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Regional foods in Brazilian school meals

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Abstract

Purpose – The purpose of this paper is to identify regional foods and analyze its use on school menus of a Brazilian city, as well as the respect to symbolic and cultural aspects related to it.

Design/methodology/approach – The study was conducted in two stages. In the first stage, regional foods were identified through interviews with key school meal and city agents. In the second stage, the inclusion of these foods in school menus from 2009 to 2013 was assessed.

Findings – In total, 142 regional foods were identified and classified into four groups. This classification resulted in a decision tree model to identify regional foods. Approximately 45 percent of regional preparations and 82.5 percent of regional foods were offered totaling 455 preparations and 977 foods analyzed. However, 31 percent of the regional foods identified in Stage 1 were not offered in the menus analyzed. Various regional preparations lost their authenticity, possibly not being recognized because of a lack of traditional ingredients or because they contained non-regional foods that changed their character.

Practical implications – The results mainly point to symbolic aspects of the production and consumption of regional foods and preparations that are important to promoting healthy diets. In addition, they can support public policies that promote the use of these foods in the school environment.

Originality/value – This study analyzes the inclusion of regional foods in school meals—a topic rarely explored in the scientific literature – and proposes a decision tree model to identify regional foods with methodological rigor. This model can assist school food managers in including regional foods and developing studies related to this topic.

Keywords Schools, Food culture, Eating habits, Local foods, Menus, Traditional foods
Paper type Case study

Introduction

The effects of globalization on the incorporation of new foods into people's diets, loss of cultural identity, standardization of foods consumed and devaluation of traditional agricultural knowledge have been discussed (Garcia, 2003; Paulain, 2004; Popkin, 2006). On the other hand, interest has increased in foods that value food culture, traditions and habits (Kuznesof *et al.*, 1997; Libery and Kneafsey, 1998; Paulain, 2004; Pestel, 2006; Wahlqvist and Lee, 2007; Vanhonacker *et al.*, 2010) due to factors such as changes in the population's food and nutrition profile (Monteiro *et al.*, 2010; Popkin *et al.*, 2012; Popkin and Slining, 2013).

Therefore, actions aimed at promoting healthy eating through valuing traditional culture and cuisine as well as using regional and seasonal products can be important to promoting changes in these dietary patterns and encouraging healthy eating and



food and nutrition security (FNS) (World Health Organization, 2004; Brasil, 2006; World Food Programme, 2009; Englberger *et al.*, 2010; Popkin *et al.*, 2012; Dimbleby and Vicent, 2013).

A recent agreement between the UN Food and Agriculture Organization and the Slow Food organization proposes conducting campaigns to promote, value and recover traditional culinary products and practices and the cultural heritage of local rural communities (Food and Agriculture Organization, 2013).

It is known that school plays an important role on healthy eating promotion (Pan American Health Organization, 2003; GENYOUth Foundation, 2013), standing out as an environment that can potentially influence children's eating habits (Evans *et al.*, 2011). Moreover, a safe school environment, including food quality matters, might be fundamental for an improvement on children's learning capacity and permanence at school (GENYOUth Foundation, 2013).

By that means, policies and actions in the school environment have been adopted aiming to bring production and consumption closer, through the food purchasing from small local producers to use it in school meals (Morgan and Sonnino, 2007; World Food Program, 2009; Otsuki, 2011).

In USA, schools are pointed as fundamental on childhood obesity combat, being the need to create a Wellness Policy in virtually every school district in the country established by law. This law points the necessity to acquire regional foods from small and average producers (US Government Publishing Office, 2004; US Government Publishing Office, 2010; GENYOUth Foundation, 2013), besides ratifying restrictions to competitive foods and beverages in schools (Center for Chronic Disease Prevention and Health Promotion, 2012). Brazil's National School Meal Program was established in 1955, making it the oldest Brazilian food and nutrition program (Balaban, 2009; FNDE, 2013). Since its creation, it has undergone many important changes and currently consists of a space to promote FNS by encouraging the provision of regional foods (Brasil, 2009).

However, the promotion of healthy eating by encouraging the inclusion of regional foods is a complex process due to a lack of consensus on defining which foods represent local identity, culture and eating habits (Rose *et al.*, 2008; Guerrero *et al.*, 2009; Vanhonacker *et al.*, 2010). Also noteworthy are the dynamics of cultural practices and eating habits, which change as a result of technological, economic and social factors relating to food production, consumption and access (Bourdieu, 1990; King, 2000; Lang, 2009).

Furthermore, few studies have discussed the methodologies of identifying regional foods before introducing them to school meals. A study conducted by Chaves *et al.* (2009) evaluated the use of regional preparations in school menus in Brazil and identified few menus that respected regional eating habits. In the Northeast region, these menus accounted for only 37 percent of the menus assessed. Likewise, Gabriel *et al.* (2012) noted low inclusion frequency and limited variety of regional items in school menus in the cities of Belém (North region) and Florianópolis (South region) in 2010. Izumi *et al.* (2010) assessed the perceptions of the players involved in the American programme "Farm to School" and observed better quality in the products acquired locally in terms of taste, appearance, texture and higher consumption by students. It is emphasized here the importance of initiatives that also seek to evaluate if these efforts to include healthier food on school menus have been effective, reflecting on the consumption increase of these food by schoolchildren (Taylor *et al.*, 2014).

In this context, it was aimed to identify and analyze the use of regional foods in the school meals of a Brazilian city.

Method

This was an exploratory and descriptive case study conducted in two stages in a city in the South region of Brazil in 2013. In the first stage, the city's regional foods were identified. In the second stage, it was analyzed the presence of these foods in school meals. The following selection criteria to the study location choice were based on the authors' experience with researches related to the food acquisition in school nutrition (Soares *et al.*, 2013; Cavalli *et al.*, 2014): a small city of less than 30,000 inhabitants; use of more than 30 percent of available resources to purchase food from family farms; presence of a nutritionist responsible for the school meals; and spontaneous acceptance to participate in the study. The presence of a nutritionist is highlighted for its importance on the planning and execution process of PNAE. The purchase of family agricultural products, above the 30 percent required by law, was considered as a criterion, due to the small producers' potential of regional food offering. The city's population, on the other hand, was pondered to facilitate the data collection logistics.

Regional foods were considered to be those foods that have historical, cultural and socio-economic characteristics of origin, production method, natural/technological resource use, rituals, beliefs, education and ethnicity that influenced their production and consumption. Regional preparations consisted of food processing that resulted in preparations characteristic of the culture of the location analyzed.

In the first stage, interviews were conducted with six key people involved in providing food for school meals: a nutritionist, education secretary, city agricultural specialist, school director and two cooks. During these interviews, the other interviewees were identified and selected using the "snowball method", in which the contacted people in turn referred other important people (Handcock and Gile, 2011). Thus, the following people were interviewed: three community members belonging to traditional families in the city; a representative of the education and culture department; a school cook and a local traditional restaurant owner. In total, 12 people were interviewed.

Two instruments were used to collect data: an interview guide with open questions and a list of regional foods from Santa Catarina state. The interview guide's questions aimed to investigate aspects considered relevant to regional eating habits' characterization, according to the cited literature and the definition of regional food established by the authors, also literature-based. Thereby, the questions were related to: historic and cultural aspects associated to eating habits; production and consumption of foods handed down from one generation to the next; climatic and vegetation conditions favorable or unfavorable to produce certain types of foods and the influence of religion and local festivities connected to food. The regional foods' list of the Santa Catarina state was elaborated based on the region's eating habits and food production available from the books and websites of official organizations. The foods included in the pre-prepared list were tested regionality-wise during the interviews. Furthermore, each regional food mentioned by the interviewees not on the list was added to be inquired about with the next interviewee.

The interviews were recorded and transcribed. Analysis of the interviews consisted of comparing the participants' accounts considering the two instruments used, with the aim of preparing a final list of the identified regional foods. It was considered foods to be "not regional" if they were present on the list but not confirmed by the interviewees or if they were other foods referred to as "not regional". Analysis of the results from the first stage enabled the creation of a decision tree model to identify regional foods.

In the second stage, it was analyzed all lunch and snack menus available from 2009 to 2013, for a total of 222 days. The year 2009 was chosen as a starting point because that was the year in which Brazilian legislation encouraging regional eating habits was implemented (Brasil, 2009). The analysis identified the presence of regional preparations and the foods they contained. In addition, it was noted the symbolic aspects cited by the interviewees to characterize a food or culinary preparation as regional. This analysis was based on the concept of symbolic hazard developed by Uggioni and Proença (2010) in the context of the assessment of gastronomic heritage quality (AGHC) method, which consists of operations and the Critical Control Points in relation to the preparation techniques and ingredients which constitute conditions that could lead to hazards with respect to symbolic quality. Thus, regional preparations containing foods that can alter their symbolic aspects were also classified as “not regional”, along with those referred to above as “not regional” in the study’s first stage.

The quantitative data collected from the analysis of the menus were stored and analyzed using basic descriptive statistics in Microsoft Office Excel 2007®. This study received ethical approval from the Ethics and Research with Humans Committee (CEPSH) of the Federal University of Santa Catarina.

Results

The interviews conducted in the first stage resulted in the identification of 142 regional foods. It was noticed that the interviewees distinguished these foods by their symbolic importance. Thus, in order to facilitate understanding of the region’s food culture, it was chosen to group them according to the terminology used by the interviewees to refer to the foods, forming four groups.

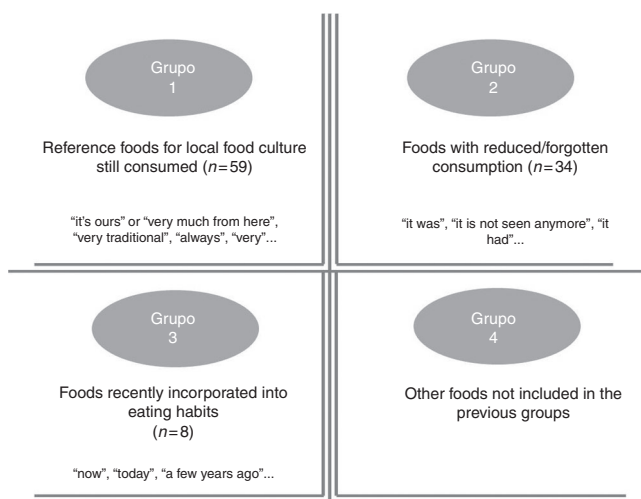
In Group 1, it was classified the cited foods that were accompanied by the expressions “it’s ours”, “very much from here”, “very traditional”, “always” and “very much”, among others that implied an association to the food’s importance to local identity. In Group 2, it was observed that the interviewees using expressions such as “it was”, “it isn’t seen anymore”, or “it had” (Figure 1). In this sense, it seems that the local population has been reducing consumption of foods such as lard, canned vegetables and fruits and homemade jams in light of the amount of fat, salt and sugar these foods contain. Group 3 was composed of foods referred together with expressions such as “now”, “today” and “a few years ago”. Group 4 included regional foods that did not fit into the other groups – i.e. they were cited without comment that could characterize them.

In addition to the identified regional foods, the interviewees cited some non-regional foods that had not yet been incorporated into eating habits but whose production and/or consumption are being encouraged locally, including in school meals. These foods included blackberries, oatmeal, olive oil, eggplant, whole wheat flour, raspberry, sesame, chickpeas, flaxseed, blueberries, nuts, black bread and physalis. However, some of the respondents appeared not to like or did not know how to use these foods.

For the purposes of practicality, the replacement of artisanal regional food production practices with industrialized alternatives for the same product was also reported by the interviewees, for example in the case of homemade pasta.

The design of the decision tree to identify regional foods (Figure 2) was based on the main questions listed in the interviews by the researchers and the interviewees. Thus, all food cited as regional by the interviewees would have this same classification when applied in the decision tree, as would the non-regional ones.

Figure 1.
Groups formed to
classify regional
foods from
expressions
identified in the
interviewees' words



Provision of regional foods in school meals

Analysis of the menus enabled us to identify how regional foods are provided in school lunches. It was assessed 222 menu days from 2009 to 2013. It was found 977 foods distributed among 455 preparations, including repetitions. In addition, another 78 foods were not analyzed as the menu provided a generic description of them without details – e.g. fruit, vegetables or salad.

Of all the foods, 82.5 percent were classified as regional. Noteworthy is the availability of native fruits in the region, especially in 2013, as well as fresh herbs and seasonings such as basil and bay leaf that are provided by local producers and identified as part of the food culture. However, native fruits processed in the form of pulp, sweets and jams, including those whose harvesting periods occur during school vacations (such as cherries, peaches and figs), were not found in the assessed menus.

Some regional foods emphasized by interviewees as the major reference for local food culture, for example, curd, *pinhão* and *paçoca de pinhão*[1], as well as corn and cassava based bakery products, which were also included in school meals. Even with the high percentage of regional foods provided in school meals, 31 percent of the regional foods identified in Stage 1 were not offered in any of the school menus analyzed. Of these, 43 percent were regional foods classified in the "Foods with reduced/forgotten consumption" group and 41 percent were in the "Regional foods with greater reference for food culture" group. The remaining foods (approximately 20 percent) were distributed among the other groups.

Of the preparations analyzed, 204 were regional, 155 were non-regional and 96 were not classified as regional or non-regional as they were not present in the interviewees' accounts in the study's first stage. However, these preparations were not excluded so that their ingredients could be analyzed, which were classified in the "other preparations" category. Analysis of the foods contained in these 96 preparations indicated that 99 percent of them ($n=145$) were regional. One example of this is potato stew with ground beef, which was not mentioned as a regional preparation but which contained regional foods such as potatoes and beef.

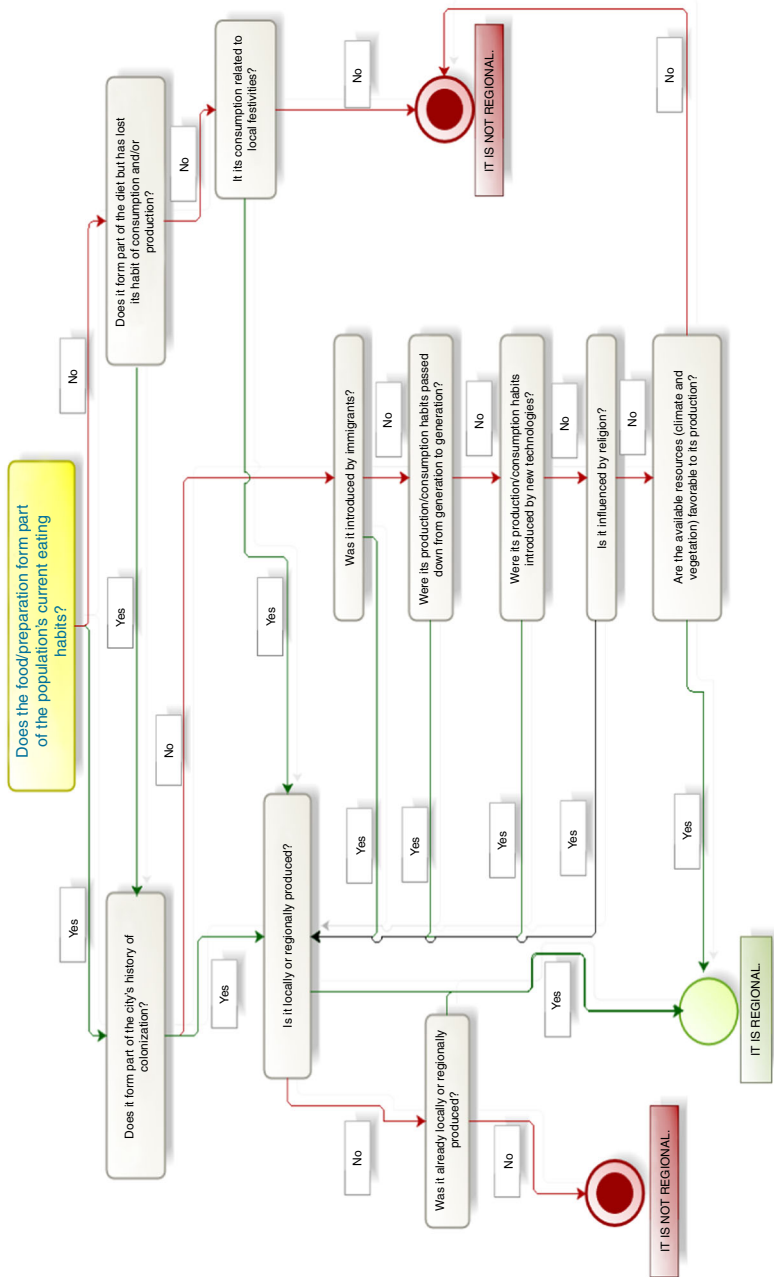


Figure 2. Decision tree model to identify regional foods

It was also observed that various regional preparations were not identifiable as such on the school menus as they did not contain the traditional ingredients that characterize them or because they contained non-regional foods that changed their character – for example, pasta with sausage instead of pasta with ground beef.

Discussion

This study identified and assessed how regional foods are included in school meals and the particularities relating to the inclusion or absence of these foods in school menus. However, the difficulty of this process is emphasized considering the dynamism of food culture and the formation of eating habits.

Few studies have proposed to analyze the inclusion of regional foods in school meals. Brazilian studies that have conducted some type of analysis of the regionality of school menus have been based on official and unofficial documents (Chaves *et al.*, 2009; Gabriel *et al.*, 2012) that do not consider the particularities of each location. In this study, potential gaps were found in these documents (Brasil, 2002; Brasil, 2008) when referring to foods by region without including the various regional foods identified in the present study and mentioning others that did not fit with the reality of the location studied. It was also observed that some preparations lost their character through the use of ingredients outside of their context.

As it was already discussed, the dynamism of food culture was observed in conducting this study's interviews. Regional foods were mentioned in different ways in the respondents' accounts. It was possible to identify which foods were most important to local identity, which foods had been consumed less in recent times, and which foods had been incorporated into the regional eating habits but had not been part of the diet of older populations. Similarly, new foods were cited that were encouraged to be produced locally and provided in school meals, but which were not yet recognized as regional by most of the populations because they were not characteristic of the local dietary habits. Paiva *et al.* (2012) analyzed the significance of the actors involved in school meals in a city in Bahia state over the term "regional eating habits" and also found this food culture dynamism in the respondents' accounts.

Therefore, it was necessary in this study to approach local food culture and habits in order to identify regional foods as well as to understand the significance of these foods to the individuals and groups involved. There are different ways to identify the regional foods of a particular location (Paulain, 2004). Based on theoretical references and data collected in the interviews, it was defined a systematic method to identify the regional foods of the studied city. The population's regional eating habits, participation in the city's history of colonization, the food's local/regional production and the presence of natural resources favorable to the food's production were considered. These aspects indicate the expansion of the decision tree model developed, as it seeks to include various characteristics considered necessary to identify and promote regional food consumption.

Accordingly, it is important to identify and encourage the use of culturally referenced foods produced locally and regionally to promote changes in current eating patterns associated with overweight, obesity and chronic disease (Popkin, 2006; World Health Organization, 2013).

It is worth mentioning initiatives in schools aiming to valorize food produced by small local farmers and associate these foods' consumption with regional culture and the development of healthier eating habits. As well as in Brazil, public policies in Italy and Japan encourage food supply as part of schools' food culture (Morgan and Sonnino,

2007; Otsuki, 2011). African countries, through Home Grown School Feeding, reinforce the need to offer preparations compatible with the eating habits of each population in order to promote SAN and the improvement of farmers' living condition (World Food Program, 2009). In USA, the Farm to School programme stimulates the purchase of local food and children's knowledge of products cultivated in the region (US Government Publishing Office, 2004; Joshi and Azuma, 2009; United States Department of Agriculture, 2014). The Food for Life programme in England, supports children's knowledge concerning food consumption and local culture through visits to small producers (Food for Life Partnership, 2014). Other similar initiatives in school environments are noted in countries such as Italy. The Italian school meal program aims to provide organic products typical of the Mediterranean diet and conduct educational campaigns about cultural habits (Morgan and Sonnino, 2007; Otsuki, 2011).

According to Wardle and Cooke (2008), effective interventions can reduce and reverse food preference patterns in children. This highlights the importance of initiatives to encourage regional food consumption within the current context, considering children's preferences for sweet and salty tastes (Wardle and Cooke, 2008), strong flavors and excess fat, salt, sugar and flavor-enhancers as well as the addition of these ingredients (Cornwell and Alister, 2011). Thus, encouraging regional food consumption is part of a cultural context of fresher foods produced locally with potentially lower levels of sodium, sugar and chemical additives. The analysis of school menus pointed to the importance of properly planning them and considering the inclusion of regional foods as well as respecting dietary practices to promote healthy eating (Brasil, 2009, 2013).

A study conducted by Chaves *et al.* (2009) assessed the use of regional preparations in Brazilian school menus and found that a minority of the menus respected regional eating habits. In the Northeast region, such menus accounted for only 37 percent of the menus assessed. Likewise, Gabriel *et al.* (2012) referred to the low inclusion frequency and limited variety of regional items in school menus in the cities of Belém and Florianópolis in 2010. It bears noting that the studies cited used lists that were already available and analyzed only preparations and not the foods they contained, which, considering the current study's results, could potentially compromise the symbolic aspects of the meals offered.

The analysis of the foods contained in the menu preparations associated with the respondents' accounts showed that some regional preparations important to forming the population's eating habits lost their character. Among other examples is the replacement of dried meat with ground meat in a traditional preparation called "cart driver's rice". In this case, it is questionable whether the character alteration caused by the ingredient's use would require changing the preparation's name as the traditional ingredients were not present.

In addition to this example, other regional preparations may also have been excluded due to nutritional issues, as observed by Gabriel *et al.* (2012). In their study, one of the reasons for not including acai berry in school meals in Belém was because it was eaten with sugar, which is considered less healthy. This exclusion may entail not only the removal of a regional food, which could compromise current and future local eating habits, but also indicates the overvaluing of added sugar. In this case, the overvaluation outweighed the food's (acai berry) own nutrients, such as iron, antioxidants and anthocyanins. Furthermore, when considering this type of replacement and the introduction of processed foods on the menu, the sugar in these processed foods may be being overlooked.

Encouraging the inclusion of non-regional foods such as sesame, flax, oats, nuts, physalis, blueberries, brown rice, breads and cakes was also referred to in terms of improving nutritional quality. This encouragement can be seen as favorable as there is the same or greater incentive to provide regional foods and these non-regional products do not alter regional preparations' character or even replace regional foods.

It was founded incoherence in the concern about nutritional quality, as regional foods such as dried meats were excluded while non-regional processed foods such as sausages were provided. Still, preparation techniques can be used to improve the nutritional quality of regional products without compromising symbolic preparation characteristics such as the technique of desalting dried meat (Núcleo de Estudos e Pesquisas em Alimentação, 2011).

In agreement with our findings, Paiva *et al.* (2012) question the limits of changing regional preparations with ingredients considered healthier without forcing them to lose their character. In their study, soybeans were cited as a food that has been used in school meals for nutritional purposes despite not being part of the population's traditional diet.

Other studies that have assessed the presence of regional foods in school menus have also pointed to the need for greater awareness about respecting eating habits to improve acceptance of the meals and to preserve local identity (Chaves *et al.*, 2009; Gabriel *et al.*, 2012).

It is pointed out that the decision tree model developed allows for the differentiation of the regional foods observed in the interviews. It is recommended that these differences be used to guide actions to include regional foods, establishing specific strategies for each regional food group cited. Therefore, aside from the symbolic differentiation for the regional foods made by the interviewees, it is emphasized that their inclusion in school meals is in line with promoting FNS.

One limitation of this study was its dependence on the interviewees' memories to indicate regional foods that are part of their food habits. Therefore, a list of regional foods was used to assist in collecting information and it was found that the interviewees were able to remember the reference foods for their regional eating habits. However, it is possible that the identification of the city's regional foods was not complete, leading to some menu preparations not being able to be classified as regional or non-regional. Nevertheless, such preparations were not excluded from the study. On the contrary, they were analyzed to find out which foods they were composed of in order to identify their regionality.

It is highlighted the originality of this study to promote the inclusion of regional foods in school menus and the respect for traditional production practices. Equally original is its reflection on the importance of methodological rigor to identify regional foods, proposing a decision tree model to assist in this process and consequently in including these foods in school meals.

Conclusion

When identifying regional foods, the individuals who participated in this study made distinctions in the symbolic value attributed to the foods. These foods were distinguished in three ways: by greater reference to local identity, by more recent incorporation into eating habits and by foods that were characteristic but had reduced consumption. Other foods were also identified as regional but without specific mention by the interviewees. This differentiation can guide intervention actions to assist in including regional foods in school meals.

The school meals of the city studied did not adequately provide regional foods with reduced current consumption nor foods with strong local identity, pointing to a need for actions to promote the consumption of these foods.

It is known that some school meal programs (such as the Brazilian example) make specific nutritional recommendations. However, nutritional concerns should not take precedence over the symbolic and sensory appropriateness of a regional preparation so that it loses its character and risks losing its identity.

It is believed that the issue is not the use of potentially fatty or high-calorie regional foods but the overall environment into which the individual is inserted. This allows the association of regional food consumption with the consumption of processed products with little nutritional value and excess trans fat, saturated fat, sodium, sugar, preservatives and chemical additives. Thus, school meal managers should balance the symbolic, nutritional and sustainable aspects related to the provision of quality meals in order to properly plan school menus. For example, they should consider reducing mass-produced processed foods and replacing them with locally produced foods, especially increasing the variety of regional natural and processed fruits and vegetables.

Therefore, the proper planning of school menus is also strategic for including regional foods. In this study, the variety of regional foods provided was greater than the variety of non-regional foods, indicating a menu more conducive to local production and consumption habits. However, greater attention should be given to the combination of ingredients included even in regional preparations.

Based on the reported experience, the need for methodological rigor in identifying regional foods in order to encourage their use in school meals is emphasized. This stage proved to be essential to the success of the other stages, suggesting the use of the proposed decision tree model to identify regional foods. It is believed that the developed mode can play an important role in assisting school meal managers and other researchers in identifying foods.

Note

1. Paçoca de Pinhão: based on pinhão, a seed from the Araucária tree (*Araucaria angustifolia*), which is native to southern Brazil. It consists of crushed or grated pinhão with added meat. Traditional paçoca de pinhão is made with dried meat or pork and the pinhão is crushed in a mortar. Nowadays, ground pork is more commonly used. Ground chicken can also be used. This preparation is commonly consumed in the city. According to one account, “there is no day or time” to eat it.

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