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Commentary

Challenges of Food Service towards Sustainability Beyond Food Waste

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Abstract Food service comprises the production of meals consumed outside the home, including consumers from all age groups and in different sectors, such as schools (from kindergarten to university), public and private companies, the health sector (from hospitals to elderly care institutions), military, sports facilities and restaurants (from fine dining to fast-food). Food service units (FSU) achieved importance and responsibility not only for feeding the population but also as an important setting for public health interventions, potentially educating consumers and modulating behaviours through the meals provided. In addition to its socioeconomic impact, the food service industry has a strong environmental impact. More sustainable food service starts with the basics: minimizing environmental impact by reducing carbon footprint. Food service industry is being encouraged to make choices that positively impact the environment. Nevertheless, most of the efforts and research made in the last years have been focused on evaluating and reducing food waste. This article focuses on strategies that could be implemented beyond food waste, and act on changing the food offer towards health and sustainability while promoting consumers' behaviour change.

Keywords sustainability; food offer; food service; food patterns

1. Introduction

Food service comprises the production of meals consumed outside the home, including consumers from all age groups and in different sectors, such as schools (from kindergarten to university), public and private companies, the health sector (from hospitals to elderly care institutions), military, sports facilities and restaurants (from fine dining to fast-food).

In Europe, it is estimated that an average of 165 million meals are produced in food service every day [1].

Considering the growing trend of food consumption outside the home [1], Food service Units (FSU) achieved importance and responsibility not only for feeding the population but also as an important setting for public health interventions, potentially educating consumers and modulating behaviours through the meals provided, with great potential to reduce the burden of non-communicable diseases. Dietary risk factors account for 11 million of deaths and 255 million of disability-adjusted life years (DALYs). The most important are high sodium intake, and low consumption of fruit and vegetables [2].

In addition to its socioeconomic impact, the food service industry has a strong environmental impact [3–6]. The large-scale production of meals implies a high use of resources, such as water, energy, materials, and equipment [4,5]. Water is used for cleaning and sanitization, both of food, facilities, and cooking tools and appliances, as well as for the preparation of various culinary preparations [4]. Energy is essential for equipment operation, the lighting of workspaces and the preservation of food and meals, namely maintenance of the cold chain and/or of the distribution temperature [4]. As an aggravating factor, waste is generated throughout the various steps of food production, including selection, preparation, distribution, and consumption (leftovers and plate waste) [4,5]. Data from 2012, indicates that in the European Union, 11 million tons of food was wasted in Food Service Business, corresponding to 12% of total food waste, with economic costs (20 billion euros) and environmental (use of resources and emission of greenhouse gases) consequences [7–9].

The growing concern regarding sustainability led to several recommendations in the food service area, to make the production of meals more sustainable, particularly towards a greater

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concern with maintenance and energy efficiency of equipment, use of reusable material, purchase of local products, less use of processed and packaged goods, proper selection and disposal of solid waste and use of strategies to avoid food waste [10–13]. Although research shows that this industry is still below the desired level, there has been, growing recognition of the relevance of this issue and an effort by food service units to comply with sustainability guidelines [5,6,14–18]. However, at the end of 2019, with the emergence of the COVID-19 pandemic, this effort was affected by the contingency measures imposed to stop the spread of the virus, that set a strong setback in terms of the large use of disposable materials [19].

More sustainable food service starts with the basics: minimizing environmental impact by reducing carbon footprint. Food service industry is being encouraged to make choices that positively impact the environment, not only on their menus but across the whole supply chain. Nevertheless, most of the efforts and research made in the last years have been focused on evaluating and reducing food waste. Private and public initiatives have been developed mostly aiming to reuse leftovers namely by donations to deprived individuals [20]. This article focuses on strategies that could be implemented beyond food waste, and act on changing the food offer towards health and sustainability while promoting consumers' behaviour change.

2. Food Service Action on Healthy and Sustainable Food Patterns

In the line of Eat LANCET initiative [21] aiming to achieve the planetary healthy diet, the food service sector must be committed to a more healthy and sustainable food pattern, which may be accomplished by shifting the food offer. Some studies suggest that consumers are increasingly concerned of how their choices and behaviours impact on sustainability. An increasing number of consumers are strongly influenced by sustainability in food choices, highlighting the importance of creating a more sustainable sector [22]. This could be used as the leverage for the necessary changes in food service.

Sustainability in the production of meals involves a set of issues related to the entire production process, from the planning of the menu and choice of foodstuffs and food suppliers to the recycling and management of the unit's food waste. A sustainable food service must identify the stages in the optimization of meal production processes, ensure quality control, create new nutritionally desirable, safe and sustainable alternatives with a good cost/benefit ratio. To manage a sustainable food unit is to be concerned with the unit, with its employees and customers, demonstrating a comprehensive and coherent action with its social responsibility, maximizing the positive impact on public health [10,23,24].

2.1. Focus on Plant-based Menus

A plant-based diet does not have a consensual definition. Some authors define it as a diet that consists of vegetable food products, eliminating all animal foods [25,26], while others consider it to be a diet that includes primarily plants (vegetables, fruits, nuts, whole grains, pulses), also and including meat, fish, eggs, or dairy in smaller amounts [27–30]. The Mediterranean Food Pattern is recognized as a plant-based food pattern, complying with the second definition [31]. Also, the previously mentioned Planetary Healthy Diet (from the EAT-Lancet Commission) [32,33], is consistent with a plant-based diet that includes animal food products. In the scope of this paper, the authors consider the definition of plant-based menus, a menu that mainly includes vegetable food items, but also animal food products, portions according to the recommendations [33,34].

The majority of consumers now associate health and nutrition with sustainability, perceiving behaviours such as eating healthy and exercising as being tied to sustainability. This is also a driver to food service operators to modulate menu offer that not only taste better but also provide sustainable nutrition, which addresses the nutritional, environmental and social impact of food [20].

In many contexts, approaches to the sustainability focus on strictly vegan dietary patterns, eliminating the consumption of meat and meat products. The authors propose a more sensible approach, which requires an inversion of current dietary patterns, shifting the amounts of food groups currently eaten, increasing plant-based food items and reducing animal food sources, which is in line either with the Planetary Healthy Diet [33] or the Mediterranean Diet, both recognized as healthy and sustainable food patterns [31].

To facilitate this transition, the authors also propose a change in the way menus are communicated to consumers, starting the description of the dish with the vegetable component to emphasize its importance deviating the focus from the animal component [35].

2.2. Improve the Gastronomic Quality of Vegetable Items

Meat is rich in flavour and easy to cook. Vegetables are known to be bitter, with different textures, which makes cooking them more challenging, and requires specific culinary competencies [36–38]. To create and provide plant-based dishes food service needs to invest in the skills of their personnel and recover Mediterranean ways of cooking meals [39]. Mediterranean dishes are characteristically plant-based, prioritizing vegetables over animal food sources, but rich in flavour, texture and colours, using meat products in small amounts as well as aromatic plants to enhance aroma and taste. Other authors have done extensive work that resulted in a compilation of recipes that are both healthy and sustainable, that can also be used by food service companies to improve their offer [40,41].

2.3. Educate Consumers to Eat Food Instead of Nutrients

Currently, menus provide nutritional information letting consumers know how much carbohydrates, lipids, protein, or calories they eat. Nutrients come from different food sources (both animal and vegetable), and the analysis of this information solely can be misleading as to the balance of meals. Placing menu compliance on food portions [35] instead of nutrients may help consumers better understand the meals' nutritional balance, contributing to healthier and more sustainable food patterns, and fostering the necessary menu and food offer reformulation.

2.4. Use Nudging Strategies to Change Consumer Behaviour

Following previous experiences [42], strategies such as changing the serving position, or the menu position and also the description of the names of the dishes, can have a positive effect on consumers, drawing attention to more sustainable options. Nudging is defined as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" [43]. Nudging strategies are usually low-cost, easy to implement and present very good results [44–46].

2.5. Use Emotional Marketing Strategies to Modulate Behaviour

Following the food industry strategies, food service should invest in emotional marketing approaches to engage consumers towards plant-based menus. Emotional marketing uses psychological triggers to promote positive feelings in consumers associated with the desired action [47]. Food service needs to create synergies with marketing and communication specialists and use the benefits of these menus, such as higher nutrient density, weight management, positive impact on satiety, promotion of gut health, and low carbon footprint, and associated with positive and rewarding feelings. Other strategies to engage consumers with a specific behaviour or food choice include the use of famous personalities, such as football players; engage the audience's goals, expectations, and desire to enjoy a certain lifestyle, by selling the experience of the food service not only the food; humanize the service by forming an emotional connection with customers; focus on the sense of belonging of costumers and show them there are taken into consideration. It is important that emotionally-engaged customers will be more demanding so food service managers/operators must anticipate their needs, be innovative in offering suggestions, and most importantly, create various loyalty strategies [48,49].

2.6. Create Opportunity from an Adverse Context

The present context of war, energy and economic crisis could be an opportunity to accelerate the food offer and consumer behaviour changes. Fruit, vegetables, and pulses provide higher nutrient content with smaller portions and more volume, compared to meat, and are also more efficient in terms of production, land use and water consumption. They can be used as a helpful resource for reducing meals' costs, while promoting adequate nutrition.

3. Conclusion

Sustainability in the production of meals involves a set of issues related to the entire production process, from menu planning, and selection of raw materials and food suppliers to recycling and management of the unit's food waste. Managing a sustainable food service unit is caring for the production unit, its employees and its customers, demonstrating a comprehensive and consistent action with its social responsibility. A change in the food offered to consumers, towards a more sustainable and healthy food pattern, will drive changes in the food supply chain, influencing producers to increase the availability of a wider variety of fruits, vegetables, pulses, nuts, seeds and grains, increasing biodiversity, and also a more sustainable development in the livestock industry. Partnering with food suppliers that offer sustainable products created through sustainable processes can reduce the negative impact on the environment.

The current context represents an opportunity for change, both for the food service and the consumers, towards health and sustainability. Despite a large number of public programs and political initiatives [50], several authors [51] highlight the lack of implementation of these programs and/or verification procedures and effective audits. This reality leads to a waste of resources and demotivation of potential parties involved. There is a need to engage different stakeholders (service managers, food handlers, consumers, society, local authorities, and suppliers) to achieve the necessary change towards sustainability in food service.

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Author Contributions

Both authors were responsible for conceptualization, writing – original draft and reviewing and editing the paper.

Conflicts of Interest

The authors have no conflict of interest to declare.

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