Students' Perception of the School Food Environment: a Scoping Review Based on the Organizational Food Environment Framework

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https://doi.org/10.1590/SciELOPreprints.13576

Submitted on: 2025-09-30
Posted on: 2025-12-05 (version 1)
(YYYY-MM-DD)

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Article title: Students' Perception of the School Food Environment: a Scoping Review Based on the Organizational Food Environment Framework

Short title: Perceived School Food Environment: Scoping Review

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Abstract

Background The school food environment shapes children's and adolescents' dietary practices and nutritional status, yet students' perceptions of this environment remain underexplored. **Objective** To apply the organizational food environment framework to map the study of primary and secondary students' perceptions of the school food environment. **Methods** This scoping review followed the JBI methodology and was reported according to PRISMA-ScR guidelines. We searched MEDLINE, Web of Science, LILACS, and Scopus for studies published between 2005 and 2025, without language restrictions, reporting students' perceptions regarding any component or dimension of the organizational school food environment. Search terms covered five domains: students, food environment, organizational food environment dimensions, perception, and school. Two independent reviewers screened titles and abstracts, selected studies based on full text reading, and extracted data using a standardized tool. Data were analyzed descriptively and presented in tables and charts. Review registration number: 10.17605/OSF.IO/96SUH. **Results** Sixty-two studies were included, most (79%) employing qualitative designs with small, non-probabilistic samples. Research was concentrated in high-income countries and unevenly addressed the components of the organizational food environment framework. The Internal Level of Eating Spaces was the primary focus (87.1%), particularly the dimensions of quality (58.1%), affordability (40.3%), and availability (38.7%). The Institutional Level was explored in just over half of the studies, mainly regarding acceptability (50%), while the Surroundings (27.4%) and Decisional Levels (33.9%) were less represented. Few studies applied validated instruments or explicitly referenced a food environment framework. **Conclusions** Evidence on students' perceptions of school food

environments remains fragmented and limited, particularly in low- and middle-income settings. The lack of validated instruments and inconsistent use of conceptual frameworks hinders comparability across studies and the development of robust quantitative approaches. Further research systematically exploring students' perspectives is needed to guide policies and school-based interventions that reflect students' needs and preferences, promoting healthier food environments.

Keywords: Food environment; Food access; Perceptions; School; Students; Scoping review

Introduction

The organizational food environment is defined by Gálvez Espinoza et al.[1] as the setting in which food is sold or provided to workers, students, or other members of institutions and organizations, including schools, universities, companies, public services, hospitals, prisons, and civil society associations, along with their respective food centers (cafeterias, kiosks, and vending machines).

Recently, Castro and Canella advanced in the conceptualization of a model to guide assessment of organizational food environments[2]. This model identifies four key components: the institutional level, internal level of eating spaces, surroundings, and the decisional level. It also outlines 10 dimensions, which include availability, accessibility, affordability, quality, food and nutrition information, promotion of foods and beverages, acceptability, convenience, ambiance, and the infrastructure of eating spaces[2].

Among organizational food environments, schools are of particular importance due to their significant influence on the dietary choices and nutritional status of children and adolescents[3]. Schools play a key role in shaping students' eating habits, as they provide a significant portion of daily nutrition and influence long-term dietary behaviours[4].

While the influence of objectively verifiable aspects of the food environment on food choices and dietary intake is well established, less attention has been given to how individuals' perceptions of their food environment impact these outcomes[5,6]. Perception refers to the process by which individuals organize, identify, and interpret sensory information to understand and make sense of their environment[7]. This process is shaped not only by basic sensory mechanisms, such as sight and hearing, but also by interpretative processes influenced by personal beliefs, values, and

cultural experiences[7]. Based on social cognitive theory, which posits that individuals are influenced or constrained by their environments[8], Green and Glanz[5] argue that these perceptions play an equally important role in shaping purchasing patterns and contributing to obesity. Understanding the perceptions of children and adolescents regarding their school food environment is essential for designing effective interventions aimed at promoting healthy eating[9].

Despite the importance of the perceived food environment, a systematic review by O'Halloran et al.[10] identified only two studies exploring students' perceptions of their school food environment[11,12]. A preliminary search across MEDLINE (via PubMed), Web of Science, LILACS (via BVSalud), Scopus, JBI Evidence Synthesis, Figshare and Open Science Framework, revealed no systematic or scoping reviews addressing this topic.

To address this gap, we conducted a scoping review that applies the organizational food environment framework by Castro and Canella[2], comprising the institutional level, internal level of eating spaces, surroundings, and decisional level and their respective dimensions to map how primary and secondary students' perceptions of the school food environment have been studied, which dimensions have been prioritized, and where conceptual or methodological gaps remain. Our intent is to inform future research, the design of school-based health promotion strategies, and policy initiatives that align with students' preferences and experiences.

Methods

This scoping review followed the JBI methodology[13,14] and was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines (Table S1) [15]. The review protocol was registered on the Open Science Framework (OSF) at https://osf.io/96suh/[16]. Scoping reviews are suitable for the purpose of

this study as they allow for the exploration of how concepts within established frameworks—such as organizational food environments—have been examined or overlooked[17].

Elegibility criteria

We included original research published in peer-reviewed journals that explicitly investigated primary or secondary students' perceptions of the school food environment. Eligible study designs comprised quantitative, qualitative, and mixed-methods approaches addressing any of the four components and ten dimensions of Castro and Canella's organizational food-environment framework[2] (Table 1). No restrictions were applied regarding country, school setting, cultural context, or language. We excluded studies that did not disaggregate students' perceptions from those of other school community members (e.g., parents, staff), as well as reviews, conference abstracts, protocols, opinion pieces, and articles for which the full text could not be obtained.

During screening, a conceptual distinction emerged that warranted the addition of an exclusion criterion not anticipated a priori: studies that measured attitudes or preferences solely toward hypothetical or potential scenarios rather than toward conditions actually experienced by students. Attitude is understood as a mental predisposition to act, expressed through the evaluation of an entity with some degree of favor or disfavor[18]. It is a component of the psychological dimension of perception[7], influencing how individuals interpret sensory information from the external world. For the purposes of this review, studies were considered eligible only when they assessed attitudes in relation to students' lived experience of the school food environment. Studies addressing desirability, hypothetical availability, or intended/future changes (for example, "How important is it to you to be able to buy the following food items at school?" [19]) were therefore excluded, whereas studies enquiring about the respondents' evaluation of present, observable

conditions (for example, “What score would you give the food and drinks assortment of your school canteen?”)[9] were retained.

This decision was made to preserve conceptual consistency with the notion of the perceived food environment, which privileges subjective perceptions that correspond to objectively verifiable contexts, thereby facilitating a coherent mapping of how students’ perceptions of their experienced school food environment have been investigated[6,20].

Search strategy

The search was carried out on October 21, 2023, and updated on July 25, 2025 to capture the latest literature. The query was developed around five keyword domains, detailed in the protocol[16]. It was initially conducted in MEDLINE (via PubMed) based on the PCC framework (population, concept, context)[13,14], and subsequently adapted for Web of Science, LILACS, and Scopus.

Due to the lack of standardized descriptors for food environments (MeSH, DeCS, EMTREE) and the scarcity of studies on students’ perceived school environments[10], we broadened the search to include terms related to any organizational food environment components and dimensions (e.g. availability, convenience)[2]. Some of these terms were excluded from the final query to avoid retrieving excessive irrelevant records. We chose terms related to the concept of perception from the titles, abstracts and keywords of the two studies[11,12] retrieved in the review by O’Halloran et al.[10] that assessed student’s perceptions of school food environment, as well as from the studies cited in the two papers. Full strategies are in Table 2.

Articles were included regardless of language, with translations performed via Google Translate or ChatGPT 4.0 when needed. Those in non-Latin scripts with incomprehensible translations were excluded. Only studies published from 2005 onward were included, aligning with

the publication of the "Model of Community Nutrition Environment" by Glanz et al.[20], a relevant conceptual milestone in the field of food environment studies.

Study selection

All retrieved records were imported into EndNote version X9 for deduplication and management of the review process. Two reviewers independently screened all titles and abstracts against the eligibility criteria. Potentially relevant studies were retrieved, and their full texts were assessed. Studies not meeting the inclusion criteria were excluded, with reasons documented in Appendix A (Supplementary Material). At each stage of selection, any disagreements between reviewers were resolved through discussion.

Data Extraction

Two reviewers independently extracted data using a standardized tool created in Google Forms and published in the protocol[16]. The tool was pre-tested with ten randomly selected articles. Each reviewer extracted data from half the studies and cross-checked the other's work to ensure completeness and accuracy. Extracted data included variables related to publication details, study population, concept, context, and methods. Disagreements were also resolved through discussion. Critical appraisal was not undertaken since it is not necessary for scoping review's objectives[13,14].

Data Analysis and Presentation

The final selection process was documented using a PRISMA-ScR flow diagram[15]. Descriptive analyses were performed in RStudio (version 4.4.1), with quantitative findings presented through absolute and relative frequencies and summarized narratively.

We also performed a basic qualitative content analysis to identify sub-themes within the extracted results regarding student's perceptions on the dimensions of the school food environment[13,14,21]. JBI recommends this type of content analysis, which is not a thematic analysis/synthesis but rather a descriptive approach to map characteristics or factors related to a concept. It involves an open coding process to categorize them into overarching categories[21]. A deductive coding approach[21] was used to assign verbatim excerpts to the ten dimensions across the four components of the framework by Castro and Canella[2] The number of mentions per dimension reflects the number of studies addressing each, rather than the frequency within each study, in accordance with scoping review methodology.

Results

Study inclusion

A total of 7,627 unique articles were identified through the search strategy, of which 7,534 were excluded after screening titles and abstracts, and 3 were not retrieved. Subsequently, 93 articles were assessed for eligibility (Figure 1). During the full-text assessment, 31 articles were excluded for the following reasons: not addressing the perceived food environment (n = 20); focusing on students' attitudes toward hypothetical scenarios rather than their perceptions of concrete reality (n = 6), being written in non-Latin script languages that could not be adequately translated (n = 4); and not distinguishing students' perceptions from those of other school community members (n = 1) (Appendix A). Then, 62 manuscripts were included in the review (Figure 1).

Study designs and methodological characteristics

The literature on students' perceptions of the school food environment is scarce, with the highest number of publications (n = 8) observed in 2017, followed by 2025, as six studies had already been published by the time of the search (Figure 2).

The majority of the included studies used a qualitative approach (79.0%) and employed mainly focus groups (61.3%). Around 20% were interviews, and another 20% were cross-sectional surveys. The most frequently used research instrument was the semi-structured guide (75.8%), followed by structured questionnaires (21.0%). Most studies employed non-probabilistic sampling designs (87.1%), while a smaller proportion used probabilistic sampling (12.9%). In terms of sample size, most studies had smaller samples, with less than 70% having up to 100 participants, and about 10% having more than 1000 participants (Table 3). The characteristics of each included studiy are listed in Table S2.

All thirteen studies with a quantitative approach used instruments specifically designed, with only two adapting perception-related questions from pre-existing instruments[22,23]. Few methodological precautions were taken in the development or adaptation of these instruments. In three studies, pre-tests were conducted with convenience samples regarding the questionnaire's readability and students' ability to complete the instrument in the allotted time [19,24,25]. Hearst et al.[26] and Barnett et al.[27] calculated Cronbach's alpha for their questionnaires. Rathi et al.[25] and Soloveva et al.[28] assessed test-retest reliability of their questionnaire.

Findings organized by participants, context and framework dimensions

Regarding participants characteristics, the majority of studies focused on adolescents (90.3%), followed by a smaller proportion of elementary school (40.3%) and preschool children (4.8%). Additionally, 35.5% of the studies focused on vulnerable or specific groups perceptions (i.e.

overweight or obese children, only girls, First Nation indigenous students). Female participants were over represented in most studies (51.6%), while only 12.9% reported equal gender representation (Table 4).

Figure 3 illustrates the geographic distribution of studies included in the review, highlighting the number of studies per country. Overall, research is mostly concentrated in North America (29.0%) and Europe (27.4%) (Table 4). Concerning the setting, the majority of studies focused on school interiors (64.5%), with fewer studies addressing school surroundings (8.1%) or both settings (27.4%). In relation to school type, 56.5% of studies did not report this information, public schools were represented in 24.2%, private schools in 8.1%, and 11.3% in both (Table 4).

Only six studies explicitly referenced a food environment framework[27–32]. Furthermore, just 35.5% of the studies primarily focused on aspects of the food environment, whereas in the remaining studies, these aspects were mentioned only in the context of discussions on other topics (Table 4).

As for organizational food environment components, the *Internal Level of Eating Spaces* was the most frequently addressed (87.1%), with *Availability*, *Affordability*, and *Quality* being the most commonly explored dimensions (38.7%, 40.3%, and 58.1%, respectively). Notably, just one study addressed the *Nutrition Information* dimension. The *Institutional Level* was also prominent (53.2%), with *Acceptability* (50.0%) being the most frequently addressed dimension, while *Accessibility* was not mentioned. The *Decisional Level* was addressed in 33.9% of studies, with greater emphasis on the internal sphere (22.6%) compared to the external sphere (14.5%), while the *Surroundings* component appeared in 27.4% of studies (Table 4).

Table 5 summarizes the sub-themes identified regarding students' perceptions of the school food environment, within the four components and ten dimensions of the organizational food environment framework.

Institutional Level

Among the 62 studies included, 33 explored students' perceptions related to the Institutional Level. Five addressed the dimension Availability, 31 focused on Acceptability, and none examined Accessibility (Table 5).

The only sub-theme correspondent to the first dimension, titled C*ertain Establishments are Promoters of Unhealthy Consumption,* was identified in four studies (Table 5).

The most frequent sub-theme within the *Acceptability* dimension was *Food Supply Inadequacies* (n = 14), including criticisms of unhealthy menu items[36], inappropriate offerings such as morning soup[38], and poor taste, texture, or freshness of school meals[35,36,44] (Table 5).

Ten studies examined the sub-theme *Opinions on Standards in School Meal Programs and Regulations*. Four of them reported positive evaluations of school meal programs[9,45,46,55], while three described dissatisfaction with standards imposed by programs[37,40,47] or canteen regulations[11], often related to disliking healthier recipes[11] or poorly communicated changes[38,40,47]. Three studies noted mixed views among students[38,48,49].

The sub-theme *Approval of Food Provision Patterns* appeared in 10 studies, with five of them reporting positive views regarding the standards of school food programs or policies[11,38,48,50,51]. In eight studies we identified the sub-theme *Discontent with the Lack of Variety*, which was cited as a justification for the low acceptability of canteens or meal programs (Table 5).

Other less frequent sub-themes within the Acceptability dimension were also identified, including *Food Shortages in Meal Services*, *Dissatisfaction with Food Quantity or Portion Control*, and *Insufficient Time to Eat* (Table 5).

Internal Level of Eating Spaces

Students' perceptions related to the Internal Level were identified in 54 studies. The most frequently addressed dimensions were Quality (n = 36), Affordability (n = 25) and Availability (n = 24), followed by Convenience (n = 13), Promotion (n = 10), Ambience (n = 6) and Infrastructure for Food (n = 5). Just one study contained perceptions regarding the Food and Nutrition Information dimension (Table 5).

Regarding Availability, perceptions focused on the healthiness of foods offered at school and were grouped into three sub-themes. The first, *Unhealthy Food Availability*, was reported in 17 studies. Nine studies highlighted *Healthy Food Availability*, often associated with recent improvements from policies or interventions. On the other hand, seven studies contained the sub-theme *Low Availability of Healthy Food* (Table 5).

The most frequently cited Affordability sub-theme was *Higher Cost of Healthy Foods*, mentioned in 13 studies as a barrier to healthier choices. This was followed by seven studies that addressed *High Food Cost at School* in general, and five studies that identified *Food More Expensive at School Than Outside*, which led students to prefer nearby establishments (Table 5).

The most recurring sub-theme within the Quality dimension was *Sensory Attributes,* discussed in 22 studies. One study did not explore students' evaluations of school food but observed that taste was the most influential factor in their choices[27]. One study reported positive feedback from students to school food[49], while two presented mixed perceptions[11,50]. The remaining 18 emphasized dissatisfaction with aspects such as taste, freshness, or temperature of school meals. *Nutritional Quality* was addressed in 13 studies, with students classifying meals as unhealthy or expressing mixed opinions. Additionally, *Food Safety Concerns* appeared in eight studies, with students questioning hygiene practices in school food preparation (Table 5).

Food and Nutrition Education was the most cited sub-theme within the Promotion dimension. Six studies reported that it was completely absent or ineffective in promoting healthy habits [9,29,33,47,52,72]. Among them, one study linked the failure of cafeteria policy changes to a lack of accompanying education, which hindered understanding and acceptance of these changes [47], while others noted that students were unaware of existing initiatives [9,72]. Two studies highlighted a perceived disconnection between educational messages and canteen practices[29,53]. The sub-theme *Indifference to Food Advertising at School Canteen* was noted in two studies, where students stated that promotional materials had no influence on their choices[23,65] (Table 5).

Within the Convenience dimension, 13 studies were identified, with only one sub-theme identified: *Dissatisfaction with long queues* (n = 8). The less frequently addressed dimensions were Ambiance and Infrastructure. Within Ambiance, three studies described the canteens as a *Chaotic Environment*, and two reported mixed perceptions regarding *Cleanliness*. Regarding Infrastructure, two studies discussed perceptions of canteen space, presenting contrasting views on its adequacy (Table 5).

Surroundings

Perceptions related to the *Surroundings* component appeared in 17 studies. Two sub-themes were equally prominent: *Easy Access to Unhealthy Food Outside School* (n = 8), referring to the availability of unhealthy options in nearby establishments; and *Better Variety and Prices of Surrounding Outlets*, discussed in six studies, where students described these locations as more attractive than the school canteen because of a wider variety and/or better value for money (Table 5).

Decisional Level

Twenty-one studies explored perceptions related to the Decisional Level component, focusing on two main sub-themes. First, *Decisions on Communication and Education* appeared in nine studies, with four of them reporting that students criticized the lack of clear communication or educational efforts regarding changes in food provision imposed by internal or external policies or programs[23,33,40,47]. In two of these studies, students highlighted inconsistencies between classroom health messages and school food practices[29,54]. Second, the sub-theme *Perceptions of Laws and Programs* was discussed in seven studies, which indicated that students often did not perceive improvements in food quality at school canteens following the implementation of school food regulations (Table 5).

Discussion

This scoping review used a deductive approach to analyze primary and secondary students' perceptions of their school food environment, applying the components and dimensions of the organizational food environment framework[2] as predefined categories. While many studies addressed elements of the framework, they do not constitute a cohesive body of literature specifically focused on students' perceptions of the school food environment. In several cases, these perceptions were explored only incidentally or emerged secondarily in studies centered on broader or adjacent topics.

Few studies were retrieved, and most were qualitative. These studies typically employed flexible instruments and small samples, prioritizing depth and contextual understanding over statistical representativeness—appropriate for generating meaningful insights in emerging fields.

This pattern mirrors findings from research on perceived food environments outside school settings, as this is an emerging field overall[6].

The scarcity of quantitative studies presents challenges, particularly for quantitative researchers seeking broader generalization or comparative analysis. In 2011, Gosliner et al.[19] noted the absence of validated instruments specifically addressing students' perceptions of their food environments, limiting their application in research. This review indicates that little progress has been made since then. Furthermore, even among the qualitative studies, which are crucial for generating foundational knowledge, only a few have been guided by the specific literature on food environments.

Our findings show that most studies concentrated on the Internal Level of Eating Spaces. This focus is consistent with previous research on organizational food environments —particularly in schools—which tends to emphasize the consumer nutrition environment, that is, the settings where food is acquired and consumed within institutions[78,79]. The emphasis in perception studies was expected, since the Internal Level conceptually aligns with the consumer nutrition environment in the adopted framework[2]. The frequent attention to Availability and Affordability dimensions within this level also mirrors trends in objective studies on the consumer nutrition environment, which often rely on audits to assess food presence and pricing[18,78]. These dimensions are widely recognized as key elements of food access concept and are frequently examined for their influence on eating behavior[80].

Students' perceptions were most frequently related with Acceptability at the Institutional Level and Quality at the Internal Level. In many studies, both dimensions were addressed simultaneously, reflecting a substantial conceptual overlap. Quality includes aspects such as production methods, cultural relevance, nutritional value, food safety, and sensory attributes[2]. The

quality aspect most frequently evaluated by students was sensory aspects, but their comments also reflected broader attitudes toward the overall standard of food provision—central to the concept of Acceptability. As a result, several studies were classified under both dimensions, particularly when addressing sub-themes like Food Supply Inadequacies and Opinions on Standards in School Meal Programs.

Regarding the Surroundings component, although objective studies have identified it as obesogenic[81,82], students' perceptions remain underexplored. The few studies that addressed this component highlighted the appeal of external establishments offering greater variety and lower prices in comparison to the school canteens. Understanding these perceptions is essential for developing effective interventions that address the external food environment and support healthier eating behaviors. Notably, studies from Ghana[32] and Bangladesh[27] found that students preferred packaged or industrialized foods over unpackaged or street-sold items due to concerns about hygiene and potential contamination. This highlights the importance of examining food choice behaviors across diverse socioeconomic and cultural contexts, as patterns observed in high-income settings may not fully capture the realities faced by students in low-income environments.

Although school food policies and regulations are key to promoting healthy eating[83], their success depends on leadership engagement and coordinated efforts from teachers, families, and the broader school community[84]. The limited number of studies exploring the Decisional Level component reveals students' dissatisfaction with poor communication about policy changes and the weak integration of food-related practices into classroom education. Young people's perspectives are often overlooked in policy processes, despite their potential to provide valuable insights into the mechanisms and effectiveness of policies[85]. Moreover, students often struggle to perceive improvements linked to existing laws and initiatives, highlighting a persistent disconnect between

policy and practice. Further research into students' perceptions at this level can help inform the development and implementation of more effective school food policies.

Although we conducted searches across four major international databases to ensure broad coverage of the published literature, some relevant studies, including grey literature, may have been missed. Another limitation is the use of automated translation tools (e.g., Google Translate, ChatGPT) for non-English articles, which could have introduced small biases in interpreting the findings. A strength of this review is the application of a comprehensive conceptual model of organizational food environments to guide data extraction and synthesis. This approach provided a coherent structure to classify the evidence, facilitated the identification of conceptual and methodological gaps, and increased the potential of the findings to inform both future research and policy initiatives.

Conclusions

This scoping review highlighted the fragmented research on primary and secondary students' perceptions of the school food environment. Most studies were qualitative, with small, non-probabilistic samples, and focused mainly on the Internal Level—particularly on Acceptability and Quality dimensions—while the Surroundings and Decisional Level were less frequently examined. Research is geographically concentrated in high-income countries, limiting insights into the realities of low- and middle-income settings. The inconsistent use of conceptual frameworks and the scarcity of validated instruments constrain both the comparability of findings and the advancement of robust quantitative research. Our findings provide a foundation for developing quantitative instruments that can accurately capture students' perceptions.

This lack of comprehensive research, particularly in low-income countries, underscores the urgent need for studies that guide effective interventions in school nutrition programs. At the same time, these gaps highlight the importance of integrating students' perspectives to ensure that school food policies and initiatives are not only evidence-based, but also relevant, acceptable, and potentially more effective in practice.

This review was motivated by the authors' attempt to investigate how Brazilian elementary and high school students perceive their school food environment. It became evident that no appropriate data collection instruments were available, making literature mapping a necessary step to clarify the research gap and guide future studies. In doing so, it offers practical guidance for researchers and policymakers designing interventions and assessments that meaningfully incorporate the student perspective.

Author contributions

L.V.B. and L.O.C. conceptualized the study. L.V.B. and L.D.B. acquired and curated the data. L.V.B., L.D.B., and L.L.M. performed the formal analysis. L.V.B. wrote the original draft. L.V.B., L.D.B., L.L.M., and L.O.C. critically reviewed and edited the manuscript. All authors made substantial contributions to the work, approved the final version of the manuscript, and agreed to be accountable for all aspects of the work.

Supplementary Material

Funding

L.V.B. was supported by a fellowship from the 'Grade 10 Scholarship Program' of the Rio de Janeiro State Research Support Foundation (Faperj). L.L.M. is a productivity fellow of the

National Council for Scientific and Technological Development (CNPq/Brazil). L.D.B. was supported by a fellowship from the Academic Excellence Program (PROEX) of the Brazilian Coordination for the Improvement of Higher Education Personnel (CAPES).

Conflicts of interest

The authors declare no conflicts of interest.

Data availability statement

Data are available at https://10.17605/OSF.IO/96SUH.

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456 **Table 1:** Inclusion criteria for studies related to the 'concept' element of the PCC mnemonics,
457 organized by components and dimensions of the organizational food environment framework.
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Inclusion criteria
Perception of the school food environment, as a whole construct, or perceptions of any organizational food environment component or dimension (2):
<u>Institutional Level</u>
Availability of the eating spaces
Accessibility of the eating spaces
Acceptability of the eating spaces
<u>Internal Level of Eating Spaces</u>
Availability of foods, beverages, and culinary preparations
Affordability of foods, beverages, and culinary preparations
Quality of foods, beverages, and culinary preparations
Food and nutritional information of foods, beverages, and culinary preparations
Promotion of foods, beverages, and culinary preparations
Convenience of the eating spaces
Ambiance of the eating spaces
Infrastructure of the eating spaces
<u>Surroundings</u>
<u>Decisional level</u>

Table 2: The final search strategy for a scoping review on students' perceptions of the school food environment. (continued)

Sources	Query	Results retrieved
Medline (via Pubmed)	(((((food*[Title/Abstract] OR beverage*[Title/Abstract])) AND ((((availability[Title/Abstract] OR accessibility[Title/Abstract] OR "food access"[Title/Abstract] OR affordability[Title/Abstract] OR price*[Title/Abstract] OR cost*[Title/Abstract] OR quality[Title/Abstract] OR "nutrition information"[Title/Abstract] OR promotion[Title/Abstract] OR publicity[Title/Abstract] OR marketing[Title/Abstract] OR advertising[Title/Abstract] OR advertisement[Title/Abstract] OR combo[Title/Abstract] OR "portion size"[Title/Abstract] OR convenience[Title/Abstract] OR ambience[Title/Abstract]) OR (advertising[MeSH Terms])) OR (marketing[MeSH Terms])) OR ("Access to Healthy Foods"[MeSH Terms]))) OR ("food environment"[Title/Abstract] OR "food environments"[Title/Abstract] OR "nutrition environment"[Title/Abstract] OR "nutrition environments"[Title/Abstract] OR "obesogenic environment"[Title/Abstract] OR "obesogenic environments"[Title/Abstract])) AND ((perception*[Title/Abstract]) OR (perception[Mesh]) OR (perceived[Title/Abstract]) OR (view*[Title/Abstract]) OR (vision*[Title/Abstract]) OR (opinion*[Title/Abstract]) OR	5089

463 **Table 2:** The final search strategy for a scoping review on students' perceptions of the school food
464 environment. (continued)

Sources	Query	Results retrieved
Medline (via Pubmed)	(attitude*[Title/Abstract]) OR (attitude[Mesh]))) AND ((scholar*[Title/Abstract]) OR (student*[Title/Abstract]) OR (students[Mesh]) OR (preschool*[Title/Abstract]) OR ("child, preschool"[Mesh]) OR (child*[Title/Abstract]) OR (adolescent*[Title/Abstract]) OR (adolescent*[Mesh]) OR (teen*[Title/Abstract])) Filters: MEDLINE, from 2005 - 2023	5089
Web of Sciences	Timespan: 2005-01-01 to 2023-10-19 (Publication Date) (TI=(food* OR beverage*)) OR AB=(food* OR beverage*) AND (TI=(availability OR accessibility OR food access OR affordability OR price* OR cost* OR quality OR "nutrition information" OR promotion OR publicity OR marketing OR advertising OR advertisement OR combo OR "portion size" OR convenience OR ambience)) OR AB=(availability OR accessibility OR food access OR affordability OR price* OR cost* OR quality OR "nutrition information" OR promotion OR publicity OR marketing OR advertising OR advertisement OR combo OR "portion size" OR convenience OR ambience) OR (TI=("food environment" OR "food environments" OR "nutrition environment" OR "nutrition environments" OR "obesogenic environment" OR "obesogenic environments")) OR AB=("food environment" OR "food environments" OR "nutrition environment" OR	1400

Table 2: The final search strategy for a scoping review on students' perceptions of the school food environment. (continued).

Sources	Query	Results retrieved
Web of Sciences	"nutrition environments" OR "obesogenic environment" OR "obesogenic environments") AND (TI=(perceived OR perception* OR view* OR vision* OR opinion* OR attitude*)) OR AB=(perceived OR perception* OR view* OR vision* OR opinion* OR attitude*) AND (TI=(scholar* OR student* OR preschool* OR child* OR adolescent* OR teen*)) OR AB=(scholar* OR student* OR preschool* OR child* OR adolescent* OR teen*) AND (TI=(school* OR primary OR secondary OR "higher education" NOT universit* NOT tertiary)) OR AB=(school* OR primary OR secondary OR "higher education" NOT universit* NOT tertiary)	1400
Scopus	((((TITLE-ABS-KEY (food* OR beverage*)) AND (TITLE-ABS-KEY (availability OR accessibility OR food AND access OR affordability OR price* OR cost* OR quality OR "nutrition information" OR promotion OR publicity OR marketing OR advertising OR advertisement OR combo OR "portion size" OR convenience OR ambience))) OR (TITLE-ABS-KEY ({food environment} OR {food environments} OR {nutrition environment} OR { nutrition environments} OR {obesogenic environment} OR {obesogenic environments})))	2815

468 **Table 2:** The final search strategy for a scoping review on students' perceptions of the school food
469 environment. (conclusion)

Sources	Query	Results retrieved
Scopus	AND (TITLE-ABS-KEY (perceived OR perception* OR view* OR vision* OR opinion* OR attitude*))) AND (TITLE-ABS-KEY (scholar* OR student* OR preschool* OR child* OR adolescent* OR teen*)) AND (TITLE-ABS-KEY (school* OR primary OR secondary AND NOT {higher education} AND NOT universit* AND NOT tertiary)) AND PUBYEAR > 2004 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re"))	2815
LILACS (via BVS)	((((food* OR beverage*) AND ((availability) OR (accessibility) OR (food access) OR (affordability) OR (price*) OR (cost*) OR (quality) OR (nutrition information) OR (promotion) OR (publicity) OR (marketing) OR (advertising) OR (advertisement) OR (combo) OR (portion size) OR (convenience) OR (ambience))) OR ((food environment*) OR (nutrition environment*) OR (obesogenic environment*))) AND ((perception*) OR (perceived) OR (view*) OR (vision*) OR (opinion*) OR (attitude*) OR (sentiment*) OR (choice*))) AND ((school*) OR (primary) OR (secondary) AND NOT (universit*) AND NOT (tertiary) AND NOT (higher education)) AND ((scholar*) OR (student*) OR (preschool*) OR (child*) OR (adolescent*) OR (teen*)) AND (db:("LILACS")) AND (year_cluster:[2005 TO 2023])	246

Figure 1: Flow diagram of the literature search and filtering results for a scoping review on students' perceptions of the school food environment.

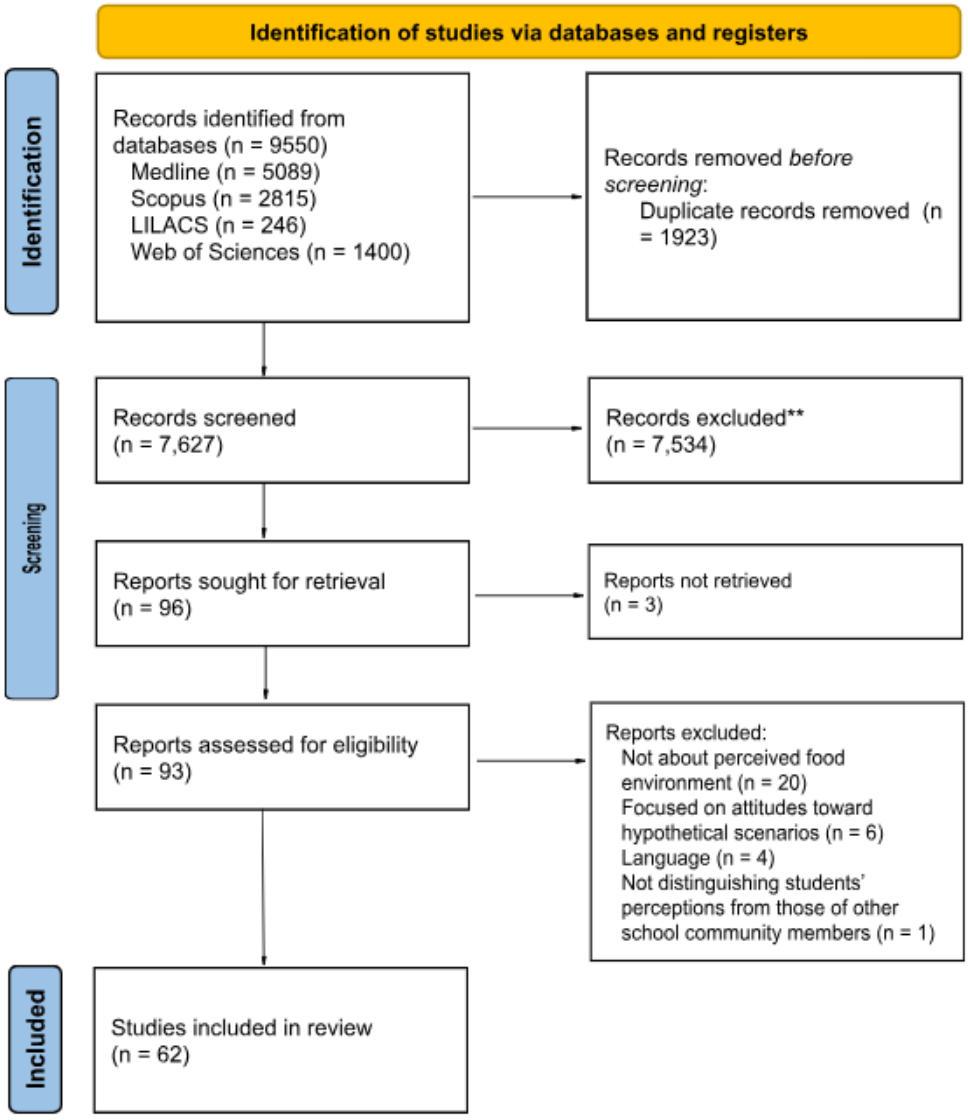
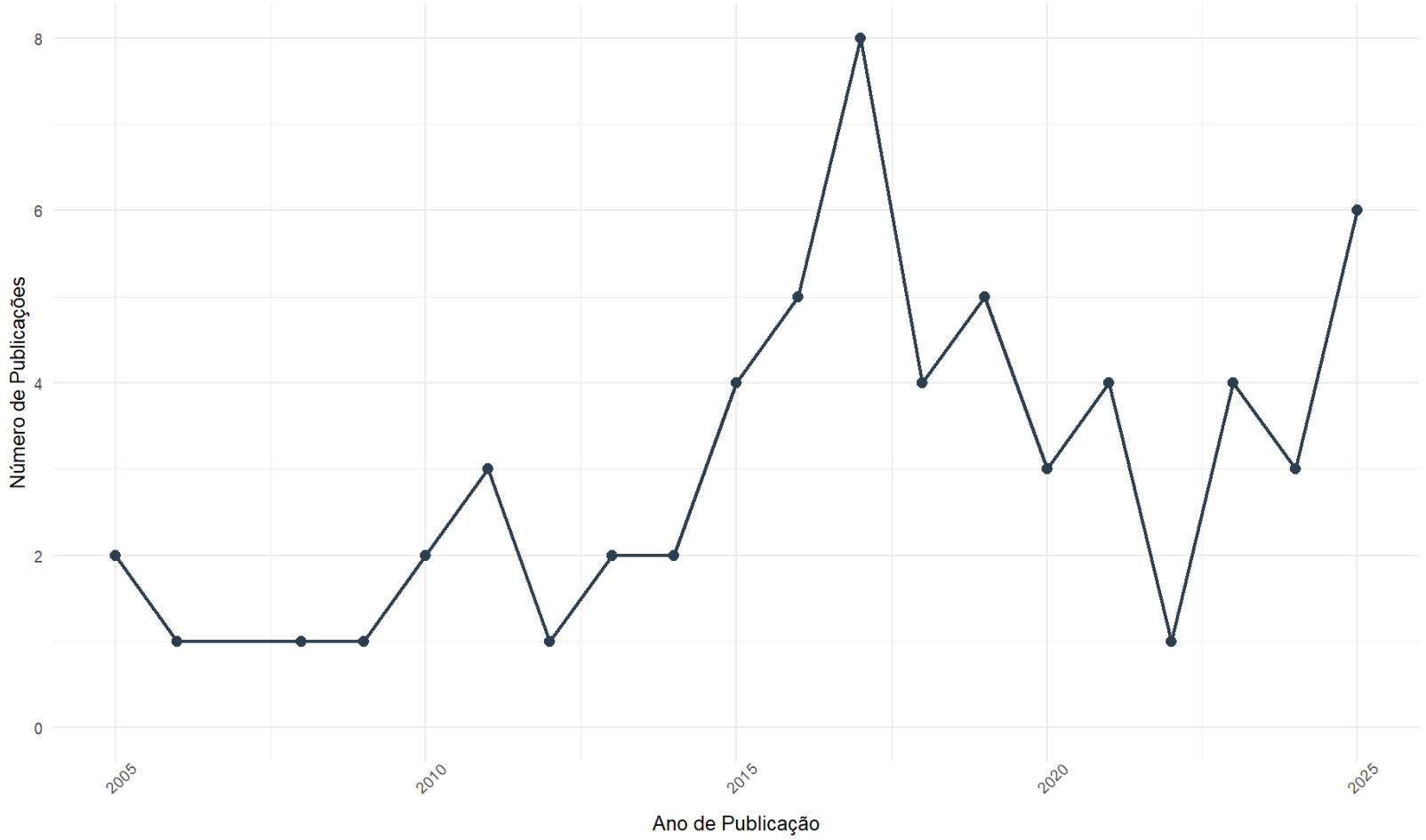


Figure 2: Trend in the number of publications included in the scoping review on students' perceptions of the school food environment over time.



485 **Table 3:** Methodological aspects of studies on students' perceptions of the school food environment
486 included in the scoping review.

Methodological aspects	**Frequency (n (%))**
Approach	
Qualitative	49 (79.0%)
Quantitative	10 (16.1%)
Both	3 (4.8%)
Type of study [a]	
Focus group	38 (61.3)
Cross-sectional survey	12 (19.4)
Interview	14 (22.6)
Others	5 (8.1)
Research instruments [a]	
Semi-structured guide	47 (75.8)
Structured questionnaire	13 (21.0)
Structured guide	3 (4.8)
Letters	2 (3.2)
Unstructured questionnaire	1 (1.6)
Sampling design [a]	
Probabilistic	8 (12.9%)
Convenience/purposive	54 (87.1%)
Census	1 (1.6%)

487 [a] Sums may exceed totals due to multiple applicable categories
488 per article.

Table 4: Characteristics of studies on students' perceptions of the school food environment included in the scoping review, grouped by the PCC framework. (continued)

Methodological aspects	**Frequency (n (%))**
Sample size [a]	
≤ 25	12 (19.4)
26 - 50	14 (22.6)
51 - 100	15 (24.2)
101 - 200	9 (14.5)
201 - 1000	5 (8.1)
> 1000	6 (9.7)
Unreported	3 (4.84)
Participants	
Age group [a]	
Adolescents	56 (90.3)
Elementary school children	16 (40.3)
Preschool children	3 (4.8)
Vulnerable or specific group assessed	22 (35.5)
Female sex [a]	
> 50%	32 (51.6)
< 50%	7 (11.3)
Equal representation	8 (12.9)
Unreported	16 (25.8)

Table 4: Characteristics of studies on students' perceptions of the school food environment included in the scoping review, grouped by the PCC framework (continued).

Concept	Frequency (n (%))
Emphasis on food environment	
Primary	22 (35.5)
Secondary	40 (64.5)
Food environment framework cited/adopted	6 (9.7)
Food environment components and dimensions	
Institutional Level	33 (53.2)
Availability	5 (8.1%)
Accessibility	0
Acceptability	31 (50.0)
Internal Level of the Eating Spaces	54 (87.1)
Availability	24 (38.7%)
Affordability	25 (40.3%)
Quality	36 (58.1%)
Food and nutrition information	1 (1.6%)
Promotion	10 (16.1%)
Convenience	13 (21.0%)
Ambience	6 (9.7%)
Infrastructure for food	5 (8.1%)
Surroundings	17 (27.4)

494 **Table 4:** Characteristics of studies on students' perceptions of the school food environment
495 included in the scoping review, grouped by the PCC framework (continued).

Concept	Frequency (n (%))
Decisional level	21 (33.9)
Internal sphere	14 (22.6%)
External sphere	9 (14.5%)
Context	
Continent	
North America	18 (29.0%)
Europe	17 (27.4%)
Asia	12 (19.4%)
South America	6 (9.7%)
Central America	2 (3.2%)
Africa	4 (6.5%)
Oceania	3 (4.8%)
Setting	
School Interior	40 (64.5%)
School Surroundings	5 (8.1%)
Both	17 (27.4%)

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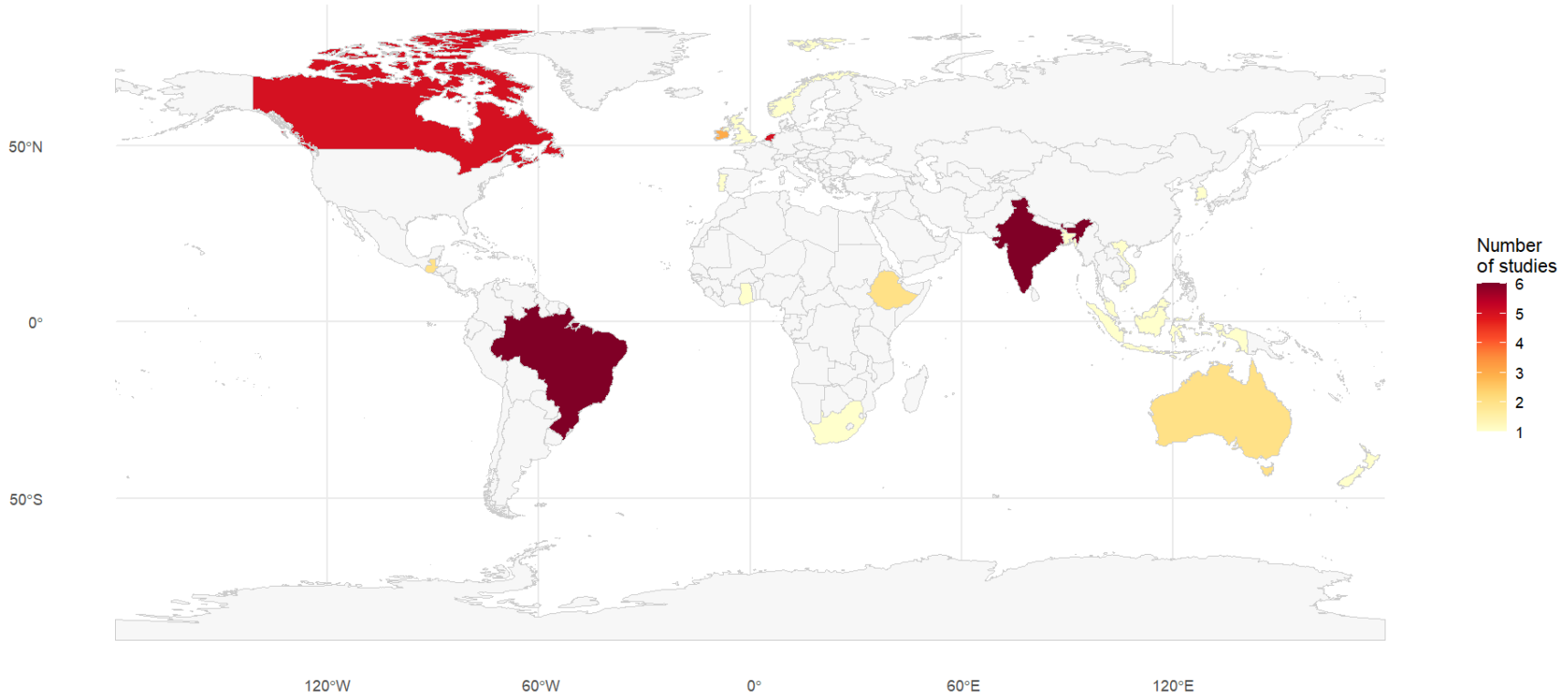
Table 4: Characteristics of studies on students' perceptions of the school food environment included in the scoping review, grouped by the PCC framework (conclusion).

Concept	Frequency (n (%))
School type	
Both	7 (11.3%)
Private school	5 (8.1%)
Public school	15 (24.2%)
Unreported/Not Provided	35 (56.5%)

[a] Sums may exceed totals due to multiple applicable categories per article.

Figure 3: Geographic distribution of studies on students' perceptions of the school food environment included in the scoping review.



520 **Table 5:** Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the
521 scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Institutional Level (n = 33)	Availability (n = 5)	Certain establishments are promoters of unhealthy consumption (n = 4) [22,23,33,34]	"Another barrier that the girls mentioned was the limited selection of healthy food options available at kiosks on campus. A private school girl explained, 'I think the fact that we have kiosks inside [the school] does not help, because it induces us to buy and eat junk food.' " [23]
	Acceptability (n = 31)	Food supply inadequacies (n = 14) [12,12,22,24,25,35–44]	"A few students specifically commented that school lunches are not prepared on site, affecting flavor and freshness." [35]
			"Soup in the morning is awful. We eat it because there is nothing else." (*translated by the authors*) [38]

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525 **Table 5:** Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the
526 scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Institutional Level (n = 33)	Acceptability (n = 31)	Opinions on healthfulness standards in school meal / feeding programs and regulations (n = 10) [9,11,38,40,45–50]	"Adolescents were generally positive about the Healthy School Canteen Program with a 75% healthy and 25% unhealthy food and drink ratio." [9]
			"You have to take the milk. You have to take fruits and that's kind of like how we all learned…we were never like, really taught…" [47]
		Approval of Food Provision Pattern (n = 10) [11,12,25,38,48,50–54]	"A majority said they enjoyed lunch food items that appeared fresh like premade salads and specific fruit items (eg, oranges and bananas)." [50]
			"In contrast, most students (72%) liked the healthy snacks offered in the school canteen (e.g. chocolate milk, nuts, and low-fat snack foods such as pretzels) […]." [48]

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529 **Table 5:** Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the
530 scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Institutional Level (n = 33)	Acceptability (n = 31)	Discontent with the Lack of Variety (n = 8) [9,36,38–40,51,55,56]	"If they, for example, have salad one day, then it's the only thing on offer. Or you can get that kind of pizza that you heat up in the microwave. But there could be two things to choose between." [39]
		Food shortages in meal services (n = 5) [29,42,47,51,57]	"Our year, are the last year to get lunch. Sometimes there is no main option because everything's finished and sometimes you cannot find cake or custard that you wanted." [51]
		Dissatisfaction with food quantity or portion control (n = 4) [38,41,42,51]	"Some responses also indicate that students do not think that the school lunch was big enough to provide energy for the rest of the school day." [52] "We trick our hunger with this school meal so that we no longer feel like having lunch." (*translated by the authors*) [38]

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Table 5: Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Institutional Level (n = 33)	Acceptability (n = 31)	Insufficient time to eat (n = 3) [41,44,68]	"(...) if there were cheaper alternatives they liked, they generally chose these over fruits, which are often more difficult or messy to eat during their limited break time of 15 to 20 minutes." [44]
Internal Level of the Eating Spaces (n = 54)	Availability (n = 24)	Unhealthy food availability (n = 17) [23,25,27,30,35–37,44,49,50,61,63,69–73]	"Stuff like chocolates, ice cream, samosa, french fries, burger, and pizza are always available in the canteen which I like very much!" [72] "The participants believed that they had lots of unhealthy food available to them in their immediate environment including at school, their local shops and at home, compared to healthy alternatives: 'They don't really have healthy stuff anymore you have like baguette pizzas - the healthiest thing here [at school] is probably a sandwich' (Luca, year 8)" [49]

Table 5: Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Internal Level of the Eating Spaces (n = 54)	Availability (n = 24)	Healthy food availability (n = 9) [32,47,49,50,56–60]	"they do give those fruit trays with strawberries, apples, oranges" [57] "Several participants spoke about the recent improvements to the school cafeteria food, mentioning an increase in healthy items." [50]
		Low availability of healthy food (n = 7) [25,27,34,50,53,58,59,61]	"They don't really have healthy stuff anymore you have like baguette pizzas - the healthiest thing here [at school] is probably a sandwich." [61]
	Affordability (n = 25)	Higher Cost of Healthy Food (n = 13) [9,11,23,30,49,56,58,61,61–65]	"Here at school you have to pay a lot more to eat healthy compared to eating unhealthy and that is the less attractive part of it."[65] "I like snacks that are tasty and filling. Savory snacks satisfy me more than fruit salad and are also cheaper, so I'd rather buy those." [23]

Table 5: Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Internal Level of the Eating Spaces (n = 54)	Affordability (n = 25)	High Cost of Food at School (n = 7) [11,25,32,50,51,72,76,77]	"According to the participants, lack of financial resources restricted them from purchasing any food outside, be it healthy or unhealthy, despite the availability of a variety of food for sale both within and outside of the school compound." [77]
		Food more expensive at school than outside (n = 5) [9,44,49,58,59]	"If I was to stay in school all the time… I'd spend like a lot more money than I do outside school…the pizza is like £4, the popcorn is 60p, the juice is 25p, that's like £4.50… so I'm better going to the shop." [44]
	Quality (n = 36)	Nutritional quality (n = 13) [9,19,23,25,29,30,36,40,44,47,60–62]	"At baseline among all students 10% thought that school lunches were healthy." [62] "Children in this study generally recognized that some new lunch choices were healthier than those offered before the policy." [40]

Table 5: Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Internal Level of the Eating Spaces (n = 54)	Quality (n = 36)	Food safety concerns (n = 8) [27,30,32,39,49,53,63,64]	"Hygiene, the fact that they don't stop touching everything. Maybe they haven't washed their hands before they start cutting up the fruit, and it just lies there, they touch the bread and stuff. I don't like it. You don't know World Health Organization's been touching it." [39]
		Sensory attributes (n = 22) [11,22,23,27,29,35,36,40,41,43,44,47,49,50,57,58,61,63,65–68]	"(...) food generally was cold, tasteless, and unappealing." [66] "Some students described the taste of vegetables as being 'nasty' " [22] "The lunches at school are sort of nasty… Hamburgers are very nasty because they get wet and it's basically eating wet bread." [35] "Aye, the chips are always freezing. They're like all the chips are all hard so you can't eat nothing." [63]

548 **Table 5:** Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the
549 scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Internal Level of the Eating Spaces (n = 54)	Promotion (n = 10)	Food and nutrition education (n = 6) [9,29,33,47,52,69]	"The school never said anything about healthy eating, not to me. (P. 10)" [69]
			"people would be more likely to eat" if they knew "it [healthier food] does this to your body and it does this to your brain." [47]
			"Today is the day we should mention the irregular foods sold in the school canteen, such as pastries, soft drinks, snacks, sweets, etc… everything they teach us about healthy eating is not being followed at all." (*translated by the authors*) [29]
		Indifference to food advertising at school canteen (n = 2) [23,58]	"...in the canteen there is a poster advertising soft drinks, but I don't see any problem with it, because when I go to the canteen I already know what I want to buy." (*translated by the authors*) [23]

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554 **Table 5:** Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the
555 scoping review. (continued)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Internal Level of the Eating Spaces (n = 54)	Convenience (n = 13)	Dissatisfaction with the long queues (n = 8) [29,44,47,50,57,59,62,63]	" 'you might not have time to eat in because the queues are so long' (Student from Islington B6, aged 12–13)" [59]
	Ambience (n = 6)	Chaotic environment (n = 3) [47,52,59]	"For most students, the cafeteria was described as a chaotic environment where students faced crowding." [47] "There are too many people. It's so noisy." [52]
		Cleanliness (n = 2) [45,49]	"Some students perceive their school canteen clean (…)." [44]
	Infrastructure for food (n = 5)	Size perception (n = 2) [11,49]	"Most students, except in the comparison school and 1 senior high school, perceive that their school canteens are too small (…)." [44] "(...) the venue is appealing ('lots of space')" [11]

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Table 5: Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the scoping review. (conclusion)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Surroundings (n = 17)	NA	Better variety and prices of surrounding outlets (n = 6) [9,41,44,50,58,70]	"These competitive outlets were appreciated for having "everything you want" at walking distance. All student participants indicated to be negative about the high price levels in canteens when compared to supermarkets and other outlets." [58]
		Easy access to unhealthy food outside school (n = 8) [30,35,41,50,52,70–72]	"Many adolescents described easy access to unhealthy food near school including convenience stores and fast food restaurants." [35]
		Food safety concerns in the school vicinity (n = 2) [27,32]	" 'I do not buy open foods such as fried parotta as it is not good for the body. Since this food is open, dust falls into it from the road and flies sit in it. You can get various diseases by eating these foods. I only buy healthy foods such as packaged cakes.' " [27]

560 **Table 5:** Emerging sub-themes from studies on students' perceptions of components and dimensions of the school food environment included in the
561 scoping review. (conclusion)

Components (n)	Dimensions (n)	Sub-themes (n)	Examples
Decisional level (n = 21)	NA	Decisions on Communication and Education (n = 9) [23,29,40,47,53,54,57,73,74]	"I don't think it was ever explained to us. I think it was mostly like, forced: 'You have to take the milk. You have to take fruits' and that's kind of like how we all learned…we were never like, really taught…" [47]
		Perceptions of Laws and Programs (n = 7) [23,42,47,48,63,75,76]	"Nothing has changed here (after the law was published). Everything remains the same." (*translated by the authors*) [23]
			"Recently, they started offering baked snacks and fruit salad, but that's all." (*translated by the authors*) [23]

562 NA = Not applicable. The Accessibility and Food and Nutrition Information dimensions were not presented in the table, as they were each represented
563 by only a single study, which did not allow for the identification of sub-themes.
564

565 **Supplementary table 1:** Preferred Reporting Items for Systematic reviews and Meta-Analyses
566 extension for Scoping Reviews (PRISMA-ScR) Checklist.

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1, 2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	3, 4
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4
METHODS			

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	4
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	5
Information sources	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	6
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Table 2 (online-only)
Selection of sources of evidence	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	7
Data charting process	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms	7, 8

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
		or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	7
Critical appraisal of individual sources of evidence	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	7, 8
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	8
Characteristics of sources of	15	For each source of evidence, present characteristics for which data were charted and provide the	Supplementary table 2

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
evidence		citations.	(Online-only)
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Supplementary table 2 (Online-only)
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	9-14
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	14
Limitations	20	Discuss the limitations of the scoping review process.	17
Conclusions	21	Provide a general interpretation of the results with	17, 18

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
		respect to the review questions and objectives, as well as potential implications and/or next steps.	
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	Title Page

PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

Appendix A: Studies ineligible following full-text review

Reason for exclusion: Does not address the perception of the school food environment (n=20)

1. Alfaro B, Rios Y, Arranz S, Varela P. Understanding children's healthiness and hedonic perception of school meals via structured sorting. Appetite. 2020;144:104466.

2. Anderson A, Porteous L, Foster E, Higgins C, Stead M, Hetherington M, *et al.* The impact of a school-based nutrition education intervention on dietary intake and cognitive and attitudinal variables relating to fruits and vegetables. Public Health Nutr. 2005;8(6):650–6.

3. Asada Y, Hughes A, Chriqui J. Insights on the Intersection of Health Equity and School Nutrition Policy Implementation: An Exploratory Qualitative Secondary Analysis. Health Educ Behav. 2017;44(5):685–95.

4. Bucher T, Collins C, Diem S, Siegrist M. Adolescents' perception of the healthiness of snacks. Food Quality and Preference. junho de 2016;50:94–101.

5. Della Torre Swiss SB, Akré C, Suris JC. Obesity Prevention Opinions of School Stakeholders: A Qualitative Study. Journal of School Health. 2010;80(5):233–9.

6. Dorado JB, Azaña GP, Viajar RV, Ramirez MaARM, Ferrer EB, Buyco NG, *et al.* Assessing school-lunch feeding and nutrition education strategy for healthier kids in selected Philippine public schools. Nutr Health. 2020;26(3):231–42.

7. Ezennia J, Schmidt LA, Ritchie LD, Blacker L, McCulloch CE, Patel AI. Water Security Experiences and Water Intake Among Elementary Students at Low-Income Schools: A Cross-Sectional Study. Academic Pediatrics. janeiro de 2023;23(1):68–75.

8. Fajardo A, Martínez C, Moreno Z, Villaveces M, Céspedes J. Percepción sobre alimentación saludable en cuatro instituciones escolares. Revista Colombiana de Cardiología. 2020;27(1):49–54.

9. Higgs J, Styles K. Principles and practical aspects of healthful school vending. Nutrition Bulletin. 2006;31(3):225–32.

10. Knapp MB, Hall MT, Mundorf AR, Partridge KL, Johnson CC. Perceptions of School-Based Kitchen Garden Programs in Low-Income, African American Communities. Health Promotion Practice. 2019;20(5):667–74.

11. Minaker LM, Storey KE, Raine KD, Spence JC, Forbes LE, Plotnikoff RC, *et al.* Associations between the perceived presence of vending machines and food and beverage logos in schools and adolescents' diet and weight status. Public Health Nutr. 2011;14(8):1350–6.

12. Nelson M. The School Food Trust: transforming school lunches in England: Transforming school lunches in England. Nutrition Bulletin. 2011;36(3):381–9. Available at: https://on-linelibrary.wiley.com/doi/10.1111/j.1467-3010.2011.01914.x

13. Pehlke EL, Letona P, Hurley K, Gittelsohn J. Guatemalan school food environment: impact on schoolchildren's risk of both undernutrition and overweight/obesity. Health Promot Int. 2016;31(3):542–50.

14. Riggs N, Tewari A, Stigler M, Rodrigues L, Arora M, Khubchandani J, *et al.* Indian Students' Perspectives on Obesity and School-Based Obesity Prevention: A Qualitative Examination. Health Promotion Practice. novembro de 2013;14(6):816–23.

15. Riggsbee KA, Riggsbee J, Vilaro MJ, Moret L, Spence M, Anderson Steeves E, *et al.* More than Fast Food: Development of a Story Map to Compare Adolescent Perceptions and Observations of Their Food Environments and Related Food Behaviors. IJERPH. 2018;16(1):76.

16. Robledo de Dios T, Rollán Gordo A, Peña Rey I. Qualitative study on food perceptions, dietary practices and healthy lifestyles in the adolescent population. Rev Esp Salud Publica. 2023;97:e202305037.

17. Valencia Niño De Rivera AD, Mata Miranda C, De Lira García C. Food preferences during lunch break: Elementary school children from 9 to 10 years / Preferencias alimentarias durante el recreo escolar: Niños de primaria de 9 a 10 años. Rev Mex Trast Alim. 2018;9(2):250–63.

18. Vecchiarelli S, Takayanagi S, Neumann C. Students' Perceptions of the Impact of Nutrition Policies on Dietary Behaviors. Journal of School Health. 2006;76(10):525–31.

19. Zarychta K, Banik A, Kulis E, Boberska M, Radtke T, Chan CKY, *et al.* Do Parent–Child Dyads with Excessive Body Mass Differ from Dyads with Normal Body Mass in Perceptions of Obesogenic Environment? Nutrients. 2020;12(7):2149.

20. Shaw S, Muir S, Strömmer S, Crozier S, Cooper C, Smith D, et al. The interplay between social and food environments on UK adolescents' food choices: implications for policy. Health Promotion International. 1º de agosto de 2023;38(4):daad097.

Reason for exclusion: Focus on students' attitudes regarding potential scenarios rather than the concrete reality (n=6)

21. Kainulainen K, Benn J, Fjellström C, Palojoki P. Nordic adolescents' school lunch patterns and their suggestions for making healthy choices at school easier. Appetite. 2012;59(1):53–62.

22. Dalma A, Kastorini CM, Zota D, Veloudaki A, Petralias A, Yannakoulia M, *et al.* Perceptions of parents and children, participating in a school-based feeding programme in disadvantaged areas in Greece: a qualitative study. Child. 2016;42(2):267–77.

23. Balestracci K, Sebelia L, Greene G, Moore A, Chappell K, Tovar A. Perceptions of Low-Income Students Completing a Nutrition Education Program. Journal of Nutrition Education and Behavior. 2019;51(7):834–42.

24. Bailey J, Van Offelen S, Kim H, Reicks M. The Go Wild with *World Health Organization*le Grains! school-based program: Positive impacts among children. JOE. 2022;60(3).

25. Bere E, Sørli Glomnes E, Te Velde SJ, Klepp KI. Determinants of adolescents' soft drink consumption. Public Health Nutr. 2008;11(1):49–56.

26. Al-sheyab N, Alomari M, Hayajneh A, Shah S. Attitudes and perceived barriers toward healthy lifestyle behaviors in Jordanian adolescents: a developing country perspective. AHMT. 2019;10:39–47.

Reason for exclusion: Language (n=4)

27. Kim MS, Jeon ER, Hwang KH, Jung LH. Perception and Attitudes to Leftover Food at School Food Service -The Elementary School Students in Gwangju Area-. Journal of the Korean Society of Food Science and Nutrition. 2011;40(1):137–47.

28. Jang ER, Choi HS, Lyu ES. Evaluation of Perception and Foodservice Satisfaction of Free School Meals by Elementary School Students in Busan. Journal of the Korean Society of Food Science and Nutrition. 2016;45(12):1830–7.

29. Jung MH, Chang MJ, Kim SH. Perception of environment-friendly foods and satisfaction with school meals among students, their parents, and nutrition teachers at elementary schools in the Jindo area, Jeonnam. J Nutr Health. 2013;46(4):369.

30. Xu Y, He H, Zhang J, Cai H, Zhang N, Ma G. Rural students' perception and satisfaction on Nutrition Improvement Program for Rural Compulsory Education Students across different

implementation areas. Chinese Journal of School Health. 2019;40(2):182–5.

Reason for exclusion: Not distinguishing students' perceptions from those of other school community members (n=1)

31. Tamiru Y, Mulugeta A, Ayelign A, Jara D, Melaku E, Gebremedhin S. Perceived benefits and challenges of school feeding program in Addis Ababa, Ethiopia: a qualitative study. J Nutr Sci. 2024;13:e32.

701 **Supplementary table 2:** Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Addison *et al.*, 2006	Qualitative, Cross-sectional web survey using unstructured questionnaire	126	NP	87 (69%)	Adolescents	Predominantly african-american	Mississippi, United States	Inst; Int	At; Av; Q
Albuquerque *et al.*, 2014	Qualitative, Group Dynamics (Action Research) using lettters	140	P	Unreported	Elementary School Children, Adolescents	No	Ceilândia - DF, Brasil	Inst; Int; D	At; Q; Pm; Cv

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706 **Supplementary table 2:** Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Ali; Akbar, 2015	Quantitative, Cross-sectional survey using structured questionnaire	1200	P	612 (51%)	Preschool Children, Elementary School Children, Adolescents	No	India	Inst; Int	At; Av; Ab; Infra
Asada *et al.*, 2017	Qualitative, Focus Group and Interview using semi-structured guides	15	NP	Unreported	Adolescents	No	Los Angeles, California, United States	Inst; Int; D	At; Av; Q; Pm; Cv; Ab

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709 **Supplementary table 2:** Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Azizan *et al.*, 2021	Qualitative, Focus Group using semi-structured guide	68	NP	34 (50%)	Adolescents	No	Selangor e Perak, Malasia	Int	Av; Af; Q; Pm
Bailey-Davis *et al.*, 2013	Qualitative, Focus Group using semi-structured guide	23	NP	Unreported	Elementary School Children	Schools with ≥50% students eligible for free/reduced meals and with an existing SBP	Filadélfia, United States	Int	Af; Q

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Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Barnett *et al.*, 2025	Quantitative, Cross-sectional survey using structured questionnaire / Qualitative, Focus Group using semi-structured guide	975 / 60	NP	536 (55%) / Unreported	Adolescents	No	Dhaka and Rajshahi, Bangladesh	Int; S	Av; Af; Q; Cv

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Beck; Day *et al.*, 2015	Qualitative, Interview using semi-structured guide	30	NP	15 (50%)	Adolescents	Latins	San Francisco, California, United States	Inst; Int; S; D	At; Av; Q
Bekker *et al.*, 2017	Qualitative, Focus Group using semi-structured guide	72	P	Unreported	Adolescents	No	Bloemfontein, South Africa	Inst; Int	At; Af; Q; Infra
Berhane *et al.*, 2023	Qualitative, Focus Group using semi-structured guide	24	NP	12 (50%)	Adolescents	No	Addis Ababa, Ethiopia	Int; S	Af; Q

720 **Supplementary table 2:** Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Booth *et al.*, 2008	Qualitative, Focus Group using structured guide	58	NP	31 (53,4%)	Adolescents	No	Australia	Int	Af; Q
Briggs*;* Lake, 2011	Qualitative, Focus Group using semi-structured guide	40	P	20 (50%)	Elementary School Children	No	Newcastle upon Tyne, United Kingdon	Inst; Int	At; Ab
Browne *et al.*, 2020	Qualitative, Focus Group using semi-structured guide	54	NP	27 (50%)	Adolescents	No	Ireland	Inst; Int; D	At; Af

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722 **Supplementary table 2:** Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Callaghan *et al.*, 2010	Qualitative, Focus Group using semi-structured guide	40	NP	26 (65%)	Adolescents	No	Ontario, Canada	Inst; Int	At; Av; Af
Calvert *et al.*, 2020	Qualitative, Focus Group using semi-structured guide	46	NP	25 (54,3%)	Adolescents	From schools at deprived areas	England	Int; S; D	Av; Af
Cardoso *et al.*, 2019	Qualitative, Focus Group using semi-structured guides	44	NP	Unreported	Adolescents	From low-income families	Lisboa and Sintra, Portugal	Int	Q

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Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Correa *et al.*, 2017	Qualitative, Focus Group using semi-structured guide	73	NP	39 (53,4%)	Adolescents	Indo-Canadians	Bangalore, Karnataka (urban) and Palamaner area in the state of Andhra Pradesh (rural), India and Toronto, Canadá	Inst; Int; S	At; Af

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Day *et al.*, 2015	Qualitative, Focus Group using semi-structured guide	128	NP	64 (50%)	Elementary School Children	No	England	Inst; Int	At; Q
Diogo *et al.*, 2022	Qualitative, Focus Group using semi-structured guide	52	NP	104 (52%)	Adolescents	No	Brasília, Brazil	Inst; Int; D	Av; Af; Q; Pm
Folta *et al.*, 2016	Qualitative, Focus Group using semi-structured guide	85	NP	Unreported	Adolescents	Predominantly low-income, racial/ethnic minority	United States	Inst	At

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Francis *et al.*, 2025	Qualitative, Focus Group using semi-structured guide	47	NP	23 (48,9%)	Elementary School Children, Adolescents	No	Perth, Western Australia	S; D	-
Freitas *et al.*, 2013	Qualitative, Narrative analysis of letters and Interview using semi-structured guide	160	NP	Unreported	Adolescents	Low socio-economic status	Salvador, Brazil	Inst; Int	At; Af

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Gillies *et al.*, 2018	Qualitative, Interview using semi-structured guide / Quantitative, Cross-sectional survey using structured questionnaire	94	NP	11 (55%) / 46 (49%)	Elementary School Children, Adolescents	First Nations indigenous	Alberta, Canada	Inst; D	At

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Gosliner *et al.*, 2011	Quantitative, Cross-sectional survey using structured questionnaire	5365	NP	2683 (50%)	Adolescents	Schools from multiethnic, low-income communities	United States	Int	Q
Graham *et al.*, 2015	Qualitative, Focus Group using semi-structured guide	21	NP	Unreported	Preschool Children, Elementary School Children	No	North East England	Inst	At

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Hearst *et al*., 2018	Quantitative, Web survey using structured questionnaire	904	NP	491 (54,3%)	Adolescents	Predominantly students of color	Minnesota, United States	Inst; Int	At; Cv
Hermans *et al.*, 2017	Qualitative, Focus Group using semi-structured guide / Quantitative, Web Survey using structured questionnaire	42 / 133	NP	25 (60%) /72 (54%)	Adolescents	No	Netherlands	Inst; Int; S; D	At; Af ; Q; Pm

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Holthe *et al.*, 2011	Qualitative, Focus Group using semi-structured guide	16	NP	9 (56,25%)	Adolescents	No	Noruega	Inst; Int	At; Q
Iyassu *et al.*, 2024	Qualitative, Focus Group using semi-structured guide	432	NP	216 (50%)	Adolescents	Students of higher/lower SES from central and peripheral schools	Addis Ababa, Bahir Dar and Dire Dawa, Ethiopia	Int; S	Av; Af; Q; Pm; Cv; Inf

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Kelly *et al.*, 2021	Qualitative, Focus Group using semi-structured guide	95	NP	60(63%)	Adolescents	No	Ireland	S	-
Kim *et al.*, 2017	Qualitative, Focus Group using semi-structured guide	15	NP	5 (33.3%)	Elementary School Children	Overweight and obese	South Corea	Inst; Int; S; D	At; Pm; Ab
Kubik *et al.*, 2005	Qualitative, Focus Group using semi-structured guide	70	NP	36 (51,4%)	Elementary School Children, Adolescents	No	Minneapolis, EUA	Inst; Int	At; Q

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Jessiman *et al.*, 2023	Qualitative, In-depth Interview using semi-structured guide	28	NP	Unreported	Elementary School Children, Adolescents	No	London, England	Inst; Int	At; Q
Madrigal *et al.*, 2017	Qualitative, Focus Groupusing semi-structured guide	28	NP	28 (100%)	Adolescents	Girls only	Guatemala	D	-
McEvoy *et al.*, 2014	Qualitative, Focus Group using structured guide	90	NP	54 (60%)	Adolescents	Predominantly from schools in deprived areas	Northern Ireland	Int; D	Af ; Q; Cv

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Machado; Höfelmann, 2019	Quantitative, Repeated Cross-sectional survey (quasi-experimental) using structured questionnaire	12827	NP	6359 (49,5%)	Adolescents	No	Berkeley, California, United States	Int	Q; Cv
MacLellan *et al.*, 2010	Qualitative, Focus Group using semi-structured guide	41	NP	22 (53,6%)	Adolescents	Overweight and obese	Prince Edward Island, Canada	Inst; Int; D	Av; At; Af; Q

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Masek et al., 2023	Qualitative, Focus Group using semi-structured guide	45	NP	19 (54%)	Adolescents	Hispanic/ Latinx/ Mexican	United States	Int	Av; Q
Michnik; Engler-Stringer, 2025	Qualitative, Focus Group using semi-structured guide	65	NP	26 (40%)	Elementary School Children	Newcomer and Indigenous populations, low-income communities	Saskatoon, Canada	Inst; Int	At; Av; Af; Q; Cv

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Nguyen *et al.*, 2017	Qualitative, In-depth Interview using semi-structured guide	10	NP	Unreported	Adolescents	No	Ho Chi Minh City, Vietnam	Inst; Int; S	At; Av; Q
Orta-Aleman *et al.*, 2024	Qualitative, In-depth Interview using semi-structured guide	67	NP	25 (37.3)	Adolescents	No	California, United States	Inst; Int; D	At; Af; Cv

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Paiva *et al.*, 2021	Quantitative, Cross-sectional survey using structured questionnaire	3557	P	1792 (50,4%)	Elementary School Children, Adolescents	No	Belo Horizonte, Minas Gerais, Brasil	Int	Q
Payán *et al.*, 2017	Qualitative, Focus Groupusing semi-structured guide	64	NP	43 (67,20%)	Adolescents	From high poverty schools (ie, at least 40% eligible for free school meals)	South Los Angeles, California, United States	Inst; Int; S	At; Av; Q; Cv

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Pehlke *et al.*, 2016	Qualitative, Focus Group using structured guide	48	P	Unreported	Elementary School Children, Adolescents	No	Guatemala City/ Guatemala	Int	Q
Mensink *et al.*, 2012	Quantitative, Web survey using structured questionnaire	Not reported	C	Unreported	Adolescents	No	Netherlands	Int; D	Av
Rachmadewi *et al.*, 2021	Qualitative, Focus Group using semi-structured guide	Not reported	NP	Unreported	Adolescents	No	Jakarta and Klaten, Indonesia	Inst; Int	At; Av; Af; Q; Ab; Infra

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Rathi *et al*., 2016	Qualitative, Interview using semi-structured guide	15	NP	10 (66,6%)	Adolescents	No	Calcuta, India	Inst; Int; D	At; Av; Pm
Rathi *et al*., 2017	Qualitative, Interview using semi-structured guide	15	NP	10 (66,6%)	Adolescents	No	Calcuta, India	Inst; Int	At; Av; Af; Q
Rathi *et al*., 2017	Qualitative, Interview using semi-structured guide	15	NP	10 (66,6%)	Adolescents	No	Calcuta, India	Int; D	Av

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Rathi *et al.*, 2018	Quantitative, Cross-sectional survey using structured questionnaire	1026	NP	670 (65,3%)	Adolescents	No	Calcuta, India	Inst; Int	At; Av; Af; Q
Reinaert *et al.*, 2006	Qualitative, Group interview using semi-structured guide	104	NP	50 (48%)	Preschool Children, Elementary School Children, Adolescents	No	Limburg, Netherlands	D	-

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Rongen *et al.,* 2023	Qualitative, In-depth Interview using semi-structured guide	197	NP	Unreported	Elementary School Children, Adolescents	No	Amsterdam and Ede, Netherlands	Int; D	Cv
Savory *et al.*, 2025	Qualitative, Go-along Interview using semi-structured guide	46	NP	35 (76,1%)	Adolescents	Students from diverse socioeconomic backgrounds	London, England	Int; S; D	Af; Cv; Ab
Silva *et al.*, 2015	Qualitative, In-depth Interview using semi-structured guide	40	NP	25 (62,5%)	Adolescents	No	Pernambuco, Brazil	Int	Pm

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Situmorang *et al.*, 2024	Quantitative, Cross-sectional survey using structured questionnaire	725	NP	380 (52,4%)	Adolescents	No	Dunedin, Aotearoa New Zealand	S	-
Soloveva *et al.*, 2025	Quantitative, Cohort using structured questionnaire	1299	p	740 (57%)	Adolescents	No	Hong Kong	Int	Q; Inf

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Tabak *et al.*, 2016	Quantitative, Cross-sectional survey using structured questionnaire	889	NP	889 (100%)	Adolescents	Post-partum girls	United States (27 states)	Int	Av
Tandoh *et al.*, 2025	Qualitative, Focus Group using semi-structured guide	157	NP	82 (52,3%)	Adolescents	No	Greater Accra Region, Ghana	Int; S	Av; Af; Q

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Toral *et al.*, 2009	Qualitative, Focus Group using semi-structured guide	25	NP	13 (52%)	Adolescents	No	Brasilia, Brazil	Inst; Int	Av
Van Kleef *et al.*, 2019	Qualitative, Focus Group using semi-structured guide	25	NP	14 (56%)	Adolescents	No	Netherlands	Int; S	Af ; Q; Pm
Williams *et al.*, 2022	Qualitative, Focus Groupusing semi-structured guide	62	NP	Unreported	Adolescents	Predominantly african-american	Mississippi, United States	Inst; Int; D	At; Av; Q; Cv

Supplementary table 2: Characteristics of studies on students' perceptions of the school food environment included in the scoping review. (continued)

First Author, Year	Methods	Sample size	Sample design [a]	Female gender (n(%))	Age group	Specific group	Geographic Setting	Components [b]	Dimensions [c]
Wills *et al.*, 2019	Qualitative, Focus Group and In-depth interview using semi-structured guide	155	NP	Unreported	Adolescents	No	Scotland	Inst; Int; S	At; Av; Af; Q; Cv; Infra

[a] NP = Non probabilistic; P = Probabilistic; C = Census.

[b] Inst = Institutional level; Int = Internal level of eating spaces; S = Surroundings; Dec = Decisional level.

[c] At = Acceptability; Av = Availability; As = Accessibility; Af = Affordability; Q = Quality; Info = Food and nutrition information; Pm = Promotion; Cv = Convenience; Ab = Ambience; Infra = Infrastructure.

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