

Review

Identifying a Sustainable Food Procurement Strategy in Healthcare Systems: A Scoping Review

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Abstract: The healthcare system's climate footprint is equivalent to 4.4% of global net emission. The food service offered, with subsequent food waste production and energy consumption, falls within the spectrum of environmentally harmful activities. The development of a Sustainable Food Procurement Strategy is an opportunity to counteract these negative effects. This article aims to identify the nature and extent of the evidence found in the literature on the processes related to food procurement within healthcare systems and analyse them from the perspective of sustainability dimensions. A scoping review is carried out using online databases to identify scientific and grey literature published in English during the period 2000–2019. An analytical-synthetic approach is used for charting the data. Twenty-six studies are included; 65% of them published in the last five years. These include research articles (n 11), an opinion article (n 1), policy handbooks and guides (n 2), project reports (n 4) and technical reports (n 3), policy forums (n 1), factsheet documents (n 3), and legislative directives (n 1). The outcomes framework highlights multilevel governance, a sustainable food supply system, and healthy and sustainable food services as the main action areas for a sustainable food procurement strategy, along with six transversal features: long-term commitment, investment, evaluation, communication, gender, and a holistic approach.

Keywords: public food procurement; healthcare system; sustainable food strategy; food environment; sustainable food supply; sustainable food service



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1. Introduction

Current food systems (including production, distribution, consumption and waste) have a serious impact on environmental degradation and climate change (i.e., loss of biodiversity, loss of fertile soil and increased greenhouse gas emissions and global temperatures), and on the health of the population [1–3]. Food systems contribute up to 26% of the total greenhouse gas emissions (GHGE) [4], with intensive livestock rearing being the biggest contributor [5–7]. Conventional agricultural practices lead to land degradation, affecting more than 11% of the EU's territory [8,9]. The use of pesticides and nitrogen-based fertilizers results in biodiversity loss, jeopardising a range of environmental services and threatening future yields, which costs about 3% per year of global Gross Domestic Product (GDP) [9].

Current dietary trends suggest an increase of 95% in global demand for meat and animal-based food products, which will escalate food-related GHGE from 30% to 80% by 2050 [10]. These unsustainable practices, along with the growing competition for land, water and energy, will intensify in the face of an expanding global population, affecting the capacity for future sustainable healthy food production [3].

The World Health Organization defines health as “a state of complete physical, mental and social well-being, and not only the absence of diseases or illnesses” [11]. The analysis of our well-being is in many cases partial since we usually focus on human health and the

effects that food has on it, not taking into account the ecosystems and the deterioration in their conditions that will ultimately affect all living things [12].

Part of the problem is that current food systems are embedded within the economies of scale that lead to inequality at various levels, dominated by a few large buying centres and distribution companies which sell their produce at a price that does not take into account the externalities of environment and health [13]. Under these circumstances, small farmers are unable to compete against the big agri-food industries, which leads to the abandonment of 1 in 4 small farms in Europe every year [9]. This is an alarming situation as smallholder farms are one of the key components for achieving sustainable systems and food for all, now and in the future [14,15].

The current globalized industrial agri-food systems are among the main causes of hunger and poverty [12]. They are also responsible for health inequalities, as high intakes of meat, fat, salt and sugar lead to diet-related diseases such as obesity, type 2 diabetes, hypertension, osteoarthritis, and cancer [3], which have a higher incidence in socio-economically deprived populations [16]. This is due to the lack of access to nutritious, healthy and sustainable food, denying an individual's right to eat properly [17] and consequently the right to health as defined by the WHO. This highlights the need to relocate the agri-food chain in order to generate a change in its power structures [12].

Healthcare systems refer to all organizations, institutions and resources that are devoted to producing health actions. A health action is defined as any effort, whether in personal health care, public health services, or through intersectoral initiatives, whose primary purpose is to promote, restore and maintain health [18].

The food strategy of hospitals shapes the food environment within the organization, from the services offered to patients to retail/commercial food services in cafeterias, vending machines, and kiosks for staff and visitors [19]. European hospitals have more than 2.5 million beds, 6.5% of them for long stays [20]. The healthcare sector, due to the size and processes, consumes considerable amounts of energy and resources and produces major streams of emissions and waste, either directly or through the goods and services it procures [21]. The healthcare system's climate footprint is equivalent to 4.4% of global net emission [22]. The food service offered in hospitals, along with the food waste production and energy consumption, is part of the spectrum of unsustainability and environmentally harmful activities within healthcare systems. Food waste in European hospitals can range from 6% to 65% [23], with an overall economic cost estimated at 143 billion euros [24]. This disparate range demonstrates a lack of standardization and control of food waste measurement in hospitals. It also shows that healthcare institutions could play a major role in shaping the food system by encouraging sustainable food production in their communities for consumption and by generating sustainable food system environments within the institution [25,26].

A sustainable food system is defined as "a food system that gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socio-economic and environmental outcomes" [27]. Increasing the amount of fresh, seasonal, local and organic food products offered should be a priority for European hospitals in terms of promoting wellness among patients, staff and visitors and, at the same time, meeting higher environmental standards and addressing socio-economic considerations [28]. To implement such an approach, a Sustainable Food Procurement Strategy is needed.

Every year, in the EU, public bodies spend around 14% of GDP on public procurement, which is more than 1.9 trillion euros [29]. Public institutions, including healthcare, have used their procuring power to achieve important redistributive and developmental goals, such as being a powerful contributor to sustainable food systems [30,31]. However, IPES-FOOD considers that the procurement policies have been insufficiently used to drive production shifts, while supply-side policies continue to promote unhealthy foods [9].

Current governance structures of public procurement may hinder a more rapid move towards sustainable patterns. Although this is changing, for instance, the EU directive on Public Procurement [32] gives clear options for procuring goods sustainably by allowing specifications such as a cost-effectiveness approach based on a life cycle assessment. Moreover, The European Commission with the Green Public Procurement tool aims to normalize the know-hows for buying goods, including food and related services, from an environmentally friendly perspective [29]. However, sustainable procurement is not yet compulsory for member states in Europe [32], and the food chain value is often based only on price rather than including other externalities.

The recent European Union's "Farm to Fork Strategy" states that to promote sustainable food consumption and to facilitate the shift to healthy and sustainable diets, one action should be "to determine the best way of setting minimum mandatory criteria for sustainable food procurement in order to improve the availability and price of sustainable food and to promote healthy and sustainable diets, including organic products, in institutional catering" [33].

While several reports have been written on sustainable public procurement, they are mostly set in schools, with negligible emphasis on public food procurement in hospitals. The present scoping review aims to identify the nature and extent of the evidence found in the literature on the processes related to food procurement within healthcare systems and analyse them from the perspective of sustainability dimensions, which include environmental, social, and economical dimensions that impact within the food systems [34].

To achieve this objective, we first detail the methodological plan to carry out the scoping analysis. With this, we identify the key concepts for our framework for a reliable approximation of the current situation of public food procurement within health systems in order to identify the gaps and the new work pillars necessary to normalize the implementation of a sustainable public procurement strategy in hospitals.

2. Materials and Methods

This type of review provides a preliminary assessment of the scope of literature available on sustainable food procurement in the healthcare system in order to achieve an overview of the current situation related to sustainable food procurement processes within healthcare systems [35].

The scoping review was conducted following the protocol explained by Arksey and O'Malley (2005), the PRISMA extension for Scoping Reviews and others [36–40]. The protocol (available on request from the corresponding author) includes five steps: (1) define the research question; (2) identify relevant studies through a search strategy; (3) select studies to include, following some criteria; (4) data charting (extract, synthesize and interpret data); and, (5) summarize and report the results [36–39].

The objective of the present review was addressed by the following research question: What are the processes related to food procurement in the European health services? What are the relevant factors to develop a food procurement sustainable strategy in the healthcare systems?

2.1. Search Strategy

A three-step search strategy was developed to identify relevant studies. Firstly, relevant keywords (Table 1), derived from the research question, were used for an extensive search of the electronic databases including Web of Science, Proquest, Cochrane Library, Scopus, Emerald Insight, Pubmed/Medline, Dimensions, and Ovid. Searches were conducted in December 2019. Results were limited to English-language documents, published between 2000 and 2019.

Secondly, grey literature was obtained by searching reports from websites of relevant institutions (European Commission's General Directorates; other relevant organizations linked to policymaking like Food and Agriculture Organization (FAO), World Health Organization (WHO), NoHarm-EU; related policy databases such as NOURISHING; Global

database on the Implementation of Nutrition Action), as well as using the search engine Google with combinations of the search terms from Table 1.

Lastly, hand searching and snowball strategy were used to retrieve articles not located through the previous search strategies, up until January 2020.

Table 1. Search terms used for each of the concepts.

Concept	Search Terms
Health services	["Health services" OR "healthcare" OR "Hospitals"] AND
Food Procurement	["Food procurement" OR "Public food Procurement" OR "Green food Procurement" OR "Organic procurement" OR "Farm-to-hospital" OR "Hospital food" OR "Public kitchens"] AND
Guidelines	["European union directives" OR Policy * OR guideline * OR regulate * OR standard * OR strategy * OR Directive]

(*) The asteriks is a truncation command, that instructs the database to search for the root of the word typed in and then retrieve any alternate endings.

2.2. Study Selection

The literature review was conducted by two researchers and guided by the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews* (PRISMA-ScR) statement (Table A1). All types of documents were included with relevance to the research question, including research articles, literature reviews, white papers, reports, directives, and National Documents. Documents from Europe and other Occidental countries were also taken into account, assuming cultural similarities. The titles and abstracts of documents identified through database, snowball, and hand searching were assessed against the inclusion and exclusion criteria defined in Table 2 and their relevance to the research question. Full-text versions were downloaded to *Refworks* citation management software (ProQuest LLC., Ann Arbor, MI, USA, 2020) and then reviewed by the two independent researchers against the eligibility criteria, prior to the final selection of documents for inclusion and revision. Likewise, the titles and executive summaries of grey literature were assessed against the inclusion and exclusion criteria before downloading the full text for review. Those manuscripts focused on food procurement processes within the health systems were included in the scoping review. Disagreements were resolved through discussion between the two authors until consensus was achieved.

Table 2. Inclusion and exclusion criteria.

Concept	Inclusion Criteria	Exclusion Criteria
Language	English	All other languages
Year	>2000	<1999
Country	European and international studies with relevance to Europe.	International studies without relevance to Europe
Setting	Healthcare system and public settings	Non-healthcare systems.
Type of document	No restrictions.	

2.3. Data Charting

The data charted were entered by two independent researchers onto a 'data charting form' using the database programme Excel. The variables included for a standardized extraction of the data were: Author; date published; country; type of document; aim; setting and target population; relevant main findings related to sustainable food procurement processes. Any disagreements were resolved through discussion between the two researchers. Afterwards, the analysis of data was carried out by applying the analytical-synthetic approach. In the analytical process, the data were distributed and the keywords and content of the data analysed. Then, in the synthetic process, the information and

elements of the previous analysis were logically related to each other and integrated to make a meaningful contribution towards the development of the objective [41] bearing in mind the sustainability dimensions (economic, social, environmental and cultural). That led to a framework of the principle criteria that needed to be fulfilled in order to guarantee sustainable food procurement within the health services.

3. Results

The initial database search yielded 1141 items, as shown in Figure 1, where 246 duplicates were removed. After the screening of the titles and abstracts, 41 full-text articles were selected and assessed for eligibility against the inclusion and exclusion criteria, as well as for relevance and specificity to the research question. From them, thirteen articles were found to be relevant to the study. Another thirteen additional articles were found within the web sites of relevant institutions through the grey literature search. In total, twenty-six full-text articles were included in the scoping review.

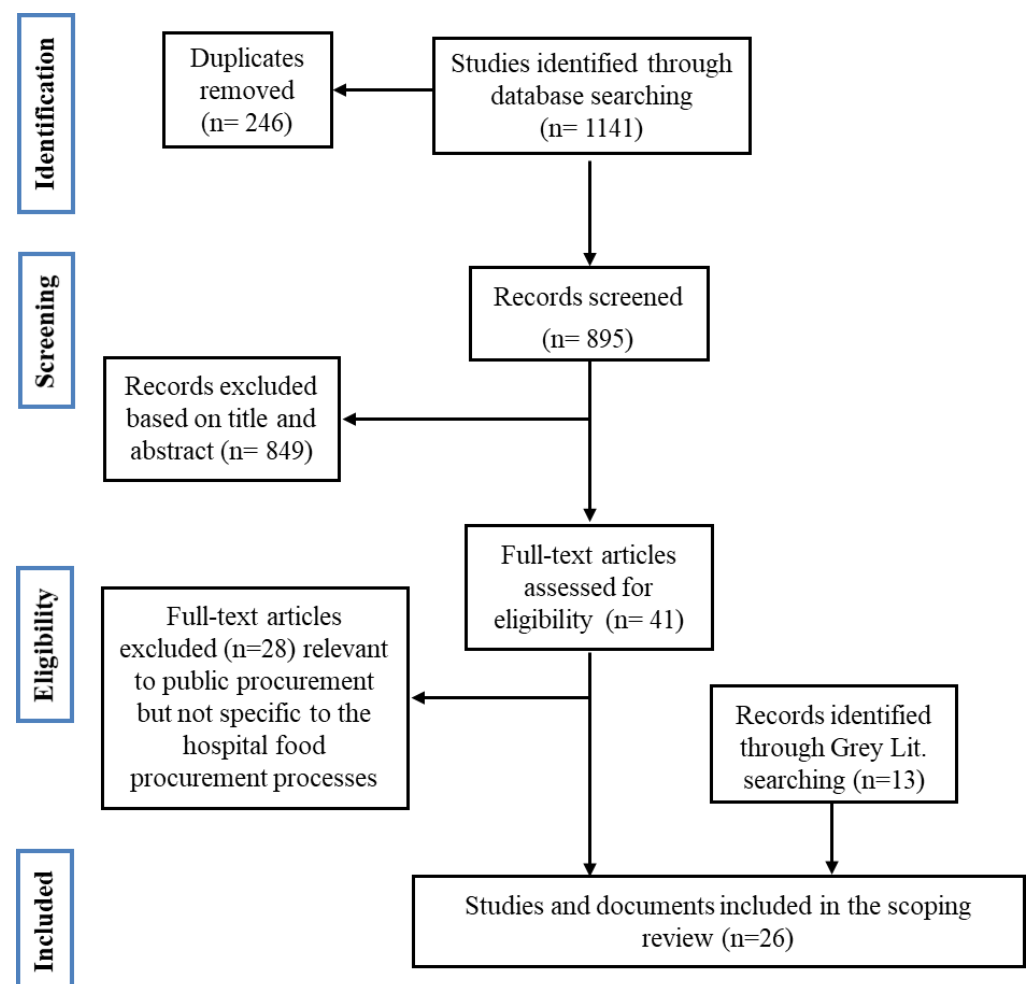


Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram of included documents [42].

All the articles retrieved are from 2005 onwards; 22 articles are from the last ten years, with seventeen of them (65%) published in the last five years. Most of the articles published come from the United Kingdom (n 8), mainland Europe (including Belgium, Czech Republic and Luxemburg) (n 11) and United States (n 5). These are made up of research articles (n 11), one opinion article (n 1), policy handbooks and guides (n 2), project reports (n 4) and technical reports (n 3), policy forums (n 1), factsheet documents (n 3) and legislative directives (n 1). Table S1 contains the final article selection and its summary

description and content analysis, including concepts, barriers, actions and approaches to be taken on board in order to work towards a sustainable food procurement strategy in the healthcare system.

3.1. Sustainable Food Procurement Strategy (SFPS) Characteristics

Figure 2 shows the factors identified through this scoping review that are required to build a Sustainable Food Procurement Strategy (SFPS).

Many of the articles retrieved specifically highlight the importance of multilevel and multidisciplinary governance to develop an SFPS within the healthcare organization, where strong leadership and the commitment of the organization's management structure is required for success [29,43–54]. An integral approach to the food system is sought for strategy development, which implies the participation of stakeholders from the whole spectrum of the food system, averting silo mentality. This is described as an important element for the successful implementation of the SFPS and for obtaining a multiplier effect within the community [28,44,53,55].

It is stressed that the SFPS should be taken as a progressive journey [44,49,56], encouraging a long-term process approach [26,43,44]. The use of external certification is suggested by some authors as an effective way of setting clear targets in the transition process towards an SFPS [44,45,52–54]. External leadership, such as NGOs, are also said to help within the transition path and with keeping the momentum going [45,49,57].

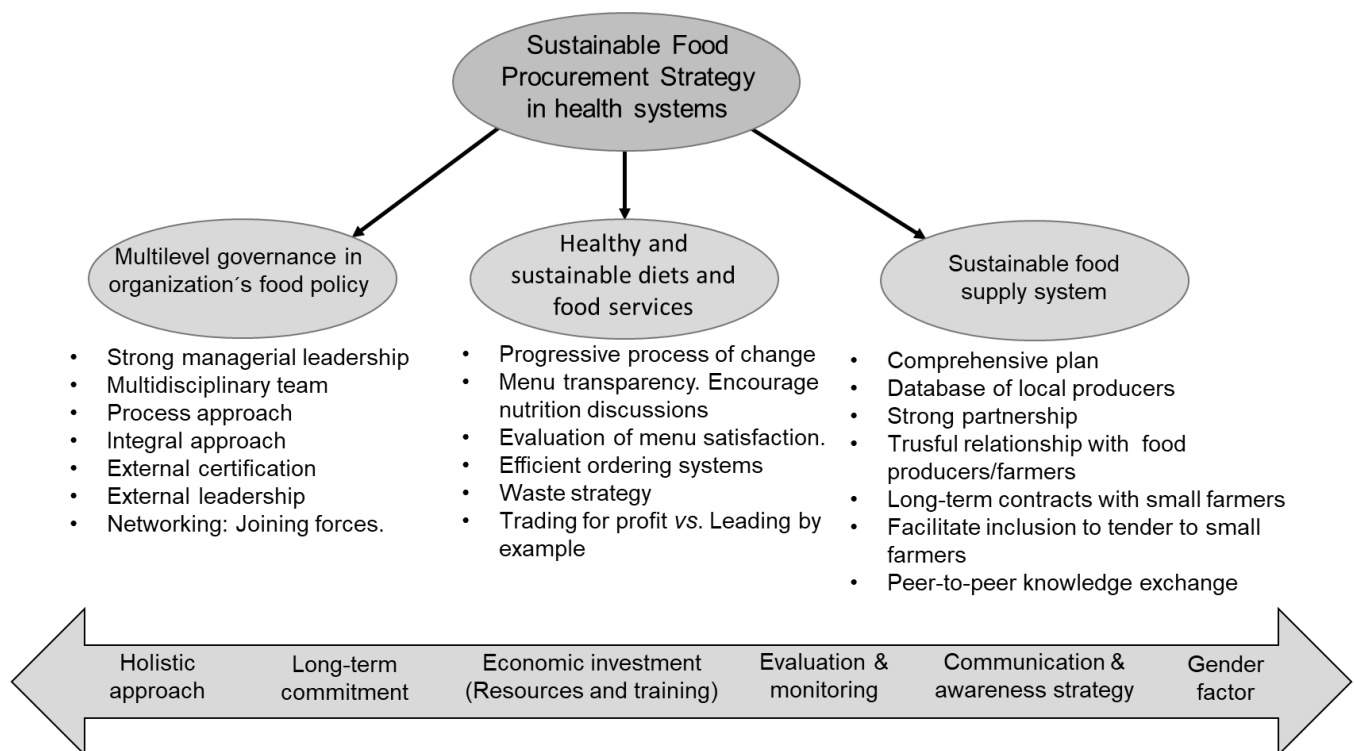


Figure 2. Factors identified to develop a sustainable food procurement strategy.

The aim of SFPS is to develop a sustainable food service within the health institution that is designed according to users' tastes, prioritizing healthy popular recipes, and launching new healthy menus [28,56]. The quality of food, portion sizes, adequacy of the food, appropriate food ordering systems and protected mealtimes are described as fundamental parts of the food service that will impact food waste development and consequently on the food procurement strategy [23,26,28,50,52,56,57].

Five of the articles included in the review mention the importance of healthcare organizations in changing from "trading health for profit" to being an organization that "leads by example" [43,44,55,58,59].

Short supply chains are also said to improve the quality of the menu [49]. Investment of time and resources are required to identify and set up a food supply network of local and organic producers and cooperatives [26,49], aligning food requirements to the local food system's characteristics and to the sourcing capacity of the suppliers [28,45,47,51,52,55]. A well-established relationship built on trust with producers [26,28,29,47,49,50,52,55,57–60] is considered paramount for a successful implementation of the sustainable food procurement strategy.

Several articles highlighted the need to facilitate access to tender of smallholder farmers and small and medium enterprises (SMEs) as a way of encouraging them to participate in public procurement procedures. For instance, this could be done by applying the inclusion criteria such as quality, freshness or the most economically advantageous tender (MEAT) assessed on the basis of lifecycle costs [29,32,57,58,60,61], which are easier to be fulfilled by local and organic food producers.

All of the above are transversally crossed by the need to have a long-term commitment from the organization in order to implement an SFPS and invest accordingly within and outside the organization [23,44–47,52–55,58,60], both in time and money [23,44,49,52]. Investments in equipment and resources to deliver sustainable food service are encouraged (i.e., on-site kitchens or energy-efficient machinery) [26,59,62]. It is also considered vital to invest in the supply capacity and the infrastructure of the local smallholder producers. The aim is to improve their distribution facilities and to help them scale up in the supply chain [45,47,51,52,56,57,62], allowing them to be more competitive in the tendering processes.

Investment in training is also revealed as a key factor for success in 17 of the publications, either for hospital workers, for suppliers or for both [23,26,29,44,46–48,50–52,54,55,57,58,60,61,63]. In both cases, the training should be from a multidisciplinary and holistic approach to the food system [28,48,50,55,63]. Additionally, for the local producers and suppliers, training should also focus on the bureaucratic steps necessary to participate in public procurement tenders [29,49,51,61]. Networking peer-to-peer is also mentioned within the retrieved literature, as a tool to skill-up other organizations in the procurement process by knowledge sharing to facilitate sustainable food procurement strategy development [29,58,59].

Other parameters that transversally influence the SFPS development are highlighted, such as the need for an evaluation strategy and tools to plan and assess the impact of the SFPS, with an efficient monitoring system for food waste and energy consumption, as well as economic effectiveness [23,26,28,29,45,48–50,55,57,58,60–62]. The gender factor is also highlighted as, in the majority of cases, the catering-related staff is predominantly women [47,48,55,63]. A robust communication, awareness and marketing strategy is needed, aimed at educating and informing about the SFPS, maintaining the motivation for the transition towards sustainability by recognising successes, promoting community engagement and creating awareness of sustainable and healthy eating and of food waste.

Within Europe, public institutions need to take into account the rules and policies that govern the public procurement processes, shaping choices through the existing public procurement regulatory framework [32].

3.2. *The Theoretical Framework of the Sustainable Food Procurement Strategy (SFPS)*

Analysis of the literature reviewed identified three main pillars, or principles, that constitute the theoretical framework (Figure 3). The pillars within the framework represent the different processes and actors involved in SFPS (Figure 2).

In the centre of the framework, transversal factors that impact the three pillars are grouped. Likewise, the agents involved in each of the pillars are destined to collaborate in order to achieve a successful and long-lasting transition towards sustainable food environments.

The challenge of sustainability needs to reach across disciplines, including in the healthcare system, in order to embrace the food system from an integral point of view. Multi-level governance hence implies a chance to take into account all the interactions, feedback loops and the agents of the food systems, to reform the food procurement strategy

from a multi-scale and holistic understanding of sustainability. Multi-level governance implies commitment from all the members and democratic processes.

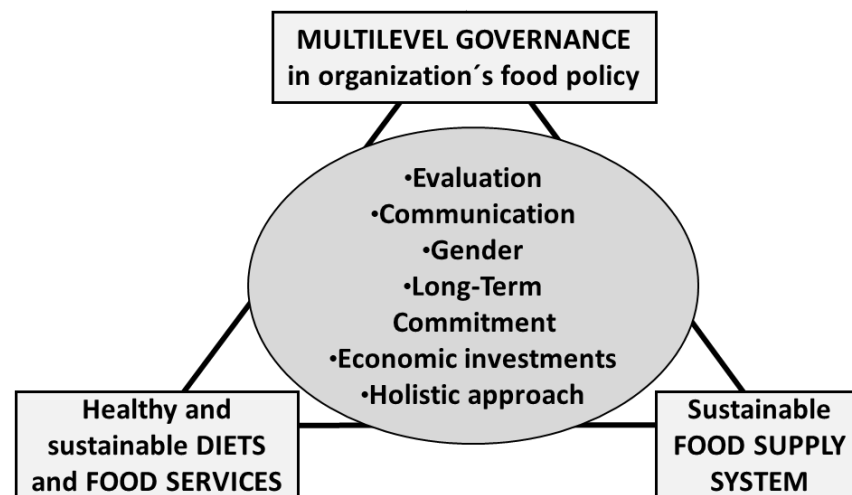


Figure 3. Theoretical framework on the principles involving sustainable food procurement in healthcare systems.

Sustainable Food Supply implies the quality of the food stock and the socio-economic interactions developed from it. Multi-level governance will feed into how to appropriately design and manage the Sustainable Food Supply.

The food service is a core service within the health services. If the other two pillars are done adequately, the food service will be impacted positively. Within the food service, every interaction with the food system presented within the healthcare services are to be taken into account: mode of delivery, menu design, nutrition, food waste, use of utensils, cleaning, etc.

Each of the six transversal parameters in the centre of the figure are to be taken into account when designing and deciding on the actions for the three principles within the framework, in order to develop and implement a sustainable food procurement strategy.

4. Discussion

European health services (i.e., hospitals) have the potential to prompt a change in the sustainability of food systems through public food procurement patterns. However, the implementation of sustainable food system policies has been slow and scarce in these health settings.

The present scoping review highlights the main components that a Sustainable Food Procurement Strategy (SFPS) should display. Based on the literature identified, the strategy should have a process approach, with a long-term vision and involve a multidisciplinary team in order to implement, establish and consolidate these components within the health institution. This discussion looks closer at each of the components presented within the theoretical framework proposal.

4.1. Multi-Level Governance in the Health Care Organization's Food Policy

The first step for the creation of a sustainable food procurement policy and strategy within the health institution is the forming of a multidisciplinary team that can make joint decisions on SFPS design and implementation with clear targets and objectives [29]. It should be transversal with a wide range of multisectoral stakeholders for consultation and planning (patients, doctors, catering staff, procurement managers, farmers, and food producers, among others), co-building the planning from an integral approach [23,28,44,48,50,51,53]. Barling described it as an inclusive space, open to discussion and useful for engaging with civil society [52].

Within the organization, input from all departments, both vertical and horizontal, is recommended to assess current practices and consider how sustainability could be further improved through procurement practices, and also to avert a silo mentality [45,51]. This reflects the idea of a more coherent and inclusive governance structure that considers food as a social-ecological system and contemplates the interdependencies of actors, activities and problems within the food system [9,31].

The use of award certifications has been suggested to encourage commitment to the Sustainable Food Procurement policies [52,53]. These types of certifications can be used as a road map for transition processes, for example, the quality marker Food for Life Catering Mark led by the Soil Association [44], although an award certification should be seen as an intermediate tool within the construction process rather than an objective in itself.

Literature also suggests that external experts on sustainable procurement can play a key role in maintaining momentum and leading the governance change towards sustainability [45,49,57,58]. However, the commitment to transition and change must be driven from within the organization rather than by external experts.

Joining forces with other hospitals and partners for food procurement can help the health institution to become stronger in its procurement capabilities, which means crafting partnerships to create economies of scale [46,49]. For example, health services could co-procure with restaurants that use the finer parts of beef while the hospital could take the remainder at a lower price while still being assured high-quality meat. These are strategies between similar actors in the value chain, which show that horizontal governance [64] can facilitate scale jumps and the construction of SFPS.

4.2. Sustainable Food Supply System

Every process for change should be accompanied by a comprehensive plan with clear targets, priorities, timeframes, and costs [49]. A first step would be to assemble an up-to-date database of local small-medium producers, map the food production and suppliers of the area [29,48,55], and examine their capacity to deliver sustainable, seasonal produce [26].

A successful transition towards sustainable food procurement strategies is associated with the existence of a strong partnership between local suppliers and healthcare institutions. Procurers must develop trustful relationships with producers by offering help and support to ensure effective supply capacity to the health centre [47,49,50,55,59] and eliminate power struggles that exist between different agents in the chain.

Obviously, this journey is not without difficulties. There needs to be enough supply to meet demand, and the demand needs to be tailored to the available supply [26,29,47,51,52,57]. A dilemma is highlighted in the literature where small producers with limited financial resources cannot risk large investments to increase production levels until the institutional demand is guaranteed and, conversely, institutions are reluctant to commit without a guarantee that their food supply needs can be met [47]. Therefore, to overcome this, health centres need to facilitate the inclusion of small farmers and producers into tender by committing to clear targets. This will help farmers to feel confident about their obligations, by agreeing to long-term contracts that are reviewed periodically [52] and by seeking feasible solutions for lack of payments on time, difficulties in accessing tenders, or short-term contracts [3,55].

Too often producers are not familiar with the overwhelming bureaucratic procedures and requirements of the tendering process, and this can discourage participation. This process needs to be relaxed to motivate smallholder farmers to participate in these larger bids [52,57]. Hence, tenders and contracts should be designed bearing in mind the local capacity and characteristics that can be fulfilled by the small producers [29,51,57,58]. For instance, the award criteria should be based on the “most economically advantageous tender” (MEAT) approach, which allows assessment of the bids on a whole life-cycle basis, including social and environmental externalities, as well as employment, entrepreneurial activity, and benefits for the regional economy by local SMEs [45,52]. Many articles in this

review highlight the creation of tenders in flexible lots as a way of facilitating the entrance of small suppliers offering local and seasonal quality produce [32,45,49,52,58].

This support in procedures, including familiarisation of legal frameworks for tendering in public institutions, has been highlighted as a key element in encouraging smallholder producers to tender [52,55,57,58,61]. One legal framework within the public procurement procedures calls for official certifications to recognise certain characteristics of the product (i.e., organic products), and this may hinder the participation of smallholder farmers, for economic reasons [65]. However, other alternatives do exist for quality assurance, such as the Participatory Guarantee Systems (PGS). PGS are networks created within local communities and consist of farmers, experts, public sector officials, food service agents, and consumers that certify producers based on their active participation, and are built on a foundation of trust, social networks, and knowledge exchange sustainability governance—a system that may be more democratic [66]. The use of PGS could be an important step forward on the bureaucratic path for small-scale farmers towards public procurement procedures.

Lack of availability of local products is a well-known barrier to increasing the amounts of local food use in healthcare institutions. It is crucial that the farm-to-institution strategy considers investing in improving the infrastructure to help smallholder producers fulfil the demands of the health organization. This could be by investing in cooperatives, developing more personal relationships with food service management, or customizing delivery schedules, allowing the local producers to scale-up into larger distribution services. Likewise, processed food has a higher value in the market, with some caterers preferring processed vegetables (less wastage, more consistent, less staff, less space), but smallholder producers rarely have access to processing facilities. Healthcare organizations should be encouraged to invest in infrastructure that can help the small producers scale up and be competitive (i.e., setting up a processing facility) [47,51,52,56,57,62].

Health organizations and their suppliers have valuable knowledge that should be shared, along with other key actors within the territory, to create a network to help develop sustainable food procurement strategies in other organizations through peer-to-peer knowledge exchange [29,59].

All this suggests that, in addition to the most immediate logistical and supply needs, an effective sustainable food supply system must have a strong social and environmental approach in the long-term that runs through the entire decision-making procedure to ensure the mainstays for building the sustainable food strategy process.

4.3. Healthy and Sustainable Diets and Food Services

The SFPS should aim to develop a food service that delivers sustainable diets. Applying the sustainability criteria implies understanding the linkages between diets, agricultural production practices, environmental degradation and social impacts, such as health, economy and governance of our food systems [67]. Burlingame and Dernini (2010) defined sustainable diets as ‘those diets with low environmental impacts which contribute to food and nutrition security and to a healthy life for present and future generations’ [68].

Food should be understood as a preventive mechanism and as a treatment process [44,46] that stimulates appetite and recovery [28] of hospital users. The development and adoption of healthy food procurement policies and nutrition standards have emerged as promising strategies to tackle societal health issues associated with unhealthy food environments by increasing access to healthier foods in public settings, such as hospitals [69].

The proposal for a sustainable diet and food services should be implemented at the different levels within the healthcare organization, including in-patient food, retail and cafeteria food, and vending machines. However, Gray states [44] that it is easier to start the transition process with the cafeteria food, as it requires smaller volumes of produce and it is normally prepared on-site. It is clear that the transition towards sustainable food strategy is a step-by-step progressive process [44,49,56].

Within the SFPS, innovative and creative dishes should be designed with menu planning that aims to use local, seasonal, plant-derived and environmentally friendly produce [26,50,57]. The menu plans should be constantly evaluated to ascertain the satisfaction level of the users [23,26,50,56], and changes made accordingly for a direct impact on food waste [23]. A menu transparency policy would also be useful to communicate about menu changes and the origins of food via menu description and recipe information, encouraging discussions on nutritional issues and promoting healthy eating messages [50,60].

The food offered to in-patients should cover individual needs related to each pathological condition or circumstance. Some common characteristics for advocating sustainable diets within the wards and the other settings (i.e., cafeteria, retail, and vending) are menus and food items choices which aim to increase consumption of pulses, vegetables, fruits, whole grains and nuts, and preferably organic produce from short supply chains [26,57,58]. Meat options and portion sizes should be reduced [26] and substituted for other high-protein foods from sustainable sources, with a focus on shifting towards predominantly plant-based diets [50]. With the money saved, better meat quality from more sustainable and regenerative agriculture could be purchased [26,58].

The higher price of healthy and sustainable foods, to purchase and prepare, means a creative approach is required to ensure profitability or parity. Alternatives include serving smaller portions, raising prices of popular foods to ensure the cafeteria remains viable, re-alignment of discounts to favour healthier options, or letting unhealthy foods subsidise the cost of healthy foods [56,58].

Hospitals are an example of where profit has been made by selling unhealthy food products. A case in point is the mandatory list of products high in fat, salt and, sugar set by vending machine companies [43]. The paradigm of “trading health for profit” needs to be changed to a “leading by example” approach [43,44,47,55,60].

The high food waste rates in hospitals occur because of inefficient ordering and food delivery systems (lack of communication between ward and kitchen, lack of proper infrastructure). Establishing a simplified, automated, and flexible food ordering procedure (opportunities for meal cancellations or in-between orders) is seen as a positive alternative [23]. Food prepared in on-site kitchens is often delivered already plated, which has been shown to lower food waste, while central production units deliver in bulk, which has been shown to create more food waste [23].

A waste strategy with an integral approach should be part of a holistic and multidisciplinary food strategy [23,26,50,55]. It should also consider packaging, disposable utensils, energy and water usage, and other alternatives for food waste (i.e., donation, compost, biogas, recycling . . .) [57,59] and employ an efficient monitoring system [23]. This would help in developing waste-sensitive procurement strategies [23], highlighting the social, environmental, and economic implications of food waste within the hospital, and allow the hospital to shape the procurement of food produce, giving priority to high-quality and sustainable food [26].

4.4. Transversal Features

Within the literature retrieved in this scoping review, six main transversal features and conditions have been identified for designing and implementing the SFPS within health organizations: long-term commitment; investment; an evaluation and monitoring system; a communication and awareness strategy; gender; and a holistic approach. Some of these characteristics have already been mentioned in the previous axes highlighting the link between them.

A sustainable food procurement strategy must be considered from a systemic point of view of the food system, and managed with a holistic approach, highlighting the interrelationship of every part of the strategy.

As within the governance structure mentioned earlier, professionals within and outside the health organization need to commit to change towards a sustainable food system.

However, for this long-term commitment to occur, the health institution must also compel an economic commitment, for investments at various levels.

Several authors within this review described the investment in training as essential for transition success towards sustainable food procurement. Investment in training for the hospital staff (from kitchen workers to medical professionals) should ensure knowledge on sustainable food systems, with a multidisciplinary approach to training that will increase commitment and attitude towards change among the workers [54]. The investment in training of local smallholder producers and SMEs aims to encourage participation, focusing on tendering process requirements, procurement policy knowledge, certification requirements and general paperwork [29,49,51,61].

An essential part of the success of a sustainable food procurement strategy is to have the management structure of the organization on board, with a leadership role to keep sustainability commitment on the agenda [44–49,52,58]. This will assure the leverage of food budgets to assume long-term sustainable food procurement strategies that require an up-front capital investment.

This long-term approach and social and economic commitment can lead to a local multiplier effect [57], which means the relocalization of the economic impact on the community economy and health of the population [43,46,53].

An evaluation and monitoring group should be established with the responsibility of assessing the food strategy in place, as part of the transition process, in order to assess the adequacy and efficacy of any changes [29,55,57], be they environmental, economic, or social.

Regular reviews of sustainable food procurement policy performance, focusing on barriers, corrective actions, assessment of achievement of targets and time frames (i.e., % organic produce; % reduction targets associated with GHG) will be important for maintaining a high level of commitment from managerial personnel.

Economic cost control of the strategy should plan expenses and evaluate economic returns [52,62]. Monitoring costs facilitates the understanding of where savings can be made. For instance, a short supply chain and seasonal produce may reduce the prices [55]. Local organic foods, however, are more expensive but instead savings can be made by reducing the quantity of meat-based diets or reducing the meat portion sizes [26].

Communication and awareness strategies should be used to promote the transition towards sustainable food procurement within the healthcare system. The general public should be informed about the changes and the reasons behind them, engaging the community and educating them on sustainable food systems [50,52,53,56,57]. A communication strategy and awareness campaign is also encouraged to inform the users on waste [26] and recycling awareness [59].

Well-planned and targeted publicity, as well as promotional events, would help the continuation of the sustainable food procurement strategy. Every positive result obtained is good publicity for promoting the sustainable food procurement strategy within the managerial group, the community, and the users, in an effort to further strengthen the long-term commitment [49].

Permanent mechanisms of communication between the stakeholders of the SFPS must be ensured. This internal communication will increase the engagement, allow for feedback and identify shared solutions [28,45–47,49,50,53,56,58,59].

Gender is another transversal area to be highlighted, as the majority of those working in food services within health institutions are women [47,48,55,70]. This shows that food and food-related jobs are still feminized jobs [12], often underpaid and undervalued, and these workers are given little opportunity for participating in decision-making. Therefore, a feminist perspective is crucial to avoid invisibilities that may undermine the work of food service-related professionals in the development and advocacy of sustainable food procurement strategies.

4.5. Limitations

Despite the methodological care of this research and the reliability of the sources analysed, a limitation of this scoping review comes from the small sample size of research papers focused on cases of sustainable food procurement strategies in the health care systems. We consider that this has come about because of the novelty of the research question, which confirms the need for the objective of this research and the methodology used that allows the identification of the main lines of work necessary to investigate and expand this subject. In this sense, future reviews might consider the inclusion of documentation with Languages Other than English (LOE), which might help to complete this proposal with different problems and worldviews that could be incorporated. However, the information saturation observed and the various countries involved in the present review does not suggest any language bias within the present scoping review.

5. Conclusions

The current global socioeconomic and environmental situation urgently calls for a social paradigm change. Healthcare systems, as key actors of public health and well-being of the surrounding community and environment, should be leading the promotion of sustainable food environments within their premises. The use of the Sustainable Food Procurement Strategy (SFPS) tool embedded within a sustainable food strategy would help the healthcare institution to make the necessary changes.

The framework for SFPS derived from this review proposes the need for innovative governance structures, with a combination of internal commitment and appropriate external drivers to enable the change. However, this is not a simple task; in fact, the SFPS will need to adopt a process approach to be realistic, successful and enduring. In addition, there are obstacles that health organizations must overcome related to the balance between supply and demand, the capacity for the participation of small farmers and the investment commitment, the lack of skills, and the long-term vision of managers. The approach to a solid strategy in this regard will impact the relocalization of food procurement, allowing the development of local and sustainable food supply and food services within the health institutions as well as the integral care of health through sustainable diets. We are aware of the challenge ahead and of the need to align large working axes. This review adds to the scarce scientific literature on sustainable food procurement in health settings, by defining the areas that need to be developed in order to pursue sustainable modes of action. Researchers are encouraged to use the framework presented to gather further evidence that will aid in the implementation of sustainable food systems within the healthcare institutions, as well as encouraging the agents involved in these processes to value and make use of this contribution as a framework to advance in the development of sustainable food strategies. We believe that the contribution of this review proposes a basis for the transition towards a sustainable food environment in health systems.

Supplementary Materials: The following are available online at <https://www.mdpi.com/2071-1050/13/4/2398/s1>, Table S1: Summary of content analysis of articles retrieved.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Preferred Reporting Items for Systematic reviews and Meta-Analyses 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
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.	1–3
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.	3
METHODS			
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.	Page 3 “Available on request from the corresponding author”.
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.	4 and Table 2
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.	3
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Table 1
Selection of sources of evidence †	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	4
Data charting process ‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms 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.	4,5
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	4
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).	N/A
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	4,5

Table A1. Cont.

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE
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.	Page 5 and Figure 1
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	6–7
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A
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.	Table S1
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	Figures 2 and 3
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.	8–12
Limitations	20	Discuss the limitations of the scoping review process.	12,13
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	13
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.	13

JB1 = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews. * Where sources of evidence (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites. † A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with information sources (see first footnote). ‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4,5) refer to the process of data extraction in a scoping review as data charting. § The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document) [40].

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