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Original article

The Quality of Nutrition in the Serbian System of Public Preschool Institutions from the Perspective of Parents, Nurses and Preschool Educators

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SUMMARY

Introduction. Preschool children are a particularly sensitive group in need of special care concerning health, safety, food, and nutrition. Furthermore, habits formed at an early age tend to be retained even in adulthood. Therefore, parents as the first educators of their children are responsible for the development of healthy eating habits and the quality of nutrition of preschool children. Also, as children start to attend a preschool institution, the employees in that institution have an equally important role and responsibility in that regard.

Aims. The aims of the research were as follows: to ascertain whether parents are satisfied with the quality of children´s diet in preschool institutions; to identify the attitudes of preschool teachers and nurses-preschool teachers toward children´s nutrition in preschool institutions, the balance between the quality of food in family homes and kindergartens, and to establish various forms of cooperation between families and preschool institutions regarding the development of healthy eating habits in preschool children.

Material and Methods. The sample comprised 933 respondents, including 763 parents, 59 nurses, and 111 preschool teachers. The required data were collected by applying an assessment scale in the case of parents, and interviews in the case of nurses and preschool teachers.

Results. The majority of respondents are satisfied with the quality of nutrition in kindergartens. Various forms of cooperation between preschool institutions and parents exist to inform parents about the proper nutrition and development of healthy eating habits in children.

Conclusion. According to the perceptions of parents and kindergarten employees, the quality of children's nutrition in the system of institutional preschool education is at an enviable level, although there is certainly room for further improvement and work on the development of proper and healthy eating habits in children in kindergarten and at home.

Keywords: **quality assurance, nutrition of preschool children, developing healthy eating habits, cooperation**

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INTRODUCTION

Bearing in mind that human nutrition includes all types of healthy and safe food, it is important to consider the degree to which the consumed food combines with or complements other types of food to meet one´s energy and nutrient requirements. It is recommended that one consume diverse food, as well as divide the total amount of daily food intake into several meals during the day. The offered recommendation is especially important for children who cannot satisfy their needs for nutrients in one or two meals a day (1).

Every habit acquired at a preschool level, including healthy eating habits, is generally retained throughout one´s life. At an early age, children often emulate the eating habits of their family members which render the parents´ awareness of proper nutrition as well as the necessity of providing children with proper role models quite significant (2, 3). The parents´ eating habits can significantly affect children´s behaviour regarding their eating habits (4 - 6). This particularly applies to the intake of water, cereals, fruits, vegetables, and dairy products (7). When parents include fruits, vegetables, and cereals in their children´s daily diet, they gradually develop their attitudes regarding proper nutrition and healthy lifestyle habits (8). On the other hand, parents are often concerned about their children´s diet and they try to limit the amounts and types of food their children eat, whereby they make them eat healthy food or reward them when they do. Such parental actions could have undesirable consequences. Severe limitations on the intake of delectable and forbidden food could cause cravings, and excessive consumption once such food becomes available to children (9).

In addition to one´s family, preschool institutions also have a tremendous impact on developing healthy lifestyle habits and proper nutrition. Through daily workshops, play, and work, nurses, preschool teachers, and the entire staff at a preschool institution should support the attitudes and habits formed in a child´s family reflected in the choice of food that children consume in preschool institutions (10). The significance of a quality diet at a preschool institution is further increased by the fact that the family nutrition regime does not necessarily provide children with the most desirable energy intake, nor with structural and protective elements. Consequently, a child may face eating disorders caused either by insufficient or excessive food intake (11, 12). To secure proper physical growth, intellectual development, and maturation, it is necessary to make sure that the consumed food contains the best possible balance of macronutrients and micronutrients (13).

In the modern world, quality control and food safety become increasingly current topics, bearing in mind that the majority of food is subject to chemical treatment, which could be detrimental to one´s health. That being said, one should keep in mind that preschool children are the most sensitive population of consumers (14). Preschool children are a particularly sensitive group in need of special care when it comes to health, safety, and the nutritive values of food. To provide children with healthy, flavourful, balanced, and safe food in kindergartens, an entire team of employees, including dieticians, chefs, and other kitchen employees should be engaged (15).

The common practice of preschool children taking a meal prepared at home to kindergarten has often been scrutinized by numerous authors to establish the motives which inspired parents to do so, the frequency of this procedure, and differences in the development of children who consumed meals prepared in such a fashion in comparison to those who consumed ready-made products purchased in shops and fast food restaurants (5, 16 - 19). When discussing the topic of children's nutrition at an early age, one cannot disregard the context of an increasing number of obese children which appears to be the consequence of an "instant" lifestyle and consumption of unhealthy food (12, 20 - 25). It is believed that the lack of physical activity is one of the two most dominant reasons for the increase in the number of obese children. The tendency of increasing the amount of time spent in sedentary activities and decreasing the amount of time spent at play has been recognized (26).

This paper aims to establish whether parents are satisfied with the quality of children´s diet in preschool institutions, to identify the attitudes of preschool teachers and nurses-preschool teachers toward children´s nutrition in preschool institutions, the balance between the quality of food in family homes, and kindergartens, and to pin down various forms of cooperation between families and preschool institutions regarding the development of healthy eating habits in preschool children. The paper is divided into method description, results, and discus-

sion. The conclusion summarizes the most important results, points out the limitations of the research, and offers recommendations for further research.

MATERIAL AND METHODS

In a modern society characterized by contaminated industrial food of highly questionable quality due to the presence of various additives and artificial flavour enhancers, the nutrition topic relating to the youngest consumers, namely preschool children, is prevalent indeed. At an early age, children need to be provided with healthy, balanced, nutritive, and high-energy food, both in their family homes and preschool institutions. The assertion that preschool staff members adhere to the Rulebook on Closer Conditions and the Manner of Enhancing Children's Nutrition in a Preschool Institution (27) and to the Law on Preschool Education and Upbringing (28) does not necessarily imply that parents are familiar with how the aforementioned laws and regulations are being enforced. Consequently, this research study applied quantitative and qualitative methods to observe the topic of children's nutrition in public preschool institutions of eastern and southeastern Serbia from the perspective of parents (n-763), and preschool staff members – nurses and preschool teachers (n-170) as key actors in children´s education in terms of proper nutrition, who have equal responsibility for the development of healthy eating habits in preschool children, and for critically evaluating the quality of their nutrition. According to the Law on Preschool Education and Upbringing (28), educational work in preschool institutions is performed by nurses and preschool teachers, as well as defectologists whose number nowadays is, sadly, negligible. Nurses-preschool teachers are required to attend a program for preschool teachers provided by secondary medical schools. Nurses work with children from the age of 6 months to 3 years, while preschool teachers and defectologists work with children from the age of 2 up until they start attending primary school (6 to 7 years).

The research study was conducted by applying qualitative and quantitative research procedures. Parents´ satisfaction with the quality of food in respective preschool institutions was examined through a five-step assessment scale comprising 9 items representing nine nutrition satisfaction indicators, while the attitudes of preschool teachers and nurses were established by conducting semi-structured interviews comprising 11 main questions and sub-questions. Research instruments were constructed especially for the presented research. The scale has excellent inter-rater reliability (Cronbach α = .94).

The research was oriented towards the following research tasks: (1) to establish whether parents are satisfied with the quality of children´s nutrition in respective preschool institutions; (2) to establish the attitudes of nurses and preschool teachers toward the quality of children´s nutrition in respective preschool institutions as well as the balance of children´s diets in their family homes and preschool institutions; and (3) to examine the forms of cooperation between families and preschool institutions in the process of developing healthy eating habits to preserve children´s health seen as a task with shared responsibility between a family and preschool institution. Based on the set tasks, the research authors formulated the following hypotheses: (1) it is assumed that parents are partially satisfied with the quality of children´s nutrition in preschool institutions; (2) it is assumed that nurses and preschool teachers believe that nutrition in preschool institutions is healthy, diverse and adjusted to preschoolers´ development concerning nutrition and energy, as well as that there is a balance of eating habits between family homes and preschool institutions, and (3) it is assumed that parents and preschool teachers cooperate in the development of healthy eating habits in children to contribute to their progress and growth.

Parents´ attitudes were analyzed concerning their level of education, whereby the parents comprising the sample were divided into three categories: parents with a secondary school diploma (n-369), parents with a college degree (n-220), and parents with a faculty diploma (n-174), and parents´ age: younger population of parents up to 35 years of age (n-453), and somewhat older population of parents above 35 years of age (n-310). The results of the quantitative research were processed in the SPSS 25 software for statistical data processing. The used statistical parameters were as follows: arithmetic means (M), standard deviation (SD), t-tests for ascertaining statistically significant differences in parents´ attitudes depending on their age, and F-test for ascertaining statistically significant differences in parents´ attitudes depending on their level of education.

The qualitative research comprised 170 employees in preschool institutions in eastern and

southeastern Serbia, i.e. 59 nurses and 111 preschool teachers. The data collected through interviews with nurses and preschool teachers were processed by applying the qualitative and quantitative statistical procedures. The qualitative data were quantified by calculating the percentage of respondents for the identified categories.

RESULTS

Appropriate and healthy food at a preschool level is essential for children´s proper development and growth, as well as for disease prevention and health protection. Thus, preschool staff members are obliged to comply with quality standards for children´s nutrition. Preschool institutions are required to comply with specific standards prescribed by the Rulebook on Closer Conditions and the Manner of Enhancing Children's Nutrition in a Preschool Institution (27). It should be emphasized that the food consumed by children in preschool institutions of eastern and southeastern Serbia is prepared in those institutions following the prescribed standards. There is strict regard for the quality of food used in children´s diets, for satisfactory nutritional values, and for energy requirements of children met through adequate nutrition in preschool institutions.

Table 1 shows statistically significant differences in parents´ attitudes (n-763) toward children´s nutrition in preschool institutions from the standpoint of respondents´ age.

The Law prescribes that a child can spend even up to eleven hours per day at a preschool institution "which implies four meals (breakfast, brunch, lunch, and afternoon snack) provided in regular time intervals and with a proper representation of nutrients" (27). Research results indicate that parents are satisfied with the time gap between meals in kindergarten. By applying the parametric statistical t-test procedure, we established a statistically significant difference in parents´ attitudes

Table 1. *Statistically significant differences in parents´ attitudes from the standpoint of their age*

Assessment scale items	Age (year old)	M	SD	t	df	p-value
I think that children´s nutrition in preschool institutions complies with all nutritional values.	≤ 35 years	4.42	.82	1.82	761	.06
	> 35 years	4.30	.85			
I think that the time gap between meals is satisfactory.	≤ 35 years	4.56	.65	2.18	761	.02
	> 35 years	4.45	.75			
I think that kindergarten offers sufficiently diverse nutrition.	≤ 35 years	4.43	.85	.927	761	.354
	> 35 years	4.37	.86			
I am satisfied with the choice of food in children´s nutrition.	≤ 35 years	4.40	.87	1.36	761	.173
	> 35 years	4.31	.90			
The kindergarten menu is satisfactory.	≤ 35 years	4.36	.80	1.09	761	.275
	> 35 years	4.30	.81			
I am familiar with the menu displayed in the kindergarten entrance lobby.	≤ 35 years	4.68	.56	.325	761	.745
	> 35 years	4.67	.55			
I think that my child is satisfied with the kindergarten food.	≤ 35 years	4.46	.82	1.19	761	.234
	> 35 years	4.39	.79			
I think that it is important that children do not skip their kindergarten meals.	≤ 35 years	4.64	.59	.141	761	.888
	> 35 years	4.63	.52			
I think that children are offered healthy food in kindergarten.	≤ 35 years	4.42	.77	.193	761	.847

M: Average value of parents´ responses; **SD:** standard deviation; t: the results of independent samples t-test; **df** – the degree of freedom; **p-value** was obtained with t-test.

Table 2. *Statistically significant differences in parents´ attitudes from the standpoint of their education*

Assessment scale items	Education level	M	SD	F	df	p-value
I think that children´s nutrition in preschool institutions complies with all nutritional values	Secondary school	4.44	0.75	7.24	2	.001
	College	4.42	0.81			
	Faculty	4.16	0.98			
I think that the time gap between meals is satisfactory	Secondary school	4.57	0.63	3.37	2	.03
	College	4.52	0.72			
	Faculty	4.40	0.78			
I think that kindergarten offers sufficiently diverse nutrition	Secondary school	4.47	0.77	3.50	2	.03
	College	4.41	0.91			
	Faculty	4.26	0.92			
I am satisfied with the choice of food in children´s nutrition	Secondary school	4.44	0.81	4.87	2	< .001
	College	4.37	0.92			
	Faculty	4.18	0.95			
The kindergarten menu is satisfactory	Secondary school	4.43	0.77	5.03	2	< .001
	College	4.29	0.85			
	Faculty	4.21	0.82			
I am familiar with the menu displayed in the kindergarten entrance lobby	Secondary school	4.67	0.54	1.78	2	.168
	College	4.72	0.53			
	Faculty	4.62	0.60			
I think that my child is satisfied with the kindergarten food	Secondary school	4.47	0.80	4.91	2	< .001
	College	4.48	0.76			
	Faculty	4.26	0.85			
I think that it is important that children do not skip their kindergarten meals	Secondary school	4.64	0.59	1.22	2	.293
	College	4.68	0.52			
	Faculty	4.59	0.54			
I think that children are offered healthy food in kindergarten	Secondary school	4.47	0.74	2.03	2	.131
	College	4.39	0.80			
	Faculty	4.33	0.76			

M: Average value of parents´ responses; **SD:** standard deviation; **F**: the results of F test; **df** – the degree of freedom; **p-value** was obtained with a One-way ANOVA test

regarding the matter of an adequate time gap between meals in respective preschool institutions. The level of statistical significance applied in the process of interpretation of differences in parents´ attitudes was $p < .05$. Research results indicate that parents up to 35 years of age are more satisfied with the time gap between meals at respective preschool institutions (M-4.56), as opposed to older parents (over 35 years of age) – M-4.45.

Table 2 shows statistically significant differences in parents´ attitudes toward children´s nutrition in preschool institutions from the standpoint of respondents´ education.

By applying the parametric statistical F-test procedure, we established a statistically significant difference in parents´ attitudes toward children´s nutrition at a preschool institution. The level of statistical significance applied in the process of interpretation of differences in parents´ attitudes was $p < .05$.

By analyzing the average value (M) of parents´ responses to items in the assessment scale, the following regularity was established without exception: with the increase in the level of education, the level of parents´ satisfaction with the quality of children´s nutrition in preschool institutions decreases. Accordingly, the parents with a high school diploma expressed the highest level of satisfaction with the nutritional values of the food offered to preschool children (M-4.44), the time gap between meals (M-4.57), diversity of food (M-4.47), the choice of food (M-4.44), and the menu offered at respective preschool institutions (M-4.43). A somewhat lower

degree of agreement, as well as partial agreement with the examined parameters of children´s nutrition at a preschool institution, was perceived in parents with college degrees. Concerning the offered statements, parents with faculty diplomas expressed attitudes that can be interpreted as bordering indecisiveness and a low degree of agreement.

In addition to parents, the research also included 59 nurses and 111 preschool teachers. Due to the inconsistency in the number of respondents, it was not possible to make comparisons between the different attitudes of nurses and preschool teachers.

Respondents were primarily asked to assess and describe the quality of the menu, food, and meals in a preschool institution. Around 82% (n-139) of respondents expressed a positive attitude toward the quality of children´s nutrition in respective preschool institutions (e.g. "The menu offered in kindergartens is fully balanced for children of all ages, and it is very diverse"; "Meals follow the prescribed standards"; "The menu at the kindergarten is balanced. It offers quality food. Meals are adjusted to children´s needs and children like to eat them"; "The kindergarten takes care of children´s nutritive needs. Meals are of good quality. The menu is composed weekly, which makes the diet diverse. The menu includes one cooked meal and obligatory seasonal salad, which is necessary for children´s proper growth and development.").

Merely 18% (n-30) of respondents had a negative attitude regarding the quality of food in preschool institutions, whereby responses are divided into two categories:

- Inadequate menu and poor quality of food (e.g. "The menu has been nicely written. They offer two types of lunch, which is not the case in reality. The meals are tasteless and prepared with cheap ingredients. If there is fruit on the menu, then it is the cheapest one. If there is processed meat, then children are usually offered greenish chicken breasts and smoked sirloin full of water. If there is minced meat, then it is full of soy, while croquettes are chewy, etc"; "The menu is oversimplified and common. It could be more diverse and richer"; "The menu is uneventful. There are too many carbon hydrates and food is poorly combined, which results in inadequate nutritional value"; "Healthy food standards have not been complied with. Take breakfast, for instance: yoghurt and cream cheese, mayonnaise and eggs, etc. Lots of browned flour in the cooked meal (too much flour). Food is often overcooked (vegetables).").

- Variability and occasional deviations in terms of food quality (e.g. “It has been quite unsatisfactory lately. One mostly deals with spreads. There are no homemade pies and rolls that our cooks used to make. There is not enough fruit”; “There are weeks when the menu is good and adjusted to children, both in terms of quality and quantity, and there are weeks when it is very poor and insufficient.”).

One respondent stated that he/she has no opinion on the matter.

When asked to specify what healthy meals should include but do not offer in the kindergarten, as well as which groceries are used but perhaps should be omitted, respondents provided the following answers: "Dried meat products should be utterly omitted from children´s nutrition, although our institution has already limited such offer"; "One should rather use wholegrain flour for bread and pastries and more fruit for a snack, instead of a sweet meal, semolina, pudding, cookies"; "There should be more fruits and vegetables, and less flour-based food. There should be more fish, dairy products and fresh juices (lemonade)"; "Fish ought to be offered more frequently, as well as various vegetables and whole-meal bread for breakfast, not merely white flour and corn flour bread. There should be more fruit. The groceries which are currently used are not without quality, but some of them are used excessively (potato, cabbage, rice)."; "First and foremost, one should exclude margarine and include butter in children´s nutrition. Their diet is devoid of fish, which they get once a month at best. Canned tuna should be omitted because it is full of additives. Children should be offered hake or some quality fish, other than pangasius. More attention should be paid to the offered juices, as they should be 100% fruit. Children who are on a special diet should receive food that resembles regular food so that they do not feel excluded. They should receive dairy product substitutes. Nowadays, there is soy milk, almond milk, etc.”

Around 39% of respondents (n-66) believe that there are differences in children´s eating habits in terms of gender and family structure (single children/siblings). Respondents presented explanations concerning gender which we divided into the following categories:

- The amount of food (e.g. “Boys mostly eat more than girls.”).

- Fastidiousness (e.g. "In kindergartens, girls eat everything, while boys are picky or eat less". But, there are also opposite observations: "In essence, girls are more fastidious than boys.").

- Independence in feeding (e.g. "Girls are more independent and by engaging in conversation about the healthy diet they encourage boys to form healthy eating habits.").

- Favorite meals/food (e.g. “Boys prefer bread and pastries, while girls prefer cooked meals.”).

As to the influence of the family structure (number of children in a household), respondents specified the following:

- Independence (e.g. “Children who have siblings are more independent, while single children need encouragement.”).

- Fastidiousness (e.g. “Children who have siblings eat better and more diverse food, because they have role models and encouragement in the family.”).

In contrast, a larger number of respondents – 61% (n-104) think that there are no differences concerning presented variables (e.g. "There are no differences. It all depends on the upbringing and habits of individual children"; "There are no differences in terms of gender and number of children in the family. Habits are formed at home, while in kindergarten, children mostly eat everything in the company of other children"; "There are no differences between single children and children with siblings in terms of their eating habits. Eating habits depend on how the family members eat, i.e. what kind of food children are used to. It is easier to introduce corrections and improvements by offering different food at an early age than later in life”; “It is my impression that children who grow in abundance are more often spoiled and fastidious, while those who lack such conditions eat everything!”).

One hundred forty-eight (87%) respondents find that the size of portions that children receive, as well as the time gap between meals, is suitable, while 22 (13%) of them have a negative attitude justified by the following concerning the portion size as examples: e.g. “The portion size could be bigger”; “I think that portion size is insufficient for preparatory preschool children, as well as for younger children”; “As to the portion size, I would say that it depends on children´s interests. The food that children like is always lacking, while the food they dislike is always abundant.”

The practice regarding the time gap between meals is almost identical in all kindergartens – 3 and/or 2,5 hours between meals. The meal schedule differs from one kindergarten to another depending on the town/location, and these are presented solutions: a) breakfast at 8:30, lunch at 11:30, snack at 14:00; b) breakfast at 7:30, brunch at 10:00, lunch at 13:00; c) breakfast at 7:30, lunch at 10:30, and snack at 13:00. As to the negative attitudes of respondents regarding the time gap between meals one can provide the following statements as an example: "I believe that the time gap between breakfast and lunch is too short. Some children use the kindergarten services until 17:00. Thus, children need one meal between 12:00 and 17:00. Lunch and snack should be substituted"; "The time gap between meals is too short, especially between breakfast and lunch, as well as snack. Solutions could be sought in that direction."; "Lunch should be served before nap. The practice shows that they should eat before taking a nap (some children do not wake up easily and have less desire to eat)".

The most frequent ways of enhancing the development of healthy eating habits in preschool children, according to nurses and preschool teachers, are as follows: various targeted activities, conversations with children about healthy diet; setting up healthy diet boards, organizing events on healthy nutrition; visits of triage nurses, doctors, and other professionals to inform children about healthy diet; developing cultural and hygienic habits in children and helping them become more independent in eating; personal examples of nurses and preschool teachers.

When it comes to how nurses and preschool teachers contribute to informing parents about healthy diet, respondents stated the following: health boards, board notifications for parents; organizing various activities for parents (workshops, lectures, panels, etc.); weekly menu displayed on a kindergarten board, next to the triage; educational materials for parents, individual and group conversations (parental meetings) with parents; notifications on the website.

The most frequent questions that parents pose to nurses and preschool teachers regarding children´s nutrition at a preschool institution are as follows:

- Types of food (e.g. "The most frequent question posed by parents is whether their child ate specific types of food. Likewise, they commend the kindergarten menu."; "Can he/she have something else? He/she will not eat that." Furthermore, there are questions such as: "Has he/she eaten? They are surprised if children eat food that they do not usually eat at home". Likewise, respondents stated that parents asked them not to insist on some types of food that their children did not like or did not eat at home.).

- The amount of food (e.g. "Parents most frequently ask if their child ate the offered quantity, and they are very satisfied with the variety offered by our menu."; "How big is the portion size?");

- Bringing food from home (e.g. "Should we bring additional food?"; "Can I bring specific food for my child, in case he/she does not eat the food at the kindergarten, etc.");

- Allergic reactions (e.g. "Questions regarding allergies, sensitivity to certain types of food, something that their children had not tasted before. Should there be any reaction, we are asked to be attentive.").

Respondents were asked to assess and describe the balance of diet between kindergartens and family homes. Around 57% (n-97) of respondents had a positive attitude toward the balance of food in preschool institutions and family homes:

- Adjustment of the family menu (e.g. "Parents ask if, according to the menu, children received breakfast, lunch or snack, to prepare something else at home.");

- Consuming new types of food and meals (e.g. "Children in kindergartens, motivated by their preschool teachers, try some types of food for the first time. Later, families include these types of food in their everyday menu.");

- Asking for recipes (e.g. "Some parents, mothers mostly, ask how some dishes, cakes, and cookies are prepared and they start preparing them at home (beans, sweet balls, spaghetti).").

It is especially interesting to present the following example of diet adjustment between the kindergarten and family home, told by a preschool teacher: "A mother of a child who did not want to eat anything in the kindergarten followed the kindergarten menu and prepared identical meals at home. After some time the child started eating at the kindergarten."

Around 38% (n-64) of respondents had a negative attitude toward the adjustment of food between kindergartens and family homes:

- Consuming fast food at home (e.g. "Rare are the parents who adjust the food between the family home and preschool institution. In family homes, children tend to eat fast food.");

- Compensatory function of the kindergarten (e.g. "In kindergarten children have regular meals, diverse food, and cooked meals."; "Based on experience, children have a more balanced diet in kindergartens than at home."; "In our group, a lot of children got used to eating cooked meals because at home they mostly eat pizzas, burgers, kebabs. Some children do not eat salad at home because they do not feel like it, but at the kindergarten, they eat everything.");

- Lack of understanding in parents (e.g. "There are parents who ask us not to force children to eat lunch because they will eat at home.").

However, there are different opinions among preschool teachers regarding the diversity of family cooking: "There is a difference. They probably receive more diverse food at home."

Around 5% (n-9) of respondents stated that they had no attitude toward the posed question and they explained it as follows:

- Individual differences among parents (e.g. "It is all a matter of individual approach and it depends on a family. Some parents show great interest in children´s nutrition and they try to adjust a child´s diet at home and in kindergarten. Unfortunately, the largest number of parents merely wish to know if the child ate in kindergarten so that they have one obligation less at home."; "In some families, the menu is adjusted and parents take care of the menu and constantly check it (regarding identical meals and role models). Others are not even interested in what children eat in kindergarten.");

- Lack of information about children´s nutrition in the family (e.g. "I do not have information about the family eating habits."; "I do not know.").

Nurses and preschool teachers state that the biggest obstacles which impede parents to develop children´s healthy daily eating habits are as follows: a lack of time for preparing cooked meals at home due to one´s fast lifestyle; easy availability of fast and unhealthy food; a lack of financial means; a lack of patience in parents to be persistent in developing healthy eating habits in children; insufficient persis-

tence and compliance; mothers who work in shifts; a lack of interest in parents; a lack of information about the significance and properties of a healthy diet; poor hygienic habits in the family and parents as poor role models.

Respondents were asked to assess and describe how the level of parents´ education can influence their satisfaction with children´s nutrition in a preschool institution. Merely 13% (n-22) of respondents believe that the level of parents´ education influences parents´ satisfaction with their children´s nutrition in kindergartens:

- Better insight into important information (e.g. "Parents who are better educated are more familiar with proper nutrition"; "Naturally, if one of the parents is a doctor or a dietician, he/she pays more attention to their child´s nutrition, though not necessarily"; "Better educated parents dedicate more time to proper nutrition because they read and prepare food of better quality.");

- Greater readiness for cooperation (e.g. "Parents´ education is important. The better the parents are educated, the easier is to communicate with them about a healthy diet.");

- Negative influence of a higher education level (e.g. "Parents with the lower level of education are more satisfied and try harder to prepare food."; "Parents with higher education levels are more often dissatisfied"; "Due to a lot of work, parents with a higher level of education resort to fast food.");

- Better financial situation (e.g. "Better education level usually implies better knowledge of quality food. One´s financial situation is better and one can afford better quality food for one´s children.").

In opposition, as many as 87% (n-148) of respondents had a negative attitude toward the influence of parents´ education level on their satisfaction with children´s nutrition in kindergartens:

- Kindergarten's efforts to inform parents (e.g. "Parents´ level of education is not essential, because we try to equally inform all parents and provide them with information.");

- Individual properties of parents (e.g. "Parents´ level of education is not relevant for parents´ opinion about children´s nutrition in a preschool institution. It is a rather personal viewpoint that depends on upbringing and parents´ personality, as well as on their expectations from preschool institutions in general."; "Education level is not the measure of food culture. A parent – usually the mother either has it in herself or not, for numerous reasons.");

- Parents´ interests (e.g. "Education is not decisive. It depends on a person, his/her attitudes and how hard they try.");

- Changed social circumstances (e.g. "Education level is not crucial. Our grandmothers did not have faculty diplomas but they cooked healthy meals with diverse and healthy groceries, with a lot of vegetables.");

- Negligible influence of education (e.g. "I think that education can be of some consequence, but I still think it is negligible.").

In addition to the above mentioned, respondents emphasized the following:

- Children on special nutrition regimes (e.g. "At the kindergarten, there are children who for various reasons have a special nutrition regime, according to pediatrician´s recommendation based on suitable analyses performed by an immune-allergologist."; "It is significant that new generations of children are more allergic to various types of food. Hence, these children are on a special nutrition regime and it is my opinion that we should work more on the combination of foods these children can eat, i.e. on their menu.");

- To check the quality of food (e.g. "One should pay attention to food quality and preparation of meals"; "Dilemma: what is considered healthy nowadays.");

- To change the menu (e.g. "The menu should be changed more often."; "Parents should be included in defining the menu to the extent which circumstances in preschool institutions allow!"; "I think that kindergartens could introduce at least two different dishes per meal to offer a choice to children, as well as to satisfy their needs if for some reason they do not eat something from the menu.");

- The work of a dietician (e.g. "It is important that every kindergarten have a dietician"; "The menu used to be composed by preschool teachers, nurses, cooks, parents, and now it is the job of a dietician. They take care of balanced nutrition. The fact that some children will not even touch the food and stay hungry all day is not controlled nor does one seek feedback.");

- Obesity in preschool children (e.g. "The problem of obesity, which is a frequent occurrence nowadays, caused by is the lack of physical activity.").

DISCUSSION

Proper nutrition of preschool children is the basis of their unimpeded growth and development. Nutrition at a preschool level must be optimally balanced in terms of macro and micronutrients to contribute to children´s proper physical growth, intellectual development, and maturation (13). Since habits acquired at a preschool level are mostly kept throughout one´s life, it is important to provide children with a proper incentive in that respect. The crucial role in that regard is played by parents, but also by employees in preschool institutions, bearing in mind that they spend a significant part of their day with children and have the task of providing support to families in forming healthy nutrition habits and proper diet in children.

Through this research, we have tried to establish whether parents are satisfied with the quality of food in preschool institutions. Similar to some other research studies (29), the results of our research show that parents are satisfied with the quality of food in preschool institutions. The largest percentage of parents believe that kindergartens offer healthy food which is sufficiently diverse, that all nutritional values are present in preschool children´s diet, that parents are familiar with the kindergarten menu, that it is satisfactory, and that they notice satisfaction in their children with the food in kindergarten. Likewise, the large majority of parents are satisfied with the diversity of food in kindergartens and with the choice of food they offer. The largest percentage of parents believe that the time gap between meals is suitable, as well as that it is important for children not to skip meals at kindergarten. Therefore, based on the results of our research, one can say that the hypothesis stating that parents are partially satisfied with the quality of children´s nutrition at a preschool institution was not rejected.

Furthermore, research results show that there is a statistically significant difference concerning parents´ education level and their satisfaction with children´s nutrition in preschool institutions. It has been established that with the increase in parents´ education level, parents´ satisfaction with the food quality in preschool institutions decreases. Such findings are in agreement with the research finding which indicates that the increase in parents´ education level (especially that of mothers) increases the level of a positive attitude toward a healthy diet in general (30). In contrast to the findings of some previous research studies (12), as many as 87% of preschool teachers and nurses believe that parents´ education level does not affect their satisfaction with children´s nutrition in preschool institutions, unlike 13%, who have the opposite opinion. It is necessary to conduct further and differently conceived research studies to establish the factors that can influence different attitudes among parents and employees in preschool institutions.

Likewise, we tried to establish the attitudes of preschool teachers and nurses concerning the quality of children´s nutrition in preschool institutions. It turned out that most respondents (82%) have a positive attitude regarding the quality of food in preschool institutions. Eighteen percent of respondents have a negative attitude, while only one respondent does not have an attitude concerning the stated issue. Similar to parents´ attitudes, 87% of nurses and preschool teachers believe that the portion size offered to children as well as the time gap between meals is suitable, while 13% have a negative attitude in that respect.

We asked nurses and preschool teachers whether there was a balance between the quality of food in preschool institutions and family homes, and 58% of respondents believe that there was such balance in these two environments. Thirty-eight percent have a negative attitude, while 5% of respondents did not have an attitude in that respect. The most dominant reasons for the lack of balance are as follows: a lack of time to prepare cooked meals at home due to one´s fast lifestyle; easy availability of fast and unhealthy food; a lack of financial means, a lack of patience in parents to develop habits in children; insufficient persistence and compliance; mothers who work in shifts; a lack of interest in parents; a lack of information about the importance and properties of a healthy diet; poor hygiene in the family and unsuitable role models. Such findings are in agreement with the findings of some other research studies (12, 31). One should bear in mind that a family diet does not always offer the possibility of securing the optimum energy intake, as well as intake of structural and protective substances, which can cause disorders because of insufficient or overabundant food (11).

Experiences of the largest number of nurses and preschool teachers (61%) show that one cannot observe differences in eating habits depending on children´s sex and the number of children in the

family, while 39% of respondents managed to identify certain differences in terms of consumed food, fastidiousness, independence in the choice of food and favourite dishes and food (variable: sex), as well as in independence and fastidiousness (variable: family structure). Differences in terms of food more frequently consumed by children of different sex were indicated by other research studies as well (32), as well as differences in terms of family structure (30).

It has been shown that preschool teachers and nurses most frequently strive to encourage the development of healthy eating habits in preschool children by performing the following activities: realizing various targeted activities; talking with children about proper diet; setting preschool boards dealing with healthy food; organizing events dealing with healthy food; organizing visits of triage nurses, doctors, and other professionals who would talk with children about proper nutrition; developing cultural and hygienic habits in children; encouraging children to become independent in their choice of food and providing them with positive role models.

Furthermore, we tried to identify various forms of cooperation between families and preschool institutions to develop healthy eating habits to preserve preschool children´s health, bearing in mind that family and preschool institutions have equal responsibility in that process. Nurses and preschool teachers strive to contribute to parents´ knowledge of proper diet by informing them through health boards and parent boards, organizing various activities for parents (workshops, lectures, panels, etc.), displaying the weekly menu, providing educational material for parents, conducting individual and group conversations with parents and providing notifications on the official website. Some other research results indicate the same manner of contribution to parents´ knowledge about proper diet (31).

The most frequent questions that parents pose to preschool teachers and nurses regarding children´s nutrition at a preschool institution are mostly related to the type of food that children eat at the kindergarten, the amount of consumed food, the possibility of bringing homemade food to kindergarten, as well as to some potential allergic reactions to food. In the practice of our preschool institutions, it is not allowed to bring homemade meals. To improve children´s health with a nutritionally proper diet, a large number of research studies dealt with analyzing differences between meals prepared at home and those offered and served in preschool institutions. Research results unequivocally indicate that there is a larger percentage of energy value, fat, and sugar, as well as a smaller percentage of proteins, potassium, fibres, vitamins, calcium, and iron in the meals prepared at home in comparison to meals prepared for children in preschool institutions. That is, it has been shown that meals in educational institutions have more nutrients and a lower percentage of fat and potassium. In addition, they have better quality in comparison to meals prepared in family homes (5, 11, 18, 19).

CONCLUSION

Based on the perceptions of parents, nurses, and preschool teachers, the results of the conducted research indicate the presence of high-quality food in the system of public preschool institutions in the regions of eastern and southeastern Serbia. By collecting quantitative data from parents and qualitative data from nurses and preschool teachers it has been established that the largest number of respondents have positive attitudes toward the stated issues.

Various aspects are important to consider when assessing the quality of nutrition of preschool children, as a basis for improving the existing practices. The first research hypothesis, relating to the assumption that preschool teachers and nurses believe that food in a preschool institution is healthy, diverse, and adjusted to children´s development and growth in terms of nutrients and energy, as well as that there is a balance between eating at home and in preschool institutions, was not rejected. Also, regarding the second research hypothesis – the assumption that parents and preschool teachers cooperate in the development of healthy eating habits in children to contribute to their growth and development was not rejected.

The advantage of the presented research is a specific approach, which strived to establish the attitudes of both groups of respondents – 933 respondents in total, of which 763 parents and 170 employees (59 nurses and 111 preschool teachers), as important stakeholders who can influence the development of healthy eating habits and proper nutrition in preschool children. The main disadvantage is the lack of ability to compare answers to certain questions, bearing in mind the differences in meth-

odological approaches, as well as limitations regarding the applied methodology. The presented research can serve as a starting point for future research studies, aiming at further scrutiny of the observed issue to perceive certain specificities and improve the state of practice.

Conflict of interest

The authors declare that they have no conflict of interest.

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References

1. Antić E, Antić M, Stošić D. Pravilna ishrana predskolske i skolske dece kao prevencija gojaznosti i njen uticaj na zdravlje. U: Jugović Z (ur), Bezbednost hrane i zdravlje. Čačak, Visoka škola tehničkih strukovnih studija, 2017: 83-92.

2. Knežević J, Rodić N. Uloga roditelja u formiranju navika i odnosa prema hrani kod dece. U: Hilčenko S (ur), IKT u vaspitanju i obrazovanju, sportu i medicini. Subotica, Visoka škola strukovnih studija za obrazovanje vaspitača i trenera, 2018: 149-55.

3. Nepper MJ, Chai W. Parents' barriers and strategies to promote healthy eating among school-age children. Appetite 2016; 103: 157-64. https://doi.org/10.1016/j.appet.2016.04.012

4. Sekulić RM, Đonović N. The influence of certain factors of family nutrition on the occurrence of nutritional anaemia among school children. Med J 2015; 49(3): 71-7. https://doi.org/10.5937/mckg49-10077

5. Sweitzer SJ, Briley ME, Roberts-Gray C, et al. How to help parents pack better preschool sack lunches: advice from parents for educators. J Nutr Educ Behav 2011; 43(3): 194-8. https://doi.org/10.1016/j.jneb.2010.09.002

6. Wilson DK, Ampey-Thornhill G. The role of gender and family support on dietary compliance in an African American adolescent hypertension prevention study. Ann Behav Med 2001; 23(1): 59-67. https://doi.org/10.1207/S15324796ABM2301_9

7. Šumonja S, Novaković B. Determinants of fruit, vegetable, and dairy consumption in a sample of schoolchildren, Northern Serbia, 2012. Prev Chronic Dis 2013; 10: 1-9. https://doi.org/10.5888/pcd10.130072

8. Briley ME, Ranjit N, Holescher DM, et al. Unbundling outcomes of a multilevel intervention to increase fruit, vegetables, and whole grains parents pack for their preschool children in sack lunches. Am J Health Educ 2012; 43(3): 135-42. https://doi.org/10.1080/19325037.2012.10599230

9. Fisher JO, Birch LL. Restricting access to palatable foods affects children's behavioural responses, food selection, and intake. Am J Clin Nutr 1999; 69(6): 1264-72. https://doi.org/10.1093/ajcn/69.6.1264

10. Kostić-Bibić N. Kindergarten promotes health. Croat J Public Health 2013; 9(35): 103-11.

11. Dragičević I, Matić B, Ilić A. Uticaj ekonomskih kretanja na kvalitet ishrane u predškolskim ustanovama u mačvanskom upravnom okrugu. Praxis medica 2016; 45(1): 41-6. https://doi.org/10.5937/pramed1601041D

12. Stage VC, Wilkerson K, Hegde A, et al. Head Start administrator and teacher perceptions of parental influence on preschool children's nutrition education. J Early Child Res 2018; 16(2): 160-75. https://doi.org/10.1016/j.jneb.2014.04.103

13. Đermanović MM. Komparativna analiza metoda za procenu unosa minerala i makronutrijenata u kolektivnoj ishrani predškolske dece: doktorska disertacija. Beograd: Farmaceutski fakultet, 2016. https://nardus.mpn.gov.rs/handle/123456789/7260

14. Bonić MD. Primena metoda i standarda u funkciji upravljanja rizikom ishrane dece predškolskog uzrasta: doktorska disertacija. Niš: Medicinski fakultet, 2016. https://nardus.mpn.gov.rs/handle/123456789/10437

15. Stajkovac J, Vasić A, Ilišević B. Ishrana predskolske dece u vrticu "Nasa radost" u Aleksandrovcu. U: Jugović Z (ur), Bezbednost hrane i zdravlje. Čačak, Visoka škola tehničkih strukovnih studija, 2017: 101-10.

16. Farris AR, Misyak S, Duffey KJ, et al. Elementary parent perceptions of packing lunches and the National School Lunch Program. J Child Nutr Manag 2016; 40 (1), 1-10.

17. Farris AR, Misyak S, Duffey KJ, et al. Nutritional Comparison of Packed and School Lunches in Pre-Kindergarten and Kindergarten Children Following the Implementation of the 2012–2013 National School Lunch Program Standards. J Nutr Educ Behav 2014; 46 (6), 621-6. https://doi.org/10.1016/j.jneb.2014.07.007

18. Hubbard KL, Must A, Eliasziw M, et al. What's in children's backpacks: Foods brought from home. J Acad Nutr Diet 2014; 114 (9), 1424-31. https://doi.org/10.1016/j.jand.2014.05.010

19. Hudson PK, Walley H. Food safety issues and children's lunchboxes. Perspect Public Health 2009; 129 (2), 77-84. https://doi.org/10.1177/1757913908101607

20. Lindelof A, Nielsen CV, Pedersen B. Obesity treatment—more than food and exercise: a qualitative study exploring obese adolescents' and their parents' views on the former's obesity. Int J Qual Stud Health Well-being 2010; 5(2): 1-11. https://doi.org/10.3402/qhw.v5i2.5073

21. Manios Y, Androutsos O, Katsarou C, et al. Designing and implementing teachers' training sessions in a kindergarten-based, family-involved intervention to prevent obesity in early childhood: the ToyBox-study. Obes Rev 2014; 15: 5-13. https://doi.org/10.1111/obr.12175

22. Manios Y, Grammatikaki E, Androutsos O, et al. A systematic approach for the development of a kindergarten-based intervention for the prevention of obesity in preschool age children: the ToyBox-study. Obes Rev 2012; 13: 3-12. https://doi.org/10.1111/j.1467-789x.2011.00974.x

23. Mouratidou T, Mesana MI, Manios Y, et al. Assessment tools of energy balance-related behaviours used in European obesity prevention strategies: a review of studies during preschool. Obes Rev 2012; 13: 42-55. https://doi.org/10.1111/j.1467-789X.2011.00958.x

24. Pocock M, Trivedi D, Wills W, et al. Parental perceptions regarding healthy behaviours for preventing overweight and obesity in young children: a systematic review of qualitative studies. Obes Rev 2010; 11(5): 338-53. https://doi.org/10.1111/j.1467-789X.2009.00648.x

25. Stupar D, Popović B, Vujović P. Nutrition status of preschool children in Novi Sad. J Anthropol Soc Serb 2014; 49: 51-5. https://doi.org/10.5937/gads1449051S

26. Lepeš J. Social-family background, nutrition, physical education. Sport Sci Health 2011; 1(1): 12-7. https://doi.org/10.7251/SSH1101012L

27. Pravilnik o bližim uslovima i načinu ostvarivanja ishrane dece u predškolskoj ustanovi Službeni glasnik RS 2018: 39/18. http://demo.paragraf.rs/demo/combined/Old/t/t2018_05/t05_0276.htm

28. Zakon o predškolskom vaspitanju i obrazovanju (2021). Službeni glasnik RS 2021; 129/21. https://www.paragraf.rs/propisi/zakon-o-predskolskom-vaspitanju-i-obrazovanju.html

29. Mikkelsen MV, Mikkelsen B. Parental perception of lunch schemes in Danish kindergartens: a cross-sectional survey. J Foodserv Bus Res 2017; 20(5): 512-24. https://doi.org/10.1080/15378020.2016.1219184

30. Al-Shookri A, Al-Shukaily L, Hassan F, et al. Effect of mothers' nutritional knowledge and attitudes on Omani children's dietary intake. Oman Med J 2011; 26(4): 253-7. https://doi.org/10.5001/omj.2011.61

31. Hart LM, Damiano SR, Cornell C, Paxton SJ. What parents know and want to learn about healthy eating and body image in preschool children: a triangulated qualitative study with parents and Early Childhood Professionals. BMC Public Health 2015; 15 (1): 596-608. https://doi.org/10.1186/s12889-015-1865-4

32. Natsiopoulou T, Tzolia K, Laloumi-Vidali E. Preschool children's healthy life attitudes in Greece. Health Sci J 2007; 1(2), 26-38.

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Kvalitet ishrane u sistemu državnih predškolskih ustanova u Srbiji iz perspektive roditelja i zaposlenih

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SAŽETAK

Uvod. Deca predškolskog uzrasta predstavljaju posebno osetljivu grupu, o kojoj se naročito mora voditi računa kada je reč o zdravstvenoj bezbednosti i nutritivnoj vrednosti ishrane. Pored toga, navike formirane u ranom uzrastu uglavnom se zadržavaju i u odraslom dobu. Stoga su roditelji kao prvi vaspitači svoje dece odgovorni za formiranje zdravih navika u ishrani i za kvalitet ishrane dece predškolskog uzrasta.

Ciljevi. Istraživanje je sprovedeno sa ciljem: da se utvrdi da li su roditelji zadovoljni kvalitetom ishrane dece u predškolskoj ustanovi; da se identifikuju stavovi vaspitača i medicinskih sestara-vaspitača o kvalitetu ishrane dece u predškolskoj ustanovi, kao i stavovi o usaglašenosti ishrane u porodici i predškolskoj ustanovi; da se utvrde oblici saradnje porodice i predškolske ustanove u razvijanju navika pravilne ishrane kod dece ranog uzrasta.

Metode. Uzorak su činila 933 ispitanika; od toga 763 roditelja, 59 medicinskih sestara-vaspitača i 111 vaspitača. Podaci su prikupljeni primenom skale procene za roditelje i intervjua za medicinske sestre-vaspitače i vaspitače.

Rezultati. Najveći procenat ispitanika zadovoljan je kvalitetom ishrane dece u vrtiću. Prisutni su različiti oblici saradnje između predškolske ustanove i porodice u cilju informisanja roditelja o pravilnoj ishrani i razvijanju navika pravilne ishrane kod dece.

Zaključak. Kvalitet ishrane dece u sistemu institucionalnog predškolskog vaspitanja je, prema percepcijama roditelja i zaposlenih u vrtiću, na zavidnom nivou, mada, svakako ima osnova i prostora za dalja poboljšanja, uz rad na razvoju navika pravilne i zdrave ishrane kod dece u vrtiću i kod kuće.

Ključne reči: **obezbeđivanje kvaliteta, ishrana predškolske dece, formiranje zdravih navika u ishrani, saradnja**