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Organizacja żywienia i działań prozdrowotnych prowadzonych z zakresu prawidłowego żywienia oraz aktywności fizycznej w szkołach podstawowych

Organization of nutrition and health promotion activities in the field of nutrition and physical activity in primary schools

Streszczenie

Wstęp. Organizacja żywienia i aktywności fizycznej w szkole jest ważnym elementem wpływającym na stan zdrowia ucznia, jego rozwój oraz dyspozycję do nauki.

Cel. Oceniano organizację żywienia oraz działania prozdrowotne z zakresu prawidłowego żywienia i aktywności fizycznej prowadzone w szkołach podstawowych.

Materiał i metody. Badanie przeprowadzono w roku szkolnym 2010/2011 w 58 szkołach podstawowych miejskich i wiejskich z pięciu losowo wybranych województw. Oceny dokonano na podstawie analizy anonimowych ankiet przeprowadzonych wśród dyrektorów szkół, które dotyczyły organizacji żywienia w szkołach oraz programów/działań prewencyjnych z zakresu poprawy żywienia i aktywności fizycznej wśród dzieci i młodzieży na terenie tych szkół.

Wyniki. Wśród szkół prowadzących posiłki z obiadów korzysta 40,8% uczniów, w tym 38,5% w szkołach miejskich oraz nieco więcej – 42,4% w szkołach wiejskich. Większość szkół (87,7%) realizuje programy/działania z zakresu poprawy żywienia i aktywności fizycznej, w tym 93,5% szkół miejskich oraz 80,8% szkół wiejskich. Wśród dyrektorów szkół, na terenie których znajdują się sklepiki 80,5% deklaruje, że w szkole wprowadzono różnego rodzaju ograniczenia dotyczące asortymentu w różnym zakresie. Stwierdzono, że w 42,9% szkołach znajduje się reklama żywności i napojów. W pozalekcyjnych zajęciach sportowych organizowanych przez szkołę uczestniczy ogółem 36,6% uczniów.

Wnioski. W Polsce problem żywienia w szkołach nie jest dotychczas należycie rozwiązany z wielu powodów, w tym organizacyjnych i finansowych. Wyniki ankiety wskazują jednak na coraz większe zaangażowanie szkół w działania edukacyjne z zakresu poprawy żywienia i aktywności fizycznej wśród dzieci i młodzieży poprzez prowadzenie licznych działań i programów prozdrowotnych.

Abstract

Introduction. The organization of nutrition and physical activity at school is an important element which influences the health of the student's development and disposition to learn.

Aim. The study was to evaluate the organization of the nutrition and health promotion activities in the field of nutrition and physical activity carried out in primary schools.

Material and methods. The study was conducted in the school year 2010/2011 in 58 primary schools, urban and rural areas of five randomly selected regions. The evaluation was based on analysis of anonymous questionnaires among school principals regarding the organization of nutrition in schools, and programs / preventive actions related to the improvement of nutrition and physical activity among children and adolescents in these schools.

Results. About 40.8% of students eat meals at school among the schools offering school lunches, including 38.5% in urban schools and slightly more – 42.4% in rural schools. Most schools (87.7%) are carrying out programs / activities related to the improvement of nutrition and physical activity, including 93.5% of urban schools and 80.8% of rural schools. Among the directors of schools in which there are shops, 80.5% declared that the school introduced some restrictions but in small range. It was found that in 42.9% of schools there are food and beverage advertisements. Participation in the extra-curricular sports activities organized by these school is declared by 36.6% of the students.

Conclusions. In Poland the problem of nutrition in schools is not yet adequately resolved for many reasons, including organizational and financial ones. However, the increasing involvement of schools in educational activities related to the improvement of nutrition and physical activity among children and adolescents by conducting numerous activities and health promotion programs was found.

Słowa kluczowe: organizacja żywienia, edukacja zdrowotna, stołówki szkolne, sklepiki szkolne, programy edukacyjne.

Keywords: organization of nutrition, health education, school canteens, school shops, educational programs.

INTRODUCTION

Education and attitude shaping is a natural process at school. That is why school should take advantage of many possibilities to implement the principles of healthy lifestyle through, among others, organizing school breakfasts, increasing the percentage of students eating school lunches prepared in adherence to recommended dietary norms, changing a range of products available in school shops and introducing various forms of physical activity. A school meal is an inherent element of proper nutrition of every student. Educational programs related to proper nutrition and physical activity carried out in school environment, which included also students' families or local community, proved to be effective [1,2]. Cooperation between schools and parents on health promotion enables creating a uniform educational environment, which in turn enhances the effectiveness of undertaken activities.

AIM

The aim of this study was to evaluate the organization of the nutrition and health promotion activities in the field of proper nutrition and physical activity carried out in primary schools in Poland.

MATERIAL AND METHODS

The study was conducted in the school year 2010/2011 in 58 primary schools, in urban and rural areas of five randomly selected regions: mazowiecki, pomorski, opolski, podkarpacki and wielkopolski. The schools participated in the evaluation of program "School Fruit Scheme". Among primary schools, there were 31 urban schools and 27 rural ones. The evaluation was based on the analysis of anonymous questionnaires among school principals regarding the organization of nutrition in schools, a range of products offered by school shops and programs/preventive actions related to the improvement of nutrition and physical activity among children and adolescents in these schools. The evaluation was divided into rural and urban schools. The study was approved by the Bioethics Commission at the National Food and Nutrition Institute in Warsaw.

RESULTS

Organization of nutrition in schools

School principals were asked about the length of long breakfast breaks. In 73.7% of schools breakfast breaks last at least 15 minutes. Every fourth school does not organize breakfast breaks long enough to eat second breakfast (Table 1). The results were similar both in urban and rural schools.

Almost all urban schools that participated in the study have canteens (96.8%), whereas the percentage of rural schools that have canteens is 63.0%. All urban schools serve school lunches for students, in the case of rural schools lunches are served in 81.5% of schools. Full lunches (soup, second course) are served by 67.9% of schools, including 77.4% of urban schools and 54.5% of rural ones. In general, 40.8% of students eat lunches in school, including 38.5% of urban schools and 42.4% of rural ones (Table 1).

School shops

School shops are available in 62.1% of schools, including 67.7% of urban schools and 55.6% of rural schools. Answering the question if their schools have influence on the range of products offered by those shops, most school principals answered 'yes' (88.9%), including 90.5% of principals in urban schools and 86.7% of principals in rural schools. Principals of 80.55% of schools with school shops declare that some restrictions have been imposed on the range of products offered by the shops. Seventeen principals of urban schools in which there are shops (80.95%) and 12 principals of rural schools (80%) declared introducing some restrictions (Table 2).

TABLE 1. Organization of nutrition in urban and rural primary schools.

Primary schools	Primary schools		
	In total N=58	Urban schools N=31	Rural schools N=27
With canteens	81.0%	96.8%	63.0%*
Providing lunch	91.4%	100.0%	81.5%**
Providing full lunch (soup + second course)	67.9%	77.4%	54.5%
% of students eating lunch in schools	40.8%	38.5%	42.4%
With a break lasting 15 minutes	73.7%	73.3%	74.1%
With a school shop	62.1%	67.7%	55.6%
Being able to influence the range of products offered by school shops	88.9%	90.5%	86.7%
Introducing some restrictions on the some range of products	80.55%	80.95%	80.0%
With a school shop offering, among others, fruits and vegetables	33.3%	33.3%	33.3%

*p < 0.005

**p < 0.05

TABLE 2. Changes in the range of food products offered by school shops (divided into urban and rural schools) – according to what school principals declared (among schools declaring some restrictions).

Changes in the product range	Primary schools					
	In total N=29		Urban schools N=17		Rural schools N=12	
	N	%	N	%	N	%
Selling of crisps not allowed	23	79.3%	12	70.6%	11	91.7%
Selling of sweet beverages not allowed	20	69.0%	13	76.5%	7	58.3%
Selling of sweets and ice cream not allowed	7	24.1%	6	35.3%	1	8.3%
Introducing „healthy” food	5	17.2%	3	17.6%	2	16.7%
Other*	2	6.9%	1	5.9%	1	8.3%

* lack of food products with preservatives, lack of dangerous packaging

Fruit and vegetables in school shops are available only in 12 schools (33.3% of schools in which there are shops). Fruit and vegetables are available in 7 urban schools (33.3% of urban schools in which there are shops), and in 5 rural schools (33.3% of rural schools in which there are shops).

Implementing programs/activities connected with nutrition education

Most schools, both urban and rural ones, implement programs/activities whose aim is to improve nutrition and physical activity among children and adolescents (Table 3). Such programs are carried out by 87.7% of schools (50), including 93.5% of urban schools (29) and 80.8% of rural schools (21). The most often implemented programs are: School Fruit Scheme, Keep Fit, School Milk Scheme, 5 portions of vegetables and fruit, School for Health, as well as various other school programs (Table 4).

TABLE 3. Promoting a healthy lifestyle (including proper nutrition and physical activity).

Primary schools	Primary schools		
	In total N=58	Urban schools N=31	Rural schools N=27
Carrying out programs concerning proper nutrition and physical activity	87.7%	93.5%	80.8%
Organizing days of a healthy lifestyle for children and their parents	79.3%	83.9%	74.1%
Organizing classes for parents in proper feeding of children	65.5%	74.2%	55.6%
Declaring that classes concerning proper feeding of children are popular with parents	85.7%	86.4%	84.6%
Organizing classes for parents concerning the advantages of doing physical activity	69.0%	71.0%	66.7%
Declaring that classes concerning the advantages of doing physical activity are popular with parents	91.9%	90.0%	94.1%
In grounds of which there are advertisements of food and beverages	42.9%	37.9%	48.1%
In grounds of which there are posters promoting a healthy lifestyle and physical activity	98.3%	100.0%	96.3%
Organizing extra-curricular sports activities	100.0%	100.0%	100.0%
% of students attending extra-curricular sports activities	36.6%	33.8%	39.6%

TABLE 4. Programs carried out by primary schools.

Programs	Schools altogether N=50	
	N	%
School Fruit Scheme	38	76.0%
Keep Fit	15	30.0%
School Milk Scheme	9	18.0%
5 portions of fruit and vegetables a day	6	12.0%
School for Health	5	10.0%
Internal school programs	7	14.0%

Forty-six schools (79.3%), including 26 urban schools (83.9%) and 20 rural schools (74.1%), organize days of

healthy lifestyle for students and their parents. Days of healthy eating are organized in 20 schools (43.5%), picnics are organized in 15 schools (32.6%), sports contests – in 13 schools (28.3%), festivities – in 10 schools (21.7%), and other activities (e.g. talks, practical activities, contests) – in 10 schools (21.7%). Most urban schools – 23 (74.2%) and only 15 rural schools (55.6%) organize classes in which parents are taught principles of rational nutrition. These classes are very popular with parents in both urban and rural schools – 30 school principals (85.7%) gave such a statement. Most schools organize classes which inform parents about advantages of physical activity – such classes are organized in 22 schools (71.0%), including 18 rural schools (66.7%). In addition, these classes are very popular with parents – 91.9% school principals stated such an opinion (Table 3).

In 42.9% of all schools (24), there are food and beverage advertisements. The advertisements are offered by almost a half of rural schools (48.1%) and by almost 1/3 of urban schools (37.9%). In all schools that participated in the study there are posters concerning a healthy lifestyle, only in one rural school there is no such a poster (Table 3).

Organizing physical activity

All schools that participated in the study organize extra-curricular sports classes (Table 3). Participation in the extra-curricular sports activities organized by those schools is declared by 36.6% of students (in urban schools – 33.8%, in rural schools – 39.6% of students). The survey showed that in 55 schools (94.8%) there is a sports field, in 52 schools (89.7%) there is a gymnasium, other sports facilities are available in 22 schools (37.9%). A sports field is available in 96.8% of urban schools (30) and in 92.6% of rural schools (25); a gymnasium is available in 90.3% of urban schools (28) and in 88.9% of rural schools (24). Almost in a half of schools there are other sports facilities (e.g. a physiotherapy gym, a playground), they are available in 25.9% of rural schools (7).

DISCUSSION

The organization of nutrition in school is an important element that influences the student's health, his/her development and disposition to learn. Eating meals at school improves students' nutrition, their concentration and it develops proper eating habits in children and adolescents. Schools should provide appropriate conditions, so that students could eat second breakfast, they should also provide children with one hot meal, especially when students spend a few hours at school [3,4]. Long breaks between meals make students feel hungry; children start feeling bad and are not able to learn. Moreover, schools should promote a healthy lifestyle, which is an important issue when taking into consideration the problems of overweight and obesity.

It is important to organize a break for breakfast, which should take an appropriate amount of time and during which students would be able to eat their second breakfast in an appropriate place. In the schools that participated in the study a break for breakfast lasts less than 15 minutes in every fourth school, which seems to be not long enough to eat one's second breakfast. Breakfast eaten in the classroom

or other appropriate room helps to teach children the principles of rational nutrition, to eliminate inappropriate eating habits, as well as to promote a healthy life style. According to the study conducted by Woynarowska et al. in over 200 primary schools and junior high schools, 41.7% of schools organized eating breakfast in classrooms or other rooms, only in 19.1% of schools breakfast was eaten in all classes [5]. The study carried out in 2011 by the same author in 520 primary schools and junior high schools shows that a half of schools organize second breakfast, and only 23% of schools organize second breakfast in all classes [6]. The study carried out by Czezelewski on a sample of 2,758 students aged 10-12 shows that over 11% of children do not eat breakfast before leaving for school. Only 43% of boys and 53% of girls take second breakfast to school [7].

A possibility of eating lunch is another important element of mass catering in schools. All urban schools covered by the study provide students with hot lunches, and almost every fifth rural school is not serving lunches. Students in urban schools (38.5%) and 42% of students in rural schools do not eat lunches at school.

Almost all schools covered by the study have school canteens, 1/3 of rural schools do not have canteens. Although fewer rural schools have canteens, the percentage of students who eat lunch in school is a bit higher.

The study carried out by the Centre for Social Communication at Municipal Office of Capital City of Warsaw concerning mass catering in Warsaw primary schools of June 2009 showed that 98% of schools have a school canteen, but in two-thirds of cases, there were not enough places for all students who have lunch there. In general, 52% of students covered by the study have lunch in schools. Moreover, 98% of schools provide needy students with meals. Although meals are more available in urban schools, children and adolescents from urban schools take advantage of mass catering more rarely than their peers in rural schools [8]. The study carried out by Wajszczyk et al. shows that most often students skip second breakfast and afternoon snack [9]. The study indicates that a half of boys and 36% of girls aged 11-12 do not eat lunch in school. According to students who do not eat school lunches, the meals are too expensive, they do not taste well, and there is a small choice of dishes. Moreover, breaks for lunch should be longer, and the dishes should be served aesthetically. According to Woynarowska et al., school catering for all Polish students is still inappropriately organized and it can be estimated that within a few hours of their stay at school every third student does not eat or drink anything. Most schools in Poland still do not realize that it is essential to provide all students with something to eat [5].

The availability of food products in school shops is another aspect of feeding children and adolescents in school. In over half of schools covered by the study, there are school shops, most often in urban schools. School principals state that they influence the range of products offered by the shops and that they implement restrictions on selling of such products as crisps, sweet beverages and salty snacks. However, their declarations do not correspond with a range of goods that those school shops offer. Many studies and reports suggest that the range of products offered by school shops is inappropriate for children. The surveys confirm that only

one-third of school shops sell fruit or vegetables. The 2011 study carried out by Woynarowska et al. indicates that in most schools covered by the study students can buy sweets, sweet beverages and salty snacks in school shops. Less than one-fourth of schools have and implement the strategy of limiting in school access to such products and increasing the consumption of vegetables, fruit, milk products and whole-meal products [6].

Studies conducted by many researchers confirm that there are many irregularities as far as promoting a healthy lifestyle by schools is concerned. Children and adolescents do not get enough physical activity, they take part in sedentary activities in their free time, they do not eat second breakfast, they drink many sweet beverages and eat a lot of salt snacks, etc. [10,11].

When children start going to school, their nutrition deteriorates. It is probably because children spend more time away from home, they become more independent. Children and adolescents buy products in school shops, which offer many inappropriate products from a nutritional point of view. According to the study carried out by Szatko et al. under the frames of Nationwide Monitoring of Oral Diseases and Conditions, which covered 3370 students from particular regions, almost 23% of children every day or every 2-3 days buy a doughnut or a bun, 35% of students with the same frequency buy sweets and/or lollipops, another 31% of students – chocolate and chocolate bars. Almost 39% of schoolchildren buy every day or every 2-3 days sweet beverages in school shops; they also buy crisps with similar frequency. The study pays attention to the fact that about 88% of Polish schools offer food products causing decay (doughnuts, buns, crisps, chocolate bars, sweets and lollipops). These products increase a risk of tooth decay, they reduce appetite, and they do not provide body with an appropriate amount of nutrients [12].

Sweet fizzy drinks, which are very popular with students, replace the consumption of healthy milk beverages (milk, kefir, yogurt), decreasing, among others, calcium or vitamin C intake. Moreover, sweet beverages have a high calorific value and a low nutritional value [13]. That is why it is so important to provide children during their stay in school with appropriate alternative products. A big attention is paid to the range of products offered by school shops, educating children and promoting healthy choices in food.

Our own study (2009/2010) which covered a group of Warsaw schoolchildren indicates that a half of students buy food in school shops every day or a few days a week. Most often they buy sweets, lollipops and gumdrops – 20% of students, crisps – 14% of students, chocolate bars – 11% of students. Only 1% of students buy fruit. It should be noted that 17% of girls and 15% of girls receive money on second breakfast from their parents. That is why children choose products themselves and their choices are not always appropriate to them [14].

Most schools covered by the study, both rural and urban ones declare that they carry out programs/actions whose aim is to improve nutrition and physical activity. According to the study conducted in 2006 by Woynarowska only 38% of schools carry out projects and programs considering proper nutrition [5]. The number of schools taking part in European

Union programs or carrying out their own programs promoting a healthy lifestyle has increased. The fact that schools implemented ready educational programs did not exclude launching their own programs. However, it should be noted that the form and range of implemented programs is very diverse. Moreover, they do not always cover all students. Implementing an educational program considering rational nutrition does not always mean changes in the range of products offered by school shops or a better organization of nutrition in school.

The program "School Fruit Scheme" was implemented in 76% of schools. The program has been carried out in Poland since 2009 and it has been aimed at 1st-3rd form primary school children. European Union Council directive enables member states to launch the "School Fruit Scheme", whose aim is to provide school children with fruit and vegetables. Products that are supplied to schools include fresh fruits: apples, pears, strawberries, fresh vegetables: carrot, radish, pepper, as well as fruit juices, vegetable juices, vegetable and fruit juices. The aim of the program is to develop dietary habits in children, based on eating fruits and vegetables, as well as on nutritional education. The program is financed by the government and the European Union. According to the data collected by the Agricultural Market Agency in 2011/2012 school year, 9727 primary schools entered into contracts with fruit and vegetable suppliers for delivery of fruits and vegetables free of charge. A number of 1st-3rd form students covered by the program in the second term of 2011/2012 school year amounted to 891,670, which made 72.22% of children from the target group [15].

Another program implemented by 30% of schools covered by the study is called "Keep Fit". It aims at older students from primary and junior high schools. The aim of the program is to promote proper eating habits and to pay the children's attention to physical activity as a necessary condition for staying healthy. The program "Keep Fit" is implemented by the Chief Sanitary Inspectorate and "The Polish Federation of Food Industry Union of Employers". The program is the result of many consultations, among others, with the National Food and Nutrition Institute in Warsaw.

Another program – "School Milk Scheme" – is implemented by 18% of schools surveyed. This European Union program has been carried out in Poland by the Agricultural Market Agency since 2004. The aim of the program is to promote drinking milk and dairy products in schools and develop proper eating habits in children and adolescents. The study conducted in 2008 by Woynarowska indicates that school principals did not implement the program "School Milk Scheme" properly. The study covered 200 primary and junior high schools in Poland. According to Woynarowska, school principals did not take advantage of the program nor did they know about it [5]. However, the situation is improving every year, more and more schools launch the program that enables students to drink milk. According to the data of the Agricultural Market Agency in the 2004/2005 school year 637,641 students were able to drink milk in school, and in the 2010/2011 school year – 2.3 million students [15].

Educational programs promoting a healthy lifestyle should include activities aiming at encouraging parents to take part in them. School programs will not produce appre-

ciable effects without parents' participation and support. Cooperation between school and parents in promoting a healthy lifestyle enables developing uniform environment, thus increasing the effectiveness of undertaken actions. Parents' insufficient knowledge about the influence of nutrition on one's health or a lack of time to do physical activity is a serious problem. School is a place that can provide decent education about physical and mental health. Parents should be taught in an interesting and effective way. There are various ways of educating parents [16].

Principals of the surveyed schools declare that in their students' parents attend classes where they can gain knowledge about rational child nutrition (classes are taught in 65.5% of schools) and about the role of physical activity in life (classes are taught in 69% of schools). In rural schools, such classes are held more rarely than in urban schools. School principals claim that these classes are very popular with parents.

Days of a healthy lifestyle, such as days of healthy eating, sports contests, and family festivities are organized in most urban schools and in a smaller number of rural schools.

Physical activity is one of basic factors influencing physical and mental development of children and adolescents. However, a high percentage of children do not do enough physical activity. It is estimated that in every fourth school, there are some deviations from normality in the children's state of health and risk factors for noninfectious diseases occur in a very young age. Physical education in school, as well as sports and recreation in a free time should provide students with an appropriate dose of physical activity [17].

All surveyed schools organize extra-curricular sports activities for students. Unfortunately, not many students participate in them, both in urban and rural schools – about 38% of students take part in such extra-curricular activities.

The attention should also be paid to the problem of food advertisements in schools. Among schools which took part in the study, 42.9% admit that there are food advertisements placed in the school grounds and the advertisements not always concern healthy food products. According to the 2003 Hastings Centre Report there is a relationship between promoting food and choosing particular food products as well as the amount of food consumed, which may result in health problems, such as obesity. School principals should be aware of the fact that promoting food develops children's knowledge about food products and influences their choices and consumer behavior [18].

CONCLUSIONS

The percentage of students eating lunch in both urban and rural schools is quite low. Providing all schoolchildren with meals is still not properly organized. It should be noted, however, that the situation is improving every year, among others, thanks to implementing such programs as "School Fruit Scheme" and "School Milk Scheme."

Most primary schools carry out nationwide education programs concerning rational nutrition and physical activity or they launch their own programs promoting a healthy lifestyle. Such programs are carried out in various ways; it is schools that decide about the form of those projects and their extent.

Declaring by schools that they promote a healthy lifestyle does not always mean that they implement the principles of proper nutrition in practice.

School principals and parents council should have greater influence on the range of food products offered by school shops, because the access to healthy food is still limited.

In addition, parents should be engaged in educating their children. Schools should encourage parents to cooperate in this matter.

The problem of nutrition in Poland is still underestimated and has not been solved yet. There are many reasons for such a situation, among others, organizational and financial ones.

The results of the survey indicate that schools are becoming more and more involved in preventive actions related to the improvement of nutrition and physical activity among children and adolescents in these schools by carrying out various activities and education programs in this matter in schools.

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