

ORIGINAL RESEARCH

School food environments and child feeding practices: An ethnographic approach in schools located in Cali, Colombia

Ambientes alimentarios escolares y alimentación infantil: una aproximación etnográfica en colegios de Cali, Colombia

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Abstract

Introduction: Schools are the most important settings for promoting healthy eating through their food environments.

Objective: To characterize the physical, sociocultural, political, and economic aspects of food environments in four schools of different socio-economic levels from Cali, Colombia.

Materials and methods: Qualitative study based on a focused ethnography approach. Information was collected through participant observation during 12 weeks in four schools (3 weeks per school), with a total of 1 409 children aged 8 to 12 enrolled in grades third through sixth. Institutional documents were analyzed, and in-depth interviews were conducted with 14 key informants (executive, administrative, and operational staff).

Results: School food environments were characterized by the availability of ultra-processed foods at low prices, as opposed to a limited supply of fruits at high prices. In all schools, there was a lack of school health policies regarding healthy eating, and compliance with the provisions of Law 1355/2009 on the prevention of obesity was poor in three schools. The presence of healthy eating promotion policies and activities was associated with the importance of nutrition in the high socioeconomic level school.

Conclusions: It is necessary to enforce the implementation of public policies on the prevention of childhood obesity, as well as monitor compliance of schools with the relevant legislation through actions that favor nutrition as a fundamental part of a comprehensive education, including the elimination of vending machines for snacks and sugary drinks, the establishment of a mandatory healthy menu in school cafeterias, and the reduction of prices of healthy foods.

Resumen

Introducción. Los colegios son los principales escenarios para promover la alimentación saludable a partir de sus ambientes alimentarios.

Objetivo. Caracterizar los aspectos físicos, socioculturales, políticos y económicos de los ambientes alimentarios de cuatro colegios de diferentes niveles socioeconómicos (NSE) de Cali, Colombia.

Materiales y métodos. Estudio cualitativo basado en un enfoque de etnografía focalizada. Se recolectó información durante 12 semanas mediante observación participante en 4 colegios (3 semanas por colegio), con un total de 1 409 niños con edades entre los 8 y los 12 años matriculados en los grados tercero a sexto. Además, se analizaron documentos institucionales de los colegios y se realizaron entrevistas a profundidad a 14 informantes clave (personal directivo, administrativo, operativo y docente de las 4 instituciones).

Resultados. Los ambientes alimentarios escolares se caracterizaron por ofrecer alimentos ultraprocesados a precios bajos, en contraste con una baja oferta de frutas con precios altos. No se observaron políticas de salud escolar que contemplen la alimentación saludable y el cumplimiento de las disposiciones de la Ley 1355 de 2009, sobre la prevención de la obesidad, es pobre en 3 colegios. La importancia de la alimentación en el colegio de NSE alto se relacionó con políticas y acciones de promoción de hábitos de alimentación saludable.

Conclusiones. Es necesario fortalecer la implementación de políticas públicas de prevención de la obesidad infantil, así como monitorear el cumplimiento de la legislación sobre el tema en los colegios, mediante acciones que favorezcan la alimentación como parte fundamental de una educación integral, tales como la eliminación de máquinas dispensadoras de *snacks* y bebidas azucaradas, el establecimiento de un menú obligatorio más saludable en las cafeterías escolares y la reducción de los precios de alimentos saludables.

Introduction

The rapid increase in the prevalence of childhood overweight and obesity worldwide has prompted the development of research and the design of intervention strategies and standards that contribute to their reduction and control. In Colombia, where overweight/obesity among children between 5 and 12 years of age increased from 18.8% in 2010 to 24.4% in 2015,^{1,2} numerous guidelines and laws have been enacted to combat the obesity pandemic.

Law 1355 of 2009,³ which defines obesity and the chronic noncommunicable diseases associated with it as a public health priority in Colombia and adopts measures for its control, care and prevention, points to the need to investigate the determinants of the physical and social environment associated with obesity in the context of Colombian regions. This law regulates the consumption of food and beverages in educational institutions, both public and private. To this end, it stipulates that these establishments must adopt a food education program in accordance with the food guidelines issued by the Ministry of Social Protection and the Colombian Institute of Family Welfare, and, if they offer food for consumption by students, ensure the availability of fruits and vegetables to promote a balanced and healthy diet and allow students to make appropriate food decisions.

By 2015, Cali was one of the cities in the country with the highest prevalence of childhood overweight/obesity (30%),² despite the fact that Decree 411.0.20.0666,⁴ which regulates the supply of food products in school cafeterias and requires the development of a balanced nutritional strategy in school settings, has been in force since 2010.

School food environments are critical in preventing childhood obesity because it is in schools, kindergartens, and nurseries that children spend much of their day, eat several of their daily meals, and are supervised by people other than their parents.

According to Swinburn *et al.*,⁵ food environments are made up of physical, economic, political and sociocultural conditions that shape consumption opportunities and influence food and beverage choices and, therefore, the nutritional status of people. Thus, in schools specifically, physical environment refers to the availability of places to eat, the food and beverage vending machines; the economic environment, food costs, product advertising, food taxes and subsidies; the political environment, the rules and policies regarding the food offered in each institution and the laws and regulations regarding the food industry; and the sociocultural surroundings, a community's attitudes and values toward food, cultural traditions, social interactions in moments of feeding, among others.^{5,6}

According to the literature, food supply and eating spaces, nutrition education programs, access to nearby restaurants and cafeterias, advertising of ultra-processed foods, and food supply outside schools are aspects of school food environments that can influence the eating habits of students.⁷⁻²⁵ In this regard, it has been proposed that school health policies should help prevent obesity and promote healthy eating habits, as they should focus on reducing the availability of high-calorie foods and sugary drinks in school cafeterias, regulating school lunch boxes, prohibiting the installation of vending machines, etc.^{26,27}

Nevertheless, most studies on the subject have focused on evaluating the physical environments that have been constructed, with little attention paid to sociocultural, political, and economic factors that may also have a strong relationship with student nutrition. In this sense, Angulo-Muñoz²⁸ suggested that qualitative studies could provide a more in-depth account of the complex relationship between the school food environment and the eating habits of the students and would also allow for a multidimensional approach

that favors the understanding of this phenomenon and the design and implementation of intervention strategies.

Consistent with the findings of these studies,⁷⁻²⁸ the Colombian Ministry of Health and Social Protection²⁹ determined that in order to design programs and adapt policies that regulate school cafeterias and promote healthy eating in educational institutions, contextual factors and their educational population must be considered to achieve a greater impact.

Given this scenario, the objective of the present study is to characterize the physical, sociocultural, political and economic aspects of the food environments of four schools of different socioeconomic levels (SEL) in Cali, Colombia.

Materials and methods

Qualitative study based on a focused ethnography approach. This study model was used since ethnographies allow for an in-depth understanding of people's representations of everyday events and their purpose is to build knowledge based on the interaction between the researcher and the researched through observation processes, reflection, and construction of meaning.³⁰ Focused ethnographies, in particular, are centered on specific situational scenarios; in other words, one or several social aspects are observed in a single type of social institution in order to make a contextual analysis of interaction situations.³¹

For participant observation, four schools of different SELs in Cali were selected by means of convenience sampling: one school with a low-low SEL, one with a low SEL, one with a middle SEL, and one with a high SEL. The SEL of the schools was defined based on the SEL of the surrounding area or neighborhood in which it was located, and in all four cases, it was verified that it coincided with that of the majority of the students' household. For more information on the socioeconomic classification in Colombia, see Table 1.

Table 1. Socio-economic strata in Colombia according to the National Administrative Department of Statistics.

Stratum	Description
1	Low-low. Beneficiaries of home utility subsidies.
2	Low. Beneficiaries of home utility subsidies.
3	Medium-low. Beneficiaries of home utility subsidies.
4	Middle. They are not beneficiaries of subsidies, nor do they pay surcharges; they pay exactly the amount that the company defines as the cost for providing home utilities.
5	Middle-High. They pay surcharges (contribution) on the value of home utilities.
6	High. They pay surcharges (contribution) on the value of home utilities.

Source: Elaboration based on the data by National Administrative Department of Statistics - DANE.³²

A total of 1 409 children between 8 and 12 years of age, enrolled in grades three through six, were registered in the 4 schools. The study also involved 14 key informants (12 female) from management, administrative, operational and teaching staff of the 4 schools, who were interviewed in depth. Table 2 shows the number of participants per institution and per role (children and key informants).

Table 2. Distribution of participants per institution and role.

School	Total number of children in grades three through six	Key informants
High SEL	n=550	n=5 (General welfare coordinator, elementary school welfare coordinator, cafeteria administrator, parent association director, elementary school psychologist)
Middle SEL	n=234	n=4 (School principal, pedagogical and quality coordinator, elementary school psychologist, cafeteria manager)
Low SEL	n=525	n=3 (School principal, teacher representative of the school food program, cafeteria manager)
Low-low SEL	n=100	n=2 (School principal, teacher representative of the school food program)
Total	1 409	14

Source: Own elaboration.

In each school, data were collected through participant observation in different food-related situations and spaces (cafeterias, stores, hallways, classrooms, institutional activities, etc.), which provided information on the characteristics of the school food environment and the foods children consumed. The principal researcher developed an observer role with a moderate level of participation for three weeks at each school, staying from Monday to Friday during school hours. The information was recorded in a field diary in which date, time, place, persons observed, detailed description of the situation and time of observation were noted, as well as analytical and methodological comments.

For two weeks prior to the start of the observation, the researcher visited the school and participated in various daily activities to build trust among the children and school staff and avoid being perceived as an external agent or stranger when beginning the field work.

Also, as part of the observations, institutional documents such as school health policies, weekly menus, food advertising posters, and food information sent to parents through brochures or newsletters were identified and reviewed.

In-depth interviews with key informants were conducted to inquire about their perceptions of school environment characteristics related to nutrition of the children in grades three through six; the information gathered was contrasted and supplemented with that obtained from participating observations and institutional documents. At least two interviews per participant, lasting an average of 45 minutes each, were recorded and transcribed. They were carried out in the same schools with adequate environmental conditions (noise, lighting and ventilation).

Observations at each school were carried out until information saturation was achieved, that is, until no new data were found. Following that, the ATLAS Ti software was used to conduct a content analysis of the information obtained from the observations, interviews, and institutional documents consulted, as it allows systematizing and organizing qualitative data.

As required in content analysis, after performing a pre-analysis or fluctuating reading of the interviews, the recording units and coding schemes were defined; coding was then performed, allowing the recording units to emerge from the documents. Once the interviews were coded, data were categorized and inferred.

Data were validated with the key informants of each school during a session in which the findings and their congruence with the informants' perceptions were discussed. This session was held in groups at the school facilities at the end of the analysis of the information. In all four schools, key informants stated that the information coincided with their perception of the situation.

The study took into account the ethical principles for research involving human subjects established by the Declaration of Helsinki³³ and the standards for health research of Resolution 8430 of 1993 of the Colombian Ministry of Health.³⁴ The research was classified as minimal risk and was endorsed by the Ethics Committee of the Universidad del Valle according Minutes No. 019-017 of October 23, 2017. Key informants signed an informed consent form, and each school's legal representative signed the consent to conduct participant observations of children at their facilities.

Results

The ethnographic approach allowed the research team to become immersed in the dynamics of each school, understanding them through their various actors, spaces, resources, meanings, and modes of communication. The data collected for each school was incorporated into a matrix (Table 3) that allowed for the analysis of aspects related to the school's food environment (physical, sociocultural, political, and economic); based on these, compliance with Law 1355 of 2009 was verified³ and the food consumed by children during the school day was characterized.

Table 3. Information synthesis matrix of the categories analyzed in the four schools.

Category School	Food consumed by children	Physical environment	Sociocultural environment	Political environment	Economic environment
High SEL School	High proportion of children eating fruits during recess. No child consumes sugary drinks. High proportion of children buying fried foods, fast foods, ice creams and bakery products in the school's cafeteria. All kids are given vegetables in their school lunches, but the majority do not eat them.	Sufficient and adequate space for eating. Fruits and vegetables kept in plain sight of children. Restrictions on the sale of sugary drinks and elimination of food and drink vending machines.	Quiet emotional climate at mealtimes (recess and lunch). Presence of supervisors during lunch to monitor the feeding process and send weekly reports to households. Little involvement of teachers in feeding situations.	Conception of nutrition as a fundamental part of the well-being and educational process of children. Existence of institutional agreements concerning compliance with Law 1355 of 2009, ³ despite the fact that they are not explicitly stated in a school health policy.	Higher prices for fruits than for unhealthy foods. Prices of fast foods lower than those of healthy lunch options Purchase of food using a prepaid card that parents can control.
Middle SEL school	High proportion of children consuming packaged snacks, fast foods, fried foods and soft drinks purchased at school during recess and lunch. Few children eating fruits and vegetables at school. Most children do not have lunch at school, but they bring packaged snacks to eat at noon.	Insufficient space for eating: there are two cafeterias with few tables and chairs, and the dining room is a small, noisy, poorly ventilated room with few tables and chairs located away from the cafeteria. High offer of packaged snacks and sugary drinks and limited offer of fruit, which is not available for children to see. Presence of a food vending machine.	Tense interactions between the person in charge of the cafeteria and the children during mealtimes (constant scolding and pressure on the children to eat as they reject the food and complain about it). Teachers monitor break times, but do not supervise food consumption. Children eat on the floor.	Food is not included in the school's programs; it is only used to generate revenue by renting out the cafeterias to third parties. Absence of school health policies. Knowledge of Law 1355 of 2009 ³ by key informants, but failure to comply with it.	Fast food is less expensive than balanced lunches. Advertising pieces of drinks and ice cream on counters and refrigerators in cafeterias. Food suppliers think that selling healthy foods is not profitable.

Table 3. Information synthesis matrix of the categories analyzed in the four schools. (continued)

Category School	Food consumed by children	Physical environment	Sociocultural environment	Political environment	Economic environment
Low SEL School	High proportion of children buying fried foods, sugary drinks and sweets at the tuck shop. Most PAE* foods are thrown in the trash. High proportion of children who buy meals from street vendors. Children do not eat lunch at school.	Very small dining facilities, so children must take turns to use this space. Lack of food and beverage vending machines. Strong presence of street food vendors around the school. Limited availability and variety of fruits.	Children go out during classes to eat the PAE's food supplement quickly and return to the classrooms. Shortly after, they go out for recess and eat snacks again or buy food at the tuck shop. Tensions between teachers and students during mealtimes (constant scolding of children so they eat all their food fast).	This institution is a beneficiary of the PAE, and children are therefore offered a food supplement there. The PAE food is provided by the Secretary of Education of each municipality, in this case Cali. Little knowledge of Law 1355 of 20093 on the part of key informants and, therefore, little compliance with it.	Food subsidy for children through the PAE. The school cafeteria operator thinks that selling healthy foods is not profitable. The price of fried foods, sweets, soft drinks and packaged snacks is low. Children can buy several products with a few coins.
Low-low SEL school	High proportion of children consuming sweets, packaged snacks and sugary drinks during recess. Several children do not eat PAE foods and do not carry lunch boxes. Children do not eat lunch at school.	There are no places to eat or relax. Children eat their meals standing or sitting on the floor in the sun. The school cafeteria does not have the necessary physical or operating conditions. There is no sale of fruits or vegetables in the cafeteria, only soft drinks, candy and packaged snacks. Absence of food and beverage vending machines.	The PAE food supplement is taken in turns during school hours. Children who do not want to eat the PAE food supplement are scolded and sent to their classroom. Teachers do not encourage children to eat or taste food.	This institution is a beneficiary of the PAE and therefore offers children a food supplement. Lack of knowledge of Law 1355 of 20093 on the part of key informants and, therefore, little compliance with it.	Food subsidy to children through the PAE. The price of sweets and snacks is low. Most children live in very low-income households.

SEL: Socio-economic level; PAE: school food program.

* The School Food Program of the Colombian Ministry of National Education offers a food supplement to children and adolescents of the country enrolled in public schools with the aim of reducing dropout rates and contributing to nutritional status.³⁵

Source: Own elaboration.

According to what has been observed, the high SEL school had the healthiest food environment, which can be explained because food there is conceived as a fundamental part of comprehensive education and, with that thought in mind, institutional agreements have been established to comply with the guidelines of Law 1355 of 2009,³ as reported by the student welfare coordinator of the institution:

“[...] We have been taking measures. There are no more vending machines or sales of soft drinks [...] The school has understood the importance of children nutrition. For us, a child who does not eat lunch, who does not eat well, is not going to perform well during the school day.”

In the high SEL school, it was also found that aspects that encourage healthy eating habits and appropriate interactions in eating situations have been promoted, such as companions present at lunch; sufficient and adequate spaces in the institution to eat; a variety of healthy options to choose from; the absence of food and beverage vending machines; and prepaid cards for paying for food that give parents control over their children's food purchase decisions. Similarly, it was possible to establish that the purchasing power of families, given their high SEL, favors access to healthy and quality

options for lunchboxes and lunch. It should be borne in mind, however, that the school's agreements to promote good nutrition are not explicit in school health policy documents and the involvement of teachers in feeding situations is minimal.

On the other hand, the food environment of the middle SEL school could be considered the least healthy, since there are no school health policies and food is not conceived as an important part of the children's education process, but as an activity that should be profitable for the person who manages the cafeteria. Moreover, there are no institutional agreements in this school regarding compliance with Law 1355 of 2009,³ although key informants claim to be aware of it. Likewise, the spaces set aside for children to eat in the institution are insufficient and inadequate, there is a high supply of unhealthy foods, and there is a packaged *snack* vending machine. The principal's testimony about the situation at this school was as follows:

“There is a room that was adapted as a dining room, but there is no place to eat [...] besides, some cafeterias just sale junk food. They know that if they want a piece of fruit, they can ask for it, although unhealthy food is more visible.”

With regard to low and low-low SEL schools, it was established that their food environments are unhealthy. In these institutions, beneficiaries of the School Food Program (PAE) of the Ministry of Education, which provide supplements to children and adolescents enrolled in public schools across the country in an effort to contribute to their permanence in school and their nutritional status,³⁵ it was found that the presentation of the food received through this program was not appealing to children and that they are rarely offered fruit. Similarly, it was found that in these schools there are no discussions or institutional agreements regarding compliance with Law 1355 of 2009³ and that there is a high supply of unhealthy foods at very low prices in school cafeterias, but a low supply of fruits and vegetables. On the subject, a teacher from a low-low SEL school notes that:

“The service of the school cafeteria is not optimal. First, the conditions [...] It was set up in a classroom, and they sell food to children through a window, and the products that are sold are not healthy. Things are sold based on what children want to buy and eat, namely, sweets, chewing gum, chocolates, cookies, but not on what they should eat.”

The conditions of eating spaces differ between low SEL and low-low SEL schools: while the former has sufficient and adequate spaces for children to eat in turns, the latter has no space for food consumption. On the other hand, there are few interactions between teachers and students in both schools that encourage healthy eating habits, and eating situations appear to be tense most of the time, because teachers' roles are limited to controlling children's behavior in an authoritarian manner (with yelling and scolding) and not supervising what they eat.

The foods consumed by children during the school day in the four schools showed marked differences: children in the high SEL school consumed more fruits and less fast foods and sugary drinks, while those in the middle, low and low-low SEL schools consumed more fried foods, packaged *snacks*, and sugary drinks. Furthermore, children in low and low-low SEL schools had access to street food vendors, allowing them to purchase unhealthy or poorly prepared foods when entering or leaving the institution.

Discussion

The observed school food environments varied with regard to the four analyzed factors (political, physical, sociocultural, and economic). Concerning the political aspect, correlations were found between each institution's conception of food and the policies or agreements established there regarding actions to limit the sale of unhealthy foods and increase the supply of healthy ones, as well as social dynamics related to the established mealtimes in these institutions.

The findings of this study suggest that, while child nutrition is critical to the comprehensive training of its students at the high SEL school—and this influences administrative decisions, contracts with suppliers, social interactions, and food supply—, at middle SEL schools food is a matter managed based on economic criteria, from which a profit margin is expected and on which there are no major reflections regarding quality. On the other hand, in low and low-low SEL schools, food is conceived more as a problem of the State that is solved through the PAE. Consequently, it can be inferred that in each school the conception of food in particular, and of health in general, impacts the formulation and implementation of food policies. In this sense, these conceptions, whether explicit or implicit, may or may not place food on the institution's political agenda,²⁵ influence administrative decisions about the regulation of foods offered or prohibited, and have a direct impact on social dynamics and interactions in food situations.

Taber *et al.*,³⁶ in a study in which data on the school food environment were obtained from a cohort study conducted by the National Center for Education Statistics in the United States, established that high SEL schools, regardless of the existence of national or local laws governing them, have healthier food environments. This is consistent with the findings of the present study, in which the high SEL school was the one that made efforts to comply with the provisions of Law 1355 of 2009,³ whereas in the others, while key informants referred to knowing the regulations, there were no concrete actions to comply with it.

School administrators from middle, low and low-low SEL schools agree that, if compliance with Law 1355 of 2009 were mandatory,³ they would make the necessary changes, but because there are currently no mechanisms of control on the part of the State, they see no need to discuss or implement actions to achieve better food environments within the institutions.

In this sense, it is evident that the political will of the directors of the institutions is fundamental to achieve changes in the school food environments. This was also reported by Gebremariam *et al.*²⁵ in a study of 1 425 11-year-old children from 35 Norwegian schools, in which they found that it is possible that schools where principals reported a high perceived institutional responsibility for their students' nutrition were successful in influencing the knowledge of children regarding healthy eating.

With regard to physical aspects, it was noted that the availability of food in schools greatly influences the exposure of students during the school day to different types of food. Thus, a higher consumption of fruit was observed when the school encouraged it, while the consumption of sugary drinks was lower when the school restricted their sale. In addition, students were found to consume more fast food, sweets, and soft drinks on a daily basis when cafeteria supplies were abundant. This is consistent with the findings of several studies^{18,20-22,37} which suggest that, in addition to availability, accessibility to food is strongly associated with food consumption, understanding this accessibility as the number of sources of access and the facilities to consume a particular food at school.¹⁴

In this respect, as stated by Driessen *et al.*,²² ensuring a school environment that promotes healthy eating is critical in combating the heavy marketing of unhealthy foods;

thus, making sure that all sources of access to food, including cafeterias and vending machines, limit access to unhealthy food can be an effective strategy for encouraging good eating habits. However, Bekker *et al.*,¹⁸ in a study of second to seventh grade students (7 to 14 years old) from two schools in Bloemfontein, South Africa, one with a nutritionally regulated tuck shop (n=116) and the other with a conventional tuck shop (n=141), reported that in the school where food supply was regulated, older students had negative attitudes toward the tuck shop. As a result, they concluded that a single intervention, such as the presence of a nutritionally regulated tuck shop, cannot promote the whole healthy school food environment.

Notwithstanding the above, Mansfield *et al.*,⁹ in a systematic review, reported that, despite the initial resistance of children and adults to changes in school food supply due to the implementation of various school welfare policies, they adapt well in the medium term. In addition, Driessen *et al.*²² were able to establish in their systematic review that changing the school food environment (including high-level policy changes at the state or national level) can have a positive impact on eating behaviors.

According to the findings of the present study, most schools do not comply with the regulation of serving fruits and vegetables on a daily basis. This is in line with the results of studies conducted in other countries, such as the research of Faber *et al.*²⁴ in South Africa and Taber *et al.*³⁶ in the United States, where some schools report difficulties in storing these foods, as they spoil quickly, causing losses, while others argue that children's preferences are more inclined toward unhealthy foods.

In addition, it has been reported that increasing the availability of healthy foods poses major challenges for cafeterias, as serving healthier menus may require the renovation of kitchen equipment, staff training, and increased cooling and storage spaces, which can increase the cost of food service.^{20,24} However, it has been demonstrated that improving the supply of this type of food and even offering discounts and other promotions can be a cost-effective strategy that prevents these challenges from having a negative impact on the sales margin of school cafeterias.^{22,38}

Despite the differences observed in this study regarding the foods consumed by children in the different schools, some aspects are common to all. For example, it was observed that the lunch boxes that children bring from home or purchase in cafeterias during recess are generally unhealthy, as they usually contain a high amount of packaged *snacks*, artificial fruit juices, and fried foods. This may be influenced by family eating habits, as demonstrated by Valencia-Niño *et al.*³⁹ in an ethnographic study of Mexican schoolchildren to identify the reasons for food preferences and consumption during school recess. They found that children's food preferences are closely linked to their family context, although they are also influenced by the nutritional education received (both in and out of school) and food availability-restriction within the school. These types of aspects help to elucidate the strong relationship between school and household food environments.

With regard to sociocultural factors, it was observed that the emotional climate, accompaniment to children, and nutrition-related activities are of great importance to the social dynamics that occur during mealtimes. In this sense, it is striking that in all schools teachers are absent or participate minimally during mealtimes, either because they do not have a role in supervising what children eat or because their interaction is limited to monitoring dining room discipline. This finding is significant considering the importance of teachers in promoting nutrition as part of the children's learning and development process. In this regard, Gebremariam *et al.*²⁵ state that knowing how students eat and promoting healthy habits (including eating habits) has traditionally been viewed as the responsibility of

teachers because they are authority figures for children and may be potential models of eating habits because they are present at various moments involving food.²⁵

This could be because, given the high academic and administrative burden placed on teachers, it is difficult for them to assume the role of supervising what and how their students eat, as recess and lunch breaks are also their only moments of rest during the working day. Moreover, as pointed out by Faber *et al.*,²⁴ teachers report a lack of nutritional education, this being a barrier to the promotion of healthy eating.

The results of this study suggest the importance of strengthening and enforcing school policies related to nutrition in Cali. Thus, it is necessary to focus on the availability of healthy and unhealthy foods offered in schools, whether through cafeterias, school stores, or food and beverage vending machines, because these measures have been shown to be effective in improving the quality of children's diets.^{20,22,37} Likewise, according to the results of the present study and the systematic review by Micha *et al.*,²¹ policies should focus on the direct supply of fruits and vegetables in institutions, and, to this end, standards of quality for their sale should be established. Similarly, to have the expected impact, these policies must involve changes in class curricula, feeding spaces, and family and community support to improve eating habits.²⁴

Given the scarcity of similar studies in Colombia, the findings presented here contribute to the investigation of nutrition in schools and serve as a foundation for the consolidation of a relevant and necessary line of research. New studies should keep in mind that the ethnography approach is novel and may, in the future, provide inputs for the development of quantitative instruments to efficiently evaluate the food environments of a larger number of schools. However, it is acknowledged that one limitation of this study is that the data comes from only four schools, which may not represent the SEL for which they were chosen. Furthermore, because the information is based on individual observations and interviews, it cannot be assumed to be representative.

Conclusions

It is necessary to strengthen the implementation of public policies to prevent childhood obesity in Cali schools and to monitor compliance with the legislation in this regard through actions that favor food as a fundamental part of a comprehensive education, such as the elimination of vending machines that dispense *snacks* and sugary drinks, the establishment of a healthier compulsory menu in school cafeterias, and the reduction of healthy food prices. These measures may have an impact on decisions and actions that favor the positioning of nutrition in schools as the central axis of a comprehensive education, resulting in changes in eating habits and school food environments.

It is necessary to consider the differences in the food environments conditions observed between the high SEL school and the schools with lower levels, as these reflect conditions of inequality that can cause social injustices in children of lower income.

Conflicts of interest

None stated by the authors.

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