Preschool Catering - as a Platform of Health Awareness Formulation and Nutrition Education- in View of Parents and Catering Managers

Doctoral thesis

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Introduction

Lifestyle is one of the most decisive factors relating to the protection of human health, which also incorporates healthy diets. In welfare societies, despite the rapid industrial and technological development, the risk of obesity and quantitative and qualitative starvation, i. e. inadequate nutrition, are affecting not only adults but also increasingly children. Over the past few decades, more and more often, diet-related diseases occur at a progressively young age. It would be essential for parents to give a good example because this is the very age in which behavioral patterns are formed.

Based on a large number of studies it can be argued, however, that the major part of the population is unfamiliar with the rules of healthy diets and with the age-appropriate recommendations. Alternatively, if they are actually aware of them, they cannot fully implement them in their daily lives. Two-third of Hungarian population are obese or overweight, with obesity covering every third people amongst adults, implying that raw material consumption in terms of both quantity and quality is not satisfactory.

Mass catering, as being a form of behavioral training, represents the approach and practices of healthy eating and can contribute to maintain good health through providing information and getting the above-mentioned approach and practices accepted. Child nutrition in educational facilities and in childcare institutions, as well as catering managers occupying management positions there, is particularly important especially because eating behavior, eating habits, tastes and health-consciousness of 1-14 year-olds are still being formed, which are, of course, also affected by kindergarten-meals. The opinion of parents on mass catering, whether they wish to change their child's nutrition or whether they find it healthy, must be a top priority. For food-catering managers, to achieve the compliance with

both the legal framework and consumer's expectations is not an easy task. That is why cooperation and partnership of all participants of the food chain is so important. In addition, State-level aid measures are essential.

Objective

One of the main aims of our study was to find out the parents' knowledge concerning their children's meals. We took into account the parent's age, education and financial status, and the number of their children attending kindergarten. We wanted to map parents' perceptions of kindergarten meals, that is, their monitoring of the food, their willingness to play an active role, their need for social control and, in the case of quality problems, the willingness to protest amongst those parents who declare themselves to be "health conscious".

The other main objective of our research was to examine the opinion - obtained through work- of nutritionists who care for kindergarten children, in relation to the exact size of the effect of public catering on the health and nutritional behavior of parents and their children. We also wanted to know how they were thinking about possible improvements towards health awareness and that how open they were, in connection with these improvements, to any feedback from parents who represent the interests of potential consumers, the children.

In addition, we wanted to discover and explore the differences and similarities between the views and experiences of parents of preschool children and catering managers serving preschool children about the current state of preschool catering. We sought answers to the question of how the two groups treat each other as partners and how open they are to each other's views.

Methodology

Data Collection

The survey questionnaire data were collected by computer-assisted web interviewing (CAWI) on two types of samples. One was a regional sample, where the respondent Budaörs parents represented themselves, and the other was a national sample representing the views of catering managers participating in kindergarten catering.

In addition, official statistical area data published on the websites of the HCSO (KSH) and the National Spatial Development and Spatial Information System (TeIR) were also used for comparing the data (www.ksh.hu). Territorial data of an information database; (https://www.teir.hu/).

Data processing and statistical analysis

The online questionnaires were created with the assistance of Google Forms. The data was downloaded as CSV and converted to SPSS (.sav) as the data was cleaned and processed with the IBM SPSS25 statistical program package. No post-weighting was used to analyze the data. The questionnaires mainly contained categorical variables, but they also included scale variables and numerical variables. The relationship between the finalized variables were analyzed by several methods, but basically two-variable methods were used: for categorical variables, cross-table analysis (Chi-Square test or in one case Fisher Exact test), between categorical and high-level dependent variables, we used the Kruskal-Wallis test the non-parametric equivalent of ANOVA, and the Mann-Whitney test, the non-parametric equivalent of the Two-sample T-Test was used to compare averages between the high-level variables.

In the cross-table analysis, the strength of the relationship between the variables was measured by the Cramer's V-factor and the gamma-coefficient. In addition to the sample averages, the standard deviation (SD) and the category element number (N) were also given.
In the independence studies, a 95% significance level ($p < 0.05$) was used.

Sampling

In the first case, the sampling frame was provided by the parents of the children attending kindergartens in Budaörs, while in the second case, the catering managers of the catering services providing kindergarten meals from all over the country.
The parental questionnaire was available from May 17 to June 10, 2019 at the link provided. A total of 265 fill-ins were received during this time. Taking into account the number of kindergarteners, which according to HCSO data was 1,358 in Budaörs in 2017, and considering the fact that on average, a parent with a young child has not one but about 1.3 children attending kindergarten at the same time, the 265 fill-ins cover about 350 kindergarten children, which means about 25% realization.
For food executives, the questionnaire was made available on May 17, 2019 and closed on September 2, 2019. The number of responding catering managers (305 people), the number of children they serve (83,057 people) and the resulting response rates are illustrated in Figure 1 by region. Given the territorial distribution of all kindergarten children in the country (322,741), in 2017, and that these numbers and their regional distribution do not show great fluctuations from year to year, – the estimated response rate is relatively good: close to 26%.

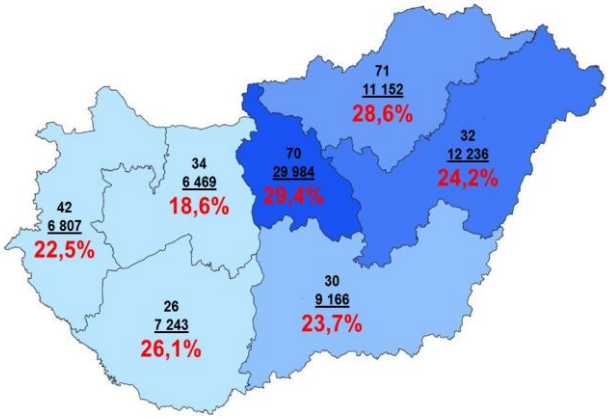

Figure 1. Regional distribution by the responding catering managers, the number of children they serve, and the estimated response rate expressed as a percentage

Results

Results for parents

The majority of responding parents (57.2%) have not one but several children who attend or have attended kindergarten before, and more than half of them (54.6%) already have schoolchildren, can be called good in terms of judging kindergarten services. A significant part of them is therefore can be labelled as an experienced parent in the assessment of kindergarten services. The most commonly reported diet-related illnesses within their families were overweight, obesity (36.9%), followed by hypertension (34.7%), food allergy and intolerance (24.2%). During the research, we distinguished between subjective and objective health

awareness. Subjective health-conscious parents meant self-perceived health-conscious parents, while objective health-conscious parents meant that they had adequate knowledge of the health-conscious lifestyle, which was measured by control questions. According to our definition, the majority of respondents (61.9%) considered themselves health conscious, while the rest (38.1%) considered themselves to be less or not health conscious. Subjective health awareness showed no significant association with school education and the number of illnesses in the family but it did with the age (p=0,003). Cramer's V indicated a weak relationship (value 0.22) with a positive direction. We can therefore conclude that younger parents are generally less health conscious. We also found a significant relationship with the income (p = 0.002): among those in the higher income bracket, there are more who declare themselves to be health conscious.

Just over half (54.7%) of the responding parents identified themselves as health conscious and hit the answer that a balanced, mixed diet is the healthy diet for their child. These are the parents that can be considered *realistically health conscious*. Subjective and objective health consciousness are not independent of the results of the chi-square test (p = 0.000), however, Cramer's V was 0.275, indicating a not very strong relationship. We can fairly say that among those who have hit the right diet, the proportion of people claiming to be health conscious is about twice as high as among those who did not hit it (69% in the first case and 35% in the second case). Higher education graduates and high school graduates were better able to pick the balanced, mixed diet than those with lower levels of education. Cramer's V score was 0.46 and gamma was 0.72, indicating a moderately strong positive-sign relationship.

Four-fifths (79.2%) of parents of preschool children use the Internet to obtain information about healthy lifestyle and nutrition. One-third (33.1%) of them are also informed by acquaintances and family members, and nearly

as many use newspapers and magazines (31.8%) for such purposes. The number of those who avail themselves of the help of a dietitian is about the same (30,9%). Fewer (27.5%) are interested in the doctor's opinion.

The monitoring of kindergarten meals were measured by two variables: tasting the food and monitoring the menu. The food-tasting variable showed no significant association with educational attainment, income, age, comorbidities, and parental experience. Subjective health consciousness was also not decisive, at the same time however, objective health awareness clearly showed significant association with the tasting of kindergarten meals ($p = 0.002$): those who had correctly guessed which diet is the most healthy have a significantly higher rate of tasting their children's food in kindergarten. Cramer's V showed 0.20 and gamma 0.65.

While rating kindergarten meals, Budaörs parents were most satisfied with the hygiene and variety, and least with the tastes. Parents are dissatisfied with the amount of food provided by the kindergarten so they do not think they can meet all the requirements of a healthy diet. They think that eating at home is warranted to serve and meet more fully the particular needs of their child.

The difference between the average values describing the position of a nursery school meal and the average values describing a possible or desirable situation was the greatest in terms of palatability: in the current situation, this value is 2.69, the desired one, on the other hand, received an average of 4.69. The difference between the current situation and the expected situation was significantly different in all cases except for the cheapness, that is, the evaluation of the expected state in all dimensions was significantly higher than the actual situation ($p = 0.000$ was everywhere according to Mann-Whitney tests). As a result, parents rated implementation as low in relation to its importance.

The perception of the quality of kindergarten meals correlated with the way

parents were thinking about the contribution of kindergarten meals to health education. Spearman rank correlation calculated for scale values showed a positive relationship between the two: those who think kindergarten foods are healthier tended to score higher on the health effects of kindergarten catering; (among the correlation values, the contribution to health education and the development of children's health awareness is the highest, 0.288 and 0.286, and the lowest is the increasing of the more health conscious education of the parents' preschool children, 0,159). Therefore, parents think the direct impact on their children is stronger than the indirect effect that comes through them.

Neither subjective nor objective health consciousness was independent of the above question: health-conscious parents expected to have a greater health-awareness effect than those who are less health conscious or who claim to be less health conscious. Objective health awareness produced significant results in all cases ($p = 0.000$ in all five dimensions), and in the Chi-square test, subjective health awareness showed a significant relationship only with parents' health-conscious parenting ($p = 0.015$).

Amongst the subjective health-conscious parents, there is a greater number of those who consider the broader range of public catering forums and opportunities to be important (81.5% vs. 65.6%). The correlation was significant ($p = 0.005$). Objective health awareness also showed a similar relationship: the proportion of those who considered a larger forum -related to public catering- and more feedback opportunities to be important, the proportion of those who guessed good nutrition correctly was 79% and of those who did not was 63% ($p = 0.018$).

In order to improve the nutrition of their kindergarten children, only 8.5% of parents said they would be willing to pay more for food, 8.1% of them would love to taste and comment on the food and it is 11.9% who would rate the menu.

Parental activity was measured by two variables, according to which 62% of parents found it important to influence the menu content, but only 16.5% of them contacted the catering manager last year. The desire for influencing the menu did not correlate with educational attainment, age, number of illnesses in the family, parental experience, and objective health awareness variables. At the same time, we found a significant correlation with income ($p = 0.028$) and subjective health awareness. For income, Cramer's V was 0.24 and gamma was 0.25. Persons in the monthly income category above 150 thousand HUF are more willing to influence the menu.

Consultation with the catering manager has a clear correlation with the highest completed level of education ($p = 0.000$). The correlation was moderate and, surprisingly, reversed with school qualifications (with Cramer's V being 0.38 and gamma -0.53).

We also found a significant correlation with income ($p = 0.026$). It is noteworthy that even those in the lowest income bracket were more active than those in the one higher bracket. Cramer's V and gamma values were 0.24 and 0.48 respectively. We found a significant and positive relationship between the visit of the catering manager and the subjective health consciousness: health-conscious parents are more likely to visit the catering manager ($p = 0.000$).

The menu is also checked regularly by many more of those who find it important to influence the content of it (61.2%), than of those who do not consider it to be important (37.1%). The correlation was significant ($p = 0.000$).

The majority of parents, about 72%, take the view that their children's expectations for kindergarten meals are not taken into account.

Results for the catering managers

Most of the respondents have been working as catering managers for up to 10 years, 38% for no more than 5 years, and one-fifth (22%) for 6-10 years. 32% for 11-20 years and 8% have been doing this for over 20 years. According to the distribution of responding catering managers by professional qualification - 76.7% have a food education qualification, another 18% is a dietitian and 5% have other qualifications. Slightly more than one third (34%) of catering managers have a university degree, and nearly two thirds (62%) have a high school diploma, only 3% of parents reported the highest completed level of secondary education without a baccalaureate and merely one of them has a basic level of education. The average value of the daily net supply of nutritional raw material norm in kindergarten institutions for kindergarten children is HUF 358, whereas the average number of kindergarten children provided was 272.

According to nutritionists, hygiene adequacy is the most important aspect in kindergarten meals, and it received the highest average value (4.70). The least important factor is the cheapness of the food; it was rated on average at 3.44. The highest average score for nursery school meals they currently provide was also hygiene compliance, which was rated at 4.90, and palatability (4.86) was almost as well scored. The lowest average score was given to cheapness (3.52).

Educational attainment showed a significant relationship with some of the dimensions. The one-way ANOVA test confirmed the correlation of low cost ($p = 0.001$), palatability ($p = 0.003$), and hygienic ($p = 0.013$) dimensions with educational attainment. The cheap price was considered more important by the low-educated catering managers, while hygiene compliance and palatability tend to score higher in groups with higher level of education.

It was only the size of the establishment that showed a significant correlation with abundance (p = 0.003 for the Kruskal-Wallis test). The leaders of large kitchens underestimated the importance of the portion dimension of food intake.

It was the cheap price (p=0,021) with which the nature of the operator, and it was the need for a variety of foods (p=0,041) and the appropriate amount of food portions (p=0,005) with which logistics - the issue of shipping or cooking local - showed a significant relationship. The importance of cheap price was considered most important by the employees of catering companies, while other e.g. church-owned kitchens considered it to be the least important. Those who deal with shipping do not consider the variety and the generous doses so important. The latter may have to do with the fact that shipping companies have less direct contact with the parents.

Caterers also described the food they currently serve according to these dimensions. We did not find significant differences in the quality dimensions by settlement type, years spent in catering management, vocational qualification and the number of kindergarten children. Only hygiene compliance showed a significant correlation with the highest level of education (p=0,005), high school graduates and senior nutritionists on average score higher on this dimension.

The type of operator appears to be significantly dominant in the dimensions of abundance (p = 0.033) and hygiene compliance (p = 0.003). On-site cooking/delivery that is the logistics area showed a significant correlation with the food health dimension and it was not clearly kitchens, cooking solely for home consumption but rather establishments that cook for local consumption as well as for delivery, that represent the „mixed category" was rated the highest. (p=0,040).

The factors raising the quality of kindergarten meals did not show a significant correlation with the background factor we examined except for

the technology used, which did not prove to be independent of the education of the catering managers: it was high school graduates who proved to be technology-skeptical ($p = 0.040$). Similarly, this factor was also related to vocational qualifications: those working as catering managers with other qualifications gave significantly higher value to the effect of the applied technology ($p = 0.030$). The correlation did not prove to be significant, but on the basis of the difference in average values, those with upper secondary education seem to attribute more value to the impact of vocational qualification/further training more than those with tertiary or primary education. By qualification, those with other qualifications rated it higher than the other two groups.

According to the respondents, kindergarten catering and children's health education is successfully promoted: catering

managers described it with an average of 4.38 to 4.31. In contrast, the promotion of parents' health awareness and education and the promotion of their healthier education for their children is less likely to be achieved through public catering – they were valued at an average of 3.65 and 3.70 respectively.

The overwhelming majority of catering managers (87%) believe that it is not important for parents to influence the content of the kindergarten menu, and (59%) do not consider it important for parents to have more forums for feedback on kindergarten meals. Dietitians and those with other qualifications are more open to parents' aspirations to influence menu content than the group with a nutritionist OKJ. Less than half (42%) of responding catering managers said that, during their service, they generally had taken parents' nutritional expectations into account; most of them (58%) had not.

Concerning the factors that would enhance the standard and quality of the kindergarten meals they provide, most people agreed that material, applied

technology and personal conditions play a significant role; vocational education is also quite important, but parents' views are not taken into consideration.

Conclusions

We identified a number of significant points that may help us to understand the views of parents and catering managers on catering. Based on our results, the following conclusions can be drawn:

1. Parents of children attending pre-school catering were only equally active in monitoring the kindergarten menu.
2. Our study showed that the willingness of parents to be active, especially in case of quality problems, the willingness to protest is determined by the parents' income situation furthermore their health awareness, within this, their subjective and objective health awareness - and their educational attainment.
3. Realistically health-conscious parents rated their child's current kindergarten meal more positively than other parents did. They are less critical of public catering, more likely to see its mission in a realistic way, and more acceptably appreciate its quality. Relatively higher levels of dissatisfaction among less health-conscious parents may be due to differences in preferences and lower awareness.
4. Realistically health-conscious parents are clearly more informed and their activity related to monitoring or social control of kindergarten nutrition is in most cases higher than that of non-health-conscious parents.

5. Subjective health awareness can also be false health awareness on the part of the parents, such as the Paleolithic diet. They are more likely to protest, and are more active than objective health-conscious parents who have real knowledge. So this is an important part of parents' education, in this case, it must mean refuting misconceptions. Furthermore, objective communication with health-conscious parents should be enhanced.
6. Tasting opportunities and providing a direct access were typical of larger catering establishments providing more kindergartens. The more kindergarten children a company provides, the better the chance of their providing their direct contact, that is, their email address or even their phone number.
7. According to the results, integrating parents' access to information, their opinion, that is, their social control into the quality of kindergarten catering improvement or even into the quality assurance process is novel for catering managers and requires tremendous professional openness.
8. The openness of catering managers showed a significant correlation with vocational qualification. Dietitians with nutrition education were most open to the numerous parental expectations. Parents' aspirations for influencing the menu content and their need for direct access are both "consumer" or "demand" expectation, to which it was the dietitians who responded most positively.
9. Nutritionists attach less importance to the ability of parents to influence the content of the menu than the parents themselves. The reason behind this can be that managers are aware of the regulatory requirements that influence menu design, they are aware of the physiological needs food of a particular age group

and thus they make parenting suggestions less considered.

10. According to the results, the role of public catering concerning both preventing their children's health and improving their health awareness was rated significantly higher amongst catering managers than amongst the parents.
11. Nutritionists rank spectacularly higher the quality of the kindergarten meals they supervise, than parents, who rated their own children's kindergarten meals based on the same criteria.
12. Higher education nutritionists consider the role of food safety in catering to be the most important.
13. Mid-level catering managers overestimate the impact of vocational qualification/further training than those with tertiary education, among them there is a greater need for further education.

For each question, we highlighted the importance of information sharing between parents and catering managers and their mutual recognition and respect, similarly to the relationship between a patient and a doctor. This could increase trust and satisfaction between the caregivers and those who are served by them.

In order for children to learn healthy eating, a complex nutrition education program– for children and parents –, also continuous dialogue between kindergarten teachers, parents and catering managers in catering services, and of course, among legislators is needed.

It would be important to interpret catering management as a multidisciplinary profession, where in addition to nutrition science, quality assurance and leadership technology, psychology and communication would also play a role.

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