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EVALUATION OF THE ORGANIZATION AND IMPLEMENTATION OF CHILDREN'S NUTRITION IN CHILD CARE FACILITIES PARTICIPATING IN THE YELLOW PLATE PROGRAM IN 2018-2019®

Ocena organizacji i realizacji żywienia dzieci w placówkach oświaty
uczestniczących w programie Żółty Talerz w latach 2018-2019®

Key words: organization of nutrition, evaluation of nutrition, children, child care facilities.

The aim of the study was to assess the organization and implementation of nutrition for children in child care facilities (n=303) participating in the Yellow Plate (ŻT) program in 2018-2019. The study was carried out in January 2019 throughout the country with the CAWI (Computer Assisted Web Interview) method. The survey included 42 questions, including questions about the child care facilities, children attending this institution, the organization and implementation of nutrition in the institution and the perception of the ŻT program. In total, 859 children ate meals in the surveyed facilities, including 426 receiving meals under the ŻT program. In 7 out of 10 institutions ŻT program was the only one aimed at supporting the child nutrition system. 4 out of 10 facilities had their own kitchen; however, in the case of 1/3, their equipment did not correspond to the current needs. Small household appliances, as well as refrigerators, cookers and convection ovens were indicated among the shortages. As part of the ŻT program, every 3rd child care facility received full funding for one meal, and every 5th facility received full funding for the cost of feeding a child; subsidy most often used to finance lunches. Children regularly reporting hunger were present in 41% of the child care facilities. At the same time, almost 3/4 of the facilities reported the lack of possibility for children to eat regular meals outside their facilities. Nearly 1/4 of the child care facilities, in addition to providing nutrition, also covered children with nutritional education in the form of various activities. The program was well appreciated by the institutions. In order to improve the organization and implementation of nutrition for children in care and educational institutions, it is necessary not only to educate employees on nutrition, but also to introduce a system of appropriate financial support, enabling the purchase of necessary kitchen equipment, as well as financing well-balanced meals for children in needs.

Słowa kluczowe: organizacja żywienia, ocena żywienia, dzieci, placówki oświaty.

Celem badania była ocena organizacji i realizacji żywienia dzieci w placówkach oświaty (n=303) uczestniczących w programie Żółty Talerz (ŻT) w latach 2018-2019. Badanie zostało zrealizowane w styczniu 2019 roku na terenie całego kraju z wykorzystaniem ankiety przeprowadzonej drogą internetową wypełnianej on-line metodą CAWI (ang. Computer Assisted Web Interview). Ankieta obejmowała 42 pytania, w tym pytania na temat: placówki oświaty, dzieci uczęszczających do tej placówki, organizacji i realizacji żywienia w placówce oraz postrzegania programu ŻT. Łącznie w badanych placówkach posiłki spożywało 859 dzieci, w tym 426 otrzymywało posiłki w ramach programu ŻT. W 7 na 10 placówek nie notowano innych niż ŻT programów mających na celu wsparcie systemu pomocy żywienia dzieci. 4 na 10 placówek dysponowało własną kuchnią; w przypadku 1/3 ich wyposażenie nie odpowiadało jednak bieżącym potrzebom. Wśród braków wskazywano drobny sprzęt AGD, jak również lodówki, Kuchenki czy piece konwekcyjne. W ramach programu ŻT co 3 placówka otrzymywała pełne dofinansowanie jednego posiłku, natomiast co 5 - pełne finansowanie kosztów żywienia dziecka; dotacja najczęściej przeznaczona była na finansowanie obiadów. W 41% placówek były obecne dzieci regularnie zgłaszające uczucie głodu. Jednocześnie prawie 3/4 placówek raportowało brak możliwości spożywania przez dzieci regularnych posiłków poza ich placówką. Blisko 1/4 placówek oprócz realizacji żywienia objęła dzieci również edukacją żywieniową w formie różnorodnych działań. Program był dobrze oceniany przez placówki. W celu poprawy organizacji i realizacji żywienia dzieci w placówkach opiekuńczo-wychowawczych konieczna jest nie tylko edukacja żywieniowa pracowników, ale również system odpowiedniego wsparcia finansowego, umożliwiającego zakup niezbędnego wyposażenia kuchni, jak również finansowanie dobrze zbilansowanych posiłków potrzebującym dzieciom.

INTRODUCTION

Many factors determine the health of a child and its proper growth and development, among which proper nutrition plays an important role. Parents and guardians are responsible for the child's nutrition to the greatest extent, and they should have optimal knowledge in this regard. The literature on the subject proves that parents and guardians do not always have the appropriate knowledge in this area [8] and even if they do, they are not always able to use it in everyday practice. The occurrence of many errors in the nutrition of children and adolescents is indicated by various authors of Polish studies [7]. The most frequently mentioned are too low consumption of vegetables and fruits, a small amount of groats, fish, milk and dairy products as well as whole grain products. On the other hand, excessive consumption of meat, wheat bread, sugar and sweets is indicated. The diet of an average child also includes sweetened drinks and highly processed products, fast food is common.

An unbalanced diet results in nutritional deficiencies and nutrient malnutrition as well as other health consequences. Obesity is a disease caused by an incorrect lifestyle, including an incorrect nutrition. This problem affects various age groups around the world, including Europe [13] and, unfortunately, also Poland [5,9,22]. However, other nutritional mistakes are noted in each age group, which result from the specificity of nutrition and various factors that determine them. The lack of knowledge of parents and guardians may have impact on the incorrect nutrition of children.

On the other hand, it is the lack of care for children on the part of parents and caregivers, including failure to provide them with basic physiological needs, which includes nutrition. According to the recommendations, proper nutrition should be tailored to the needs of the child, which depends on many factors such as: age, gender, physical activity and health status [15]. If parents and caregivers do not meet these basic needs of the child, government programs and non-governmental institutions come to the rescue.

The Yellow Plate (YP) Program [20] is just such a program. The purpose of YP is to support the children's nutrition system in the canteen or even at home. Currently, the 7th edition of this program has been implemented. At the beginning of its duration, i.e. since 2016, 9 million meals have already been financed for 10,250 children. The program is organized by the Kulczyk Foundation and implemented thanks to cooperation with diocesan Caritas, The Polish Red Cross, SOS Children's Villages and the Society of Children's Friends (Day Care Center, Day Support Centre, Caritas Community Center), as well as kindergartens and school canteens and school common rooms as well as out-of-school day care centers that support the children's nutrition system. However, even in such child care facilities, it is impossible to feed the child optimally because of the lack of financial resources. The aim of this program is to subsidize the equipment of child care facilities and nutrition for children.

The purpose of the study was to assess the organization and implementation of children's nutrition in child care facilities participating in the Yellow Plate program in 2018-2019.

MATERIAL AND METHODS

The study was carried out in January 2019 throughout the country among child care facilities participating in the Yellow Plate (YP) program (n=303). The aim of this program is to improve the quality of nutrition for children throughout Poland; currently, children from Ukraine also benefit from the YP program. Institute of Human Nutrition Sciences Warsaw University of Life Sciences (SGGW-WULS) is a contents partner of the YP program. Study was conducted using the CAWI (Computer Assisted Web Interview) method. The questionnaire included 42 questions on the child care facilities, enrolled children, organization and nutrition of children as well as the evaluation of the Yellow Plate program.

The part of the survey concerning the implementation of children's nutrition in the facility included the declared fact of the presence of selected products / groups of products as part of the meals offered in one full week of children's education / work of the facility. The products asked about in the survey were placed on the List of Yellow Plate Products [16] prepared by specialists from the SGGW-WULS. It includes products that are beneficial for children's nutrition and is recommended to people preparing meals for children covered by the Yellow Plate program. These data are not presented in this paper.

The study was voluntary, filling in the questionnaire was an expression of given consent to participate in the study.

RESEARCH RESULTS AND DISCUSSION

Characteristics of the child care facilities

The institutions participated in the study were from all over Poland; 2/3 of them (n=205, 68%) were located in cities and 1/3 in rural areas (n=98, 32%). Type / nature of the child care facility participating in the study is presented in Fig. 1. Almost half of the surveyed institutions were out-of-school day care centers; and every fifth was a kindergarten canteen; similar percentage of facilities was recorded in the case of school canteen. The smallest share was represented by school common rooms. In the other group (26%), the following answers were most frequently noted: Day Care Center, Day Support Center and Caritas Community Center.

In 7 out of 10 child care facilities (n=222, 73%), there were no programs other than the Yellow Plate, aimed at supporting the child nutrition system. However, every third child care facilities indicated such programs, including 'Vegetables and fruits at school', 'Glass of milk', 'Pajacyk', 'Keep fit', organized respectively by The Agency for Restructuring and Modernisation of Agriculture (ARMA), the Polish Humanitarian Action (PAH) and the Chief Sanitary Inspectorate, and Polish Federation of Food Industry Union of Employers (PFFI UE). Several institutions also indicated subsidies from the Municipal Office.

The methods of organizing meals in the child care facilities are presented in Fig. 2. It was noted that 4 out of 10 facilities had their own kitchen; every third of them used a catering.

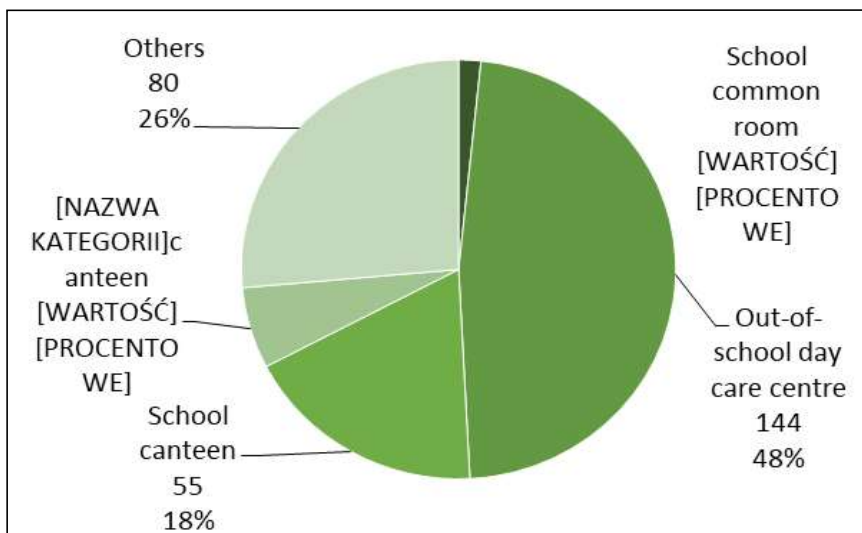


Fig. 1. Type / nature of the facility participating in the study (n, %).
Rys. 1. Rodzaj / charakter placówki biorącej udział w badaniu (n, %).

Source: The own study

Źródło: Badania własne

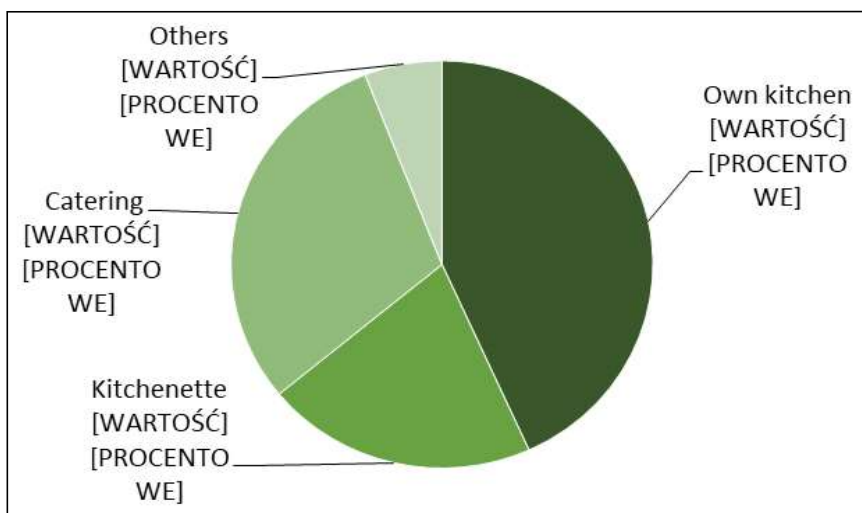


Fig. 2. The methods of organizing meals in the child care facilities (n, %).
Rys. 2. Sposób organizacji posiłków w placówce (n, %).

Source: The own study

Źródło: Badania własne

At this point, the child care facilities were additionally asked about the staff preparing meals. In the surveyed child care facilities, there were on average 2-3 such persons, in the case of using catering the number of staff was usually smaller. As other Polish studies on day care centers indicate, the type of kitchen determines the nutrition of children [12], which is closely related to the number of the staff employed and kitchen equipment. In the context of the organization of food, the kitchen equipment and the opinion of the facilities on whether it is sufficient for good organization of work were interesting. However, in the case of 1/3 (n=215, 71%), their equipment did not correspond to the current needs. Small household appliances, as well as refrigerators, cookers and convection ovens were indicated among the shortages. However, 90% (n=272) of the facilities indicated that they had a canteen or

other place for children to eat meals. The average number of seats in the canteen was 38, the minimum was 5 and the maximum was 220. A place to eat meals preferably together with caregivers / parents is very important for a child. Shared meals promote a similar structure of food consumption [2], during which a child observes and imitates caregivers in terms of consumed products and beverages. Family eating is also correlated with a better structured diet [6]. All those involved in planning and preparing meals for children are indirectly their educators in this area. An employee of a canteen or community center is also such an educator. Cultivating the tradition of shared meals is also conducive to learn the food culture and is an opportunity to pass on knowledge about food and nutrition. Eating meals together at the table is currently an important recommendation included in the principles of proper nutrition [23].

Figure 3 presents the number of child care facilities offering individual meals as part of children's nutrition. It was noted that the largest number of facilities offered children lunch (69%), followed by afternoon tea (57%) as well as 5% of the respondents offered children a takeaway meal in the form of a packed lunch to take home. Children and young people should eat their first breakfast before going to school, and at school - at least 2 meals (snacks) [23]. It is worth making sure that all meals are prepared and eaten in the right conditions. Regular eating properly composed meals improves concentration and mood, has a positive effect on school and sports achievements, is important in the prevention of many diet-related diseases, including obesity. Lack of regular meals and skipping breakfast by Polish children is a big problem [17]. A combined higher meal frequency and daily breakfast consumption dietary pattern may prevent overweight and obesity in children [1].

The average cost of one child feeding in the surveyed facilities was PLN 6.21. Lunch was the most expensive and takeaway was the cheapest (Figure 4). The highest cost of lunch is due to the fact that, according to meal planning rules, it is the largest meal of the day in terms of portions. Dinner can consist of two courses, and its energy value should constitute 30-35% of the energy of the total diet. However, the cost of dinner depends on the choice of products and should not be related to its energy or nutritional value. Estimated by other authors [14], the costs of the proposed lunch sets varied; in the case of primary schools, they ranged from PLN 2.30 to PLN 7.70, and in the case of secondary schools - from PLN 2.80 to PLN 9.10 per set. As the authors indicate, if the financial possibilities do not allow for the preparation of more expensive sets, you can resign from them and provide meals in a given canteen using cheaper proposals.

As research shows, children often give up school lunches because of their taste and lack of attractiveness; parents because of their high costs [14]. The requirements for mass catering for children and youth in these educational units are regulated by law [21]. The price of the meal in the school canteens is established by the school manager. If the educational institution is not subsidized, the cost of lunch is usually higher. As part of the Yellow Plate program, every 3rd child care facility (n=90, 30%) received a full funding for one meal, and every 5th center (n=65, 21%) received funding for the cost of child full-board feeding. Half of the child care facilities (n=148, 49%) received co-financing for selected, various meals. The subvention from the Yellow Plate program was mostly used to finance lunches (63% of child care facilities, n=192), half of the child care facilities (49%, n=147) financed afternoon teas from this budget. Every third child care facility (29%, n=88) indicated that a hot meal financed by the Yellow Plate program is the only hot meal for children during the day.

Characteristics of children under care in facilities

In total, 859 children ate meals in the child care facilities, including 426 receiving meals under the Yellow Plate program (an average of 60 children/1 facility).

In the case of children benefiting from the assistance under the Yellow Plate program, the facilities reported the occurrence of family and behavioral problems. Parents' educational failure, single-parent families and unemployment, poverty or alcoholism were most often mentioned. Figure 5 shows the data.

Children regularly reporting hunger were present in 41% (n=125) of child care facilities. At the same time, almost 3/4 of child care facilities (n=224, 74%) reported the lack of possibility for children to eat regular meals outside their child care facility. Data from 2018-2020 indicate that 2.5% of the population in Poland were affected by undernourishment [4]. Almost 120,000 children in Poland go to school hungry, according to a Polish foundation called A Piece of Heaven [3]. Unbalanced and low calorie diet can affect students' ability to perform well in both educational and other activities. Malnutrition often is a problem in rural areas of Poland, where poverty levels are higher. Those living below the poverty line have limited access to well-balanced diet. As a rule, such a food is more expensive

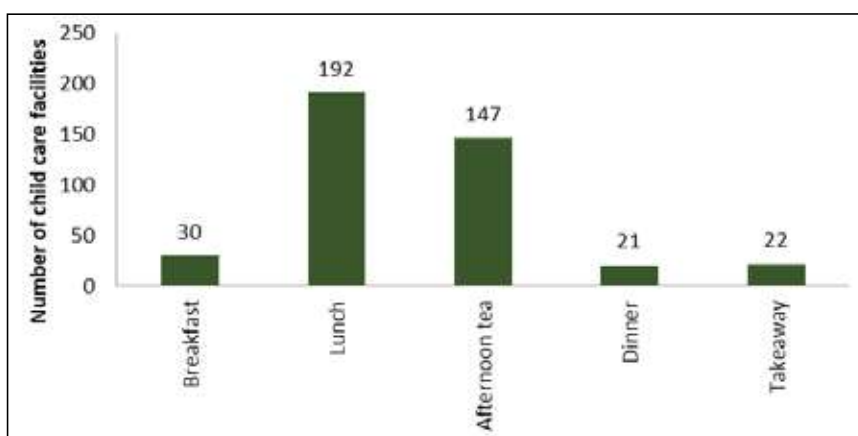


Fig. 3. Number of child care facilities offering individual meals as part of children's nutrition (multiple answers possible).

Rys. 3. Liczba placówek oferujących poszczególne posiłki w ramach żywienia dzieci (możliwa wielokrotność odpowiedzi).

Source: The own study

Źródło: Badania własne

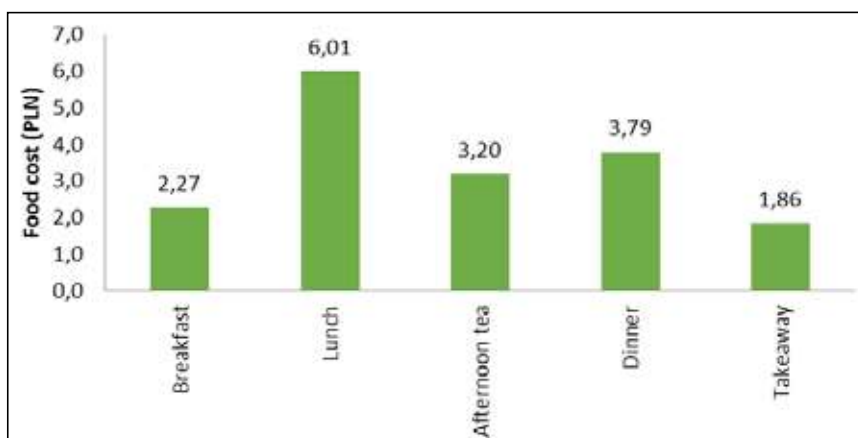


Fig. 4. Cost of the food (PLN/1 child).

Rys. 4. Koszt żywienia (PLN/1 dziecko).

Source: The own study

Źródło: Badania własne

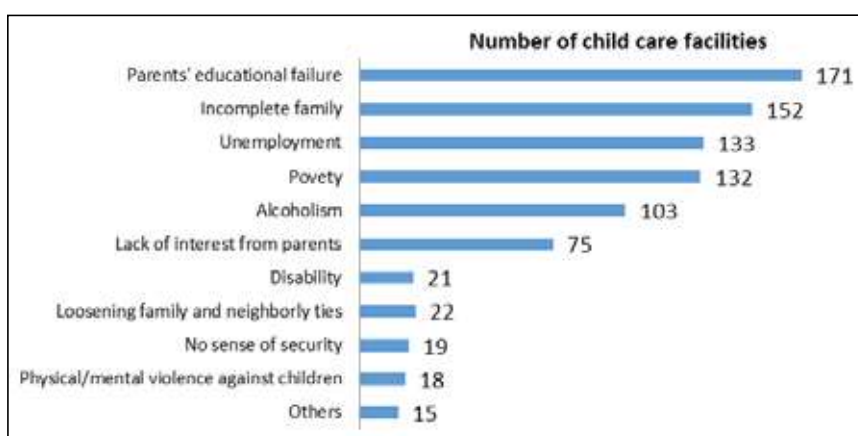


Fig. 5. Problems in children's families (multiple answers possible).

Rys. 5. Problemy występujące w rodzinach dzieci (możliwa wielokrotność odpowiedzi).

Source: The own study

Źródło: Badania własne

than a low-quality one. Much of the hunger in Poland is due to poverty. In our study, 44% of facilities indicated the poverty in families of children who attend to the child care facilities.

Nutritional education of children in the child care facilities

In the vast majority of facilities (97%, n=295), children not only had the opportunity to receive a meal, but also received nutritional education in the field of proper nutrition. Educational classes were held in various forms, as listed below (in order of frequency of answers, multiple answers possible):

- culinary workshops (88%, n=267),
- competitions and themed festivals (54%, n=163),
- educational trips (32%, n=97),
- organizing exhibitions, presentations, publishing newsletters (32%, n=97),
- setting up and running school gardens (9%, n=27).

The effectiveness of the implementation of nutritional education among children and staff of facilities has been demonstrated in many Polish studies [10,11,18,19].

The Yellow Plate program evaluation

The Yellow Plate program was well appreciated by the child care facilities. The vast majority (93%, n=281) described the program as real and effective help for children. A slightly smaller percentage of facilities (79%, n=238) appreciated the opportunity to increase children's knowledge and awareness of healthy eating. Almost 3/4 of the facilities (n=219) considered it important for some children to try products they had never eaten before for the first time. 35% (n=106) of child care facilities declared that the Yellow Plate program gave some children the opportunity to eat the only hot meal during the day. Thanks to the program, children had the opportunity to eat a varied, healthy meal, break the barrier of aversion to food products or dishes. In the opinion of the child care facilities, it was a "great adventure" for children and an opportunity to "play chef". It was also a learning of basic activities related to self-service, daily meal preparation, shopping planning, learning how to use small household appliances, etc. The meal provided as part of the program was an opportunity for integration and encouraged children to attend the facility more often. According to the assessment of some child care facilities the program provided a valuable financial support for children's parents.

Characteristics of people completing the survey

– metric data

Data describing the persons completing the questionnaire is presented in Table 1.

The surveyed person most often held the position of a teacher in the child care facilities. The vast majority of the respondents were women. More than half of the people were between 31 and 50 years old. Most of the respondents had higher education. However, only every tenth person declared education related to nutrition, dietetics or nutrition organization. Among other positions mentioned were: educator, volunteer, cook, therapist. It is worth noting that the respondents often combined different roles, e.g. manager and teacher or teacher and pedagogue.

Table 1. Metric data

Tabela 1. Dane metryczne

Characteristic		%
Gender	Women (n=272)	90
	Men (n=31)	10
Age	18-30 years old (n=42)	14
	31-50 years old (n=168)	55
	>50 years old (n=93)	31
Education	Secondary (n=46)	15
	High (n=256)	85
Education related to nutrition	Yes (n=36)	12
	No (n=267)	88
Position	Teacher (n=111)	37
	Manager (n=99)	33
	Administrative worker (n=58)	19
	Others (n=35)	11

Source: The own study

Źródło: Badania własne

CONCLUSIONS

In order to improve the organization and implementation of nutrition for children in child care facilities, it is necessary not only to educate employees in the field of nutrition, but also to create a system of financial support that would enable the purchase of necessary kitchen equipment, as well as financing well-balanced meals for children in need.

WNIOSKI

W celu poprawy organizacji i realizacji żywienia dzieci w placówkach opiekuńczo-wychowawczych konieczna jest nie tylko edukacja pracowników w zakresie żywienia, ale także stworzenie systemu wsparcia finansowego, który umożliwiłby zakup niezbędnego wyposażenia kuchni, a także finansowanie dobrze zbilansowanych posiłków dla potrzebujących dzieci.

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