Nutritional status of Romanian population and interventional programs to prevent obesity

Mirela Nedelescu^{1*},
Alexandra Cucu^{1,2},
Andra Neamtu¹,
Corina Zugravu^{1,2},
Lăcrămioara Brândușe¹

¹ National Institute of Public Health Romania,
Dr. A. Leonte Street, no.

¹⁻³ Bucharest, Romania

² "Carol Davila" University of Medicine and
Pharmacy Bucharest, Romania

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Corresponding author:

MirelaNedelescu,
National Institute of Public Health,
Dr. Leonte Street, no. 1-3, Bucharest, Romania.
E-mail: mirela.nedelescu@insp.gov.ro

ABSTRACT

Our work present data on the nutritional status of adult population of Romania in 2015 and the results of the school-aged children surveillance through the national surveillance program 2015 and also from two international programs – The European Childhood Obesity Surveillance Initiative (COSI), the national report 2013 and the Health Behaviour in School-aged Children Program (HBSC) from 2014.

The assessment of the nutritional aspects and health of adult population in relation to food consumption investigate the eating behaviours through consumption rates of nutrients and the main food groups, as well as anthropometric indicators of subjects included in the study. The data for 2015 show a decreased energy intake through food consumption, insufficient intake of dietary fiber and minerals (calcium, magnesium and selenium) and a high intake of proteins and total fats, especially saturated fats and cholesterol. The salt intake was situated above the WHO and European Commission's recommendations: more than 5 g / day - added salt and a total consumption of 10 g salt / day. These dietary mistakes are reflected in the increased percentage of the overweight subjects (43,1% men, 36,2% women respectively) and obese (30% men and 27,2% women).

The COSI survey included 8-year-olds children from both rural and urban regions of Romania and the findings are as follows: 26,75% of the children included in the study are overweight or obese; the prevalence of childhood obesity is 11,64%, with a higher rate of obesity in urban areas. The results of the HBSC study in 2014 indicate that a percentage of 26,6% of boys and 11,8% of girls aged 11, 13 and 15 years old are overweight and / or obese.

These facts are the basis of the national interventional programs concerning the promotion of a healthy nutrition and lifestyle among population in order to reduce obesity and morbidity through cardiovascular diseases.

Keywords: Adult population, Children, Nutrition, Obesity, Overweight, Romania

INTRODUCTION

Overweight, obesity and diet-related diseases have reached epidemic proportions in recent years and are among the leading causes of mortality and morbidity in Europe and worldwide [1,2,3]. The unbalanced diet leads to an increasing number of people suffering from cardiovascular diseases (hypertension, myocardial infarction and atherosclerosis). The probability of meeting the global obesity target for 2025 is very low, and if these trends continue, the global obesity prevalence may reach in 2025 18% in men and 21% in women and the severe obesity will surpass 6% in men and 9% in women [4,5].

In this context, Romania is facing the same challenges. Being a large country with approximately 20 million inhabitants, 50% of them living in rural areas, Romania has an important share of population in poverty. According to ECHI Report 2012, 43% of Romanian population is under the poverty line and the health expenditure per capita is

the lowest among EU Member States [6]. The mortality through non-communicable diseases is estimated to account 92% of total deaths [7]. Risk factors for premature mortality due to non-communicable diseases are tobacco smoking, alcohol consumption, raised blood pressure and obesity. The rate of obesity in 2008 was 19,1% of the total Romanian population, 16,9% for males and 21,2% for females [8]. This is associated with a low consumption of fruits and vegetables. Adults consumption profile indicate a consumption of 7,8 kg of bread / month / household (approximately 160 gr/day/person), 3 kg of meat / month / household, 0,845 kg of cheese / month / household, 2,6 kg of fruits / month / household and 5,4 kg of vegetables / month / household [9].

These data require the need to strengthen and improve the national policies and measures for the promotion of a healthy nutrition and lifestyle among population in order to reduce obesity and morbidity through non-communicable diseases.

MATERIALS AND METHODS

This paper presents data on the nutritional status of adult population of Romania in 2015 and the results of the school-aged children surveillance through the national surveillance program 2014/2015 and also from two international programs – The European Childhood Obesity Surveillance Initiative (COSI), the national report 2013 and the Health Behaviour in School-aged Children Program (HBSC) from 2014.

The assessment of the nutritional aspects and health of adult population in relation to food consumption is made within the national program of the Ministry of Health and investigate the eating behaviours through consumption rates of nutrients and the main food groups, as well as anthropometric indicators of subjects included in the study.

The assessment of physical development of children and youth in schools – both urban and rural communities, is made annually within the national surveillance program that includes preschool and school children aged 5 to 15 years. The prophylactic medical examination of health status of preschool and school children is a valuable tool for assessing the state of health at individual and population level, being one of the most important methods utilized in public health and preventive medicine. Within the national surveillance program for the school year 2014/2015, were examined a number of 641 650 preschool and school children.

The nutritional status assessment of children from elementary schools was made at national level by participating in the "European Childhood Obesity Surveillance Initiative (COSI). The COSI survey included 8-year-olds children from both rural and urban regions of Romania.

The Health Behaviour in School-aged Children study (HBSC) -2014, under the auspices of the World Health Organization Regional Office for Europe (WHO) included the assessment of the nutritional status through BMI, eating habits (consumption of fruits and vegetables, sweets and carbonated drinks), the level and time of physical activity, the substance use (smoking and alcohol) and sexual behaviour among children of 11, 13, and 15 year olds.

For all subjects included in above mentioned studies were made measurement of weight and height, samples of subjects included in studies being representatives at the national level. Food frequency questionnaires were applied in order to assess the consumption of different food categories.

RESULTS AND DISCUSSIONS

Eurostat data show that the overall trend in Europe is the growing number of obesity cases with advancing age. In Romania, the European Commission data show that the highest percentage of obese people was registered for the age group 45-64 years (13,7% in women and 10,7% in men), identifying a slight decrease (from 10,8% in women and 10,5% in men) in population over 65 years [7].

A total of 1705 adult subjects were included in the nationally representative sample for the assessment of nutritional status of adult population in Romania in 2015, of which 1044 were women (62,2%) and 661 men (38,8%). The average age of subjects included in study was $51,7 \pm 15,4$ years. As regard the residence area, 768 subjects were in urban areas (45% of the total population) and 937 were from rural areas (55% of the total population).

Body mass index (BMI) calculation revealed an increased proportion of overweight and obese subjects. It has registered a rate of 43,1% overweight and 30% obese in men. Also, 36,2% of women included in study were overweight and 27,2% were obese (Figure 1).

Figure 1. Distribution of adult population by BMI and gender (percentage values indicated)

The data collected by applying food frequency questionnaires in the studied population show a decreased energy intake through food consumption, insufficient intake of dietary fiber and minerals (calcium, magnesium and selenium) and a high intake of proteins and total fats, especially saturated fats and cholesterol (Table 1 and Table 2). The salt intake was situated above the WHO and European Commission's recommendations: more than 5 g / day - added salt and a total consumption of 10 g salt / day.

Table 1. Daily intake of macronutrients by study population and dietary recommendations

Study population	Daily intake of nutrients by study population					
	Proteins (g/day)	Carbohydrates (g/day)	Dietary fiber (g/day)	Total fats (g/day)	Saturated fat (g/day)	Cholesterol (mg/day)
Men	125	286,6	11	126,3	44	658
Women	114,5	267,2	11	108	36,9	586
Average energy intake covered by nutrients daily	18 – 18,7%	40,3% – 43,3%	-	39,4% – 41%	-	-
Recommendations*	15%	55%	25-35	15-30%	30	300

*according to Romanian Ministry of Health and Romanian Society of Nutrition [13]

The nutritional status of children is annually investigated within the national surveillance program. From the total of 641 650 preschool and school children examined in the school year 2014/2015, 74,3% of them (476489 children) presented an harmonic physical development and 25,7% (165161 children) a disharmonic physical development (underweight and overweight or obese).

In urban areas overweight and obese children represent 15,7% of total subjects, while in rural regions they account 9,2% of total subjects having residency in these areas. In rural areas the percentage of children with disharmonic physical development is lower than in urban areas (17,9% vs. 27,5%). In urban regions the percentage of children with harmonic development is lower by over 9% compared to rural areas (Figure 2).

Figure 2. Distribution of children by physical development status and residence

The findings of COSI survey are: 26,75% of the 8-year-olds children included in the study are overweight or obese; the prevalence of childhood obesity is 11,64%, with a higher rate of obesity in urban areas. Thus, the majority of children included in the study were normal weight (68,15%). The distribution of subjects by gender and nutritional status is presented in Figure 3.

Underweight (BMI < 18,5) was present at 5,11% of children included in survey, 1,22% of children presenting a severe underweight (BMI < 16).

Figure 3. Distribution of the Romania COSI study subjects according to the nutritional status and gender

Figure 4. Distribution of the Romania COSI study subjects according to the nutritional status and residence

The prevalence of childhood overweight and obesity is 31,6% in urban areas and 21,7% in rural areas. A quarter of children living in semi-urban regions are overweight or obese (Figure 4). The highest prevalence of obesity in children of 8 years old in Romania was registered in urban areas

Table 2. Daily intake of micronutrients by study population and dietary recommendations

Study population	Daily intake of nutrients by study population		
	Calcium (mg/day)	Magnesium (mg/day)	Selenium (µg/day)
Men	770	329	68,7
Women	698	284	58,8
Recommendations*	1200	400	70

*according to Romanian Ministry of Health and Romanian Society of Nutrition [13]

(13,15%), followed by rural areas (10,18%) and semi-urban areas (9,85%).

According to the first round of COSI report, the prevalence of overweight (including obesity) in the childrengroup aged 8 years ranged between 22,1% (Belgium) and 49% (Italy) for boys and between 22,7% (Belgium) and 42,5% (Italy) for girls. Obesity prevalence ranged between 7,5% (Norway) – 26,6% (Italy) in boys and between 6% (Norway) – Italy 17,3% in girls [10].

The results of the HBSC study in Romania in 2014 indicate that a percentage of 26,6% of boys and 11,8% of girls aged 11, 13 and 15 years old are overweight and / or obese. Almost a third of boys and 12% of girls aged 11, 13 and 15 are overweight and / or obese. The rate of overweight and obesity among boys is almost double that the rate of girls. The prevalence of overweight and obesity gradually decreases from the age 11 to 13 and to 15 years. There is an increasing trend for the prevalence of overweight / obesity in adolescents aged 11, 13, 15 years in the period 2006-2010-2014, more evident in boys.

We noticed a slightly increase of overweight and obese boys from 2006 to 2014. It can be observed a low increase of the percentage of overweight or obesity among girls, between 2006 and 2010, and a low decrease for 2014 (Figure 5).

Figure 5. The prevalence of overweight and obese children – HBSC Romania survey

HBSC survey investigated also the consumption of fruits and vegetables among children. The results are as follows: only 34% of boys and 41% of girls consumed fruits daily. The percentage of children consuming fruits daily decreases significantly with age, only 25% of 15 years old boys and 34% of 15 years old girls keeps this healthy food habit. Daily consumption of fruits among children aged 11, 13, 15 years declined steadily in the period 2006-2010-2014. There is also a constantly decrease of vegetable consumption from 11 to 13 years old children and from 13 to 15 years.

Despite it was observed a low increase of daily fruit and vegetable consumption in the period 2006-2010-2014, this food habit is currently present in a relatively small percentage of children.

National interventional programs to prevent obesity

The results of above mentioned studies outline the need of consistent national interventional

programs concerning the promotion of a healthy nutrition and lifestyle among population in order to reduce obesity and morbidity through non-communicable diseases.

Romania policies and measures on nutrition include national health programs and integrated plans for health promotion and health education. The normative acts such as Law no. 123/2008 for healthy nutrition in schools [11] and the Ministry of Health Order no. 1563/2008 on approval of the list of not recommended food for children [12] set up the Ministry of Health recommendations on children nutrition and the foods that are banned to be sold in schools: all food containing more than 1,5 g salt/100 g product or more than 0,6 g Na/100 g product; foods high in fat (over 20 g of fat/ 100 g product, of which maximum 5 g saturated fat / 100 g product and maximum 1 g trans fatty acids / 100 g product); foods high in sugars (more than 15 g sugars / 100 g product) and high energy foods (over 300 calories per unit of sale). Ministry of Health and Romanian Society of Nutrition elaborated in 2006 the *Guidance for healthy eating* that contains the nutritional recommendations of health professionals for all age groups [13].

National health promotion activities include annually information activities occasioned by the World Heart Day, Obesity Day, Hypertension Day, European Obesity Day and other events promoting a healthy life and organized at national level.

Also, the national project "Multilevel interventions for the prevention of the non-communicable diseases associated with lifestyle in Romania" [14], co-financed by Norway grants and Ministry of Health Romania, developed activities aimed to increase the capacity of educational and professional institutions (schools and kindergartens) in pilot communities, in collaboration with health professionals. The project was carried out in the period 2014-2016 and the scope of the project was to promote and reinforce healthy behaviors, including healthy nutrition and healthy lifestyle at an early age.

CONCLUSIONS

The dietary mistakes of Romanian adult population (high intake of proteins and total fats, especially saturated fats and cholesterol) are reflected in the increased percentage of the overweight adult subjects (43,1% men, 36,2% women respectively) and obese (30% men and 27,2% women).

The assessment of children nutritional status indicate that a percentage of 26,75% of 8 years old children are overweight or obese (COSI survey) and a percentage of 26,6% of boys and 11,8% of girls aged 11, 13 and 15 years old are overweight and / or obese (HBSC, 2014). The majority of children included in these studies are normal weight, regardless of their gender or their residence.

Therefore, these studies reinforce the challenge for a better implementation of public health policies in order to prevent childhood and adult obesity and to reduce the morbidity through non-communicable diseases.

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