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SCHOOL MEALS EVALUATION – OPPORTUNITY TO CHALLENGE NUTRIENT DEFICIENCIES AND OBESITY THROUGH LOCAL ACTION

Introduction

Food is crucial to the health, development and wellbeing of children. As stated in the UN’s Convention on the Rights of the Child: “Children are entitled to receive adequate nutritious foods and clean drinking-water, and to have a knowledge of nutrition” (article 24, 2c and e).

Schools have unique opportunities to promote a healthy lifestyle in a positive, natural way, promoting good eating habits among students of all age, from preschool to secondary school. The basic responsibility does of course rest with the child’s home and family. But the eating habits of most pupils are also influenced by other people as they eat many of their meals outside the home.

Children pick up the habits and behaviours of adults. Good school meals in a pleasant environment give them every opportunity to eat meals at school every day and to adopt a positive attitude towards food. A good meal at school ensures that pupils feel full, so promoting concentration, allowing them to learn and ensuring a good atmosphere at school. A nutritious meal is particularly impor-

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tant for some children, and in this way school meals are a vital element in efforts to promote equality in terms of health. In other words, good school meals mean better schools for everyone, and they are an important element in long-term public health work. Good meals are about so much more than just food, and they do not necessarily have to cost more than poor ones.¹

Legislative framework on nutrition of children

In the last few years, few important documents and legal provisions related to nutrition have been adopted in Macedonia. Ministry of Health (MoH) and the IPH have prepared and adopted first ever Food based dietary guidelines.² Ministry of Labor and Social Policy (MLSP) in cooperation with MoH have put in place The standards for nutrition in kindergartens, in the form of a bylaw.³ That document obliges both caterers and kitchen staff in kindergartens to be committed to respecting of the nutritional quality standards for this population. Ministry of education and science (MES) in cooperation with MoH have adopted in 2014 the Standards for nutrition of primary school children, in the form of bylaw.⁴ That document provides guidance for caterers and staff in school kitchens about preparation of healthy meals for primary school children. Comprehensive media campaign has been launched in the country that aimed to raise awareness about acceptance of healthy nutrition and to stress the importance of healthy lifestyles in prevention of early occurrence of NCDs.

Assessment of nutrition and obesity in children in Macedonia

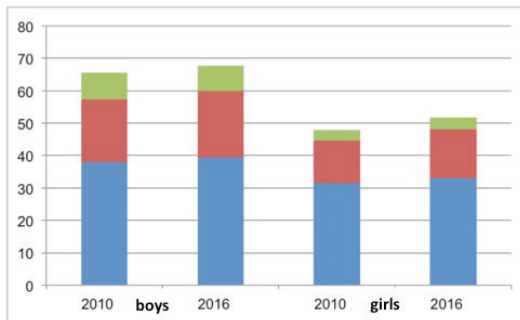
Macedonia still hasn't performed comprehensive food consumption survey to assess the children's intake of macro and micronutrients (the first such survey for children according to the EU Menu methodology is planned to start in 2018). The first Macedonian food consumption survey for adults took place in 2015 and the data showed that adults in Macedonia consume insufficient quantities of polyunsaturated fat, vitamin D and iron and too much saturated fat, sugar and salt with an insufficient intake of wholegrain cereals, dietetic fibers, fish and seafood.⁵ Having in mind that, as mentioned before, families and eating habits at home are dominantly influencing children's eating behavior, it is expected that children are facing similar challenges considering their food intake.

Apart from not having data on household food consumption of children, Macedonian health system has long-time established and functioning system of surveillance in school settings, mostly performed by the Institute of Public

Health (IPH) and the Centers of Public Health in the country through the Government-funded National Annual Program for Public Health.

Data from anthropometric measurements of children show that prevalence of overweight and obesity is increasing over the years.⁶

Chart 1. Overweight and obesity among second grade children in RM, by gender



Explanation of colors: Blue=% of overweight or obese; Red=% of obese; Green=% of extremely obese

Data from menus provided by some of the kindergartens and schools in the country show that macronutrients are in good relative balance but there is a still higher than recommended intake of saturated fats and sugars.⁷

Table 1. Presence of vitamins in the school meals for primary school children, 2016

Vitamin	A μ g	B1 mg	B2 mg	PP mg	C mg
Average	1425.4	0.5	0.6	5.5	38.9

Table 2. Presence of minerals in the school meals for primary school children, 2016

Mineral	Na mg	Mg mg	Ca mg	Fe mg	Cu mg	P mg	Zn mg
Average	1669.4	77.5	372.9	5.9	0.4	650.9	2.1

As far as the micronutrients are concerned, there is higher intake of sodium, which is main ingredient of the table salt, and reduced intake of calcium, iron and zinc. These micronutrients are part of the complex elements in the organism that provide proper growth of the children. Also, data collected through the assessment of iodine status in school children as part of the EUthyroid⁸ project initiative shows that there are regions in the country where children are iodine deficient.

These data suggest that legal provisions are not sufficient to drive systematic change in the process of providing the school meals. Still, school meals are important part of the overall process and the policy makers should not be discouraged not to implement changes in the nutrition policies at schools. Of course, changes in other segments of the school environment should be also implemented, primary the food marketing to children and the availability of unhealthy foods in and around the school premises. And finally, previously mentioned change of the eating habits at home that largely influence children's eating behavior.

Policy recommendations and future steps

Comprehensive assessment of school menus of all primary schools that provide meals for children, and menus from all kindergartens in the country would yield really valuable results regarding levels of nutrients present in it. This is particularly important for micronutrients since its presence in the school meals is usually underrepresented. That operation might also serve as evaluation report regarding adherence of the meal providers to the bylaws and rulebooks which provide recommended values for daily intake of nutrients.

The methodology of the process of assessment would include collection of all meals and menus at the kindergartens and schools through the MLSP and MES, respectively. All of those menus will be analyzed on macro and micronutrient composition through software tool that has National Food Composition Database included in it. The results of the software analyses will provide details about the nutrient composition of the meal or the specific ingredient included in the meal. Then those results will be compared with the recommendations for nutrient intake in existing rulebooks, having in mind that meals in the schools or kindergartens should satisfy less than 100% of the children's nutritional needs (approximately 75% of the total energy and nutrients intake for the kindergarten children age 4-5 and 70% for the primary school children provided with the school meals). The rest is supplemented through eating at home or out of school. This will allow identifying more specifically the nutrients which are commonly not in accordance with the

dietary reference intake (DRI), both being in deficit or consumed more than recommended. Also, this comprehensive approach will identify regions in the country in which deficiency of some of the micronutrients might exist.

School or kindergarten staff that is included in food management and preparation of the meals and the catering services play crucial role in obtaining nutritious meal to the children. The meals should be both tasty and in accordance with the recommendations provided in the legislation acts. It is obvious if a meal has been cooked with dedication and is carefully seasoned. Cooking tasty, nutritious food which students enjoy requires both knowledge and skills. Staff in school kitchens should have some kind of restaurant or catering training at certain level as a minimum. Chefs and lunchtime assistants should regularly be offered further training. Exchange schemes with other schools are another way of coming up with new ideas, providing staff with the opportunity to develop. Chefs should have an important part to play in planning menus and devising recipes, even if nutritional assessment is someone else's job. Places of work that provide opportunities for professional development have more chance of attracting and retaining talented, committed staff who are proud of what they do. The food should be of good quality no matter how the meals are made; from raw ingredients or semi-prepared or fully prepared. A knowledge of cookery techniques and the best methods for the preparation of various dishes is necessary to ensure that the food is as tasty as possible. What people in the kitchen know about ingredients from farm to table can inspire both students and adults in school canteens.

Some simple tools might be of great help for the chefs and other food preparation staff to assess the nutrient contents of ingredients in the meals. Through the activity of evaluation of the meals it will be possible to create nutrient assessment tool. The existing national food composition database and other databases obtained through other micronutrient studies, like EUthyroid, might be the foundation of a simplified food composition tool, particularly focused on micronutrients that will assist the school kitchen or catering personnel in creating nutritious and tasty meals for children. The interactive tool can then be used to quantify the nutritive content in food as value ranges and provide accumulated values for each meal and entire menu in a given pre-school facility or school.

Evaluation of meals served to children is a process that is needed in order to assess if the nutrition legislation for schools and kindergartens is implemented. It would be strong argument to make necessary modifications in pre-school and school meals, if needed. Of course, complexity of malnutrition (under and overnutrition) needs addressing with comprehensive measures

that will include many other sectors of the society. Nutrition related issues for specific populations are usually case study of whole of government approach and include different measures implemented in variety of sectors to gain health benefits. Adherence of the pre-school and school meals to the DRI for macro and micronutrients is necessary measure in that process and its implementation should be seen as “*conditio sine qua non*” when shaping policies and actions.

Abstract

Food is crucial to the health, development and wellbeing of children. As stated in the UN Convention on the Rights of the Child: “Children are entitled to receive adequate nutritious foods and clean drinking-water, and to have a knowledge of nutrition”. In the last few years, several important documents related to nutrition have been adopted in Macedonia, including Food based dietary guidelines, and standards for nutrition in kindergartens and in primary schools. Data from anthropometric measurements of children shows increasing prevalence of overweight and obesity, and data from menus provided by some of the kindergartens and schools in the country show that macronutrients are in good relative balance but there is a still higher than recommended intake of saturated fats and sugars. Through the data presented, the paper argues that evaluation of meals served to children is needed in order to assess the adherence to nutrition legislation by schools and kindergartens, and to make necessary adjustments to meals. If assessment is performed for wider number of nutrients, it might also provide policy recommendations for improvement of legislation.

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