

How Do Food Service Managers Look at School Catering? A Qualitative Content Analysis of a Roundtable Discussion on School Meals Provision

ANNA KISS^{1,5*} , LAURA PFEIFFER², ZSÓFIA DOMINEK-HAJDU³,
SÁNDOR SOÓS^{4,5} and ORSOLYA TOMPA⁵

¹ Doctoral School of Education, Faculty of Education and Psychology, Eötvös Loránd University, Hungary

² Institute of Agricultural and Food Economics, Hungarian University of Agriculture and Life Sciences, Hungary

³ Department of Dietetics and Nutritional Sciences, Faculty of Health Sciences, Semmelweis University, Hungary

⁴ Institute of Research on Adult Education and Knowledge Management, Faculty of Education and Psychology, Eötvös Loránd University, Hungary

⁵ Department of Science Politics and Scientometrics, Library and Information Centre, Hungarian Academy of Sciences, Hungary

Received: September 4, 2023 • Accepted: October 16, 2023

Published online: January 29, 2024

© 2023 The Author(s)



ABSTRACT

Children are a vulnerable group in terms of obesity: nearly 20% of Hungarian kindergarten and school-aged children are overweight or obese. School catering plays a decisive role in shaping children's nutritional behavior. To support the prevention of obesity and to increase the quality of children's diets, legislation passed in 2014 included provisions on school catering. This paper provides a qualitative content analysis of a roundtable discussion on the school catering system that took place at an interdisciplinary conference, with the aim of identifying the most important messages about school meals conveyed by the discussion. During the qualitative analysis of the roundtable discussion, seven main categories emerged: factors supporting the acceptance/implementation of public catering; factors hindering the acceptance/implementation of public catering; everyday problems in the implementation of public catering; the task of caterers and public catering; the transformation of public catering; cooperation among parties with an interest in public catering; and factors helping children to cooperate. The co-occurrence network of subcategories and values

* Corresponding author. E-mail: anna.kiss@pro-sharp.hu

can be broken down into one large component and several separate, small components. Thus, it can be concluded that the majority of subthemes and values are grouped into a coherent system. The results point to the key role of school catering in healthy nutrition and nutrition education, and the importance of close cooperation among parties with an interest in school catering to promote the social acceptance of catering and the prevention of childhood obesity.

KEYWORDS

school catering, qualitative content analysis, childhood obesity

INTRODUCTION

The prevalence of overweight and obesity is increasing worldwide. According to the statistics of the World Health Organization (WHO), one-third of the world's population is overweight or obese.¹ The prevalence of obesity, with its associated morbidity and mortality, as well as the consequences of obesity-related diseases, are placing an increasing burden on individuals, society, the healthcare system, and the micro- and macroeconomy. Obesity, however, is not limited to the adult population. Overweight and obesity among preschool and school-aged children is a global public health problem and is often traceable to poor lifestyle habits (KOLETZKO 2016). According to a WHO report published in 2016, around 18% of children and adolescents between the ages of 5 and 19 are overweight or obese, while OECD data show that 15% of children under 15 years of age are overweight or obese.² Childhood obesity rates are also significant in Hungary, with 13.4% of children aged between 3 and 18 years of age being overweight and 6.6% obese (JAKAB et al. 2018). Obesity-related lipid metabolism disorders, diabetes mellitus, and hypertension can occur already in childhood (MIHÁLDY et al. 2014). There is a positive correlation between childhood obesity and adult morbidity and mortality, making primary and secondary prevention particularly important in children. The development of childhood obesity can be prevented, and its prevalence reduced, by making adequate school catering and education on healthy eating in schools a key part of the strategy for promoting healthier eating behavior among children and adolescents (KORKALO et al. 2019).

The role of the school nutrition environment and public catering in obesity prevention

The rise in the prevalence of childhood overweight and obesity and their comorbidities has led to increased attention on positive interventions promoting healthy behavior among children and adolescents. School catering is seen as a strategic issue worldwide, with increasing political support and demand for evidence-based guidelines on school catering.³ STORCKSDIECK et al. (2014) examined nutrition policies supporting school catering in European Union Member States. Their findings show that all Member States have school catering programs. Eighteen

¹World Health Organization 2020, *Obesity and overweight*. <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>, accessed February 10, 2023.

²Organization for Economic Co-Operation and Development, *Obesity Update* 2017.

³World Food Program 2013, *State of school feeding worldwide*. <https://www.wfp.org/publications/state-school-feeding-worldwide-2013-0>, accessed February 10, 2023.



have set mandatory standards, while the others offer voluntary guidelines for schools. The three main policy objectives among Member States in support of nutrition policies in the context of school catering are to improve children's nutrition, to promote healthy eating/lifestyle habits, and to prevent obesity (STORCKSDIECK *et al.* 2014).

In Europe, approximately 93.3 million children were enrolled in pre-school, primary, secondary, and tertiary education in 2020.⁴ Excluding holidays, students spend five days a week for between 9 and 13 years in educational institutions, thus nutrition interventions in the school context potentially reach a huge number of children.

In Hungary, the majority of children have their first encounter with public catering while at nursery, or at kindergarten at the latest. The significance of this lies partly in the fact that all the children attending these institutions, without exception, still rely on public catering; on the other hand, the diet covers between 75% and 65% of their daily energy and nutrient intake, while the majority of their daily meals are eaten within the institution. Decree No. 37/2014 (April 30) of the Ministry of Human Resources (EMMI) on the nutritional health requirements for public catering (hereinafter “the Public Catering Decree”) applies to, among others, providers of primary child welfare and specialized child protection care, as well as educational institutions under the National Public Education Act.

With the entry into force of this decree, the provision of meals in kindergartens and schools, among other things, is now regulated in several respects, all of which are intended to ensure healthy nutrition by law.⁵ Unlike previous recommendations, which were based on the total quantity of food, the Public Catering Decree stipulates the frequency of consumption.⁶ It includes the standardized specification of ingredients for portions, the specification of portion sizes of prepared meals, and the maximum acceptable daily intake of salt for each age group.

The background of the research

The new regulation aims to promote healthy eating among children by improving the quality of school meals. However, it was amended in 2016 in response to increasing social pressure. In relation to this, we published a research paper in 2018, analyzing the Public Catering Decree as a preventive intervention for childhood obesity and exploring the reasons behind the amendment to the decree (KISS *et al.* 2019). In our research, we analyzed the reasons for amending the Public Catering Decree in a new light, through the conceptual framework of institutional economics and through strategic modelling (DACIN *et al.* 2002). As a first step, we identified the relevant economic and social stakeholders — that is, those parties with an interest in public catering — and subsequently conducted structured interviews with them. We then explored the systematic relationships among them and analyzed the similarities and differences between their goals

⁴EUROSTAT 2022 Education and Training Statistics at Regional Level. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Education_and_training_statistics_at_regional_level, accessed February 2, 2023.

⁵EMMI Decree No. 37/2014 (April 30) on the nutritional health requirements for public catering <https://net.jogtar.hu/jogszabaly?docid=a1400037.emm>, accessed February 10, 2023.

⁶The purpose of the Public Catering Decree is to specify, among other things, the nutrient content of the food provided by public catering for the healthy development of children, the prevention of diseases, and the proper recovery of patients. The Decree regulates the frequency and quantity of the consumption of vegetables, fruits, milk and dairy products, cereals, meat and meat products, sugar, fat, and salt, and in some cases the quality and portion sizes, taking into account the appropriate energy and nutrient content for each age group.



using the MACTOR (GODET 1991). A detailed description of the methodology used in this research can be found in KISS et al. (2019).

In our findings, we presented the socioeconomic stakeholders involved in public catering and their interest systems. Among the socioeconomic stakeholders involved in public catering, the government exercises the greatest influence in general, as it has a significant impact on monetary resources for school meals. In addition, local councils can also exercise an important influence on school catering services, as they have the power to select the caterers for the various schools through the public procurement process. According to the interviewees, the increasing influence of parents' organizations on school life has essentially been a positive trend in recent years. Children's health is a generally accepted goal among all participants, although one that is relatively distant in time, which makes it difficult to translate it into operational actions.

In terms of the influence exercised by the actors in public catering, and the dependencies among them, the government enjoys a relatively favorable bargaining position, with high levels of influence and low levels of dependency. The immediate socioeconomic context of children's food consumption is as follows: the triangle comprising teachers, local government, and parents is in a broadly similar position, characterized by high levels of influence and, with the exception of the parents, low dependency. Children and the managers of public catering services — the two key actors in the public catering system — have very low levels of influence, which implies a high level of dependency, especially in the case of children. In other words, the two critical actors in the school catering system — namely the catering managers and the children — have the fewest opportunities to influence how the school catering system operates.

The above findings draw attention to the lack of preparation prior to the introduction of the Public Catering Decree, a measure that did not take into account the situation of the stakeholders and their interests. It can be argued that a combination of these factors has contributed to the emergence of social antipathy towards the Public Catering Decree.

Our findings are in line with international research on the role of school catering in promoting healthy eating and preventing obesity in schools. MIKKELSEN et al. (2005) analyzed the findings of the European Network of Health Promoting Schools and the results presented by the forum of an ad hoc group set up by the Council of Europe on nutrition in schools. The authors highlighted the importance of involving all stakeholders in school catering, stressing the key role of food service managers in the process. CHAULIAC (2003) and COUDYSER (2003) identified parents, children, and civil society organizations (CSOs), as well as food suppliers and food producers, as further important stakeholders in school catering. The authors consider it an important question for the future to explore how solutions can be developed in the context of a community-based approach, and how multidisciplinary collaboration can be implemented in the school setting. According to the consensus among international experts, the central involvement of children is vital, as food selection is a key issue in terms of maintaining their health, thus it is essential to make this as easy and attractive as possible in the school environment. The Council of Europe developed guidelines on healthy school catering for Member States and their decision makers in as early as 2003 (Council of Europe 2003).⁷

⁷In the context of the present study, we highlight some important principles from the Council of Europe's guidelines: cooperation with food producers and caterers for the production of healthy, child-friendly products; the revision of curricula and school programs related to healthy eating to ensure that all children have the knowledge and skills to produce, buy, prepare, and enjoy healthy meals; and the revision of training requirements for workers involved in food production and preparation in the context of school catering.



The objective

The present study is a qualitative analysis of a roundtable discussion on school catering that took place at the interdisciplinary conference “The Social Embeddedness of Public Catering for Children,” which introduced the everyday work of food service managers. The aim of the analysis was to explore the views/observations/perceptions of the food service managers participating in the roundtable discussion — as key actors in the school catering system — on the role of school catering in healthy eating; to investigate factors that support and hinder effective school catering; and to identify good practices and strategies that might potentially increase the acceptance of school meals among children and public catering stakeholders in schools.

Methodology

We used a mixed methodology to analyze the roundtable discussion, but the primary focus was on a qualitative approach, because we believed that, compared to exclusively quantitative techniques, this would enable a deeper understanding when identifying the messages conveyed by the discussion. The food service managers participating in the roundtable discussion shared their views and experiences on the functioning and feasibility of school catering. Instead of the conventional application of the hermeneutic perspective based on written narratives, the modern application containing verbal narratives was implemented as the basis of the analysis. All the presentations at the conference were video recorded and are freely and publicly available on the YouTube channel of the Research Centre for the Humanities.⁸ The video recordings of the roundtable discussion were processed using Atlas.ti qualitative data analysis software (ATLAS.ti Version 22.0.6.0).⁹

Qualitative methodology. We applied the qualitative content analysis method for data analysis, using open and inductive coding to organize the information presented in the video. In addition to classical content analysis, the analysis of the video was based on the methodological principles of grounded theory, while the interpretation of the selected videos was subjected to continuous revision, with the gradual extension of the conceptualization by means of constant comparison procedure. Using the constant comparison method, we identified subcategories and categories from the data and defined their systematic relationship. Identifying and organizing subcategories and categories is a multilevel hierarchical coding process. The first step in the analysis is open coding, based on identifying units of thought related to the research question from the content of the videos. Based on the connections (similarities and differences) that emerged among the open codes, the codes were grouped into progressively larger categories.

During the qualitative content analysis, we used values coding in the coding process in addition to identifying categories. Values coding is the application of codes to qualitative data that reflect the values, attitudes, and beliefs of the participants, representing their perspectives or worldviews on the topic in question. Although each construction has a different meaning, values coding, as a term, encompasses all three of them (SALDAÑA 2021). The value is the importance/meaning we attribute to ourselves, another person, a thing, or an idea. Attitude is the way we

⁸The conference presentations are available on YouTube on the following link: https://www.youtube.com/watch?v=-anFOdVkjRA&list=PL04IEQZa_8XNfcm5BvkPvzDr9vU-koszw, accessed February 20, 2023.

⁹ATLAS.ti Scientific Software Development GmbH [ATLAS.ti 22 Windows] 2022. Retrieved from <https://atlasti.com>, accessed February 2, 2023.



think and feel about ourselves, another person, a thing, or an idea. Attitude “is a relatively enduring system of evaluative, affective reactions based upon and reflecting the evaluative concepts or beliefs...” (SHAW – WRIGHT 1967:3). Beliefs are part of a system that includes our values and attitudes, as well as our personal knowledge, experiences, opinions, prejudices, morals, and other interpretive understandings of the social world. “Beliefs are embedded in the values attached to them” (WOLCOTT 1999:97) and can be considered “rules for action.”

The coding was initially carried out by AK, who systematically coded all the data to identify the subcategories and categories that had emerged in the roundtable discussion, then inductively renamed, reorganized, and redefined the codes and subcategories, before creating the categories. Another member of the research team, LP, performed the same coding process independently of AK’s findings, to evaluate the categories created by AK. The two authors then compared and discussed their results until they reached consensus on a mutual interpretation of the data. Finally, all members of the research team discussed the results of the analysis process until consensus was reached. Data analysis was conducted in parallel until thematic saturation was achieved.

Quantitative methodology. Within the framework of the quantitative methodology, network analysis was carried out. Network analysis involves the investigation of the system of relationships between different units, entities, and individuals. It analyzes their distance and multiplicity, searches for nodes, and endeavors to filter out possibly disturbing, inappropriate factors (MOLNÁR 2020). During the coding process, the subcategories and values that emerged in the roundtable discussion were placed in a matrix, whereby the rows of the matrix contained the identified subcategories, and the columns of the matrix indicated the elements of the values coding. This incidence matrix provides input data for exploring the subcategories and values structures from the values coding and for examining their incidence, resulting in an incidence network of subcategories and values. For network analysis we used the *igraph* package in the R statistical programming environment (CSÁRDI – NEPUZ 2006).

Participants in the roundtable discussion

Three food service managers participated in the roundtable discussion: Katalin Vigné Sági, dietitian and food service manager, head of the kitchen run by the Reformed Parish of Budafok; Andrea Péntes, food service manager at the Svetits Catholic Kindergarten, Primary School, and High School; and György Ambrus, head of the catering department at the Békés County Central Hospital and managing director of Gyulakonyha, which provides catering for children in Gyula’s municipal and church-run kindergartens, primary schools, and high schools. In addition, all three participants hold important positions in various national professional organizations (the National Association of Food Service Managers, the National Association of Public Caterers and Food Service Managers, the Hungarian Dietetic Association, the Hungarian National Gastronomic Association) and have decades of experience in the field of children’s catering. Their current work includes everyday catering for children and adolescents between the ages of 3 and 18.

FINDINGS

As a result of the analysis, we identified the following seven main categories (see Table 1): (1) factors facilitating the adoption/implementation of public catering in schools; (2) factors



Table 1. The seven main categories and their subcategories in the roundtable discussion on public school catering

Category	Subcategory	Frequency (occurrence)	Quotation
Factors contributing to the acceptance/ implementation of public catering	Teachers' attitude as role models	5	"Teachers are an important part of the puzzle. Clearly, if the teacher eats well, and enjoys the food, the younger children will eat well themselves."
	Regulation, as a guideline	2	"However, as a food service manager, I think we all see it as a guideline. It's meant to help us, it's not there to make us guilty but to standardize our approach so we don't need to reinvent a whole lot of things."
	The supportive role of the authorities	5	"This relationship has already changed slightly, so we're seeing helpfulness on the part of the authorities. Ultimately, we share the same goals." "The authorities come in order to help. It's really important that we talk and that they don't start off saying that something needs to be close down."
	Public caterers' adaptability	2	"I'd consider adaptability to be a really massive solution, but in a way that follows the rules."
	Cooperation with children	6	"What's worked for us is that we've discussed it with the children."
	Presence of the catering kitchen at school events	3	"It would never be the case that catering for a school event, a parents' dance, a charity ball, or any other event wouldn't be provided by the kitchen."
Factors hindering the acceptance/ implementation of public catering in schools	Conditions in the school (noise levels and time allocated for meals)	3	"It must be horrible for a first- or second-grade child to have to eat their meal in 12 min, including queuing." "Even if only 80 kids are eating together, saying just a few words, without talking loudly, will still create a lot of noise, so then again, I feel that there's no environment in which they can feel comfortable and enjoy their meals."
	High expectations towards caterers	3	"These expectations are really high, and for some reason parents expect it from us as well as caterers. And of course the supervising authorities also expect us to provide the kids with food that they'll eat and

(continued)

Table 1. Continued

Category	Subcategory	Frequency (occurrence)	Quotation
			that they're familiar with. At the same time, the authorities also expect us to give the children healthy food that's in compliance with the laws and regulations."
	Negative image of public catering	2	"It's become fashionable to criticize public catering and school cafeterias."
	Inadequate knowledge of food among children	5	"Children aren't familiar with different foods, making it difficult to provide the variety required by law."
Problems of day-to-day implementation	Salaries of kitchen staff	5	"Our biggest concern in the future will be the workforce. Unfortunately, we all feel that."
	Resources available for food preparation	13	"The biggest problem is still money... we, as caterers, are managing on incredibly small budgets."
	Procurement of ingredients	2	"We've now reached the point where we have procurement problems."
	The inflexibility of regulations	4	"We were obliged to cut down on salt, and by the time we'd reached the required level, with great difficulty, we had to cut down again, and we just can't do it."
The task/role of public caterers	Quality control	3	"It's very important to receive only good-quality ingredients, and to demand this: since we're public caterers, they should supply us with only good quality."
	Sharing good practices	2	"These are local characteristics, but everybody comes up with ideas like this; I think Kati and Gyuri certainly have similar ideas. We see each other and we can share information."
	Guidance for kitchen staff	2	"We have to provide guidance for the cooks." "We had to teach the cooks that there are other ways to thicken things."
	Communication and liaising with children	7	"But communication is important... we have to be able to communicate." "For example, in our college the students sent a delegation to me." "We are constantly in contact with the children."

(continued)



Table 1. Continued

Category	Subcategory	Frequency (occurrence)	Quotation
	Nutrition education of children	3	“In practice, it’s the caterer’s job to teach children about different foods: why we eat them, what we eat generally, and why it’s healthy for us.”
	Providing healthy food/catering	4	“And we should be able to ensure that they’re really eating healthily and that they’re healthy.”
	Prevention, health protection	5	“Let’s try to go in the direction of health and the direction we believe in: the preventive direction.” “Telling them every day that this is how we want to help them be healthy.”
The transformation of public catering	The modernization of kitchens and the quality of public catering	3	“The quality of public catering has improved in terms of quality, equipment, and professionalism.” “Catering is provided by a modern kitchen, one that meets the requirements of the Public Catering Decree, and the equipment, structure, and approach have changed a lot.”
	Professional knowledge, qualifications	3	“Professional knowledge has also changed a great deal: without proper qualifications it wouldn’t be possible to operate a kitchen.”
	Introducing new recipes and new food preparation techniques	3	“As a food service manager, I have to adapt, I have to involve the cooks and the kitchen staff; we have to try this out.” “Old habits, the way people used to cook, had to be changed; and observing these new kitchen habits and weeding out the old ones wasn’t easy.”
Cooperation between the parties involved in the implementation of public catering	Making compromises with the participants in public catering	7	“Somewhere a compromise has to be made with the authorities, a compromise has to be made with the children, and a compromise has to be made with the parents. Of course, this won’t be possible without the help of the teachers and kindergarten teachers, so parents need to help the caterers. We also need the help of the teachers, and of course we need the help of the providers, who ensure the financial resources.”

(continued)



Table 1. Continued

Category	Subcategory	Frequency (occurrence)	Quotation
	Cooperation/ dialogue with teachers	4	"I have a really good relationship with the whole teaching staff and they invite me to the Health Weeks."
	Cooperation with parents	4	"Parents need to be addressed, it's very important." "Parents often don't know the law, the rules that have to be followed ... we explain it all to them."
	Cooperation with suppliers	2	"We also have daily contact with the suppliers. In terms of our contracts, it's a daily relationship in all respects. They try hard to meet the demands of the school, as they know that the children always come first."
	Dialogue with the legislators	2	"The legislators should come and talk to us and listen to our voice, the voice of the professionals, and accept it."
	Communication among stakeholders	4	"If there is daily, direct communication between the school, the teachers, the parents, the children, and the kitchen, there's a chance of a real dialogue; we can discuss the problems and we can find solutions."
Factors facilitating the cooperation of the children	Involving children in planning menus	3	"There's always a forum where they can write down what they really like and what they don't like." "There are Wish Weeks; each age group has a week where they can have wishes in exchange for eating in a way that we think is healthy."
	Involving children in food preparation	5	"We like to make figures, little stick people out of fruit. You can make them from peppers, cucumber slices, lettuce... the children really love them. They like the shapes and the colors and it's different from what they do every day, and they really enjoy it."
	Introducing new ingredients step by step	5	"Introducing these new ingredients is difficult but manageable. But it shouldn't be forced, it has to be done step by step."

(continued)



Table 1. Continued

Category	Subcategory	Frequency (occurrence)	Quotation
	Informing and educating children	3	“We used buckthorn to flavor the tea, but they had no idea what it was. I wrote an information sheet about it and we handed them out to explain what it looks like and how we use it. We explained why it’s good for them, and if you eat it why it will be good for you later. It seems to have worked; they like these little information leaflets.”
	Following new trends	2	“We have to move in this direction and follow trends, trendy things that we can use to attract youngsters.”
	Changing the mindset of food manufacturers	2	“Manufacturers should make slight changes to their technology, to make it slightly more child friendly; you can now get much lighter wholemeal pasta... manufacturers are also adapting a little bit to the demands of public caterers.”

hindering the adoption/implementation of school catering; (3) everyday issues in the implementation of school catering; (4) the role of public caterers¹⁰ and public catering in schools; (5) the transformation of public catering in schools; (6) cooperation among stakeholders in public catering; and (7) factors that facilitate the cooperation of children. Each of the main categories has at least two subcategories. Quotations from the food service managers that represent these subcategories are documented verbatim. The text presentation and evaluation of each category includes the results of the values coding. The attitudes, values, and beliefs identified during the values coding are summarized in Table 2.

Factors contributing to the acceptance/implementation of public catering in schools

The roundtable discussion highlighted those factors that contribute to the acceptance of school meals from the perspective of the stakeholders involved in school catering. The food service managers repeatedly highlighted the supportive role of the public authorities in optimizing the

¹⁰Public caterers are catering facilities that provide public catering and may take several forms (economically autonomous units, units run by the municipality, self-operated catering facilities). The activities of a catering facility are managed, organized, and controlled by the food service manager (GUBICKÓNÉ KISBENEDEK – BREITENBACH 2021). Moreover, the food service manager acts as a liaison/bridge between the operator of the catering facility, the actors in the catering service, and its end users. The roundtable discussion was attended by food service managers who can be considered representatives of the catering facilities.



Table 2. Attitudes, values, and beliefs identified in the roundtable discussion on school meals

Attitude	Value	Belief
<ul style="list-style-type: none"> → the supportive role of the authorities, → the high quality of school catering, → fear of financial shortages, → responsibility for accepting school catering, → inflexible regulations, → unrealistic expectations of school catering, → fear of shortages of skilled staff 	<ul style="list-style-type: none"> → regulations to support public catering, → the role of teachers as role models, → health maintenance, → the role of nutrition in education, → knowledge of food, → opportunity for development and responsibility, → acceptance of public catering by children, → good quality of school meals 	<ul style="list-style-type: none"> → children are key actors in public catering, → public catering as the classroom for healthy eating, → children have limited food-related knowledge, → communication is the source of cooperation, → regulation as an opportunity for the future, → school meals are a key element in education on healthy eating

quality of public catering. In this context, they referred to a recent change of attitude on the part of both the authorities¹¹ and the caterers, manifested as a more helpful attitude and a greater willingness to cooperate with one another towards a common goal. The caterers do not perceive school catering regulations as a burden, but rather as a value and a guideline that facilitates their daily work. Moreover, they see the related regulations as a future opportunity to improve the quality of public catering. Among the subcategories, they highlighted the attitude of teachers as role models, which they also identified as a value, along with their close contact and continuous communication with the children, which greatly contribute to the acceptance of public catering. The provision of catering at school events was presented as a factor that promotes cooperation with teachers and parents.

Factors hindering the acceptance/implementation of public catering in schools

The food service managers participating in the roundtable discussion debated the factors that hinder the acceptance of public school catering, which comprise five subcategories. Among these subcategories, limited food-related knowledge among children was given greatest emphasis. They highlighted that children are not familiar with the foods, thus do not accept them and/or are not happy to eat them. This reduces the social acceptance of public catering and also creates difficulties in complying with the Public Catering Decree in terms of ensuring variety.

¹¹Compliance with the requirements of the Public Catering Decree is monitored by the supervisory authority specified by the Decree (the district office of the metropolitan or county government office that is responsible for public health in the location where the public catering service is provided). In relation to inspections, the training of inspection authorities and caterers is supported by the National Institute of Pharmacy and Nutrition and the National Food Chain Safety Office [NÉBIH] through the development of guidelines (e.g., Guidance for inspections by the national health authorities in relation to the EMMI Decree 37/2014 [April 30] on Nutritional Health Regulations for Public Catering) and in the form of professional presentations (e.g., the presentation by Dávid Tóth, head of the Hospitality and Public Catering Supervision Department of NÉBIH, “Helpful authority: Preparation for official inspection — Self-inspection”).



The second most frequently mentioned hindering factor were the over-expectations of the parties involved in the implementation of public catering, which are linked to a lack of communication and a lack of information exchange among stakeholders. Moreover, the negative image of public catering and conditions that are not conducive to the enjoyment of meals, such as high noise levels and limited time allowed for meals, were mentioned as further barriers to the acceptance of public catering.

Problems in the everyday implementation of public catering in schools

The daily challenges encountered in the implementation of school catering were given particular emphasis in the roundtable discussion. The most frequently mentioned issues included the salaries of the kitchen staff, the financial resources available for preparing meals, difficulties in procuring ingredients, and the rigidity of the Public Catering Decree. Of these, the limited financial resources available for meal preparation was identified as the biggest difficulty, including the problem of obtaining high-quality ingredients and meal planning. The other main problem affecting the implementation of daily catering was the low salaries paid to the kitchen staff.

KVS: “We can’t always get the quality of food and the kind of ingredients that we were thinking of and that we want to cook with. These are really big problems in themselves, and I think it’s an even bigger problem that the salaries of the catering staff — the qualified cooks, and even the kitchen workers, the people who work in the serving areas, and the kitchen assistants — are very, very low.”

In relation to the low salaries of the kitchen staff, fears of a shortage in skilled workers, as a potential barrier to the future of everyday food preparation and public catering, were also brought up in the roundtable discussion.

AP: “How can I keep hold of my cook in the public catering sector, or how can I hire another cook when the catering industry is luring away our skilled workforce with huge sums of money? Who’s going to be willing to work in public catering as a qualified chef?”

Concerning the feasibility of the Public Catering Decree, participants highlighted that public catering stakeholders have not been adequately informed about the introduction of the regulation and the interpretation of its rules. Another problem identified in relation to the Decree is that the legislator did not provide a transitional period in the case of foods whose consumption has been limited in terms of frequency and quantity.

The role of public caterers and public catering in schools

The analysis revealed how food service managers view public catering in schools, as well as their own roles and responsibilities. Five subcategories were identified in this category, three of which emerged predominantly: ongoing communication and liaising with children; nutrition education for children; and guidance for kitchen staff. Food service managers aimed to enhance children’s food-related knowledge and nutrition education, which included the introduction of new foods and the presentation of their health effects. This is related to ongoing communication with children about catering and food. Another identified task was the sharing of good practices among children to increase acceptance of the food served in the school cafeterias. Guidance for kitchen staff in the preparation of food was also identified as an important responsibility. On the one hand, this was to ensure compliance as far as possible with the Public



Catering Decree, and on the other hand to help staff master new food preparation techniques that could help facilitate the acceptance of the new meals among children. AP: “We had to teach the kitchen staff that there were other ways of thickening. You can thicken things with potatoes, while creamed vegetable stews can be thickened with the vegetables themselves. It might look a different color, but it’s much healthier and it makes it far easier to comply with the regulations. You don’t have to worry so much about how to make reductions, or how the children are going to eat it... and now the children love the green-colored green pea stew that’s thickened with peas.”

In the category of public catering and caterers’ tasks, two further important subcategories emerged: health promotion and prevention; and the provision of healthy meals/catering in public catering. The food service managers explained that there is a high prevalence of diet-related non-communicable diseases among children, and they linked these to the preventive role of public catering. Public catering was also presented as an exemplary setup for nutrition: GYA: “(...) because the kindergarten kids who come to us eat their first meal with us, they eat with us normally, and they should learn to eat good things, eat well, and eat healthy.”

Cooperation among stakeholders in school catering

The roundtable discussion highlighted the need for food service managers to cooperate with other stakeholders in public catering. The subcategories reflected the need for dialogue among parents, teachers, food suppliers, and legislators. Cooperation requires compromise between public catering stakeholders, while the key to this cooperation is permanent communication. They expressed the opinion that, together with the stakeholders, they were able to identify problems and possible solutions through daily communication. Through cooperation with parents and teachers, they have an opportunity to explain and inform parents about the regulations in the Public Catering Decree and for nutrition education to be provided for the children by their teachers on “health days.” They are also able to inform food suppliers of their food-related requirements. Public caterers are open to discussing the respective rules imposed by the legislators and seek opportunities for engaging in dialogue with them.

The transformation of public catering

Public catering has undergone a major transformation and evolution over the past decades. The category of transformation encompassed three subcategories: the modernization of the kitchens; the demand for/importance of a qualified staff; and the introduction of new recipes and food preparation technologies. They highlighted that the modernization of kitchens has raised the standard of public catering, making modern kitchens an essential aspect of catering. A skilled workforce is another key element in catering, and professional skills on the part of kitchen staff are essential for the operation of school kitchens. Adapting old recipes and introducing new recipes and new food preparation techniques have become necessary in order to comply with the Public Catering Decree and to adjust to new trends in children’s diets.

Factors facilitating the cooperation of children

In the roundtable discussion, children were presented as key players in public catering. Factors facilitating cooperation with them thus emerged as a separate category. Each of the subcategories in this category were intended to promote acceptance of the public catering service. This issue



was one of the main subjects of the discussion and was also seen as a core value in public catering.

KVS: “food of some kind will be served on their plates, and the greatest loss is if that food is left there.”

The food service managers discussed children’s cooperation and everyday good practices to promote acceptance of the food offered in school cafeterias. The subcategories included involving children in diet planning (e.g., Wish Week); involving children in food preparation (e.g., bread baking contest); following a step-by-step approach when introducing new meals (e.g., making taster portions available); and informing and educating children about the ingredients served in the cafeteria (e.g., creating an information sheet about an ingredient). In addition, food service managers identified a change in the attitude of food producers as a factor in encouraging children’s cooperation, with food producers trying to produce certain meals in a child-friendly way.

During the values coding, we identified the attitudes, values, and beliefs about school catering among participants in the roundtable discussion. These results have been presented in the text above, along with the evaluation of the categories. The results of the values coding are shown in Table 2.

The network below (Fig. 1) visualizes the co-occurrence of the identified subcategories and values based on their appearance in the roundtable discussion. The network links (or “edges”) indicate co-occurrence between subcategories and values; lines in bold indicate that a co-occurrence is observed more than once. The clusters organized on the basis of co-occurrence and the strength of the associations are color coded (bold red lines indicating strong connections). In Fig. 1, colors indicate individual clusters, with those of the same color belonging together (in the same cluster). The network of co-occurrence relationships is divided into one large component and several separate small components. As a result, it can be concluded that most of the subcategories and values are clustered in a coherent network of relationships. The main components are separated into five subgroups, or clusters, although it is important to note that this separation is not strict, as there are also important connections among the clusters. Components emerged in the network: these are subnetworks that are separated from the other subnetworks within the network, thus there is no link between the rest of the network and the subnetwork. Based on this, the co-occurrence network features strong separation between four to five topic groups. “Modernization of public catering” and “Legal regulation of public catering as a future option” form a cluster. “Role of nutrition in education” and “Cooperation with teachers” also form a separate cluster. “Nutrition education of children,” “Public catering as a classroom for eating,” and “Children’s inadequate knowledge of foods” are separate, closely linked groups. These components are not closely related either to the main component or to the other, smaller components.

In the co-occurrence network of subcategories and values identified in the roundtable discussion, there is a strong relationship between “Financial resources available for food preparation” and “Fears of a shortage of skilled workers and a shortage of money” in one cluster of the main component. The other cluster of the main component is characterized by the categories “Regulations supporting public catering” and “The supportive role of the public authorities.” In a further cluster, the subcategories “Communication as a source of cooperation,” “Communication among stakeholders,” “Cooperation with parents,” and “Acceptance of public catering” are closely linked.



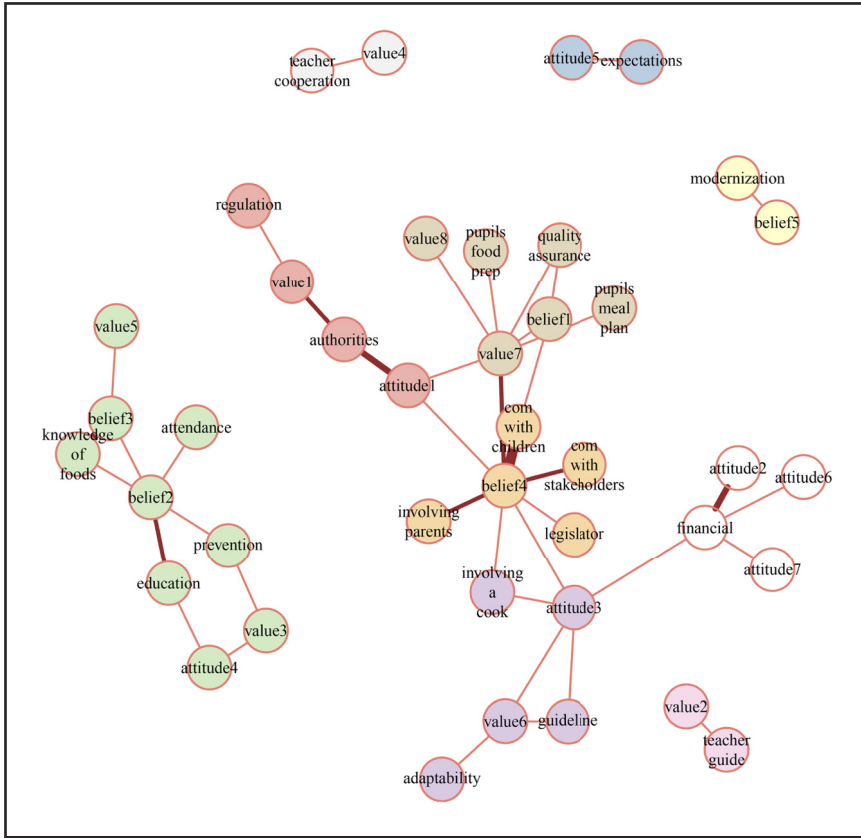


Fig. 1. The co-occurrence network of subcategories and values identified in the round-table discussion¹²

¹²Explanation of codes used in Fig. 1: attitude1: the supportive role of the authority; attitude2: fears of shortages of money; attitude3: responsibility for the acceptance of school catering; attitude4: high priority of public catering; attitude5: unrealistic expectations towards public caterers; attitude6: rigidity of regulations; attitude7: fears of shortages of professional staff; value1: regulations supporting public catering; value2: teachers acting as role models; value3: health maintenance; value4: role of meals in education; value5: knowledge of foods; value6: opportunity and responsibility for development; value7: acceptance of public catering; value8: quality of the school cafeteria; belief1: children are key actors in public catering; belief2: public catering is a classroom for learning about food; belief3: children have no knowledge of foods; belief4: communication is a source of cooperation; belief5: regulation is a future opportunity; authorities: supportive role of the authority; pupils' food prep: children's involvement in food preparation; pupils' meal plan: children's involvement in menu planning; knowledge of foods: children have insufficient knowledge of foods; adaptability: flexible attitude of public caterers; expectations: high expectations towards public caterers; education: children's nutrition education; guideline: guidance for kitchen staff; com with children: communication with children; com with stakeholders: communication with stakeholders; attendance: presence of school kitchens at school events; modernization: modernization of kitchens; prevention: preventive role of public catering; involving a cook: involvement of cooks in recipe adaptation; quality assurance; teacher guide: teachers acting as role models; teacher cooperation: cooperation with teachers; financial: problems with implementation/shortage of finances; regulation: regulation as a guideline; involving parents: cooperation with parents; legislator: dialogue with legislators.



CONCLUSION

The aim of this study was to analyze the content of a roundtable discussion on school meals provision with food service managers, as a group of catering experts, and to identify the messages conveyed about public school catering. Prominent among the seven subcategories identified in the research was the importance of cooperation among stakeholders in the implementation of school catering. Within this topic, particular emphasis was given to communication among stakeholders as a source of cooperation. By creating formal platforms for communication among stakeholders, providing adequate information, and reaching compromises among the parties involved in the implementation of public catering, the acceptance of public school catering can be increased, thus preventing the development of non-communicable diet-related diseases.

Two critical actors in school catering are the food service managers, who are in contact with the children through their daily work, and the children themselves, who have the least opportunity to influence the way in which school catering functions. It is important to increase the influence of these two key players: the food service managers expressed their wish to discuss their everyday, practical problems and propose solutions in cooperation with professional organizations, decision makers, and legislators. In line with our findings, the need to involve children in school catering has been highlighted by several international studies and organizations (e.g., MIKKELSEN *et al.* 2005). Healthy nutrition education programs, involving children in diet planning and food preparation, building school gardens and kitchens, and learning about public catering can all increase children's acceptance of the food they are served in the context of public catering. In this way, schools and school catering make a direct contribution to children's healthy eating and to obesity prevention. These findings highlight the essential role of school catering in promoting healthy nutrition and educating children about healthy eating, and the importance of working closely with children to promote the acceptance of school meals. School education is both a basis and a condition for the development of healthy lifestyles and eating habits. The school cafeteria, as a classroom for eating, plays a key role in the development of adequate nutrition, and as a daily arena of socialization it provides an opportunity for pupils to experience the impact of eating on well-being, vitality, learning, and quality of life.

Regarding the interplay of subcategories and values, the network structure was divided into one large and several distinct, small components on the basis of the studied discussion. The main component was further divided into five subcomponents, of which "Regulations supporting public catering" and "The supportive role of the authorities" were dominant, while another subcomponent contained "Communication among stakeholders" and "Acceptance of public catering." On this basis, it can be said that most of the subcategories and values were grouped into a coherent set of relationships, with no significant fragmentation among them. The results of the network analysis are in line with those of the qualitative content analysis.

The selected qualitative methodology proved to be suitable for identifying problems, good practices, and objectives in the field of public catering. In the present study, the opinions of an expert group of three food service managers were analyzed to identify important subject groups in the field of school catering. Analyzing the views of a group of experts is a common approach to evaluating statements on an issue (or group of issues), based on the experts' knowledge and experience. Experts may rely on a variety of sources of information to make their judgements. They may draw on their personal expertise, on the one hand, and on knowledge from various



types of literature on the other. This made possible the integration of knowledge and the identification of consensus and controversies in the field of school catering.

Tools to promote the collaboration of key players in school catering in order to reduce the occurrence of childhood obesity

The analysis of the roundtable discussion confirms the lack of communication and collaboration among the stakeholders in school catering. Coordination among the key players in child nutrition could be promoted by creating communication platforms and working groups among various professional organizations and by drafting professional materials. The National Institute of Pharmacy and Nutrition (*Országos Gyógyszerészeti és Élelmezés-egészségügyi Intézet, OGYÉI*) has issued a call for proposals for professionals working in the field of public catering, an excellent initiative that provides a good example of bringing professionals together to reduce childhood obesity. In collaboration with the authorities and professional organizations, the Institute has set up public catering working groups.¹³ The working groups support the advancement of professional knowledge and give professionals the opportunity to discuss problems and issues in their field with the authorities, professional organizations, and other stakeholders. The working groups on public catering can help school catering staffs in their day-to-day work and in developing practical solutions. Collaboration among food service managers, dietitians, and teachers is of particular importance, and by providing teachers with reliable professional information and informative materials, and by organizing training courses, public catering experts and professional organizations can help to improve teachers' knowledge and awareness of healthy eating, which can play a major role in shaping teachers' attitudes towards public catering.

Since children play a central role in public school catering, it would be worth mobilizing resources to improve understanding of children's nutritional attitudes and developing interventions to change these attitudes. The two most important arenas of socialization in children's health education — including nutrition education — are the family and the public education institutions, thus cooperation and continuous communication between them is essential. By organizing school Health Days and preparing food together, it becomes possible to engage parents in healthy eating education. Nutrition education in schools, and parental involvement in Health Days, ensure continuous communication between teachers, parents, and children, and help raise awareness of the importance of healthy eating.

The number of pupils receiving school meals, their willingness to accept the food, sensory evaluations, the volume of food waste, as well as the contribution made to daily nutrient intake by other school programs related to healthy eating (e.g., school fruit schemes) should be monitored continuously. The development of school nutrition programs should be based on recommendations from the WHO and other international professional organizations, with the involvement of children and parents. Longitudinal studies can be used to examine the relationship between children's nutritional status and efforts to promote a healthier school environment in terms of public catering in schools. As part of health education, it would also be important to make knowledge about the meals served in the school cafeterias an integral aspect of the health promotion programs, to increase children's acceptance of the meals they are served in the

¹³Public catering work group. https://ogyei.gov.hu/kozetkeztetesi_munkacsoport, accessed February 10, 2023.



context of public catering. Studying children's satisfaction and preferences would also be important as a way of monitoring changes in the quantity and quality of public catering in schools. After assessing children's nutritional status and determining their preferences, the role of school meals in terms of children's health and nutritional behavior could be further investigated.

SUMMARY

In the recent years, the prevalence of chronic non-communicable diseases, and of childhood obesity in particular, has been increasing among children. Regulations related to public catering have been incorporated into a legal framework to improve the quality of children's nutrition, which has been a step forward in obesity prevention, although at present few studies are available on the applicability of the regulations and on the perception of public catering in schools by various groups of experts, such as food service managers. The present research took the form of a qualitative content analysis of a roundtable discussion on school cafeterias, with the aim of gaining an insight into perceptions of public catering in schools on the part of food service managers. During the content analysis, we identified seven main categories, prominent among which were cooperation among the parties involved in the implementation of public catering; factors that facilitate or hinder the acceptance of public catering; and factors that facilitate cooperation with children, as the central actors in public catering in schools. According to the food service managers who participated in the roundtable discussion, public catering in schools is an asset, a classroom for nutrition education, one of the main objectives being to maintain students' health. Furthermore, communication among stakeholders in the catering sector is considered as a source of cooperation, while the regulation of public catering is seen as a future opportunity for the development of school catering. The results of the network analysis showed that most of the subcategories and values were grouped into one coherent set of relationships, with strong links between the themes "Nutrition education of children" and "Insufficient knowledge of foods among children," as well as between "Communication among stakeholders" and "Acceptance of public catering." Our results highlight the need to take into account the situation of the various actors involved in school catering and their respective interests before developing regulations for school catering. A complex nutrition education program and continuous dialogue among teachers, parents, school catering professionals, and the government are essential for the development and acceptance of healthy catering for children. The public catering standards for schools carry a message to students about healthy nutrition and are an effective way to change students' eating behavior. The findings from the qualitative analysis of the roundtable discussion on school cafeterias can provide a basis for planning, conducting, and evaluating future studies on school meals.

REFERENCES

CHAULIAC, Michel

- 2003 National Inter-Agency Cooperation Regarding Nutrition in Schools. In Proceedings of the European Forum on Eating at School — Making Healthy Choices. November 20 and 21, 2003. Strasbourg: Council of Europe.



COUDYSER, Richard

- 2003 Healthy Eating in the Traditional School Meals System. The Role of the Private Food Operator. In *Proceedings of the European Forum on Eating at School — Making Healthy Choices*. November 20 and 21, 2003. Strasbourg: Council of Europe.

Council of Europe

- 2003 *Proceedings of the European Forum on Eating at School — Making Healthy Choices*. November 20 and 21, 2003. Strasbourg: Council of Europe.

CSÁRDI, Gábor – NEPUZ, Tamás

- 2006 The Igraph Software Package for Complex Network Research. *InterJournal, Complex System* 1695(5):1–9.

DACIN, M. Tina – GOODSTEIN, Jerry – SCOTT, Richard W.

- 2002 Institutional Theory and Institutional Change. Introduction to the Special Research forum. *Academy of Management Journal* 45(1):45–56.

GUBICKSÓNÉ KISBENEDEK, Andrea – BREITENBACH, Zita.

- 2021 *Élelmészírányítási ismeretek* [Food Management Skills]. Budapest: Medicina.

GODET, Michel

- 1991 Actors' Moves and Strategies. The Mactor Method: An Air Transport Case Study. *Futures* 23(6): 605–622.

JAKAB, Andrea Emese – HIDVÉGI, Erzsébet Valéria – ILLYÉS, Miklós – CZIRAKI, Attila – BEREZCKI, Csaba

- 2018 Prevalence of Overweight and Obesity in Hungarian Children and Adolescents. *Annals of Nutrition and Metabolism* 72(4):259–264.

KISS, Anna – POPP, József – OLÁH, Judit – LAKNER, Zoltán

- 2019 The Reform of School Catering in Hungary. Anatomy of a Health-Education Attempt. *Nutrients* 11(4):716.

KOLETZKO, Berthold

- 2016 Childhood Obesity. Current Situation and Future Opportunities. *Journal of Pediatric Gastroenterology and Nutrition* 63(1):18–S21.

KORKALO, Liisa – NISSINEN, Kaija – SKAFFARI, Essi – VEPSALAINEN, Henna – LEHTO, Reetta – KAUKONEN, Riikka – ERKKOLA, Majjailiisa

- 2019 The Contribution of Preschool Meals to the Diet of Finnish Preschoolers. *Nutrients* 11(7):1531. <https://doi.org/10.3390/nu11071531>.

MIHÁLDY, Kinga – ERDÉLYI-SIPOS, Alíz – NAGY, Barbara – DR. BARTOS, Éva

- 2014 Az egészséges közétkeztetés népegészségügyi jelentősége – a közétkeztetésre vonatkozó táplálkozás egészségügyi előírásokról szóló 37/2014 (IV.30.) EMMI rendelet [The Importance of Healthy Public Catering for Public Health — EMMI Decree 37/2014 (April 30) on the Nutritional Health Standards for Public Catering]. *Új diéta* 23(5):22–25.

MIKKELSEN, Bent Egberg – RASMUSSEN, Carsten – BARNEKOW, Vivian – YOUNG, Ian

- 2005 The Role of School Food Service in Promoting Healthy Eating at School — A Perspective from an Ad Hoc Group on Nutrition in Schools, Council of Europe. *Food Service Technology* 5(1):7–15.

MOLNÁR, László

- 2020 A hálózatelemzés alapfogalmai – gráfok, centralitás, szomszédosság, hidak és a kis világ [The Basic Concepts of Network Analysis — Graphs, Centrality, Adjacency, Bridges and the Small-World]. In SASVÁRI, Péter (ed.) *Rendszertelemzés*, 123–140. Budapest: Ludovika Egyetemi Kiadó.



SALDAÑA, Johnny

2021 *The Coding Manual for Qualitative Researchers*. Fourth Edition. Los Angeles – London – New Delhi – Singapore – Washington DC: SAGE Publications Ltd.

SHAW, Marvin E. – WRIGHT, Jack M.

1967 *Scales for the Measurement of Attitudes*. New York: McGraw-Hill.

STORCKSDIECK, Stefan – KARDAKIS, Therese – WOLLGAST, Jan – NELSON, Michael – CALDEIRA, Sandra

2014 *Mapping of National School Food Policies across the EU28 Plus Norway and Switzerland*. Publications Office of the European Union. <https://publications.jrc.ec.europa.eu/repository/handle/JRC90452>, accessed August 2, 2023. <https://doi.org/10.2788/8214>.

WOLCOTT, Harry F.

1999 *Ethnography. A Way of Seeing*. Walnut Creek, CA: AltaMira Press.

Anna Kiss (PhD) is a research associate at the Hungarian Academy of Sciences and is studying for a PhD at the Doctoral School of Education in the Faculty of Education and Psychology of Eötvös Loránd University. Her main research areas are obesity prevention and the implication of food policies on nutrition behavior and body weight outcomes, and the development of knowledge synthesis methods in the field of sport nutrition. She is a review editor of the *Journal of Frontiers in Nutrition*.

Laura Pfeiffer is a PhD student at the Doctoral School of Food Science at the Hungarian University of Agriculture and Life Sciences. Her research interests include nutrition and eating habits of minority populations, food in/security, and sport nutrition. Her goal is to enhance people's health and knowledge about sports and nutrition by applying the latest research results in the field.

Zsófia Dominek-Hajdu is a dietitian and is currently studying for an MSc in nutritional sciences at Semmelweis University, Hungary. Her present research sheds light on the correlation between beliefs leading to or justifying an individual's obesity and their respective nutritional behavior. Her goal is to assist people in achieving a healthier lifestyle and eating habits by extending their nutrition knowledge.

Sándor Soós (PhD) is an internationally recognized expert in scientometrics and science studies and is head of the Department for Science Policy and Scientometrics at the Library and Information Centre of the Hungarian Academy of Sciences. As an institutional PI, he has contributed to various large-scale national and international research projects in S&T policy.

Orsolya Tompa (PhD) is a research associate at the Hungarian Academy of Sciences and holder of a RIS Talent fellowship from the European Institution of Innovation and Technology (EIT) Food. She earned her PhD at the Doctoral School of Food Science of the Hungarian University of Agriculture and Life Sciences. She has professional experience in the field of sustainable diet optimization and analysis. Her main research areas are sustainable nutrition, the development of a sustainable food system, and sustainable food consumption.

Open Access statement. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited, a link to the CC License is provided, and changes – if any – are indicated. (SID_1)

