not be directly applicable in Brazil or Chile. While supermarkets have been globally responsible, at least in part, to increment in the availability of ultra-processed foods at low cost, which are broadly discussed in middle-income countries (Monteiro *et al.* 2013, Deloitte Planet Retail 2020, Peres *et al.* 2021, Mendes *et al.* 2021, Serafim *et al.* 2022), in high-income countries supermarkets are usually also considered a proxy for healthy food availability at affordable prices (Kanter *et al.* 2014, Glanz *et al.* 2020, Cantor *et al.* 2020, Zhou *et al.* 2021, Gómez-Donoso *et al.* 2021, Smagge *et al.* 2022).

In this sense, an important dimension of food environment varies considerably between countries: the food retail environment, which expresses the availability of healthy and unhealthy foods within different types of retail outlets, compromising community and consumer retail food environment (Swinburn and Kraak *et al.* 2019). In the US, 87% of households acquire food from large grocery stores or supermarkets in a typical week, according to the USDA's survey (Todd and Scharadin 2016). In many countries in Latin America, food purchase is not as centralized in supermarkets (Menezes *et al.* 2017). In Mexico, 87.5% and 81.5% of urban households shopped for at least one item in the week prior to a large survey in “*tiendas de abarrotes*” (small, family-owned local shop), and specialized shops (i.e. fruit and vegetable markets or butchers), respectively (Encuesta Nacional de Ingresos y Gastos de los Hogares – ENIGH, 2016). In Brazil, a national survey revealed that small markets were the second most important food store in Brazil, after supermarkets; further, small markets, street markets/greengroceries, small producers, butcher shops and street vendors accounted for most food acquisitions within the North and Northeast regions of Brazil (Machado *et al.* 2018). In Argentina, a national survey in 2012-2013 showed that smaller food stores (specialized shops including convenience stores, fruit and vegetables markets, butchery, bakery shops) accounted for 34% of food and beverages purchases (Encuesta Nacional de Gastos de los Hogares 1996-1997; 2012/2031 – ENGHO 2018).

With no standardized nomenclature, food retail environment research in LA countries have used terms created mainly in the US, considering the initial bulk of evidence available (specially from 1990 to 2010) supporting the food environment-diet relationship came from US studies, as well as other high-income countries (such as Canada, the United

Kingdom and Australia) (Gustafson *et al.* 2011, Caspi *et al.* 2012, Ni Mhurchu *et al.* 2013, Wilkins *et al.* 2017).

That said, and considering the diversity of food retail in LA, we asked ourselves if existing food retail environment definitions and labelling are appropriate to import for the Latin American context. We now have a scenario where the literature on the food environment in Latin American countries has grown in impressive size over the past few years and may not be considered incipient anymore (Pérez-Ferrer *et al.* 2019; Turner *et al.* 2020). As a consequence of this grown body of evidence, food environment frameworks has been developed, as, for example, the conceptual framework developed specifically for the Chile context, which encompasses five interrelated food environments and their determinants, influenced by the food system and food culture (Espinoza *et al.* 2018); and the development of a food environment typology, that propose a description of different types of food environments that consumers have access to in low- and middle-income countries, based on field observations carrying out in diverse contexts by the study team (Swinburn *et al.* 2020).

Food environment research has improvement in Latin American and play a role in capturing the dynamics and specificities of the regions, but with important methodological challenges to be faced. Investigating of the food retail environment in different contexts can provide insight into the social, cultural, economic, political, and regulatory environments that influence access and consumption of food, which may differ markedly between nations (Jaime *et al.* 2011). Given these differences, concepts and definitions used mainly in highly developed countries likely require modification to have relevance to the food environment in low- and middle-income countries. Thus, this study aimed to develop a qualitative inventory of types of food retail in LA, using the literature and expert knowledge, in order to contribute to (a) a taxonomy for future data collection on the food retail environment, (b) identification of US-LA differences in retailer types, and (c) to create a list of index terms that can be used when searching and tagging for food environment literature in 3 languages (English, Spanish and Portuguese).

Methods

This is a qualitative exploratory study that describes a typology for the food retail environment in LA, based on qualitative feedback from experts in the field and in a literature review. In order to develop an inventory of types of food retailers, a workgroup was created, formed by experts in the field of food environment. The team included in total 27 researchers from 10 countries across Latin America

(Argentina, Brazil, Chile, Colombia, Costa Rica, Guatemala, Mexico, Nicaragua, Peru, and El Salvador), and two researchers from the United States. The researchers were chosen from the Network for Urban Health in Latin America and the Caribbean (LAC-Urban Health) (Diez Roux *et al.* 2019). The committee was formed to provide critical comments relevant to face validity that would help to standardize a taxonomy to better describe different types of food outlets in LA, considering the breadth and diversity of the region.

First, three researchers created a preliminary list of 14 food outlet types with definitions based on the literature (Lake *et al.* 2010, Costa *et al.* 2013, World Health Organization 2015, Barrera *et al.* 2016, North American Industry Classification System – NAICS 2018, Instituto Brasileiro de Geografia e Estatística - IBGE 2018, Pérez-Ferrer *et al.* 2019, Swinburn *et al.* 2020). Six experts with experience in LA food environments met in a face-to-face meeting in 2019 and were asked to provide qualitative feedback on the list of outlets (the questionnaire asked if the outlet existed in their country, if the term was appropriate, whether the name reflected the definition, whether the definition was accurate, and any noted differences between LA and the US). We highlight that all the food outlets terms were reported according to each expert's native language: Portuguese, English and Spanish.

Next, the feedback was sought through an online inventory involving 19 experts with broad experience in urban health in LA. Experts were asked to make specific comments on each outlet. The report of the experts was carefully studied, transcribed, and analyzed by two authors of the present study. Finally, disagreements in feedback were discussed in a face-to-face meeting among eight of the participants researchers that had participated before, where a consensus for each term and definition was reached.

In addition to the expert knowledge, a literature search was conducted to identify the terminology commonly used in Latin America scientific papers. For that, we used a previous systematic literature review from Pérez-Ferrer *et al.* (Pérez-Ferrer *et al.* 2019), updated in May 2022, that aimed to summarize the scientific literature on the food environment in Latin America. The search was conducted using Web of Science (which includes the indexes in PubMed), LILACS and SciELO for the literature published from 1 January 1999 up to May 2022. In brief, the search strategy was designed to include the dimension of food retail and Latin America. Key words were translated into Portuguese and Spanish by native Portuguese/Spanish speakers and used for the SciELO and LILACS databases. Articles were excluded if they weren't from America Latina; not focused on empirical field quantitative data (study types excluded: modeling studies, lab-based experiments, commentaries,

reviews, thought-pieces and qualitative studies); and Studies that described instruments, methodologies or validations. For more details of the methodology, please see Pérez-Ferrer *et al.* (Pérez-Ferrer *et al.* 2019).

Results and discussion

Food outlet types in the Latin American context

Table 1 presents a standardization and definition of the nomenclatures and classifications of food store types according to the LA context, suggesting also a translation in Spanish, Portuguese and English for key terms. This list includes a description of 18 food outlets types, including common stores presented in much food environment literature from high income countries (i.e. supermarkets, convenience stores, restaurant, bar, fast-food); specialized shops (i.e. fruit and vegetable markets, butchers, fish market, aviary); and local small specialty stores characteristic of LA culture (i.e. *tortillería*, *pastelería*, *lanchonete*, *tienda/abarrotes/bodega*, *vendedor ambulante*, *quiosco*).

In addition to the expert knowledge, Table 2 presents the current common typology used for retail food store types in Latin America according to literature search. 39 studies (Tofanelli *et al.* 2007, Jaime *et al.* 2011, Gartin 2012, Leite *et al.* 2012, 2021, Duran *et al.* 2013, Mendes *et al.* 2013, Velásquez-Meléndez *et al.* 2013, da Silva *et al.* 2014, Bridle-Fitzpatrick 2015, Costa *et al.* 2015, López-Barrón *et al.* 2015, Matozinhos *et al.* 2015, Motter *et al.* 2015, Pessoa *et al.* 2015, 2015, Vedovato *et al.* 2015, Zuccolotto *et al.* 2015, Azeredo *et al.* 2016, Carrillo-Larco *et al.* 2016, Barrera *et al.* 2016, Correa *et al.* 2017, Soltero *et al.* 2017, Borges *et al.* 2018, 2021, 2021, Garcia *et al.* 2018, Rebolledo *et al.* 2019, Backes *et al.* 2021, Bueno *et al.* 2021, Elorriaga *et al.* 2021, Honório *et al.* 2021, Oliveira *et al.* 2021, Tavares *et al.* 2021, Rozas *et al.* 2021, Gutierrez *et al.* 2021, Almeida *et al.* 2021, Fernández-Gaxiola *et al.* 2022, Armendariz *et al.* 2022) conducted in nine LA countries focusing on food retail were recruited and it was possible to synthesize 315 terms used to describe different food stores. Most studies were conducted in Brazil (n = 27) and Mexico (n = 7), in addition to studies in Argentina (n = 3), Chile (n = 2), Paraguay, Uruguay, Peru, Bolivia and Guatemala (n = 1 for each).

All studies were published in English, 79.5% (n = 31), or also in Portuguese 20.5% (n = 8). As a consequence, the majority of terms were described in English. In the present study the terms used in the selected articles were described in the language in which they were published.

Of the 315 terms found, nine were unique terms culturally used in specific countries, such as *Tortillería*, *Frutería*, *Abarrotes*, *Cocina economica*, *Pastelarias*, *Sacolão*, *Cheese bread houses* and *Hortifrutis*. Also,

Table 1. Typology of retail food stores types in Latin America and noted differences with the United States, by expert knowledge.

Term (English - E, Spanish - S and Portuguese - P)	Definition	Difference between Latin America (LA) and the United States (US)
E: Bakery, Pastry shop S: <i>Panadería, Pastelería, Tortillería, Pastelería, Confiterías, Churrería, Tambería</i> P: <i>Padaria, Pastelaria</i>	A store that manufactures and/or sells flour-based food such as bread, <i>tortillas</i> , <i>empanadas</i> , cookies, crackers, cakes, pastries, <i>pastels</i> , doughnuts and pies.	More common in LA. Individuals usually buy their daily bread and <i>tortillas</i> in these stores in Latin American countries (in Brazil, bakeries accounted for 7.7% of household food acquisition (Cantor <i>et al.</i> 2020). In some countries (as Mexico, Peru, Chile and Central America – or even in US in areas with many Latino migrants) stores commonly specialize as a “ <i>Tortillería</i> ”, that is similar to a bakery, but has a focus on selling <i>tortillas</i> ; <i>Pastelería</i> or <i>Confiterías</i> sells mostly pies, cakes and pastries; in addition to <i>Churrería</i> and <i>Tambería</i> respectively sell <i>churros</i> and <i>tamales</i> .
E: Restaurant S: <i>Restaurante, Restorán</i> P: <i>Restaurante</i>	An establishment where customers typically eat on the premises (although some restaurants may deliver). Waitstaff usually serve food and drink to the customers’ table, though it is also common to provide a buffet line in which customers select each item (self-service).	The dishes and prices vary within and between countries and cities, and have sub-categories according to local culture. In Mexico there are small restaurants identified as “ <i>Fonda</i> ,” “ <i>Cocina económica</i> ,” “ <i>Antojería</i> ,” “ <i>Cenaduría</i> ,” “ <i>Merendero</i> ,” and “ <i>Lonchería</i> ,” that offer home-style food menus for affordable prices. There are also some restaurants that offer specific type of food, such as “ <i>Pollo a la leña</i> ,” “ <i>Pollo rostizado</i> ” or “ <i>Pollería</i> ” (chicken), “ <i>Pizzería</i> ” (pizza), “ <i>Marisquería</i> ” or “ <i>Cevichería</i> ” (seafood), “ <i>Chifa</i> ” (Chinese food), etc. Restaurants in LA are generally local (chain and non-chain restaurants); in the US there are many more national chain restaurants, such as Red Lobster. Restaurants not providing full-service can be classified as fast-food outlets (see below).
E: Fast-food S: <i>Fast-food, restaurantes de comida rápida</i> P: <i>Fast-food</i>	A restaurant that quickly prepares and serves <u>mass-produced food</u> . This form of retail specializes in convenient products that are usually high in saturated fat, sugar, salt and calories. Consumers generally order items and pay before eating. Food is picked up without or with minimal involvement of waitstaff, obtained at a drive-thru window, or delivered to one’s home.	In US, most of them are chains and the main menus usually include hamburgers, hot dogs, sandwiches, pizza, fried chicken, donuts, and tacos. In LA, non-chain fast food outlets are common, and may sell items such as <i>burritos</i> , local burgers and sandwiches, <i>panchos</i> , <i>calzones</i> , <i>choripan</i> , <i>quesadillas</i> , or <i>pambazos</i> . However, international chain fast-food is also increasing in LA.
E: Bar, Saloon, Tavern, Pub S: <i>Bar, Pub, Cervecería, Chelería, Centro botanero, Mezcalería</i> P: <i>Bar</i>	An establishment with a counter and small tables serving alcoholic and non-alcoholic beverages, snacks and sometimes also meals.	In the US, bars usually serve snacks and appetizers such as crisps, sandwiches and peanuts (collectively referred to as “bar food”); in Brazil and Argentina, bars also commonly serve meals, including breakfast, lunch or dinner items (as would be seen on a restaurant menu); in Mexico and Peru, they operate mainly at night and alcoholic beverages are the main product.
E: Cafeteria, Café, Coffee shop S: <i>Cafetería, Café</i> P: <i>Cafeteria</i>	A store that has a primary purpose of selling coffee and other beverages, snacks, appetizers, and bakery products. Sometimes lunch is also served, and hours are typically daytime only.	In the US, we note that cafeteria has a different meaning, generally focused on serving meals for immediate consumption and often based within an institution (e.g., school or work). In LA, this term is more similar to cafés and coffee shops as described here.
E: Snack bar, Deli S: <i>Imbiss, Sanguichería</i> P: <i>Lanchonete</i>	A common store type specializing in small quick meals and snacks (such as small savory snacks, sliced pizzas, sandwiches with bread and cheese), mainly to eat between mealtimes.	Very common in most of LA, especially Brazil, but not in Mexico. Location is often in downtown areas, stores are typically local and independent (non-chain).
E: Supermarket, Hypermarket S: <i>Supermercado, Hipermercado</i> P: <i>Supermercado, Hipermercado</i>	A self-service shop offering a wide variety of food, from fresh foods to ultra-processed products, where products are arranged by department.	In the US and Mexico, the international chain stores are bigger, and some sell not only food but also clothes, household and pharmacy products. In other LA countries, this type of store exists, but is less common.
E: Convenience store S: <i>Tienda de conveniencia, Tienda, Servicentro, Cigarrería, Drugstore, Minisuper, Minimercado</i> P: <i>Loja de conveniência</i>	A small store that sells a limited selection of everyday items such as snack foods (mainly ultra-processed food and prepared food), tobacco products, newspapers, and magazines. Although typically featuring long hours of operation, such stores may also have higher prices.	In some LA countries, such as Brazil and Peru, relevance of these stores for food acquisition is low. Co-location with a gas station is common to attract new customers. US and Mexico have chain convenience stores such as 7-Eleven and Oxxo.
E: Butchery, Meat market, Fish/seafood market, Aviary/poultry S: <i>Carnicería, Pescadería, Aviario, Pollería</i> P: <i>Açougue, Peixaria, Avidrio</i>	A store that sells fresh, frozen, or cured meat/fish/chicken.	In Argentina, Peru and Guatemala, these stores are commonly within markets. While meat is commonly purchased in butcheries in LA countries, this is less common in the US where supermarkets and grocery stores commonly sell prepackaged meat (Todd and Scharadin 2016, Cantor <i>et al.</i> 2020, Glanz <i>et al.</i> 2020, Gómez-Donoso <i>et al.</i> 2021).

(Continued)

Table 1. (Continued).

Term (English - E, Spanish - S and Portuguese - P)	Definition	Difference between Latin America (LA) and the United States (US)
E: Corner store, Bodega, Small market, Mini market (note that available English terms are not specific to these types of food stores) S: <i>Tienda, Tienda de la esquina, Abarrotes, Abasto, Bodega, Almacén, Pulperia, Negocio, Minimercado, Mercadito, Despensas</i> P: <i>Mercearia, Minimercado</i>	A small store with food products occupying most of the shelf space, in addition to household items, though the inventory of merchandise is limited.	This very traditional food store type in LA is smaller than a supermarket and allows neighbors to pay per month ("fiado"). Store names often reference the owner's name, such as "A venda da Dona Maria." Available products include primarily ultra-processed food, though sometimes fresh food may be available at higher prices.
E: Greengrocer, Fruit and vegetable market, Produce market S: <i>Frutería, Verdulería</i> P: <i>Sacoloão, Quitanda, Frutaria, Hortifrúti</i>	A store that primarily sells fruit and vegetables. Additional offerings may include artisanal food such as cakes and cookies.	This store type is common in LA. Consumers usually buy their fruit and vegetables in these stores. In the US, these may be more common in Latino and Asian neighborhoods/communities, even though uncommon elsewhere.
E: Street fair, farmers' market S: <i>Feria libre, Feria Agroecológica, Tianguis Mercado sobre ruedas</i> P: <i>Feira livre, Feira agroecológica</i>	Using mobile retail equipment, this temporary installation can be found at a pre-specified place and day. Products available include fruit, vegetables and other items (such as agricultural, extractive, handicraft and manufactured products). The vendor may purchase items directly from the producer (or be directly involved in production), allowing relatively low prices.	These recurrent events are very common in LA. In some countries, such as Chile, some parts of Brazil and Mexico, the culture of buying fruit and vegetables in this retail format is very strong. These may be easily missed in assessment of the food environment, as they are usually mobile and only open for specific days and hours. In the US, these markets tend to be more expensive and upscale and may also offer prepared snacks.
E: Health food store, Health food shop S: <i>Dietética, Tiendas naturistas, Tiendas de alimentos para deportistas y suplementos, Tiendas de vitaminas y suplementos</i> P: <i>Loja de produtos naturais e dietéticos</i>	A store selling mostly natural foods and dietetic products, such as healthy non-perishable food (e.g., granola bars), organic food, seeds, seasonings, dried herbs, dehydrated fruits, legumes and grains, and nutritional supplements.	
E: Street vendor/market, Informal food store, Temporary Street food stand, Hawker, Peddler S: <i>Vendedor ambulante, Vendedor callejero, Carritos</i> P: <i>Ambulante, Camelô, Feira</i>	A vendor who offers foods in public spaces without having a permanent built-up structure. Whether stationary or mobile, the products can be easily transported. There are two groups of street vendors: a) those who sell ready-to-eat foods (such as hot dogs, hamburgers, churros, <i>anticuchos</i> , <i>sopaipillas</i> , <i>choripan</i> , popcorn) and ultra-processed products (such as sweets, biscuits, sweetened beverages); and b) those who sell natural foods in street (such as fruits and vegetables).	In LA, street vendors are commonly found in busy areas and around schools, train stations, parks, beaches and leisure places (such as museums, concerts and stadiums). As part of the informal economy, mobile vendors are challenging to systematic assess. In the US, these are less common, and may have different labels by city (e.g., in Baltimore these are called <i>Arabbers</i>).
E: Kiosk S: <i>Quiosco, Kiosko</i> P: <i>Quiosque</i>	A formal retail store, usually subject to some type of regulation or administrative concession, with construction more permanent than typical of street vendors.	These are common in LA, particularly in Chile, Peru and Argentina. In LA, kiosks usually sell newspapers, snacks, sweets, sodas and cigarettes. Kiosks are also common in specific US cities such as New York City.
E: Candy shops, Chocolatier S: <i>Dulcería, Confitería, Chocolatería, Tienda de dulces, Bombonería</i> P: <i>Bombonière</i>	A small store that sells ultra-processed sweets, candies, chocolates, soft drinks, and delicacies.	
E: Ice-cream shop, popsicle shop, frozen yogurt shop S: <i>Heladería, Helados, Nieves, Nevería, Paletería</i> P: <i>Sorveteria, Frozen yogurt</i>	A specialized store dedicated mainly to the manufacture and/or sale of popsicles, ice cream and frozen yogurt.	
E: Pharmacy, Drugstore S: <i>Farmacia, Botica</i> P: <i>Farmácia, Drogeria</i>	An establishment that focuses on sales of medicines and personal care items, which may also sell ultra-processed food.	In the US, there are many international chain stores, where frequently sold items include ultra-processed food, such as cookies, chocolates and candies; some also sell fresh food. In LA, food sales in pharmacies is starting to also become common in some countries (e.g., the large chain 'Farmacity' in Argentina).

terms such as "fresh produce markets", "fruit and vegetable street markets", "public food markets", "fruit and vegetable open-air markets", and "farmers' market" were used to describe and categorize retail which sells mainly fruits and vegetables.

Most studies (76.9%, $n = 30$) did not use any definition for investigating the food stores, while 23.1% ($n = 9$)

used some definition, but only 5.1% ($n = 2$) used specific references from North American Industrial Classification System (NAICS) (Armendariz *et al.* 2022) and Goods and Services Inventory (GASI) (Soltero *et al.* 2017) to define the terms used in the study of retail food store. In general, the types of food stores more investigated were supermarkets and grocery stores. While in

Table 2. Current typology of retail food store types in Latin America, according to literature search.

First author	Year of publication	Country	Terms used for retail food stores	Definition used by authors
Azeredo <i>et al.</i>	2016	Brazil	- Cafeteria - Alternative outlet	
Bridle-Fitzpatrick <i>et al.</i>	2015	Mexico	- Supermarket - Tortillería - Frutería - Carnicería - Abarrotes - Restaurant - Cocina economica - Hot food cart - Local fast-food restaurant - Fast food franch	Tortilla bakery for the local Community Traditional small shop that sells fresh produce Traditional small shop that sells freshly butchered meats Small, neighborhood grocery store; family-owned Prepared meals with table service Neighborhood kitchen that prepares a small variety of dishes for takeaway consumption Informal business that sells cooked quick meals (e.g. Taco stand, hot dog cart) Established vendor of quick meals; no table service; family-owned or local chain Fast food restaurant chain (e.g. McDonald's, Dairy Queen, Domino's)
Chaudhari <i>et al.</i>	2013	Mexico	Vendors; Bars; Vending machines	
Correa <i>et al.</i>	2017	Brazil	- Grocery store; Local restaurants; Cafes - Restaurants; Snack bars; Pastry shops; Candy shops; Coffee shops; Buffet restaurants; Pizzerias; Steakhouses; Yogurt shops; Pastelarias; Bars; Supermarkets; Grocery stores; Minimarkets; Convenience stores; Butchers; Bakeries; Seafood shops; Farmers' markets; Street vendors	
Costa <i>et al.</i>	2015	Brazil	- Green grocery stores; Open-air markets; Stores; Large chain supermarkets; Local markets	
Da Silva <i>et al.</i>	2014	Brazil	Food kiosks Street food	
Duran <i>et al.</i>	2013	Brazil	Local grocery stores; Supermarkets; Specialized fruit and vegetable stores/markets; Open-air food markets; Fast-food restaurants; Large fast food restaurants chains; Convenience stores; Corner stores; Large chain grocery stores; Large chain supermarkets; Delis; A la carte full service restaurants; All you can-eat buffet restaurants Full service restaurants Chainless fast food restaurants; Bars; Establishments where alcohol was sold in large quantities; Bakeries; Coffee shops; Ice cream shops	Where foods were sold by weight
Gartin <i>et al.</i>	2012	Paraguay	Supermarket; Convenience store; Open air market	
Barrera <i>et al.</i>	2016	Mexico	Supermarket Minimarket Fast food restaurants Cafeterias Restaurants Street food stands Poultry markets; Bakeries; Ice cream parlors; Places that sell products in bulk; Stationary stores; Convenience stores; Grocery stores; Mobile food vendors	In which foods are prepared and served to be consumed quickly Places selling coffee and other beverages, snacks and sweets, and sometimes appetizers and entrées Where foods and beverages are served by waiters to the customers' table Temporary street food stands are retailers found from 8:00AM to 5:00PM
Jaime <i>et al.</i>	2011	Brazil	Supermarket chains; Local grocery stores; Fruit and vegetables specialized food; markets (including street market and public food markets); Large fast food restaurant chains; Food courts	
Leite <i>et al.</i>	2012	Brazil	Butcher; Poultry; Fishmonger shop; Candy store; Fresh food stand; Food retailing; Grocery store/shop; Bakery Sacolão Supermarket; Convenience store; Mini bomboniere; Fresh pasta store	A type of bargain grocery store

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Table 2. (Continued).

First author	Year of publication	Country	Terms used for retail food stores	Definition used by authors
Lopez-Barron <i>et al.</i>	2015	Mexico	School cafeteria; Grocery stores; Street vendors; Vending machine	
Matozinhos <i>et al.</i>	2015	Brazil	<i>Comércios de alimentos; Restaurantes; Lanchonetes; Bares; Vendedores ambulantes; Supermercados; Hipermercados; Estabelecimentos especializados na venda de frutas e hortaliças</i>	
Mendes <i>et al.</i>	2013	Brazil	Supermarkets; Hypermarkets; Fruit and vegetables markets	
Motter <i>et al.</i>	2015	Brazil	<i>Supermercado; Minimercado; Feira; Frutaria; Sacolão; Padaria; Açougue; Peixaria; Casa de produtos naturais</i>	
Pessoa <i>et al.</i>	2015	Brazil	Supermarkets; Hypermarkets; Mini markets; Grocery stores; Warehouses; Stores and open-air markets; specialized in selling Fruits and vegetables; Restaurants; Bars; Snack bar; Food trucks/trailers	
Pessoa <i>et al.</i>	2015	Brazil	Supermarkets; Hypermarkets; Mini-markets; Grocery stores; Warehouses; Shops and open-air markets; Restaurants; Bars; Eateries; Mobile food shops;	
Soltero <i>et al.</i>	2017	Mexico	Supermarkets	Large franchise or chain grocery stores with more than three cash registers, selling household items in addition to food items (Ledoux <i>et al.</i> 2015, Lee <i>et al.</i> 2011)
			Grocery stores	Stores that sell mostly food and drink items with three or fewer cash register (Ledoux <i>et al.</i> 2015, Lee <i>et al.</i> 2011).
			Convenience stores	Stores that belong to a franchise and sell snack foods, sugar-sweetened beverages, and toiletries and may have gasoline pumps (Ledoux <i>et al.</i> 2015, Lee <i>et al.</i> 2011)
			Table-service restaurants	Establishments in which menus are used and orders are taken and delivered by a server who comes to the table (Ledoux <i>et al.</i> 2015, Lee <i>et al.</i> 2011)
			Fast-food restaurants	Establishments in which orders and food pick-up are completed at a counter and/or from a drive-through window (Ledoux <i>et al.</i> 2015, Lee <i>et al.</i> 2011)
			Food carts	Mobile improvised carts, bicycles, and food trailers (Ledoux <i>et al.</i> 2015, Lee <i>et al.</i> 2011)
			Taco stands	Stands are semipermanent and are typically larger than food carts. They may sell tacos or other hot Mexican meals ("antojitos") (Ledoux <i>et al.</i> 2015, Lee <i>et al.</i> 2011)
Tofanell <i>et al.</i>	2007	Brazil	<i>Supermercados; Quitandas; Sacolão; Feira livre</i>	
Vedovato <i>et al.</i>	2015	Brazil	Street fairs; Fruits and vegetables markets; Supermarkets	
Velasquez-Melendez <i>et al.</i>	2013	Brazil	Supermarkets; Food marts; Hypermarkets; Fruit and vegetable stores	
Zuccolotto <i>et al.</i>	2015	Brazil	Supermarket; Farmers market; Street vendors; Coffee shop; Grocery stores; Bakery; Convenience store; Restaurants	
Backes <i>et al.</i>	2021	Brazil	Supermercados	Grandes redes, com venda de alimentos e outros itens, como produtos de limpeza, utensílios de cozinha
			Mercearias	Minimercados de bairro, com predominância de venda de alimentos
			Lojas de conveniência	Comércio de alimentos vinculado a um posto de combustível
			Fruteiras	Comércio essencialmente de frutas e verdura
Borges <i>et al.</i>	2021	Brazil	Grocery stores; Bakeries; Butchers; Fishmonger; Private and public specialized indoor fresh food markets; Supermarket; Food retailers with the predominant sale of beverages	

(Continued)

Table 2. (Continued).

First author	Year of publication	Country	Terms used for retail food stores	Definition used by authors
Borges <i>et al.</i>	2018	Brazil	Butchers; Fish markets; Central markets of fruits and vegetables; Municipal markets of fruits and vegetables; Private markets of fruits and vegetables; Grocery stores; Medium market stores; Supermarkets; Hypermarkets; Wholesalers; Bakeries; Candy stores; Convenience stores; Non-alcoholic beverage stores; Pharmacies, food supplement stores; Pasta houses; Cheese bread houses; Houseware stores; Cheese shops	
Borges <i>et al.</i>	2021	Brazil	Açougue; Peixaria; Frigorífico; Sacolão; Hortifrutis públicos e privados; Mercados de bairro; Supermercados; Padarias; Lojas de conveniência; Comércio de doces e guloseimas; Farmácias; Lojas de suplementos alimentares; Comércio de bebidas	
Bueno <i>et al.</i>	2021	Brazil	Supermercados; Mercados; Mini mercados; Feiras de produtores da agricultura familiar; Fruteiras	
Elorriaga <i>et al.</i>	2021	Argentina	Supermarket Supermarket chains	
Garcia <i>et al.</i>	2018	Brazil	<i>Feiras livres; Sacolão; Supermercados</i>	
Honório <i>et al.</i>	2021	Brazil	Fresh product store; Butcher shop; Fish markets; Restaurants; Bakery; Minimarkets; Grocery stores; Supermarkets; Dairy products; Pubs; Snack bars; Candy shops	
Leite <i>et al.</i>	2020	Brazil	Butchers; Vegetable and fruit stores Farmers' markets; Fish markets Sales of dairy or produce; Street vendors; Restaurants; Bakeries; Candy shops; Snack bars; Mini-markets; Supermarkets; Hypermarkets	
Oliveira <i>et al.</i>	2021	Brazil	<i>Feira livre; Açougue; Peixaria; Restaurantes; Loja de produtos naturais; Mercados; Supermercados; Mercearias; Frutaria; Lanchonetes; Padarias; Delicatessen; Conveniência; Pizzarias/massas; Cafeterias; Docerias; Bar</i>	
Tavares <i>et al.</i>	2021	Brazil	Buffet restaurants by weight À la carte/ fixed dish restaurants All-you-can-eat buffet restaurants Candy stores Snack bars Bars Cafeterias	Meals and food items by weight Meals with fixed amounts and prices Quick snacks and candy items Sells alcoholic and nonalcoholic beverages, quick snacks, meals, and candy Coffee and nonalcoholic beverages, and, sometimes, full meals
Fernández-Gaxiola <i>et al.</i>	2022	Mexico	Supermarkets; Small grocery stores; Convenience stores; Neighborhood corner stores; Chain supermarket	
Armendariz <i>et al.</i>	2022	Mexico	Fruit/vegetable stores Convenience stores Large supermarkets	Defined as semi-permanent establishments that exclusively sell fruits and vegetables (US Census Bureau 2017) Defined as open >=18 h/day for 365 days a year, and sell mainly processed and ultra-processed food products and beverages (US Census Bureau 2017) Chain grocery stores that sell both healthy and unhealthy food options (US Census Bureau 2017)
Rozas <i>et al.</i>	2021	Argentina, Bolivia, Guatemala, and Peru	Multinational fast food chains; Fast food companies; Fast-food chains	
Gutierrez <i>et al.</i>	2021	Argentina, Chile, Uruguay	Restaurants; Food retail outlets	
Rebolledo <i>et al.</i>	2019	Chile	<i>Grocery stores; Convenience stores; Supermarkets; Restaurants; Fast food establishments; Kiosks; Food court</i>	
Almeida <i>et al.</i>	2020	Brazil	Farmers' market; Butchery; Fish market; Retail store of powder coffee or honey; Street vendors of fruits and vegetables; Open-air markets; Grocery store; Supermarkets; Bakery Delicatessen	Sells dairy and cold cuts

(Continued)

Table 2. (Continued).

First author	Year of publication	Country	Terms used for retail food stores	Definition used by authors
			Natural food store; Restaurants; Convenience store; Department store; Bar; Bonbon store; Beverage distributors; Snack bar; Coffee shop; Fast food restaurant; Ice cream shop; Street vendors of fast food	

Brazil, besides supermarket and grocery stores, 26 studies investigated establishments selling natural products, mostly fruits and vegetables, called by authors by different names: *Farmers' markets*, *Green grocery stores*, *Open-air markets*, *Specialized fruit and vegetable stores/markets*, *Open-air food markets*, *Fruit and vegetables specialized food markets*, *Sacolão*, *Estabelecimentos especializados na venda de frutas e hortaliças*, *Fruit and vegetables markets*, *Frutaria*, *Shops and open-air markets*, *Feira livre*, *Fruit and vegetable stores*, *Central markets of fruits and vegetables*, *Municipal markets of fruits and vegetables*, *Private markets of fruits and vegetables*, *Feiras de produtores da agricultura familiar*, *Fresh product store*. Besides Brazil, another country in Latin America with several studies on the food environment is Mexico. In Mexico, the most searched terms were supermarket, grocery stores, and restaurants, while the term *Cocina economica* was only investigated in Mexico to refer to an establishment for takeaway consumption. The differences between the most commonly used terms for the study of food retail establishments in Brazil and Mexico are remarkable. While in the studies conducted in Mexico, the term vending machine appeared in 28.5% ($n = 2$), this term was not used in the studies conducted in Brazil. This type of retail, sells mostly ready-to-eat products, and is not that common in Brazil.

Although some stores are common in both LA and high-income countries, they may show different characteristics depending on the context. Street fairs, for example, are very common in some countries, including Chile, Brazil, Colombia, and Mexico, where the culture of buying affordably priced fruit and vegetables in this retail format is popular. Yet in the US, such markets tend to be more expensive “farmers markets” and may include upscale prepared or processed foods. While drugstores have many international chain stores in the US, where it is very common to sell ultra-processed food, in LA this phenomenon is just emerging and only observed in some countries. Regarding fast-food outlets, in the US most are national or local chains and their menus usually include hamburgers, hot dogs, pizza, fried chicken, donuts and tacos. In LA, non-chain fast food stores are common, and often sell local foods such as *burritos*, *panchos*, *calzones*, *choripan*, *tortillas* and *empanadas*. However, the number of international chain fast-food outlets in LA is also growing (World Health Organization 2015).

With no standardized nomenclature, research conducted in LA has relied on terms and classifications

used mainly in the US. However, there are initiatives that should be highlighted, such as the INFORMAS effort to create protocols that allow comparability across countries, but the food retail module only includes a protocol to evaluate food availability in supermarkets (Ni Mhurchu *et al.* 2013), rather than a comprehensive look at different food retail types. Also, the typology proposed by Downs *et al.*, (2020) should be highlighted. They divided food environment concept into natural (wild and cultivated) and built environments, which are concepts especially useful to support research in low- and middle-income countries and to describe the stages of food environment on global transitions.

The classification of food outlets may influence research conclusions; provides guidance to future studies that help to build a comprehensive and comprehensible evidence base; and may facilitate comparison across studies (Hobbs *et al.* 2017, Wilkins *et al.* 2017). However, few studies provide clear operational and theoretically grounded definitions of the food store types under investigation. The methods used to define food store type are highly variable and most authors do not fully describe the methods used (Machado *et al.* 2017). Targeting and adapting interventions to certain types of food stores is extremely important and evidence organized using a standardized taxonomy can facilitate use by policy makers and future researchers.

Present limitation, implications and opportunities for future research

This study should be understood just as a first step to discuss the nomenclature and definition of food outlets in LA. That said, it is important to mention as limitations the subjectivity involved in the selection and grouping of food outlet types; and that the expert team involved in the research does not represent all parts of LA. We should also take into consideration that the types of food outlets may vary great across the regions in the LA countries and the list proposed in this study does not intend to cover all the types of food stores across all regions from the countries. Assumptions and simplifications made here should continue to be critically evaluated and elaborated to guide food environment research globally.

Our work can be useful in standardize the nomenclature and definition for future studies, to better understand and compare results, and to motivate the

development of others composite indicators and theoretical frameworks for the region. Also, for the development of online data repositories evaluating the availability and characteristics of food outlets by type. A next step would be to conduct empirical investigations about the types of food outlets across LA countries, also understanding differences between and within the countries. This could allow an assessment of the replicability and validity of operational definitions corresponding to each food outlets type.

Considering the background and the results of this study, we present the following recommendations and opportunities for future research on food retail environment in LA: to empirically study the food retail in Latin America using the terms considered inhere; to generate empirical data to classify food stores in healthy/unhealthy. Also, to investigate whether the availability of traditional retail channels (e.g. street fair, butchers, fruit and vegetable markets) is decreasing as the retail of ultra-processed foods (convenience stores, supermarkets and fast-food restaurant chains) increases in LA, and any consequent impact on health; since there is evidence that small stores still predominates in the food environment in LA countries (Encuesta Nacional de Gastos de los Hogares – ENGHO 1996-1997, Machado *et al.* 2018, Pérez-Ferrer *et al.* 2020), but there is also evidence of a fast increase in chain convenience stores and supermarkets – and it is not clear to what extent supermarkets and chain stores are displacing smaller stores selling healthy food.

The growing state of the art of the food environment science in Latin America reveals that the dynamics and specificities of the different food environments have been increasingly recognized (Pérez-Ferrer *et al.* 2019; Turner *et al.* 2020), with relevant advances in theoretical models and measurements. But in view of the complexity and dynamism of the food environment over time, it is necessary to face new challenges, such as new elements that are still neglected: the dimensions of the informal food environment (World Health Organization 2021, Granheim *et al.* 2022) and the digital food environment (Horta *et al.* 2021, Granheim *et al.* 2022); in addition to the need of developing models and concepts that can reflect the differences between the various populations in LA, such as those where vulnerable populations live.

Currently, the scenario experienced in Latin America is complexified by a dynamic of worsening food and nutritional insecurity, the consequences of the COVID-19 pandemic, and economic and political crises that intricate these arrangements (Benites-Zapata *et al.* 2021). The better understanding of the food retail should, above all, inform effective public policies that guarantee access to healthy food and that collaborate to create healthier food environments that can truly support individuals' choices.

Acknowledgement

The authors acknowledge the contribution of all SALURBAL project team members. For more information on SALURBAL and to see a full list of investigators see <https://drexel.edu/lac/salurbal/team/>

Disclosure statement

No potential conflict of interest was reported by the author(s).


Funding


MCM, MFK, CPF, NT and LOC's contributions to this work were supported by the Salud Urbana en América Latina (SALURBAL)/Urban Health in Latin America project which is funded by the Wellcome Trust [205177/Z/16/Z]. More information about the project can be found at www.lacurbanhealth.org. The funding sources had no involvement in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication.


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Multiple co-authors are part of the research project team Salud Urbana en América Latina (SALURBAL), Urban Health in Latin America, which is an international collaboration that studies how urban environments and urban policies impact the health of city residents and environmental sustainability throughout Latin America. SALURBAL's findings inform policies and interventions to create healthier, more equitable, and more sustainable cities worldwide. Learn more at www.lacurbanhealth.org

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