

ASSESSMENT OF PARENTAL LEVEL OF KNOWLEDGE AND AWARENESS IN THE FIELD THE USE OF DIETARY SUPPLEMENTS AMONG CHILDREN

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Abstract: Due to the changes in modern lifestyle, it is more and more common that not only adults, but also children consume highly processed, unbalanced, ready-made meals. In contrast, the dietary supplements market is constantly enriched with new products that, according to their manufacturers, are to overcome the implications caused by such improper diet. The aim of the study was to assess the state of knowledge and awareness of the use of dietary supplements intended for children, among a select group of parents. The research method employed a questionnaire assessing the level of knowledge and frequency of consumption, with an author's questionnaire serving as a research tool. Conducted within the municipality of Gdynia, in the period between July-September 2017 and April-May 2018, the study comprised a total of 239 persons who are parents of children aged 3 to 10 years. The majority of respondents demonstrated an appropriate level of knowledge and awareness of the use of children's dietary supplements. The results of the research allowed segregating the study group into parents who contest the basis of administering supplements to children and those who supply their children with supplements in order make up for improper nutrition.

Keywords: dietary supplements, nutritional knowledge, nutrition of children.

1. INTRODUCTION

One of the factors affecting the development of children is proper nutrition. Prolonged working hours and a greater involvement in issues related to the work of parents means that, more and more often, not only adults, but also children consume highly processed, unbalanced, ready-made meals. In the opinion of parents, an easy solution seems to be the use of dietary supplements that in their character and suggested dosing regimens, are similar to medications, but are considered foods under the law of food safety and nutrition [Ustawa z 25 sierpnia 2006; Kostecka and Kostecka 2015]. As such, they are not subject to restrictions

applicable to drugs and therefore are easily introducible and advertisable on the market, thereby gaining immense popularity, which, in turn, raises numerous controversies among experts.

In contrast, paediatricians and dieticians recommend that children be provided with rational, balanced nutrition that provides them with all the necessary nutrients. In particular, it is essential in this period of rapid growth and functional development of organs to prevent exposing the children's young, sensitive organisms to malnutrition. At the same time, there is a risk of exceeding the permissible doses of vitamins or minerals contained in supplements and fortified foods, which increasingly appear also among the products intended for children. In the countries of the European Community, the data on consumption of components for which there exists a risk of exceeding safe doses include, inter alia, vitamin A, beta-carotene, calcium, copper, fluorine, iodine, iron, manganese and zinc.

Another important aspect is a decreased absorbability and assimilability of the nutrients contained in food supplements. The studies of properly balanced diets of children in Poland do not show significant deficiencies, except vitamin D, therefore there seems to be no necessity for such supplementation [Socha et al. 2010]. Intensive growth in the popularity of dietary supplements, the prevalence of their use, availability, and the constantly evolving offer of these products aimed at children proves a dilemma to parents. Consequently, an attempt was made to assess the state of knowledge and awareness of a select group of parents in the context of dietary supplementation, taking into account both the demographic characteristics and evaluation of the necessity of the use of dietary supplements in the diets of adults and children.

2. MATERIAL AND METHODS

The research method employed a survey, with an author's questionnaire serving as a research tool. The study was conducted among 126 parents and guardians of children attending kindergartens, as well as 113 parents and guardians of schoolchildren, in the municipality of Gdynia. The study group of respondents (n = 239) included, in terms of demographics, 169 women and 70 men. Among the respondents, over 70% declared higher education, and every fifth person completed secondary education, while only 2.5% of the respondents had completed education solely at the basic level. In terms of the age criteria, the largest group comprised of those aged 35 years and below (56%), slightly more than a quarter of respondents belonged to an age group between 36 and 40 years, while 18% were 40 years old or above. Nearly 60% of all respondents perceived their financial situation as good or satisfactory, while every tenth person considered their position as average. Moreover, 23% of respondents considered their economic situation as very good, and just over 9% as bad.

The questionnaire consisted of two parts. The first part of the questionnaire included questions related to the definition of a dietary supplement, knowledge on concepts related to supplementation, the use of supplements and the necessity of supplementation of diets of both adults and children. The second part of the questionnaire consisted of questions related to the factors affecting the administration and the selection of nutritional supplements for children, as well as the sources of such knowledge.

The survey conducted in July-September 2017 and April-May 2018 comprised a total of 239 persons who are parents of children aged 3 to 10 years.

3. RESULTS

100% of the parents who declared a secondary education, and 95% of those with higher education, correctly defined the concept of dietary supplement as a food product supplementing a normal diet. Meanwhile, the group of parents with basic education and 5% of those with higher education identified dietary supplements as medicine. Thus, statistically, 98% of all women and 87% of all men who took part in the survey indicated the correct definition of a dietary supplement.

The age-criterion test diversified the group of respondents with respect to declared knowledge about dietary supplements: 93% of all respondents aged up to 35 years identified the proper definition of a dietary supplement. Among respondents whose ages ranged between 36 and 40 years, 100% had the knowledge of the concept of food supplement, while 95% of those above 40 years of age correctly defined this issue. Furthermore, 60% of all respondents declared providing their children with dietary supplements. Considering the age criteria, children up to 5 years of age received fewer supplements than did the school-age children. The group consisting of 9–10 year-olds was noted to demonstrate the highest percentage of dietary supplementation.

The first part of the questionnaire also asked respondents to answer whether they considered supplements as necessary in the diet of both adults and children. Almost 75% of all respondents felt that these foods are not necessary for the proper functioning of the body, but every fifth respondent found them to be appropriate complementation of diet, while less than 6% of all respondents could not answer this question.

In assessing the need for dietary supplements in children's diets, respondents gave similar answers; 76% of all respondents felt that they are not necessary foodstuffs, while every fifth respondent stated such supplements ought to be used. In contrast, 5% of all respondents had no opinion on the subject.

Among the respondents who felt that the consumption of dietary supplements is necessary for the proper functioning of the body of an adult, just over 30% indicated that it is not necessary for children. A little more consistency was seen in

the group of respondents who believe that consuming dietary supplements is not necessary; almost 90% considered that the use of these foods is not necessary among both adults and children.

The following part of the study asked parents/guardians about the use of dietary supplements within the daily diet. This question was answered only by the group of respondents who declared consumption of such as foods. Only every tenth of all respondents declared the use of dietary supplements every day, and systematic complementation of diet was noted among more than 15% of the category respondents. Almost 45% of the respondents used a dietary supplements ad hoc/as needed, and almost 30% of the study group took supplements irregularly.

In the opinion of respondents, declaration of casual and systematic use of dietary supplements within diets of children and adults achieved similar values. Contrastingly, the differences were noted among those who administered these foods to their children on a daily (36%) and irregular (5.4%) basis. Every second respondent having no opinion on supplementation within the adult diet had also no such opinion in terms of the diet of children (Tab. 1).

Table 1. Declaration of administration of dietary supplements in relation to selected demographic factors

Factor		In total		Declaration of administration of dietary supplements			
		n	%	positive		negative	
		239	100	n	%	n	%
Age (years)				143	60	96	40
	3–5	126	52.7	44	34.9	82	65.1
	6–7	14	5.9	10	71.4	4	29.6
	8–9	20	8.4	16	80	4	20
	10	79	33.0	68	86.1	11	13.9.
Self-assessment of material status							
	Very Good	55	23.0	21	38,2	34	61.8
	Good/satisfying	136	56.9	76	55,9	60	44.1
	Average	26	10.8	11	42,3	15	57.7
	Bad	22	9.3	9	40,9	13	59.1
Education							
	higher	173	72.4	94	54.3	79	45.7
	secondary	60	25.1	21	35	39	65
	basic	6	2.5	2	33.3	4	66.7
Consumption of dietary supplements by parents/guardians							
	Daily			24	10,0	215	90.0
	Regularly, according to needs			37	15,5	202	84.5
	Sporadically, according to needs			107	44,8	132	55.2
	Irregularly			71	29,7	168	70.3

cont. Table 1

Administration of supplement to children					
	Daily	86	36	153	64
	Regularly, according to needs	38	15.9	201	84.1
	Sporadically, according to needs	102	42.7	137	57.3
	Irregularly	13	5.4	226	94.6

Source: author's own studies.

In the next part of the questionnaire, respondents were asked to indicate the sources from which they drew knowledge on dietary supplements. Nearly 60% of all respondents indicated the Internet as the primary source, followed by the opinion of doctors or pharmacists (slightly below 30%). Over 65% of all respondents for whom the Internet was a source of knowledge about supplements, negatively commented on the consumption of these foods. Conversely, the group of parents or guardians who have sought the advice of doctors or pharmacists on this matter declared the consumption of dietary supplements to more than 80%. Information on dietary supplements contained in handbooks, colour press, folders and leaflets accompanying such products were much less frequently identified as the source of knowledge. Advertising in the media and information in medical journals were selected as the source of knowledge by 2% of the respondents, respectively.

The factors influencing the decisions related to the administration of the dietary supplements and selecting a particular product were also analysed. Parents and guardians were asked to indicate what in their opinion was the quintessential decision-making factor. Doctor or pharmacist's advice, and the composition of a given supplement were referred to as determinants influencing the choice of a specific dietary supplement most often (23%). Every 10th respondent indicated both friends' advice or the familiarity with the brand/manufacturer as influencing factors. Price, promotion or advertising of a dietary supplement had little influence on the choice of a particular product.

Among the group of parents who took into consideration their friends' recommendations when choosing a particular dietary supplement, as many as three-quarters of all respondents said they use these food products. Moreover, the respondents for whom medical opinion and the composition were important when selecting such products declared consumption of dietary supplements by their children to a high degree (over 60%). Among the factors influencing the administration of children's dietary supplements, except for those mentioned in the questionnaire, respondents were given an opportunity to indicate their own answers. In the 'other' rubric, the most frequently mentioned factors were: consideration of the advertising published in the press and seasons/solstices, which

amounted to more than 10%. Determinants most frequently indicated by the parents were reduced immunity of their children (40%) and recommendation of a paediatrician (over 30%). In the group of parents for whom the decisive factor for the administration of the dietary supplement was a noticeable lack of vitamins and minerals, more than 85% confirmed the use of these foods (Tab. 2).

Table 2. Declaration of administration of dietary supplements in relation to decision-making factors and the sources of knowledge

Factor		In total		Declaration of administration of dietary supplements			
		n	%	positive		negative	
		239	100	n	%	n	%
Source of knowledge							
	Advertising in the media	2	0.8	2	100	0	0
	A leaflet included in the packaging	11	4.6	5	45.5	6	54.5
	Doctor/pharmacist	69	28.9	56	81.2	13	18.8
	Guides: popular press, folders	14	5.9	11	78.6	3	21.4
	Medical journals	2	0.8	2	100	0	0
	The Internet	141	59.0	49	34.8	92	65.2
Decision-making factors influencing the choice of a supplement intended for children							
	Doctor's advice	55	23.0	38	69.1	17	30.9
	Pharmacist's advice	57	23.9	27	47.4	30	52.6
	Friend's advice	24	10.0	18	75.0	6	25.0
	Manufacturer/brand	24	10.0	11	45.8	13	54.2
	Composition of the supplement	55	23.0	36	65.5	19	34.5
	Price	14	5.9	10	71.4	4	28.6
	Promotion	5	2.1	5	100	0	0
	Advertising	5	2.1	4	80.0	1	20.0
Decision-making factors influencing the administration of a supplement							
	Decreased immunity levels	97	40.6	97	100	0	0
	Paediatric indication	79	33.0	73	92.4	6	7.6
	Noticeable lack of vitamins and minerals	35	14.6	30	85.7	5	14.3
	Other	28	11.8	17	60.7	11	39.3

Source: author's own studies.

4. DISCUSSION

The market of dietary supplements is developing very dynamically in Poland. Its value in 2018 did not exceed 5 billion zł, and 2019 saw an increase by a further 5%, while experts estimate that by the end for 2024, it could reach 5.4 billion zł [Kotynia, Szewczyk and Tuzikiewicz-Gnitecka 2017; *The Market of Supplements...* 2019]. The interest in and the consumption of these products are also increasing. According to data published by TNS OBOP, every fifth Pole declared use of dietary supplements in 2014, while the report published in 2017 shows that over 70% of Polish society admits to using these products [*The Supplements of Diet are Well*].

Until recently, dietary supplements for adults formed a substantial part of the products of this branch of the pharmaceutical industry. Among these were those supporting weight loss, memory and concentration, immune system, or potency [Stoś, Wierzejska and Siuba 2012; <https://www.forbes.pl/opinie/cala-prawda-o-suplementach-diety-bardziej-szkodza-niz-pomagaja/6r9cdxz>].

Recently, this group of foods was expanded to include a range of dietary supplements dedicated to children. The variety of food supplements for children include vitamin supplements, vitamin and mineral supplements and foodstuffs intended to improve appetite, ease the eye fatigue caused by the prolonged periods of time spent looking at computer screens, or to improve the lack of concentration during lessons etc. While the supplementation of diet is becoming increasingly common within the nutrition of both adults and children, the ever-expanding range of products makes the choice even more difficult [Piekara et al. 2016].

The study indicates that education and evaluation of material situation had little influence on the level of parental knowledge on the concepts regarding dietary supplements. Meanwhile, the study carried out by Koziół-Kozakowska et al. has shown that parents with higher economic status have used dietary supplements in children's diets more often [Koziół-Kozakowska et al. 2009]. The results of this study showed that supplementation of children's diet was widespread within a given group, and, in relation to the entire group, concerned mostly preschool children. Similar observations were noted in the studies by other authors. Research conducted by Bylinowska et al. in 2012 among a group of children between 6 to 12 years of age showed that over 40% of children received at least one supplement [Bylinowska et al. 2012].

In contrast, a much higher percentage of children who received supplements (62%) was observed in studies performed in children of preschool age [Koziół-Kozakowska et al. 2009]. A similar level of supplementation was also found in studies carried out among a group of children older than 11–12 years in 2009 [Hamułka, Wawrzyniak and Starzak-Jankowska 2010]. Studies conducted in the USA within a group of children up to 2 years old indicated that supplementation was more widespread, which is associated with a much greater popularity of this

practice among the American society [Gilimore, Julie and Hong 2005]. Test results by numerous authors estimate that 34–73% of the American population declare intake of dietary supplements [Millen, Dodd and Subar 2004; Timbo 2006; Rock 2007; Sadowsky 2008; Kozerska et al. 2010].

The research presented in this paper indicates a breakdown of the studied group of parents on the basis of questioning the legitimacy of administration, as well as complementing an improper nutrition by supplements. What may raise some concern is the fact that parents frequently drew their knowledge on dietary supplements from sources such as the Internet or popular press, only to a lesser extent, did they take into account the opinion of paediatricians. At the same time, doctor's advice more frequently influenced a selection of a particular type of dietary supplement administered to the child than did that of a friend.

The authors of studies on the inclusion of supplementation in children's diets emphasise the need for wider education of parents in this regard. This is particularly important in the context of health care, thus the use of dietary supplements during states of disease without consulting a doctor can be dangerous in terms of drug interactions [Yetley 2007; Bylinowska et al. 2012; Zabłocka-Słowińska et al. 2013]. According to many authors, the use of supplements in accordance with the present state of knowledge should only be considered in cases of vitamin and mineral deficiency or in the states of increased demand [Stoś et al. 2011].

The subject of dietary supplementation is particularly important in the case of administration of dietary supplements within the diets of children who are the most sensitive and vulnerable to deficiencies in nutrition [Flynn et al. 2009].

5. CONCLUSIONS

1. The majority of the respondents in the studied group demonstrated an appropriate level of knowledge and awareness about the use of dietary supplements intended for children
2. The results of the research allowed to segregate the study group into parents who contest the basis of administering supplements to children and those who supply their children with supplements in order make up for improper nutrition.

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