LIFESTYLE AND NUTRITIONAL ATTITUDE IN A SAMPLE OF ROMANIAN ADOLESCENTS

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REZUMAT

Adolescenţa este o vârstă la care cunoştintele referitoare la un stil de viaţă sănătos sunt însuşite pentru întreaga viaţă. Am urmărit în ce măsură aceste aspecte sunt cunoscute, ca şi autoevaluarea statusului ponderal, la un grup de 1201 elevi de liceu. Studiul, descriptiv, s-a bazat pe auto-completarea de chestionare. Rezultatele arată că elevii subestimează necesarul de activitate fizică. Un procent de 17,3% fumează, 69% au indicele de masă corporală în limite normale, 27,6% sunt subponderali si 3,4% depaşesc limitele normale superioare. Aproape jumătate dintre tineri nu îşi evaluează corect greutatea, discrepanţa fiind asociată cu subponderalitatea, sexul şi cu aportul alimentar insuficient. În concluzie, tinerii au nevoie de programme de educaţie sanitară care să ii educe corect referitor la noţiunea de stil de viaţă sănătos.

Cuvinte cheie: *adolescent, subponderal, imagine corporală, anorexie, percepţie*

ABSTRACT

Adolescence is an age when healthy lifestyle awareness has great chances to be established as an ally for the entire life. We investigated the nutritional/lifestyle knowledge and the self evaluation of the BMI, in a randomly selected sample of 1201 high-school teens. The descriptive cross sectional study was based on a self-completed questionnaire. Nutritional knowledge among teens is generally correct. The level of daily physical activity is underestimated 17.3% of students smoke. Regarding BMI, 69% of the sample are between the 5th and the 85th WHO percentile, 27.6%, under the 5th and 3.4 %, between the 85th and the 95th percentile. Almost a half has an incorrect image of the body weight. The body image discrepancy is significantly associated with underweight, gender and with an insufficient food intake. Even if adolescents have good nutritional understanding, a special educational effort has to be paid to give them other needed healthy lifestyle information.

Keywords: *adolescent, nutrition, underweighted, body image, anorexia, malnutrition, perception*

INTRODUCTION

In our modern society, adolescents represent a real target both for the medical specialists and for the economy professionals. Usually at this age, food and life style behaviours are setting up and they will be followed by boys and girls their entire life. For teenagers, outer influences are very important for the way they interact with the society. Sometimes we observe real trends to which the young person has to submit, in order to be accepted by his or her group of peers [1]. Beginning with puberty, when human body suffers important transformations, body perception and self image will change [2]. But as individuals playing the role of beauty standard in our society, society obsessed by the curse of obesity [3-5], are generally underweighted and continuously dieting, many under- or normally weighted adolescents will try to comply as much as possible with them [6].

This study was carried out at the beginning of 2008 and tried to evaluate the nutritional knowledge, the nutritional behaviour and the self-perception of body weight of teens from 10 special math high school of Romania.

METHOD

From the high-schools, we randomly selected a 1201 student sample, reflecting general sex and age distribution. We used a self-completed questionnaire, with items linked to the objectives of the study. Every student was weighted and measured at the high schools` surgery. The answers and the anthropometrical data were assessed with the SPSS program and were used to describe, synthesise and draw conclusions [7].

RESULTS

Using the WHO percentiles for children and adolescents [8], we assessed that 69% are between the 5th and the 85th percentile of BMI, 27.6%, under the 5th percentile and 3,4 % are between the 85th and the 95th percentile (Figure 1).
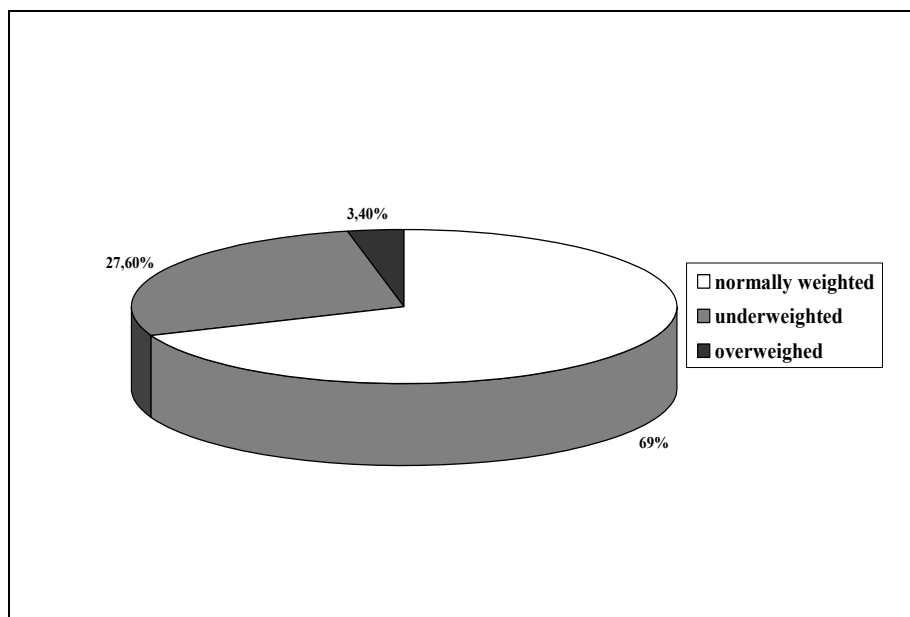

Figure 1. BMI [WHO percentiles]

The answers to the questionnaire show a good nutritional education. The average number of daily meals is 2, breakfast being often missed.

The main sources of information about nutrition and healthy lifestyle are internet and special TV programs (65.5%), followed by magazines and books (30.1%).

Some adolescents smoke (17.3%), in spite of the anti-smoking measures taken in the high schools.

The level of physical activity is very low [9]: 39.6% of the students exercise only during gym hours. A special attention deserves the answers referring to the self assessment of body weight (Table 1). From each group of weight, a certain percent of the adolescents has a distorted image about their body weight.

Table 1. Self assessment of body weight (%)

	Correct evaluation [%]	Body image discrepancy [%]	Total
Normally weighted	62.7	37.3	100
Underweighted	27.6	72.4	100
Overweighed	97.6	2.4	100

From the whole sample, 43.3% of the teens want to modify their body weight and wish to do it more by changing the food intake and less or not at all by other means [more exercising, diet pills, etc]. In this group, 297 teens (57.1%) have a distorted perception of their body weight and 223 (42.9 %), a correct one. The 223 know they are normally or under-weighted but still want to get thinner .This situation was the reason of trying to find some correlations in order to evaluate elements prone to determine the body weight discrepancy. The independent variables taken in account were BMI, sex, age. There is a significant relation between the body weight perception and:
- BMI (chi square = 37.45, df =1, p<0.001), underweighted students having more frequently a distorted body image than other;

- gender (chi square = 55.24, df=1, p<0.001), girls have more frequently a distorted body image than boys.

We found no correlation between age and the body image discrepancy (p>0.05).

To assess the consequences of the body image discrepancy, we continued our correlations, on the basis of the student's answers to the questionnaire. The distorted body image is associated with a pro-active attitude towards modifying body weight (chi square =24.99, df=1, p<0.001). Students with a wrong opinion about their weight are determined to change it. Moreover, the distorted body image leads to a change of the food behaviour (chi square = 21.2 , df=1, p<0.001), teens from this category reducing food intake in order to lose weight. We found no association between the body

weight discrepancy and exercising (p>0.05) or smoking (p>0.05)].

DISCUSSIONS

The food intake pattern is generally correct. Unfortunately, other important problems were revealed. Without claming representativeness, our study shows that teenagers don't really have the correct notion of "normally weighted". Even more upsetting, some of the underweighted students still wanted to lose weight. Because of the full daily program, students have chosen a sedentary lifestyle and want to "correct" their so called "overweight" by lowering the food intake and not by making more physical exercises or practicing a certain sport on a regular basis.

At teen age, human body has still special nutritional necessities, especially because the process of growing is underway [2]. The inadequate intake of nutrients with functional and structural functions can have bad consequences for health of these future grown ups, on short and long term. In adolescence the threshold between normal and abnormal is thinner than at other ages, the danger of anorexia nervosa being quite high between 10 and 30 years. Usually following a stressful event, anorexia seems to be a reaction to the independence, social and sexual functioning exigencies encountered in adolescence [10-13]. This serious and potentially lethal illness, characterized by perturbed body image and severe auto-limitations regarding food intake leads usually to severe malnutrition. One of 150 girls between 14 and 16 years has, in our days, anorexia [12]. Some diagnostic criteria from "Diagnostic and Statistical Manual of Mental Disorders" [14] for anorexia nervosa can be found at a number of students of our sample. Maybe the underweighted who still want to lose weight are, in fact, former normally weighted who have a history of auto-imposed food intake restriction, behaviour they wish to carry on, in spite of the fact that they have already descended at lower level of weight.

CONCLUSIONS

In conclusion, nutritional and healthy lifestyle education is very important in adolescence. Our study shows that highly educated adolescents usually have general notions about nutrition but still need to learn about suitable body weight, in order to avoid the onset of food behaviour problems and of certain malnutrition.

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PUPILS ADDRESSABILITY TO THE DOCTOR IN SECONDARY PROFESSIONAL SCHOOLS FROM REPUBLIC OF MOLDOVA

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REZUMAT

Scopul studiului efectuat este de a investiga adresabilitatea la medic a elevilor din instituţiilor de învăţământ secundar profesional din Republica Moldova. Material şi etodă: utilizând metoda chestionarului, pe un lot de 764 persoane (fete – 344, băieţi – 420), s-au cules informaţii despre adresabilitatea elevilor la medic. Rezultate obţinute: motivele principale pentru care au apelat elevii ultima dată la medicul specialist au fost problemele de sănătate (boală), accident (rană/leziune), procedurile de vaccinare sau pentru a lua nişte acte (certificate) şi mai puţin cu scopul de a face un control medical în lipsa unei boli sau a unei probleme de sănătate. Cel mai frecvent sunt vizitaţi medicii de familie, iar dintre din specialişti – medicul obstetrician-ginecolog, chirurgul, neurologul, cardiologul, dermatologul şi medicul ORL. O parte considerabilă de elevi (40,3%) nu au apelat în ultimii 2 ani la medicul stomatolog pentru o verificare, detartraj sau alte tratamente stomatologice. Motivele pentru care 36,5% din elevii chestionaţi au renunţat la vizita medicului de familie sunt lipsa de timp şi bani, iar unii au aşteptat să vadă dacă problema de sănătate va fi depăşită fără interacţiunea medicului. Dintre cei supuşi chestionării, 1/2 băieţi şi fete declară, că nu au apelat niciodată la medic fără a fi bolnavi sau răniţi. Consumul frecvent al medicamentelor fără recomandarea medicului este cel mai mare în ultimul an de studii al elevilor; peste 1/2 fete şi 2/3 băieţi nu consumă medicamente fără prescripţia medicului.

Cuvinte cheie: *adresabilitate, elevi, medici*

ABSTRACT

The aim of the performed study is to investigate pupils addressability to the doctor in secondary schools from Republic of Moldova. Material and method: Using the questionnaire method on a group of 764 people (344–girls, 420–boys) were collected data about pupils' addressability to the doctor. Obtained results: The main reasons for which students have addressed last time to the physician were: health problems (diseases), accidents

(injury/damage), vaccination procedures or to get some documents (certificates) and less, in order to make a routine medical control in the absence of a health problem. District doctors are the most often visited and from specialists – obstetrician-gynecologist, surgeon, neurologist, cardiologist, dermatologist and otorinolaringologist are visited. A substantial part of students (40.3%) haven't addressed for a check, scaling or other dental treatments to the dentist for the last two years. The reasons of not addressing to the family doctor, indicated by 36.5% of surveyed students, are lack of time and money, and some of them have waited to see if the health problem will be overcome without the doctor's interaction. Half of the questioned, boys and girls, declared that they had never addressed to the doctor without being ill or injured. It can be observed a frequent use of drugs without a doctor's prescription in the last year of the study of the students, more than half of the girls and two third parts of the boys do not consume drugs without prescription.

Keywords*: addresability, pupils, doctors*

INTRODUCTION

Among the determinants of health status of population there is also individual`s and population` level of health education [1].

Health education is a process by which individuals and people learn to improve and protect their health, an aspect that involves an interest of better living conditions, too [2].

Preventive medical checks are provided by the medical system in our country and are part of primary prevention measures that are designed to detect health problems and solve them in time. Unfortunately, health care activity of the population is characterized by containing predominantly curative content, most efforts being directed towards such a medicine. Such an orientation is in the system of health care population as well as in the mentality of the educational background of the population [3].

The success of educational measures can be ensured by implementing them early, since young ages, by the programs promoting healthy behaviors, so that teens already have enough baggage of such information [4].

Oral health is an important element of overall health. Poor dental health can cause pain and affects nutrition. Oral pathology can progress to loss of teeth and requires expensive treatment. In extreme cases, dental pathology may evolve in ostheomyelitis, brain abscess, systemic infection and death.

The major problems of dental health are dental caries, periodontal, malocclusion dental (dental defective gear) and oral cancer. All these pathologies contribute to loss of teeth, which affects bad the health of the whole body. The most important measures to reduce dental caries and periodontal are fluorisation of the community water, education referring to oral hygiene, reducing sugar consumption by children and regular dental care.

The practices of cleaning the teeth after each meal and regular inspection of their condition by the dental health specialist are major issues and should become a part of school curricula and family education for health [5].

MATERIAL AND METHODS

Questioning was performed using anonymous questionnaire on addressability to the doctor of the students in secondary vocational schools from Republic of Moldova (medical speciality, frequency and reason for visit, etc).

Studies included professional students (14 institutions) with 3 years training period, from which: from Chisinau – 2 and from the

countryside – 12, questioning an amount of 764 people (girls – 344, boys – 420).

RESULTS AND DISCUSSIONS

Consumption of medical drugs without doctor's prescription is encountered during the week (once a week, at every 2 - 3 days, daily) at 14.0% of girls and 4.8% boys (Figure 1). The largest consumption is observed during the final year of studies of students (18.9% girls and 9.1% boys declare drugs consumption). Occasional consumption (1-2 times / month, 1-2 times / year) of drugs is reported by 30.5% to 25.8% girls and boys. Percents of 55.5% girls and 69.4% boys deny use of drugs without doctor's prescription.
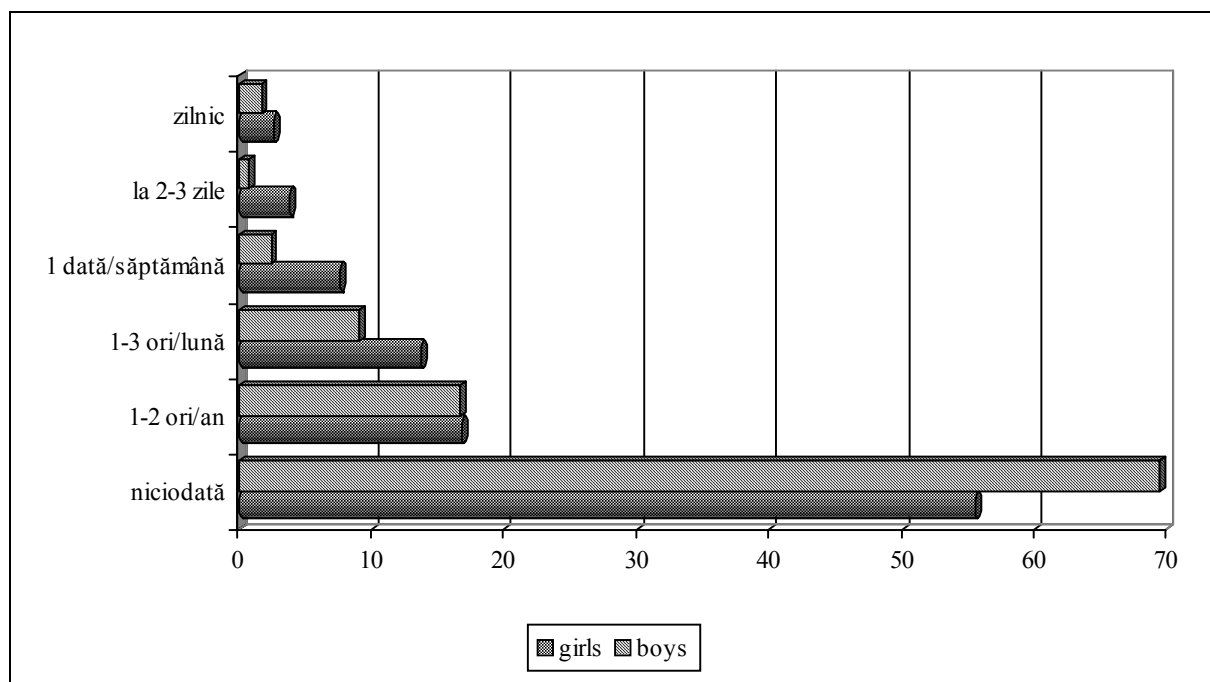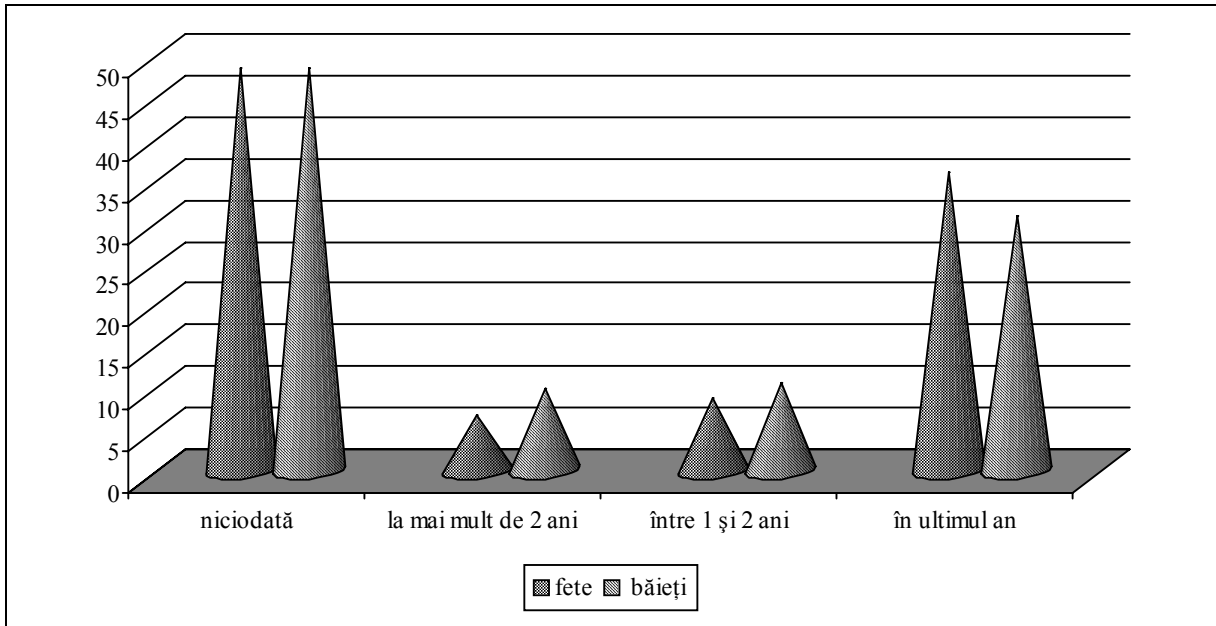

Figure 1. The answer to the question: „How many times have you used drugs without doctor's recommendation during the last 12 months?"
(% of those who were questioned)

Half from the interwied boys and girls declare that they have never called the doctor without being sick or injured. 35.9% girls and 30.8% boys in the last year have been consulted by the physician (Figure 2).

A relatively small part of students from secondary vocational schools (15.4% girls and 20.5% boys) called the doctor in the last 1-2 years or more than last 2 years.
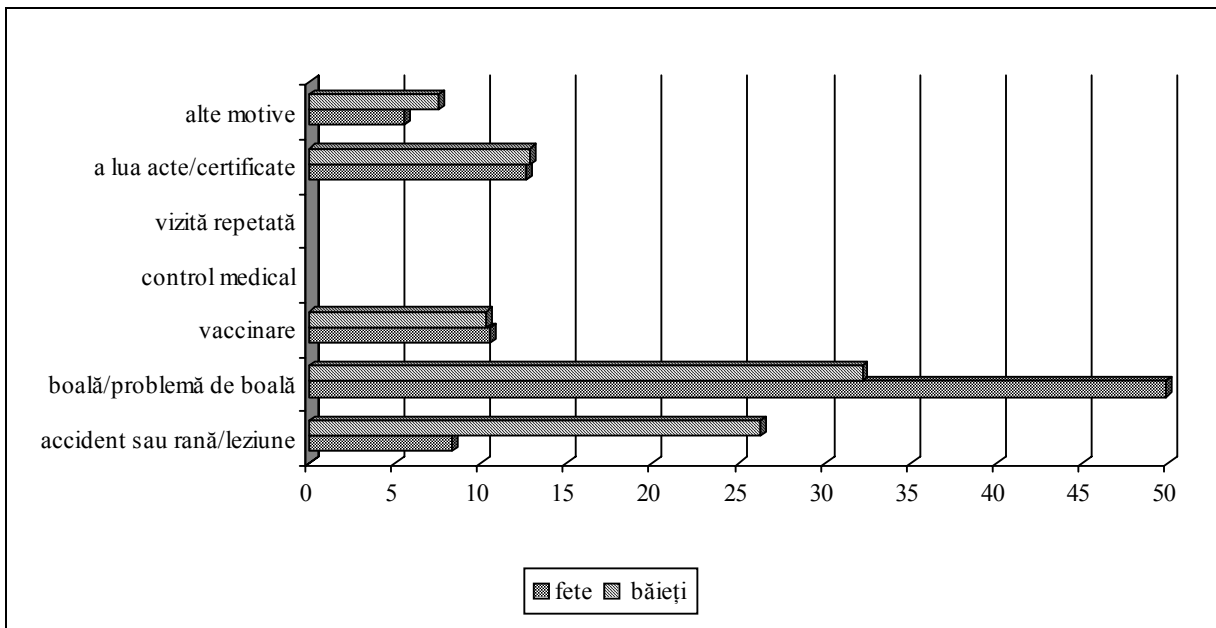
Figure 2. The answer to the question: „When have you been consulted last time by a doctor without being sick or hurt?" (% of those who were questioned)

The main reason for that girls have consulted a doctor was disease or health problems (49.9% of those who were questioned), after that for the reasons of getting some documents, certificates (12.6%) and in order to be vaccinated (10.5%). Boys mentioned two main reasons: illness or health problem (32.2% of those who were questioned), the accident or injury/damage (26.3%) and in the same way as girls – to get some documents, certificates (12.9%) and to be vaccinated (10.3%) (Figure 3).

Figure 3. The answer to the question: „What was the main reason you have called the specialist last time?" (% of those who were questioned)

The number of students, who declared that they had health problems so far, was the least in the last year of studies, both among girls and the boys. The main reasons for abandoning the visit to the family doctor among students from secondary school, are the same as mentioned by girls and boys: on the first place are „Lack of time", then the „Lack of money" and the answer „I look to see if the heath problem will be exceeded without doctor interaction (Table 1).

Table 1. The reason for abandoning the visit to the family doctor of the pupils from secondary schools (% responses)

The main reason	Girls						Boys						Total			
	I year		II year		III year		I year		II year		III year		Girls		Boys	
	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%
„I hadn't health problems so far"	74	62.7	78	66.1	58	54.7	100	67.1	85	65.9	69	55.2	210	61.4	254	63,0
„Lack of money"	11	9.3	11	9.3	17	16.0	6	4.0	16	12.4	8	6.4	39	**11.4**	30	**7.5**
„Lack of time"	15	12.7	11	9.3	16	15.1	18	12.1	14	10.8	22	17.6	42	**12.3**	54	**13.4**
„The need to move to a distance"	1	0.8	1	0.8	1	1.0	3	2.0	1	0.8	1	0.8	3	0.9	5	1.2
„I don't trust the doctor"	2	1.7	2	1.7	3	2.8	2	1.3	2	1.6	8	6.4	7	2.0	12	3.0
„Fear of medical staff"	2	1.8	2	1.7			3	2.0	1	0.8	2	1.6	4	1.2	6	1.5
„Parents know how to treat"	2	1.7	3	2.6	4	3.8	5	3.4	3	2.3	4	3.2	9	2.6	12	3.0
„I waited to see if the health problem will be overcome without doctor interaction"	11	9.3	10	8.5	7	6.6	12	8.1	7	5.4	11	8.8	28	**8.2**	30	**7.4**
Total	118	100	118	100	106	100	149	100	129	100	125	100	342	100	403	100

Most of students called last time family doctor (64.3% of all visits made by girls and by boys 70.5%). The most requested by girls is the gynecologist (obstetrician) – 21.3% visits. The addressability of the girls to this specialist decreases from the first year till the third year. On second place are the cardiologist (10.0%), neurologist (9.3%) and surgeon (6.7%). Till the end of studies, it can be noticed a rise of the number of girls who had addressed to such specialists as neurologist and throat specialist, while the addressability to the surgeon by the last year decreases (Table 2).

Boys are those who addresses the most frequent to the surgeon (18.9%), followed at great distance by following specialists: cardiologist (7.6%), pediatrics (7.6%) and otorinolaringologist (6.8%). The addressability of secondary vocational school student to other specialists is evaluated as low (6.8%).

Family physicians should know adolescents' attitudes toward visiting family physicians' offices and understand the potential barriers adolescents face in coming in for checkups in order to make visits to their offices more comfortable and beneficial [6].

Table 2. Addressability to pupils of professional secondary school to specialist doctor (% of visits to who called last time)

Specialty of doctor	Girls						Boys						Total			
	I year		II year		III year		I year		II year		III year		Girls		Boys	
	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%	abs	%
Pediatrics	1	2.4	1	1.7			3	6.7	4	9.1	3	7.0	2	1.3	10	7.6
Cardiologist	4	9.5	7	11.9	4	8.2	3	6.7			7	16.3	15	**10.0**	10	7.6
Pneumologist, ftiziogist					1	2.0			3	6.8	1	2.3	1	0.7	4	3.0
Otorinolaringologist	1	**2.4**	3	**5.1**	4	**8.2**	4	**8.9**	3	**6.8**	2	**4.7**	8	5.3	9	6.8
Ophthalmologist	3	7.1	3	5.1			2	4.4	1	2.3	2	4.7	6	4.0	5	3.8
Surgeon	6	**14.3**	3	**5.0**	1	**2.1**	10	22.2	6	13.6	9	20.9	10	6.7	25	**18.9**
Endocrinologist, diabetes			2	3.4	3	6.1			2	4.6	1	2.3	5	3.3	3	2.3
Rheumatologist					1	2.0	1	2.3			1	2.3	1	0.7	2	1.5
Gastroenterologist					3	6.1	1	2.2			1	2.3	3	2.0	2	1.5
Urologist, nephrologist	3	7.2	4	6.8			2	4.5			1	2.3	7	4.7	3	2.3
Gynecologist, obstetrician	14	**33.3**	11	**18.6**	7	**14.3**					2	4.7	32	**21.3**	2	1.5
Dermatologist			6	10.2	3	6.1	1	2.2					9	6.0	1	0.8
Orthopedist							3	6.6			1	2.4			4	3.0
Neurologist	3	**7.1**	5	**8.5**	6	**12.2**	1	2.2	6	13.6	1	2.3	14	**9.3**	8	6.1
Psychiatrist			2	3.4	2	4.1	3	6.7			1	2.3	4	2.7	4	3.0
Other	5	11.9	4	6.8	11	22.5	3	6.6	7	15.9	1	2.3	20	13.3	11	8.3
I do not know, I do not remember	2	4.8	8	13.5	3	6.1	8	17.8	12	27.3	9	20.9	13	8.7	29	22.0
Total	42	100	59	100	49	100	45	100	44	100	43	100	150	100	132	100

Consulting the dentist regularly, without an apparent disease, ensures an early detection of oral diseases and avoids potential complications. From the questionnaire, results, that 40.3% of pupils from vocation school did not addressed to the dentist for a check, teeth or other dental treatments, more than 24 months ago have addressed 15.0%, between 12 and 24 months – 13.1%, in the last 12 months – 31.6% (Figure 4).
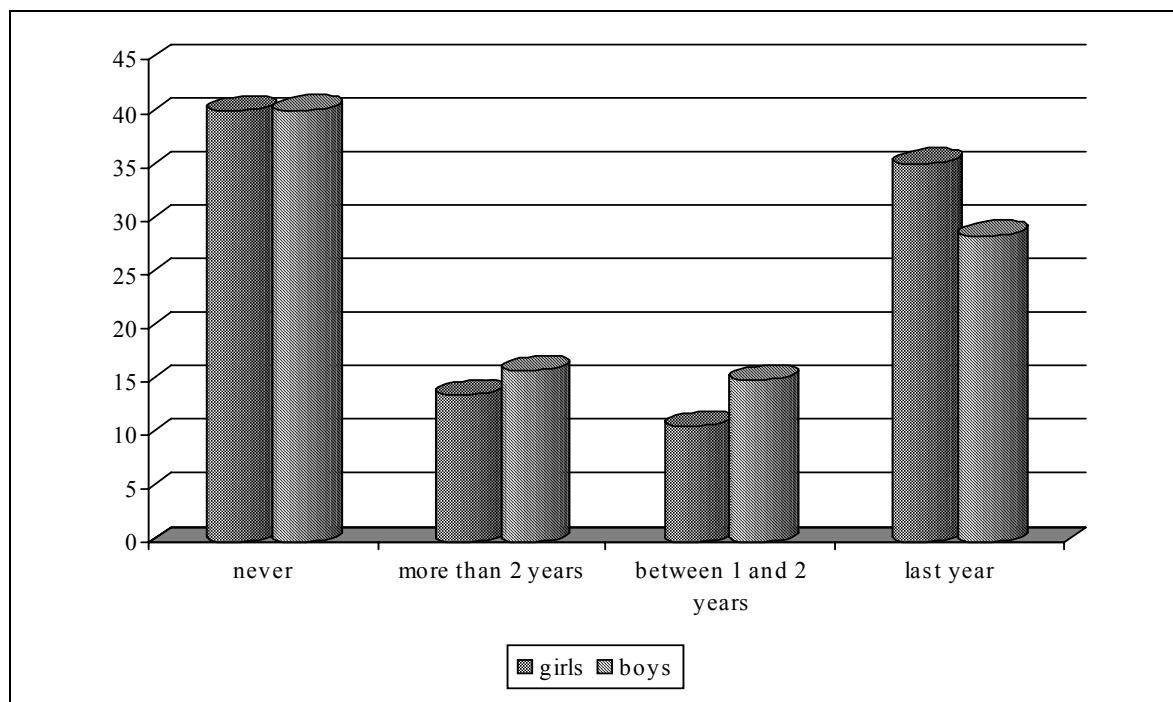
Figure 4. The answer to the question: „When have you been last time consulted by a dentist for a check, teeth or other dental treatments"
(% of those who were questioned)

The early addressing to the dentist is different between girls and boys: for the last 12 months that preceded the questioning, 35.3% of girls and 28.6% of boys addressed to the dentist. Pupils from vocational schools addressed last time to the doctor with the specialty medical dentistry, in 4.4% cases girls and 1.9% – boys.

CONCLUSIONS

- The main reasons for which pupils addressed last time to a doctor, were health problems (diseases), accidents (injury/damage), vaccination procedures, or to get some documents (certificates) and less time to make a medical examination in the absence of disease or health problems;
- Frequent drug consumption without physician's prescription is the highest during the last year of study of the students;

- Over 1/2 girls and 2/3 boys do not consume drugs without a prescription;
- Every 2nd girl and 2nd boy did not call the doctor for consultation without being sick or injured;
- Addressability of the vocational school' students to the dentist is low;
- Girls compared with boys attend the dentist more frequent and precocious;
- The most visited doctors by girls are gynecologist (obstetrician), cardiologist, neurologist and surgeon, and by boys – the surgeon, cardiologist, pediatrician and otorinolaringologist.

RECOMMENDATIONS

It is necessary to educate pupils so they perform regular medical checks in order to maintain health. The primary role in this activity lies with the nursery and pre-university educational institutions controlled by the specialists in this area.

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RADIOLOGICAL UNITS AND EXPOSURES IN BIHOR COUNTY, ROMANIA

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Direcția de Sănătate Publică a Judeţului Bihor

REZUMAT

În ultimii ani s-a constat o creştere a numărului de unităţi furnizoare de servicii radiologice în judeţul Bihor. Siguranţa radiologică este o preocupare prioritară a specialiştilor Direcţiei de Sănătate Publică a Judeţului Bihor (DSPJ). Am analizat dacă în judeţul Bihor numărul de examinări radiologice raportat la număr de locuitori, depăşeşte sau nu valorile înregistrate în alte ţări ale Europei. Datele privind examinările radiologice în unele ţări europene au fost obţinute din publicaţii de specialitate, iar din statisticile curente ale Laboratorului de Igiena Radiaţiilor din cadrul D.S.P. Bihor am obţinut date şi am calculat indicatori comparabili. În ciuda creşterii numărului de examinări radiologice efectuate în ultimii trei ani la populaţia judeţului Bihor, acesta este inferior în judeţul Bihor comparativ cu unele ţări europene. Modelul propus de analiză poate fi extins la alte judeţe pentru obţinerea de date comparabile între judeţe, şi prin compararea gradul de expunere la radiaţii ionizante în domeniul medical (doză pe persoană/mSv) la nivel naţional şi internaţional.

Cuvinte cheie*: siguranţă radiologică, utilizare servicii radiologie, examinări radiologice/număr de locuitori, comparaţie internaţională*

ABSTRACT

In recent years, the number of radiology medical services in Bihor County is increasing. Radiological safety is a priority for specialists from Public Health Directorate of Bihor County (DSPJ). The aim of the present study was to determine if the number of radiological examination per number of inhabitants in the Bihor County is above or below values registered in other European countries. Data regarding radiological examinations in European countries were obtained from medical literature, and from the Laboratory for Radiology Hygiene, part of DSPJ, we obtained and calculated comparative indicators. Despite increasing number of radiological examination in Bihor County population during the last three years, the numbers are still below the numbers from some European countries. The model proposed for analysis can be extended to other counties in order to compare data inside Romania, and, by comparing exposure at ionizing radiations in the medical field (dose per person in mSv) at national and international level.

INTRODUCTION

Living organisms, including humans, were always subject to exposure to radiation from natural sources, which, probably together with other environmental components, have integrated in the evolution process.

To the natural radiation sources (terrestrial - radio nuclides in the earth's crust, air, water, food etc. and extraterrestrials - cosmic radiation), the human added the artificial radiation sources (used in medicine, industry, research, nuclear power, nuclear powered ships).

The use of high technology and expensive imaging techniques has increased substantially in recent decades.

This increase can be attributed to several factors such as aging population, advances in diagnostic imaging and radiology that is indicated in several clinical situations where it is available, increasing number of specialists in medical imaging. Physicians requesting radiological examinations have a central role in the use of radiological services and studies have reported several factors that determine increasing number of radiological examination: expectations of patients, professional uncertainty, stress due to time constraints, defensive medicine, delivery system, peer relations among physicians. The impact of these factors may vary across countries and institutional structures [1].

Now, progress of medical imaging techniques allow doctors to detect hidden diseases and make more comprehensive diagnoses. Radiological safety experts from the International Atomic Energy Agency (IAEA) consider that the advanced procedures overusing for body scanning may unnecessarily expose patients to increased radiation doses. A particular concern relates to computed tomography (CT) because this technique requires higher doses of radiation to the patient, compared with a normal radiography. It was estimated that the average radiation dose for a CT procedure is equal, approximately, with doses received in 500 chest radiographies. And this may increase patients' risk of developing cancer in later life, especially if they are subject to repeated CT examinations [2].

Over-use of radiological services involves performing unnecessary examinations, which has as main causes: repeated investigations, the investigation request does not affect patient management, too frequent investigation, an investigation inadequate, unclear or insufficient clinical information for reference and over-investigation (reinsurance for physicians or patients). Over-use is the main concern of radiation misuse problems.

Over-use of medical imaging services has a significant impact on healthcare costs, quality of health services and health care risks. Risk of medical radioactive exposure gain greater attention as the growth of medical imaging services is not always beneficial for the healthcare provided to patients [1].

A questionnaire survey applied to radiologists conducted in Norway and published in 2009 [1], concludes that the main reasons for increasing radiological investigations are extending medical possibilities and supplies and demand for services, too. Another issue identified in the same study is related to unnecessary radiological investigation. This indicates that measures affecting the supply and demand of services are important to the management of the increased volume of investigations and to reduce unnecessary investigations. To improve decision making

by physicians appears to play a central role in the appropriate reference to radiology.

Use of radiological services, according to data from literature, varies widely from country to country, but a growing number of radiological examinations in the last 20 years are noted. Thus, a study of Finland shows that in 1993 there had been a number of 350 radiological examinations per 1000 inhabitants, only in the health centers [3]. Another study conducted in Norway, regarding the number of radiological examinations shows a geographical variation between counties, the number of radiological examinations varying between 613 and 1487 examinations per 1000 inhabitants in 2002 [4]. Data for a period of 25 years regarding radiological examination in Norway is presented, in light of changes in the number of radiological examinations, by type of examination and years, in a study published in 2009 [5], (Figure 1).
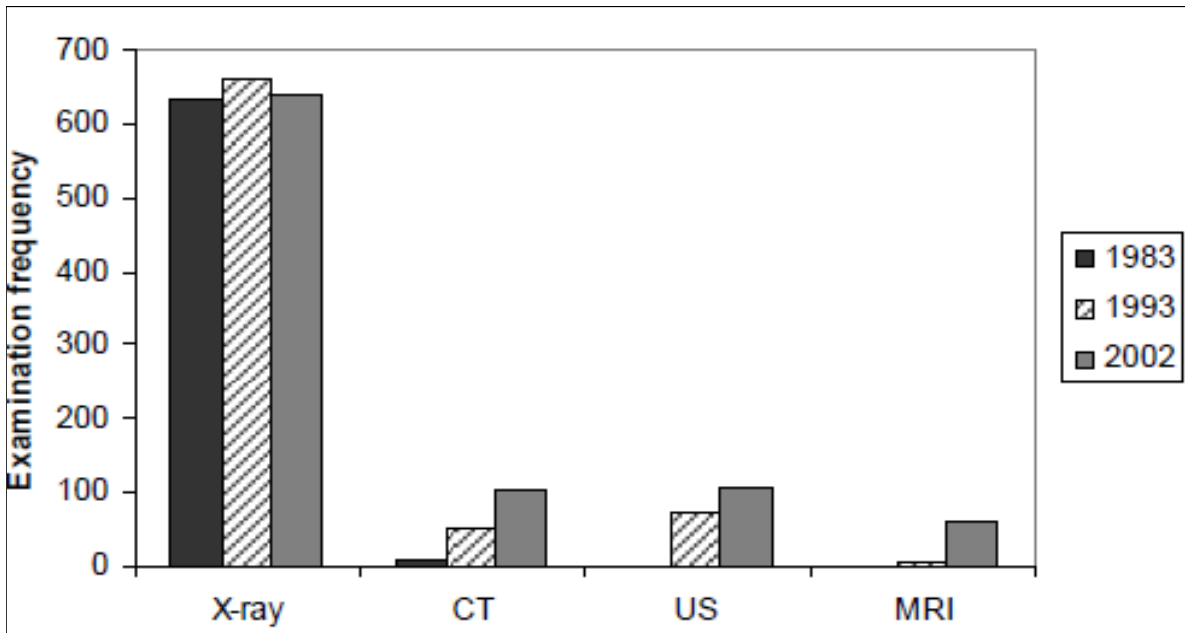
Figure 1. Trends in national examinations frequency in Norway (number of examinations per 1000 inhabitants) for conventional radiology (X-ray), computed tomography (CT), magnetic resonance imaging (MRI) and ultrasound examination (U.S.) between 1983 and 2002 frequencies for MRI and U.S. are only available for 1993 and 2002 respectively

The change in the numbers of radiological examinations by type during 1998 – 2005 period of time in four European countries is presented in Table 1 [6].

Table 1. Frequency (examinations per 1000 inhabitants) of medical radiological examinations in Finland, the United Kingdom of Great Britain, Luxembourg and Switzerland

	Finland	Finland	Great Britain	Luxembourg	Switzer land
Year	2000	2005	2002	2002	1998
Total	***775***	***733***	***376***	***1366***	***1340***
Interventional procedures	4.7	6.5	7.4	9.0	3.8
Computerized Tomography (CT)	39	50	26	135	46
Radiological examinations (without CT / without interventional procedures)	732	676	324	-	707

The aim of this paper is to present numerical evolution of radiological units and synthesis of activity data reported on Bihor County, registered in accordance with specific legislation. Concern about the number of radiological examinations is determined by observing the increasing in the numbers of radiological examinations and the increase in the numbers of suppliers. Increasing number of suppliers for radiology services in Bihor County in last years was determined by private investment development and the funding of radiological services provided by the County Health Insurance House.

MATERIALS AND METHODS

Supervision of radioactive exposure is achieved through the Bihor County by the Radiation Hygiene Laboratory of the DSPJ. In accordance with the Order of Romanian Ministry of Health No. 127 of 2009, the laboratory has the following tasks:
"a) to coordinate activities in order to protect public health and the prevention of effects resulted from ionizing radiation in the subordinated territory;
b) to ensure the collection and report of public health data related to ionizing radiation from subordinated territory;

c) to participate in the development of community health report;
d) on its own initiative or at the request of third parties, to determine the levels of radiation, consultancy services;
e) to monitor enforcement of nuclear safety and radiation hygiene laws;
f) to endorse and authorize the health facilities where nuclear practice and nuclear activities are carried out;
g) to prepare reports of evaluation for units subjected to health endorsement / approval;
h) to verify compliance with hygiene regulations on ionizing radiation in an approved laboratory;
i) to participate in developing action plans for implementing the county plan to the acquis communitarian;
j) to participate in developing action plans for calamities;
k) to intervene in case of nuclear accident or radiological emergency in the subordinated territory;
l) to determine the level of medical exposure to ionizing radiation trough population control programs and quality assurance".

Medical surveillance of the population exposure to ionizing radiation is legislated by two laws. The Order of Ministry of Public Health (MPH) No. 1542/2006 seeks

to establish a consistent system of recording and reporting of population data on medical exposure to ionizing radiation, being provided the minimum set of data to be collected on patients, the centralization of data and reporting responsibilities from the nuclear facilities authorized to the central health authority (Ministry of Health).

The Order MPH No. 1003/2008 includes registration forms and reporting on medical exposures to ionizing radiation at hospitals which provide radiology services, medical imaging, nuclear medicine and radiotherapy, centralized data reporting forms for medical exposure to radiation, ionizing radiation hygiene laboratory at the county public health departments. Under the order MPH, "Radiation Hygiene Laboratory has the responsibility to assess the data reported by health care facilities that provide radiology services, medical imaging, nuclear medicine and radiotherapy, to realize the quality control and to ensure their spot centralization and data reporting." Data are reported to the Institute of Public Health Bucharest (ISP) subsequently collect the data reported by the Departments of Public Health and the annually report is to be submitted to the Ministry of Health.

In Bihor County data are reported by units performing radiological examinations or radiotherapy, in writing forms, accordingly with present legislation. Personnel of Ionizing Radiation Hygiene Laboratory from the DSPJ, centralize data and then fill out the form summary (in Excel format) and submit it to the ISP. There are problems in pooling data because health care facilities don't have an electronic data support to be completed in a standardized way.

Data collection and performance summaries

Data collected for the study were provided by the Ionizing Radiation Hygiene Laboratory from the DSPJ over five years period, between 2005 and 2009. The number of nuclear units represents the approved annually units by the laboratory, in accordance with the law.

The number of medical exposures, including radiotherapy and radiological examinations, carried out over a year, being available because of the way of aggregation, account for data from the years 2007, 2008 and 2009. For each year we calculated the number of medical exposures per 1,000 inhabitants compared with values from other countries. The number of people exposed at work refers to personnel working in nuclear, medical and industrial facilities.

Medical examinations by type of investigation were obtained from pooling data reported by nuclear units in Bihor County, available only for the year 2009.

Data were analyzed and summarized (including the making of graphics) using Microsoft Excel.

RESULTS AND DISCUSSION

Evolution of nuclear units in Bihor County in the 2005-2009 time period and the corresponding indicator (number of radiological units to 10,000 inhabitants) is shown in Table 2. An increase of 28 units in the period under review is present, despite overlap a period of growth (between years 2005-2007), and therefore increase funding for health services in the same period.

**Table 2 .Numerical evolution of nuclear facilities in Bihor County
in the 2005-2009 time period**

Year	No. of inhabitants in Bihor County	Nuclear units	Nuclear units per 10,000 inhabitants
2005	596.670	62	1.04
2006	595.448	71	1.19
2007	594.615	70	1.18
2008	593.897	84	1.41
2009	592.654	90	1.52

For the 2007-2009 time period, an increase in medical exposures is noted, from 173.576 to 245.847 (Table 3). Given that the aggregated data (medical exposure) refers to therapeutic procedures (cobalt therapy) it cannot be compared with international data presented in Figure 1 and Table 1.

**Table 3. Number of medical exposures of Bihor County population
in the years 2007-2009**

Year	Number of medical exposures	Medical exposures per 1000 inhabitants
2007	173.567	291.90
2008	218.184	367.38
2009	318.896	538.08

Occupational exposures may occur in the health sector or industry. Evolution of medical and industrial occupational exposures during 2005-2009 time period is shown in Figure 2.
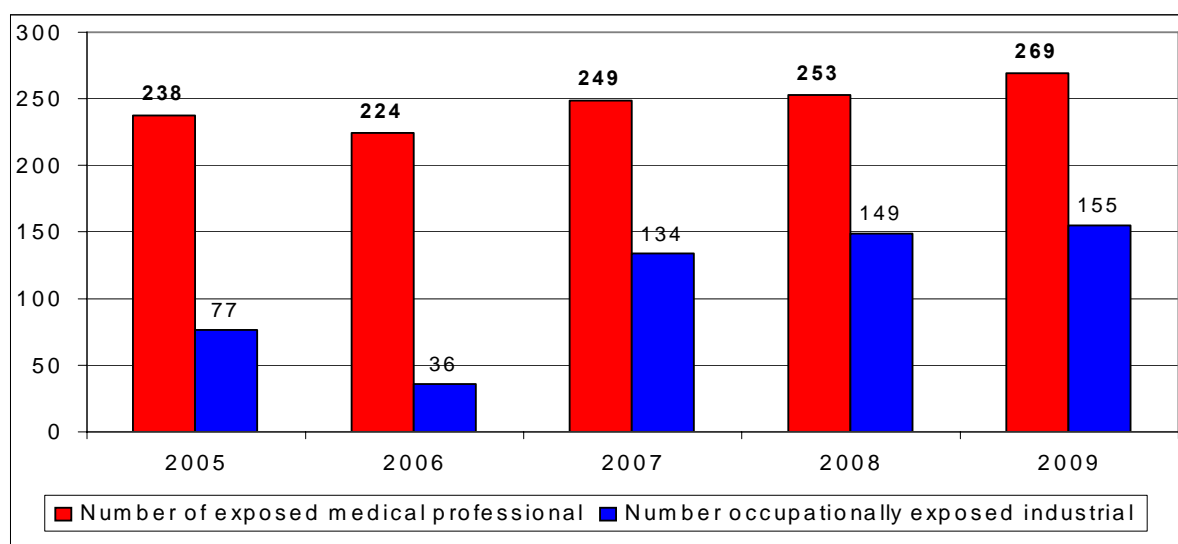
Figure 2. Occupational radiological exposures during 2005-2009 in Bihor County

Medical exposures in the year 2009 for the population of Bihor County and the types of procedures performed are presented in the following table (Table 4).

Table 4. Medical exposures in Bihor county population in year 2009

Procedure Type	Total procedures performed between January 1 to December 31, 2009	Frequency (Per 1,000 inhabitants)
Radiographs	213.318	359.94
Dental radiography	50.028	84.41
Radioscopy	34.905	58.90
CT	18.044	30.45
Nuclear Medicine	1.057	1.78
Cobalt Therapy	958	1.62
PET CT	586	0.99
TOTAL	**318.896**	**538.08**

Lower values of radiological examinations per 1,000 inhabitants are present compared with values from some countries, even increasing values from Britain (Figure 1, Table 1 and Table 4). The paper summarizes data on the use of radiological services in the Bihor County, taking into account data reported by facilities providing services. Proposed analytical model can be extended to other counties to obtain comparable data.

The study can be continued by extending the analysis of the number of units and the number of exposed radiology medical / industrial with regional and national data for comparable coverage in each county. Future studies should take into account exposure to ionizing radiation in medicine (dose per person in mSv) at county, regional and national level. Most recent international studies include such data collected during several years.

CONCLUSIONS

Even if the number of nuclear units increased during the past five years in Bihor County, the county population radiological examination frequency (expressed per 1,000 inhabitants) is so far lower than the values from other countries. Long-term effects of medical radiological exposures are known. It is necessary to start more education programs, for both the public and the medical personnel, to increase safety and to prevent unnecessary radiological exposure, although data are still not worrying.

The role of the central authority must increase in legislating public health by developing guidelines on the use of radiological services and the establishment of national standards regarding the number and territorial distribution of radiological units, to prevent unnecessary increase in the use of radiological services.

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DIETARY CARBOHYDRATES INTAKE AND BREAST CANCER RISK AMONG ROMANIAN FEMALES, CASE CONTROL STUDY

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REZUMAT

Consumul de crescut de carbohidraţi ar reprezenta, ipotetic, un risc pentru cancerul de sân, probabil mediat de un nivel ridicat de insulină liberă, estrogeni şi factorul de creştere insulin-like. Fibrele alimentare pot fi protective împotriva carcinogenezei mamare. Aportul de carbohidraţi a fost estimat cu ajutorul unui chestionar de frecvenţă a consumului de alimente. Metodele statistice au fost utilizate pentru a stabili relaţia cu riscul de cancer mamar. Studiul a relevat efectul protector al fibrelor alimentare împotriva cancerului de sân. Acest studiu subliniază importanţa unei alimentaţii sănătoase în prevenirea riscului de cancer mamar.

__Cuvinte cheie__: consumul de carbohidraţi, aportul de fibre, cancer mamar, factor de risc

ABSTRACT

High carbohydrate intake has been hypothesized to be a risk for breast cancer, possibly mediated by elevated level of free insulin, estrogens and insulin-like growth factor. Dietary fiber may be protective against mammary carcinogenesis. Carbohydrates intake was estimated using a food frequency questionnaire. Statistical methods were used to establish the relationship with breast cancer risk. The study reveals the protective effect of dietary fibers against breast cancer. This study highlights the importance of a healthy diet in preventing breast cancer risk.

__Keywords__: carbohydrate intake, fiber intake, breast cancer, risk factor

INTRODUCTION

Breast cancer is in women, the most common incident cancer and cause of death from cancer in females throughout the world [1,2]. Breast cancer etiology implies many factors. A great part of cases involves hormone dependent factors which play a main role (nulliparity, late age at first

pregnancy, late natural menopause, earlier menarche). A reduced number involves neoplasm family history wich is an important risk prediction, but in the most neoplasms etiology is not known. Certain risks determinants are related to the diet and their maximum effect is considered to appear early in lifetime (since puberty) [3]. A healthy lifestyle, including maintaining a normal body weight, regular physical activity and no alcoholic drinks can prevent 10-20% case of the breast cancer cases [4].

The aim of this study is to estimate breast cancer risk in relation with dietary carbohydrates intake of the population. Previous studies found that non-starch polysaccharides/dietary fibers possibly decrease the risk of breast cancer and carbohydrates possibly increases that risk [5].

MATERIAL AND METHOD

In order to achieve this aim we performed a case-control study which was applied on two population groups: 223 cases, breast cancer patients hospitalized in the Oncological Institute Ion Chiricuta, Cluj-Napoca, and 211 controls, apparently healthy women, having the same social and economical status and living in the same geographical area. The average age of the lot under study was 53.022 ± 9.40 for breast cancer patients and 55.3 ± 10.01 for the controls (p>0.05). Out of these, 39 were premenopausal women and 184 were postmenopausal women in comparison with 45 controls in premenopausal and 166 controls in postmenopausal.

The dietary carbohydrates intake was estimated with a valid food frequency questionnaire. We estimated both the frequency and the quantity consumed at one meal by recording them. We estimated the daily dietary fiber and carbohydrates intake by using the tables of food composition, taking into consideration the supplying dietary fiber and other carbohydrates sources (cereals, vegetables, fruit and legumes). These tables show dietary fiber content in gram cellulose/gram consumed food.

The probability of breast cancer emergence was estimated by calculating odds ratio on different levels of exposure to dietary fibers intake represented by quartiles. These quartiles were obtained by dividing the variable range (in rising order) into four equal parts, so that each part represents a quarter of the value range.

The final results were expressed under the form of arithmetical mean. In order to compare the recorded average values we used the ANOVA statistical test. The statistical procedure on quartiles allowed us to analyze the linear trend, i.e.: the decreasing or increasing tendency of cancer risk depending on dietary fiber and carbohydrates intake levels. In this case we used chi square test to establish the statistical significant of the results.

The statistical data processing was done in Microsoft Excel 2000 and Epiinfo version 3.3.2 software. Only the results whose value was $p<0.05$ were considered statistical significant.

RESULTS

Out of the results obtained we mention the most important ones.

Estimating the carbohydrates average intake in patients and controls we can see a similar consumption in both studied groups (Table 1).

Table 1. The average intake of carbohydrates g/day

Carbohydrates g/day	Cases	Controls	p
Sugar	156.73 ± 175.60	153.71 ±149.42	0.84
Vegetal carbohydrates	199.98 ± 109.12	188.77 ± 95.69	0.26
Animal carbohydrates	13.49 ± 15.45	12.45 ± 15.78	0.49
Total carbohydrates	368.81 ± 206.92	354.94 ± 172.66	0.45

The percentage of carbohydrates from total energy intake was 50.85% for breast cancer patients and 52.36% for controls (Table 2). The average intake of sugar was high for both studied groups, 21.51% for patients and 22.68% for controls, much higher than the daily recommendations of the Health Ministry in Romania.

Table 2. Carbohydrates intake percentage from total energy needs

Carbohydrates %	Cases	Controls	p
Animal carbohydrates	1.86 %	1.84 %	0.81
Vegetal carbohydrates	27.57 %	27.85 %	0.94
sugar	21.51 %	22.68 %	0.75
Total carbohydrates	50.85 %	52.36 %	0.72

The analysis of the probability of breast cancer emergence depending on the dietary carbohydrates intake levels was done by stratification the studied groups on dietary intake quartiles. We calculated odds ratio (OR) for different exposing levels representing by quartiles (established by statistical calculation) (Table 3). This stratification shows no significant results at high intake of carbohydrates.

Table 3. Odds Ratio and dietary carbohydrates intake

Carbohydrates g/day	OR	CI 95%	p
51.934 – 206.485	0.88	0.55 – 1.39	0.640
206.485 – 345.934	1.45	0.91 – 2.31	0.120
345.934 – 492.981	0.57	0.36 – 0.92	0.019
492.981 – 1740.341	1.41	0.89 – 2.24	0.157

By analyzing the linear trend of cancer risk depending on different levels of dietary carbohydrates income shows that the probability of cancer risk increases when the amount of carbohydrates intake is higher (P for trend 0.006) (Figure 1).
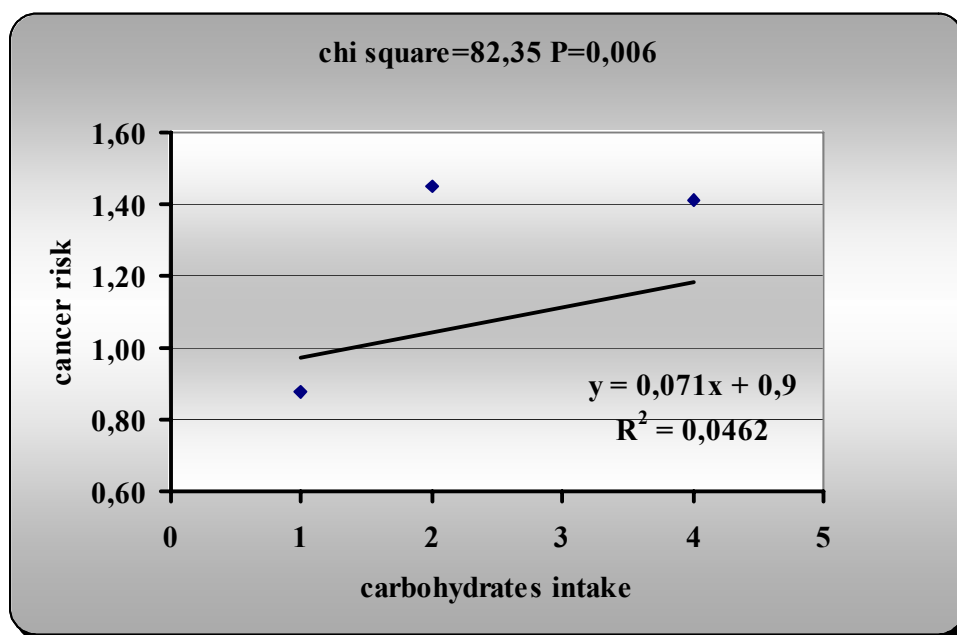
**Figure 1. The dose-response relationship between carbohydrates intake (g/day)
and the risk of breast cancer**

Totalizing the fiber intake from all the dietary sources we can see low consumption levels in both studied groups (either in premenopausal women or postmenopausal women). Nevertheless, the controls had a much higher fiber consumption (6.63g/day in comparison with 5.41g/day, p<0.05) than breast cancer patients. This intake is much lower than the daily recommendations of the Health Ministry (MH) in Romania, 27g/day or WHO recommendations of 25 g fibers/day (Table 4).

Table 4. The average intake of dietary fiber (g cellulose/day)

Fiber g/day	Cases	Controls	p-value
total fiber	5.40 ± 3.48	6.63 ± 3.32	**0.0002**
premenopausal	5.60 ± 3.57	7.51 ± 5.07	**0.01**
postmenopausal	5.48 ± 3.47	6.38 ± 2.60	**0.007**

The analysis of the probability of breast cancer emergence depending on the dietary intake levels was done by stratification the studied groups on dietary intake quartiles. We calculated odds ratio (OR) for different exposing levels representing by quartiles (established by statistical calculation). Low levels of dietary intake was a risk factor for breast cancer (OR=2.92 and p<0.001). On the other hand, more than 5.4 g/day intake would represent a possible protective factor against mammary carcinogenesis (OR=0.52 and p=0.005) (Table 5).

Table 5. Odds Ratio and dietary fiber intake

Fiber g/day	OR	CI 95%	p
0.53 – 3.72	2.92	1.78 – 4.81	**<0.001**
3.72 – 5.4	1.52	0.95 – 2.42	0.083
5.4 – 7.73	0.52	0.32 – 0.83	**0.005**
7.73 – 31.09	0.47	0.29 – 0.75	**0.001**

By analyzing the linear trend of cancer risk depending on different levels of dietary fiber income shows that the probability of cancer risk decrease when the amount of fiber intake is higher (P for trend <0.001) (Figure 2).

chi square=32,82 P<0.001

$y = -0,835x + 3,445$

$R^2 = 0,881$
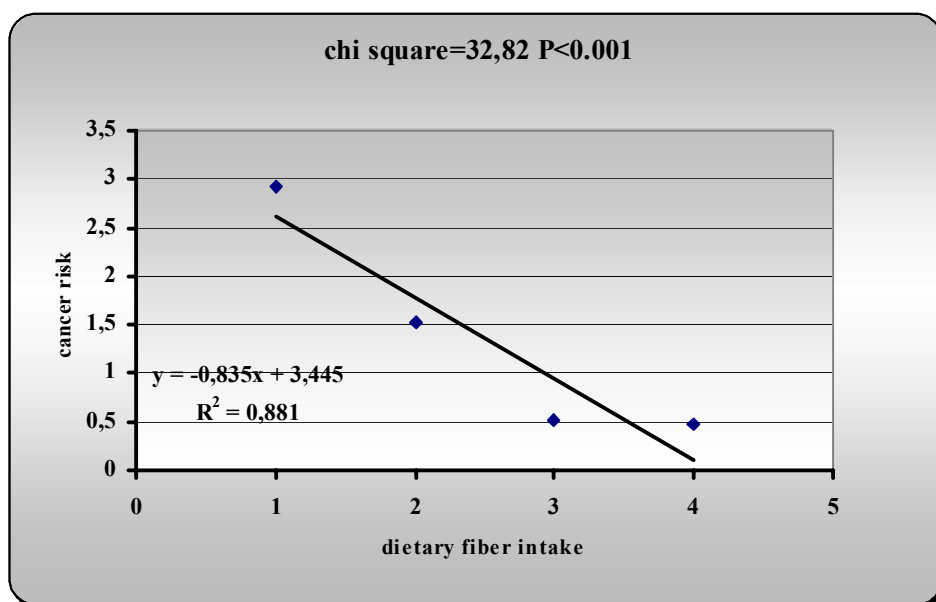
Figure 2. The dose-response relationship between fiber intake (g/day) and the risk of breast cancer

DISCUSSIONS

It has been hypothesized that the link between carbohydrates intake and breast cancer risk might be related to the effect of glucose on elevated levels of free insulin in the body. Insulin affects the action of other hormones, including insulin-like growth factor (IGF) and possibly estrogen. These conditions are also connected with obesity. Hyperinsulenemia is caused by eating too many carbohydrates that digest rapidly, like bread, potatoes, rice, corn, baked goods and other sugary drinks, cakes, cookies.

Other studies conducted on the same patients revealed that obesity was a risk factor for breast cancer [6]. It is possible that carbohydrates to enhance the risk connected to obesity or other risk factors (genetics, hormones etc.). The results of the present study show that both patients and controls had an average intake of carbohydrates of 50.85 % and 52.36% from total energy needs. Nevertheless the trend

shows that carbohydrate intake was a risk factor for breast cancer women.

Because of their complex beneficial effects in the body, dietary fibers are considered essential macronutrients like proteins, fats and carbohydrates. They don't contribute significantly in the cover of total energy supply in human diet, the dietary fiber energetic value being considered 0 kcal/g, but they have many biological functions in the body [7,8]. Dietary fiber sources are represented by vegetables, fruits, legumes, bread and other cereal derivates. Refining process of vegetable products in order to obtain a wide range of goods brings about the lowering of fiber amount in these.

The results of the present study show that the breast cancer patients in Transylvania county had a small fiber amount diet. Another study performed on the same lot revealed that the intake was based mainly on vegetables and fruit, then legumes and cereals (the least). The same study shows that the women in Transylvania predominantly consume highly refined cereal products (such as white bread) [9]. Hence, the necessity of increasing the cereal products in diet, especially those less refined, in order to enhance the intake of fiber in diet. The food rich on dietary fibers is a source of other bioactive compounds belonging to different chemical classes, such as antioxidant vitamins, zinc, selenium, isoflavones, phytoestrogens etc. which may prevent cancer, too [10]. Breast cancer patients, having a lower fiber amount than controls, and lacking in fiber supplying food, were deprived of this protection. The presence of bioactive compounds could explain the protecting effect of fibers at relatively reduced levels. The linear trend analysis showed that when the dietary fiber supply increased, the cancer risk decreased. Taking into consideration that the tables of food composition estimate the food fiber content in cellulose, the fiber consumption in the investigated women may be underestimated. Dietary fibre consists

primarily of NSP (cellulose, hemicellulose, pectin and gums), but also includes lignin.

There are plausible biological mechanisms which support the dietary fiber effect against cancer. Dietary fiber may reduce the intestinal reabsorbtion of estrogen that is excreted via the biliary system [10]. Fiber may act also indirectly through their beneficial effects in reducing obesity and insulin resistance, factors that play different roles in breast cancer etiology [11,12].

There are necessary future research to a better understanding of the association between breast cancer and diet by improving the dietary assessment methods and the statistical methods that can control the confounding factors and can reduce the measurement errors.

The present study reveals the importance of a healthy diet in reducing breast cancer risk. A healthy lifestyle means a diet based on vegetables, fruit, whole cereals, low animal fat supply, as well as regular physical activity, maintaining a normal body weight and a reduce alcohol consumption [13,14].

Since breast cancer etiology implies many factors, the protective effect of dietary fibers must be interpreted in close connection with the other major determinants of this pathology (genetic, hormone dependent factors) which are unmodifiable risk factors. The healthy diet may be considered a modifiable risk factor, but the changing of a life style in the population is not easy to be done in practice. Hence, from here is the necessity of the population health education to begin since childhood.

CONCLUSIONS

1. The dietary fiber intake in the investigated populationals group doesn't cover the necessary of daily fiber recommendation.
2. The estimation of the relationship between breast cancer risk and the fiber

intake shows the protective effect of the latter in the case of more than 5.4 g/day intake.

3. The present study emphasizes the importance of the environmental factors (such as diet) in breast cancer prevention.

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HEALTH STATUS INDICATORS EVALUATION FOR PUPILS WITH CHRONIC RESPIRATORY DISEASES RELATED TO ENVIRONMENTAL FACTORS

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REZUMAT

S-a determinat nivelul de corelaţie dintre unii indici ai stării de sănătate a elevilor şi ai factorilor mediului de instruire şi de habitat, s-a determinat şi estimat gradul de risc a factorilor în declanşarea maladiilor respiratorii cronice. S-a stabilit că factorii primordiali în dezvoltarea maladiilor respiratorii cronice la copii, inclusiv a acceselor de astm bronşic sunt: temperatura joasă a aerului din încăperi, umiditatea înaltă, igrasia, mucegaiul, concentraţia majorată de CO_2, lipsa ventilaţiei în locuinţe şi în sălile de studii. Acţiunea multitudinii factorilor de risc în combinaţie sporeşte dezvoltarea şi declanşarea acestor maladii. Sunt necesare măsuri de profilaxie.
    Cuvinte cheie*: starea de sănătate, factorii de mediu, corelaţia, risc*

ABSTRACT

The correlation between some indicators of pupils' health status and the training and habitat environmental factors was determined and the importance of risk factors for the onset of chronic respiratory diseases was estimated. The primordial factors for the development of chronic respiratory diseases in children, including bronchial asthma accesses, are: the low air temperature in rooms, high level of humidity, damp, mould, the increased CO_2 concentration, lack of ventilation in the houses and classrooms. The action of multiple risk factors combined augments the development and onset of these diseases. Preventive measures are needed.
    Keywords*: health status, environmental factors, correlation, risk*

INTRODUCTION

Children and adolescents represent an important segment of the population, their numbers varying according to the society's level of development. They are the future society, for whom the people of today invest, or should invest – not only financially, but also on the educational level, in living and working conditions, on the healthcare level.

Some of the most common diseases recorded in the medical practice, both in children and adults are respiratory system diseases [3,6].

The acute respiratory infections cause about 50% of the early childhood diseases and 30-40% of the preschool and school children diseases. For the Republic of Moldova the incidence of these diseases in children population is estimated to be increasing and varies within 270-390 ‰ [1,9].

The increased incidence of these diseases in preschool and school children is encouraged by the diversification of the social circle, attending local children communities and functional immaturity of the of anti-infectious protection mechanisms.

Most of these diseases become chronic affecting the health status of the children for many years. Of the chronic respiratory diseases, children often suffer of recurrent chronic bronchitis and chronic asthma.

According to various statistics, chronic bronchitis represents 26-42% from all the broncho - pulmonary diseases of both recurrent and persistent nature. The prevalence of this condition in the children population from different countries varies within 0.8 - 8.06 ‰, for the Republic of Moldova it is estimated to be 1.9 to 9.2 ‰ in the territorial subdivisions. Similar data were published by Popa M. et al. for pupils from Romania (2005) [8].

The recent global statistics show the increasing prevalence of bronchial asthma in all age groups, but especially in children. For different countries spreading of bronchial asthma reaches the level of 10-15% of all chronic respiratory diseases among children [2].

Many risk factors have a decisive role in the pathogenesis of these diseases, as for example ecological harmful factors, food, passive smoking, indoors and outdoors environment (habitual pollutant, household chemicals, dust, pollen, damp), weather conditions, alimentary additives and alimentary dyes, pharmaceutical remedies used without a medical prescription, family lifestyle [4,11,12].

The distribution of these diseases among children, their severity, the causing factors multitude, the need for preventive measures elaboration, etc., supports the present scientific research.

The aim of the present study - to determine the correlation level between some indicators of pupils' health status and the factors present in the working and living environment and risk factors assessment for the chronic respiratory disease outbreak.

MATERIALS AND METHODS

The study includes materials and methods based on investigating 3139 pupils about chronic respiratory diseases symptoms, the research and analysis of dynamic children morbidity because of chronic respiratory diseases, research and analysis of learning conditions for primary classes (air temperature, relative humidity, CO_2 concentration, hygienic condition), research and analysis of pupils conditions at home (air temperature, relative humidity, CO_2 concentration, allergic trigger factors for the disease), construction features, sanitary condition of the room, examining children's medical records, performing psycho physiological tests to determine the level of attention and fatigue, highlighting

interrelations between the harmful factors of the occupational environment and the health indicators of children. As a subject of this study the primary classes pupils (I-IV) were used from the urban areas, the questionnaires asking self evaluation of the symptoms of chronic respiratory diseases, medical records, hygienic instruction conditions at school and at home.

Statistical methods of correlation were used, which permitted the assessment of interrelations between the instruction environment and habitat factors and spirographic indicators, the anthropometric indicators and indicators of children's attention. In order to study the risk factors the discriminative analysis was applied, consisting in determining aggression from various risk factors by rendering of share.

Shares were determined based on the relative risk for each risk factor separately.

RESULTS AND DISCUSSIONS

The investigations carried on as part of the study underlined the existence of an instruction and habitat environment which could have negative or positive action on the health status of children. The group of health indicators included the spirographic, anthropometric and attention indicators. The group of the environment indicators included indoor air temperature, relative humidity and carbon dioxide content. Between the environment indicators' values and health indicators' values of children a certain dependence relation appeared, determined by calculating the correlation coefficient. The level of correlation between risk factors and health status indicators of pupils is presented in Table 1.

Table 1. Degree of correlation of the instruction environment indicators and habitat environment factors and the pupils' health state indicators, r

No.	Indicators of health status	Environmental Factors					
		Chronic bronchitis			Bronchial asthma		
		Air temperature	Air relative humidity	CO_2 Concentration	Air temperature	Air relative humidity	CO_2 Concentration
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	FVC	0.55	0.60	0.65	0.42	0.66	0.68
2	FEV_1	0.54	0.61	0.69	0.58	0.62	0.73
3	FEF $_{25-75}$	0.41	0.36	0.21	0.42	0.44	0.42
4	Waist	0.06	-0.23	0.05	0.04	-0.06	-0.21
5	Body weight	0.18	0.12	0.05	0.11	0.10	0.03
6	Attention	-0.21	-0.15	0.32	-0.12	-0.21	0.42

Note: FVC – forced vital capacity, FEV_1 – maximal respiratory flow in 1 second, FEF $_{25-75}$ – average expiratory flow maximum

Evaluation of investigated factors complex highlighted a more significant influence they have on the spirographic indicators, both in case of chronic bronchitis and in case of the bronchial asthma.

The data analysis shows that the highest value of the correlation coefficient was registered between the spirographic indicators (FVC, FEV1), the relative air humidity and the CO_2 concentration (r>0.6), in both morbid forms.

The average correlation level is registered between (FE25-75) the spirographic indicators of the body and the air temperature (r = 0.41), relative humidity (r = 0.36). Attention correlates with CO_2 concentration (r = 0.32) in case of chronic bronchitis. FEF25-75 in bronchial asthma is determined by the air temperature (r = 0.42), relative humidity (r = 0.44), CO_2 concentration (r = 0.42).

The other interrelations between the examined factors and health status indicators of children are low (r<0.3). For example, r =0.18 between air temperature and body mass, between air temperature and waist r = 0.06. These values indicate that the examined factors practically have no influence on the physical development indicators. Pupils' physical retard is determined by the indirect impact of these factors, caused by chronic respiratory diseases.

From the statistical point of view, the values presented in Table 1 are in the interval 0.05< p<0.001. In this way, a dependency of various indicators of pupils' health status of the instruction environment and habitat quality is observed, indicating the need for measures directed to strengthen the children functional status for those suffering of chronic respiratory diseases.

Obviously, the habitat conditions influence directly the evolution of health status of children suffering from chronic respiratory diseases. Hence, it becomes important to perform a more advanced study of each index of the microclimate and CO_2 concentration of pupils with chronic respiratory diseases depending on disease severity.

For this purpose, pupils suffering of chronic respiratory diseases were divided into five subgroups. The first subgroup included pupils with unfavourable habitual conditions, especially microclimatic indicators and CO_2 concentration that did not met sanitary norms: air temperature of 16.7 ± 0.40C, air relative humidity - 62.1 ± 1.2% and CO_2 concentration - 0.23%. Pupils from the second group were living in rooms where there was discrepancy of the hygienic normative about air temperature (17.2 ± 0.3°C) and about its relative humidity (63.1 ± 2.5%). In the third subgroup the residential conditions related to investigated indicators were exceeding the hygienic normative only by the air relative humidity, with average values of 59.4 ± 1.6%. The fourth group consists of pupils whose residential circumstances do not correspond to the sanitary norms referring to a single microclimatic index, namely the average temperature, equal to 15.9 ± 0.3°C. The fifth subgroup consists of pupils with unfavourable residential conditions, living in rooms where CO_2 concentration overcomes the MAC, reaching the level of about 0.18 ± 0.02%.

Analyzing the distribution of pupils according to the disease severity and residential conditions (Table 2), it is observed that the unfavourable multifactorial conditions correlate directly with the disease's severity. It reveals a high proportion of pupils whose residential conditions are unfavourable about all studied indicators (first subgroup), constituting 39.2%. This shows that many microclimatic factors and CO_2 concentrations exceeding hygienic norms limits act detrimental on the development and onset of chronic respiratory disease.

Table 2. Children distribution in groups up against the unfavourable residential conditions (%)

No.	Sub-groups	Chronic bronchitis	A/B intermittent	A/B easy persistent	A/B moderate persistent	A/B hard persistent	Total
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	I	9.8	7.1	9.3	9.1	3.9	39.2
2	II	6.6	5.4	4.8	5.5	1.3	23.6
3	III	3.4	4.3	5.1	3.6	1.4	17.8
4	IV	1.1	3.6	3.2	1.3	1.6	10.8
5	V	1.3	2.9	2.1	1.2	0	7.5
6	Total	23.2	23.3	24.5	20.7	8.2	100

The smallest effect is the result of the action of a single unfavourable factor in the residential environment for children with chronic respiratory diseases. The percentage of children from the III, IV and V subgroups is smaller up against the subgroups where the given factors are combining and exceed the limits of hygienic norms.

In the subgroup I a number of pupils with chronic bronchitis and easy persistent bronchitis asthma are revealed, equal to 9.8 and 9.3% respectively, and as well as with moderate persistent bronchial asthma equal to 9.1%. These indicators demonstrate the interrelation existent between microclimatic residential conditions combined with the high CO_2 concentration and the diagnosed type of chronic respiratory diseases.

The concurrent action of only the microclimatic factors is characteristic for the second subgroup, which includes a high number of pupils with chronic bronchitis and moderate persistent bronchial asthma, which constitutes 6.6 and 5.5% respectively.

A smaller number of sick pupils are subject to the action of only one factor not meeting the sanitary norms. The most insignificant action results from the increased concentration of CO_2 (7.5%). The most important action comes from the relative increased humidity, which triggered the pathological status for 17.8% pupils.

In order to study the relevant risk factors for the development of chronic respiratory diseases, the discriminate analysis was applied, consisting in determining the aggression of different factors by giving value.

Trough discriminative analysis the most important risk factors were underlined. There were included 31 factors. The level of aggression of the risk factors was expressed by the criterion value Wilkes - Lambda (λ). In Table 3, the risk factors for the studied group were included hierarchically, in accordance to the share they have in development of chronic respiratory diseases.

Table 3. Risk factors for the development of chronic respiratory diseases from the residential environment

No.	Risk Factors	Value λ
1	Low air temperature	0.835
2	Damp	0.784
3	Mould	0.647
4	Increased air humidity	0.638
5	CO_2 Concentration in the air	0.542
6	Lack of ventilation (WC, bathroom)	0.465
7	Parental smoking	0.374
8	Street dust	0.349
9	Detergents in the houses	0.332
10	Exhaust gas in the streets	0.225
11	Natural ware and covers	0.216
12	Fauna (dogs, cats, parrot, hamsters)	0.121
13	Flora (Decorative Plants)	0.116

Data from the present study highlight the most important aggressors are low air temperature, damp, mould and the increased humidity in the houses. It is quite evident the complex action of these factors for the development of chronic respiratory diseases and asthma trigger accesses, in accordance with conclusions of several authors [5,7,10]. Lack of ventilation combined with high humidity contributes to the appearance and to the intense development of damp and mould in houses. All these factors have a close relationship between each other and synergistically depend on each other, forming an important aggressive complex for the onset of chronic respiratory diseases.

It is to be mentioned the major role of passive smoking action resulting from parents smoking in the rooms, for the development of chronic respiratory diseases (with an impact of 0.374). The action of this factor for the occurrence of chronic bronchitis and bronchial asthma to children is mentioned in several literature sources [5,4,10].

As well, the following factors have a certain importance in the development of chronic bronchitis and bronchial asthma. The action of the street dust and of the detergents presents inside homes, and as well the presence of natural rugs and blankets can trigger new accesses of chronic respiratory diseases. As a source of allergens in the development of these diseases serves also the flora and fauna presence in the houses.

From the public health point of view, it is important to mark the risk level of the environmental factors. The evaluation of environmental factors role in the onset of chronic respiratory diseases in pupils through calculation of the relative risk (RR) permits their hierarchically arrangement, quantification of activities with prophylactic goal.

To analyze the causal factors we decided to separate them in several groups: microclimatic factors, chemical factors, residential conditions, social conditions, age, gender (Table 4).

Table 4. The risk level to develop chronic respiratory diseases in pupils

N	Risk Factors	Relative risk (RR)
	Microclimatic Factors	
1	Low air temperature	3.96
2	High relative humidity	2.41
	Chemical factors	
3	Increased CO_2 Concentration	1.76
4	Exhaust gas presence	
	Residential Conditions	
5	Mould presence	2.27
6	Detergents presence	0.98
7	Pets presence	0.78
8	Ventilation channels presence	1.36
	Socials	
9	Passive smoking	1.08
10	Socio-economical level of the family	1.29
	Sex	
11	Female	1.03
12	Male	1.11
	Age	
13	I grade	1.94
14	II grade	2.12
15	III grade	1.71
16	IV grade	0.96

The present data shows the major importance for the development of chronic respiratory diseases of some factors. The present study uncovered a significant relationship between the presence of chronic respiratory diseases in children included in the study, and the low air temperatures in rooms (RR-3, 96, p<0.001), increased relative humidity (RR-2, 41, p<0.001) the presence of mould (RR-2, 27, p< 0.001), increased CO_2 concentrations (RR-1, 76, p<0.001), etc.

Also, very important for the development of these diseases is the socio-economical level of the family (RR-1.29; p<0,001). Thus, 37.6% of the children from the studied group come from minimal income families and only 24.6% of the children from the control group are from poor families.

A remarkable risk factor is the presence of exhaust gases near the houses, in the case of the houses location near highways. From the studied group, 42.3% of children live in the vicinity of highways and from the control group - 37.5% of children, the relative risk for this factor is 1.15

Tobacco smoking has a significant impact on the development of chronic respiratory diseases in children. In the present case, 58.4% of children from the studied group and 45.6% of children from the control group are exposed to the influence of passive smoking. The relative risk for this factor constitutes 1.08 (p<0.001).

An important role in the development of chronic respiratory diseases of uninfluenced factors: sex and age is present. Most

affected by unfavourable conditions are the children of male gender versus female gender (2:1), the relative risk is 1.11 for boys and 1.03 for girls. The highest risk to develop chronic respiratory diseases is present in children of the second grade, with the relative risk of 2.12, next those from the first grade, with the relative risk equal to 1.94, and next the children of the third grade, with RR 1.71 and the fourth grade children, with RR-0.96.

Thus, the values of the correlation coefficient and of the relative risk revealed the most important risk factors for developing chronic respiratory diseases in children, including of chronic bronchitis accesses and bronchial asthma.

In maintaining and improving the children suffering from chronic respiratory diseases health status and in preventing these conditions, the implementation of complex preventive measures directed to remove the trigger factors and to prevent new outbursts is recommended. For this purpose, activities are to be carried on by the agents of several areas of the national economy :

- State Supervision Service of Public Health;
- Primary medical services, paediatricians;
- Central and local public administration;
- Representatives of other Ministries and Departments;
  - family members;
  - school working personnel:
    a) teachers;
    b) medical workers (doctors, medical assistants) etc;
    c) educational institution administration.

CONCLUSION

According to the analysis of the relations between the health status indicators of children with chronic respiratory diseases and the factors of educational and residential environment based on the calculation of correlation coefficient and relative risk, the main predictors from the environment are: low air temperature in rooms, high humidity, damp, mould, major CO_2 concentration, lack of ventilation in houses and classrooms. The action of multiple risk factors combined increases the development and the onset of these diseases.

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HAZARDS ASSOCIATED WITH FOOD - EPIDEMIOLOGICAL STUDY

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REZUMAT

Toxiinfecţiile alimentare sunt un grup de boli neeradicate în nicio zonă a globului; se întâlnesc pretutindeni în lume, cu o frecvenţă apreciabilă, în ciuda progreselor făcute în privinţa condiţiilor de igienă, a cunoştinţelor populaţiei în ceea ce priveşte domeniul sanitar şi a mijloacelor de împiedicare a multiplicării organismelor. De aceea am realizat un studiu retrospectiv pentru perioada 2005 – 2008. Am utilizat datele obţinute de la Direcţia de Sănătate Publică Galaţi privind anchetele epidemiologice efectuate în 2005 - 2008, în judeţul Galaţi. Ca metodă de analiză am utilizat metoda statistic-retrospectivă. Analizînd rezultatele studiului nostru, am găsit un număr total de 215 cazuri. Se poate afirma că toxiinfecţiile alimentare, în perioada analizată, au determinat o morbiditate importantă în Judeţul Galaţi, cu implicaţii epidemiologice, sociale şi economice. Educaţia sanitară, respectarea normelor igienico-sanitare de protecţie a alimentelor, respectarea legislaţiei referitoare la sănătatea publică reprezintă doar câteva modalităţi de scădere a numărului de îmbolnăviri, întrucât toxiinfecţiile alimentare sunt boli care ar putea fi eradicate printr-o alimentaţie corectă şi o igienă eficientă.

Cuvinte cheie*: epidemiologie, aliment, morbiditate, mortalitate*

ABSTRACT

Food poisonings are a group of uneradicated diseases, spread all around the world, with a high frequency, despite all progress made concerning the hygienic standards, the people's knowledge about the sanitary domain and the ways to stop or at least lower the evolving of the germs. Therefore, we realized an epidemiological study regarding the cases of food poisoning among the Galati County's citizens, between 2005 and 2008. We used data gathered from The Direction of Public Health of Galati, regarding the epidemiologic surveys carried on during the 2005 – 2008 period, in Galati County. As a method of analysis we used the statistical-retrospective method. Analyzing the results of our study, we have found a total number of 215 cases. It can be said that food poisoning, in the period under review, had determined an important morbidity in Galati County, with epidemiological, social and economic implications. The health education, the compliance to the hygienic standards keeping food safe, the compliance to the public health legislation – are just a few ways to decrease the number of cases, whereas food poisoning is a disease that could be eradicated through proper diet and an efficient hygiene.

Keywords*: epidemiology, food, morbidity, mortality*

INTRODUCTION

Food poisonings are acute diseases with predominant digestive symptoms, arising from consumption of food products in which a large variety of germs have developed (and/or their toxins and toxic metabolits).

The etiological agents do not always tend to modify the organoleptic properties of food (appearance, taste, smell), rising the risk of contamined food consumption and so the outbreak of illness is inevitable .

Food poisonings are a group of uneradicated diseases, with extensive, in-mass effect, because one type of nutriment can be consummed at the same time by a large number of individuals. They are frequently subject to the hygienic status of the raw marterials and of the technical processes, but also to the final product, shipped for consumption.

Sources of contamination of the food are varied, including sick people, convalescent or carriers, sick or apparently healthy warm-blooded animals, cold-blooded animals, vectors (cockroaches or flys), work surfaces or equipments, some of the environmental elements, like surface waters or housekeeping residues [1] .

Concerning the etiological agent, the morbidity caused by food poison is like this: the first position is taken by germs of the Salmonella gender (over 60% of the case), followed by the Staphylococcus cases and the Clostridium perfringens cases [2,3].

In Romania, in 2007, Salmonella occupied the first place – 29.13% of cases (2311 in peril, 411 sick and 318 hospitalized), followed by Staphylococcus with 27.18% and Escherichia coli with 3.88% [4].

A study from the US CDC (Centers for Disease Control and Prevention) reports that food-borne diseases cause approximately 76 million illnesses, 325.000 hospitalizations, and 5000 deaths in the United States each year. Identified pathogens account for an estimated 14 million illnesses, 60,000 hospitalizations, and 1800 deaths. Salmonella, Listeria, and Toxoplasma organisms are responsible for 1500 deaths. Unidentified pathogens account for the remaining 62 million illnesses, 265,000 hospitalizations, and 3200 deaths [5,6].

The most frequently contaminated foods are meat and meat products, milk and diary products (cream, whip cream, cheese), eggs (especially from ducks) and culinary products (cookies, mayonaisses, ice-creams etc) [7].

Symptoms of food poisoning depend on the type of contaminant and the amount eaten. The symptoms can develop rapidly, within 30 minutes, or slowly. Most of the common contaminants cause nausea, vomiting, diarrhea, and abdominal cramping [8,9]. Usually food poisoning is not serious, and the illness runs its course in 24-48 hours. Most of the illnesses are mild and improve without any specific treatment. Some patients have severe disease and require hospitalization, aggressive hydration, and antibiotic treatment [10,11].

But, the health education, the conformation to the hygienic standards of keeping food safe, the conformation to the public health legislation – here are just a few ways to decrease the incidence of this invincible (as it seems) disease, whereas food poisoning could be eradicated by a proper nutrition and an efficient hygiene [12].

MATERIAL AND METHODS

Based upon these considerations, we have conducted an epidemiological study involving the cases reported by The Direction of Public Health of Galati County. We used the statistical-retrospective method, studying the raports made between 2003 and 2008 and we found a number of 215 cases. We followed them for

distribution by years of study, provenience of the patients, age groups affected, etiologic agent involved, foods incriminated in the etiology of disease and symptoms.

RESULTS AND DISCUSSIONS

1. The annual evolution of the cases of food poisoning found along the analyzed period is shown in Figure 1.
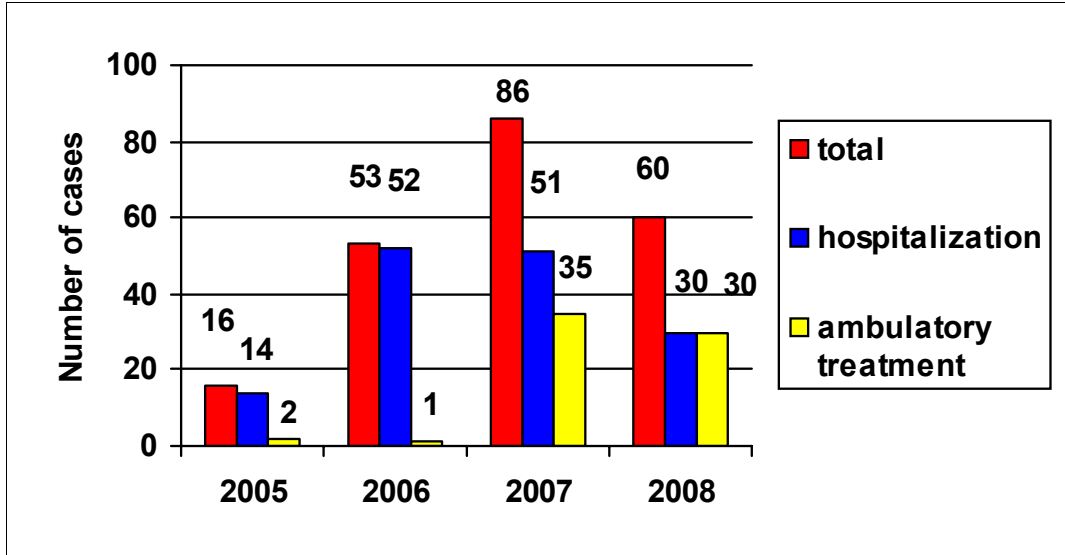

Figure 1. The distribution of the cases based upon the years of study

We can easily see the rising trend of the total number of cases along the analyzed period, with a peak in 2007.

For the last two years, we can appreciate the tendency to resolve the cases most in ambulatory system and, therefore, reducing the hospital-care needs.

2. Analyzing the distribution of the cases by the environment of origin, we found that most cases, 112, came out of the rural environment, Figure 2.
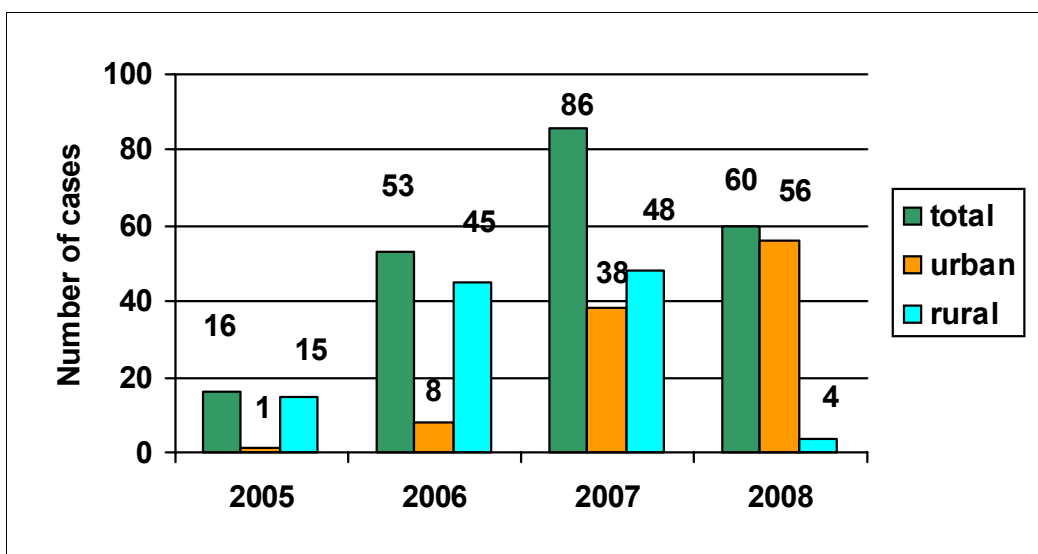
Figure 2. The distribution of the cases by the environment of origin

Observing the values shown in the above graphic, we can conclude that there is, still, a low level of the health education of the consumers, both from the rural and urban environment.

3. The evolution of the cases divided by the age-related groups, showed that the most affected category of age is the one between 15 and 60 years (the adult category), followed by the 4 to 15 years category. The 15 to 60 years segment of age looks quite extended and leaves room for interpretations, but this is the actual form of reporting (Figure 3).
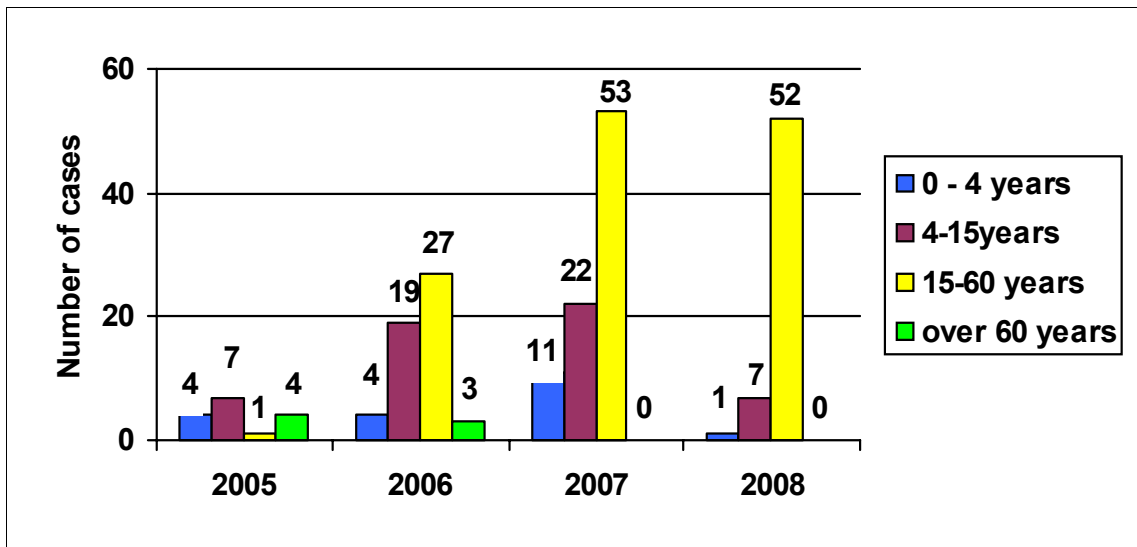
Figure 3. The evolution of the cases divided by the age-related groups

4. Regarding etiological agent for Galati County, we observed a high incidence for food poisoning caused by Salmonella enteritidis (Figure 4), respecting national and international trend of food poisoning caused by this pathogen [4,5].
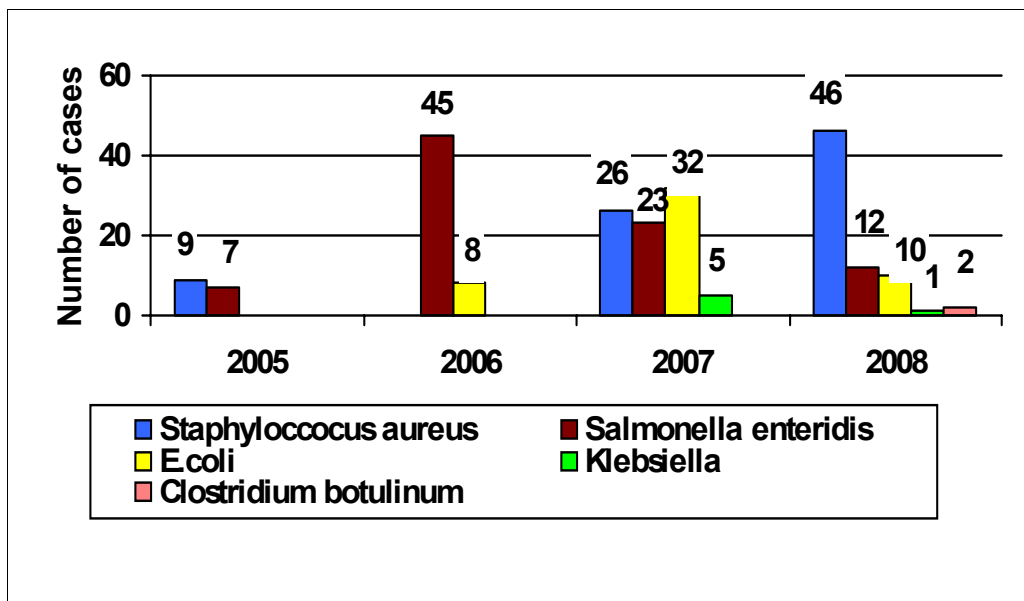
Figure 4. The distribution of the cases, by the etiological agents

The next germ incriminated for the appearance of the food poison cases, during the analysed period, is Staphylococcus aureus, probably as a result of milk and diary products obtained and prepared under low-standards of hygiene.

5. As for the food most frequently involved (Figure 5), we have found that the specific symptoms appeared after consuming meat products, meat-derived products and diary products.
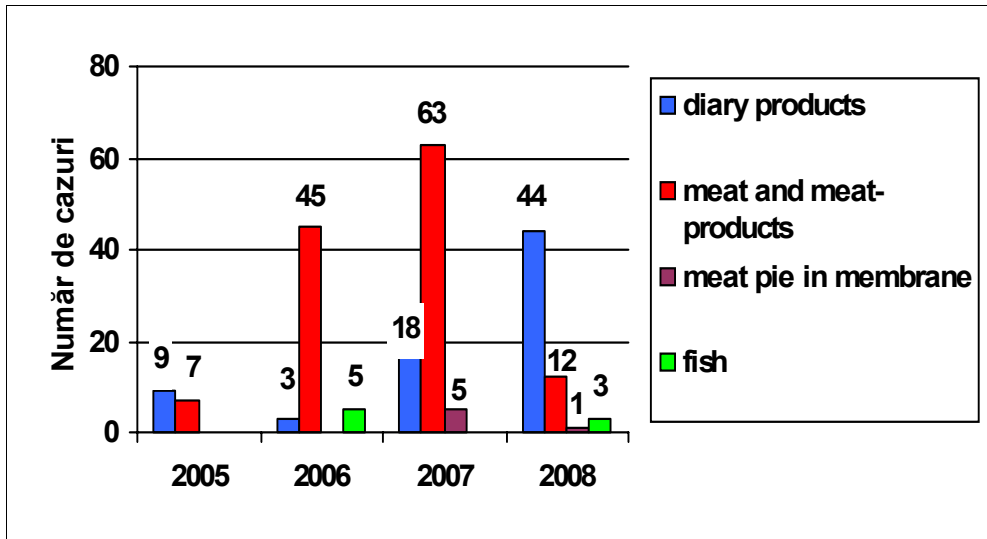

Figure 5. The distribution of the cases, by the involved nutriment

6. Analysing the symptoms of the studied cases, we found that out of the total number of cases, 158 had abdominal pains, 137 had vomitings, 106 presented nausea and a small amount of them presented, during the evolution, fever and neurological findings (Figure 6).
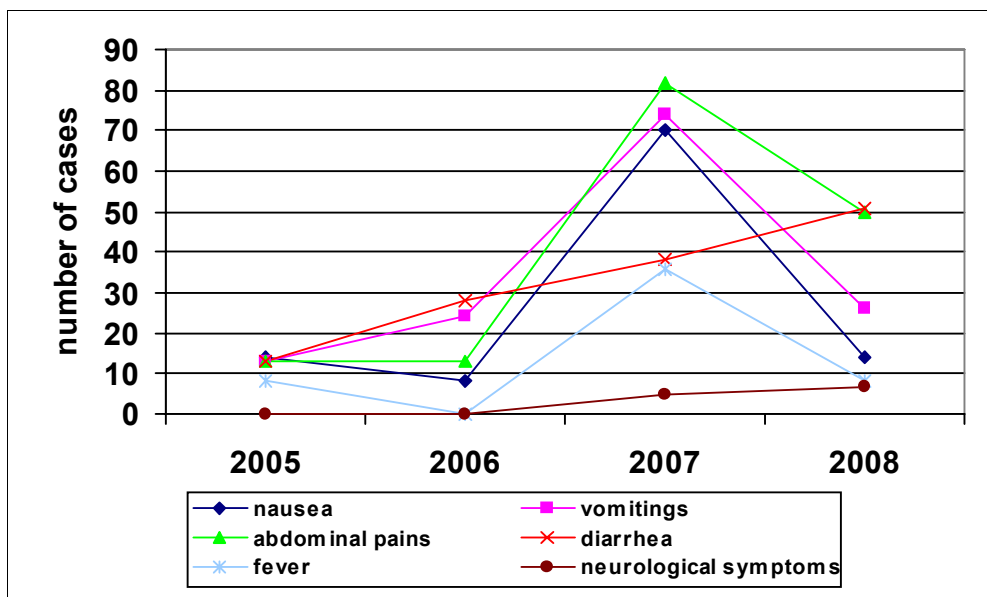

Figure 6. The annual evolution of the cases by symptoms

The analysis of the symptoms revealed a high frequency of the cases with abdominal pains, followed by the ones with vomitings and diarrhea. Only in 2007, the patients' principal symptoms, after the abdominal pains were vomitings and nausea .

CONCLUSIONS

Analyzing the evolution and the characteristics of the morbidity due to food poisoning, we can conclude that:

- ➢ there were a number of 215 cases, of which most of them came out of the rural environment;
- ➢ the small difference between both rural and urban number of cases allows us to affirm that the sanitary and alimentary education of the consummers is deficitary;
- ➢ food poisoning affect, mostly, the active group of the population (4 to 15 years and 15 to 60 years);
- ➢ the main etiological agents incriminated for the onset of the food poison cases are Salmonella and Staphyilococcus, indicating the failure to respect the elementary rules concerning hygiene of the alimentary domain;

- ➢ the meat and meat-derived food are the main nutriments involved in the onset of the food poisoning cases, probably also because these aliments represent the base of the daily food for many individuals;
- ➢ the analysis of the symptoms indicates a high frequency of the cases presenting abdominal pains, vomitings and diarrhea, according to the specific clinical findings related to the germs envolved, mentioned above.

As a general conclusion, we can say that food poisoning, during the analysed period of time, had determined an important morbidity among Galati County, with epidemiological, social and economical implications.

The alimentary pathology, therefore, is a real deal, because the biological and/or chemical agents can be present throughout our daily food. Only by knowledge of these things we can take proper precautions of preventing and fighting against this „everlastig disease”.

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FACTOR ANALYSIS REGARDING THE CONSTITUTION OF DIET

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REZUMAT

Rolul dietei în determinismul unor boli cornice se cunoaşte de o lungă perioadă de timp. Am dorit sa investigăm modul în care studenţii îşi alcătuiesc dieta. Pentru acest scop am aplicat o analiza factorială. Am obţinut 5 tipuri de comportamente care explica 46.66% din varianţă.

Cuvinte cheie*: constituirea dietei, alimentaţie sănătoasă*

ABSTRACT

The role of diet in the determination of chronic diseases was known for a long time. We wanted to see if the students had an aggregated behavior regarding the food consumption and diet pattern. We had applied the factor analysis in order to find more data on their diet constitution. We had obtained 5 patterns of food choices that explain 46.66% of variance.

Keywords*: diet constitution, healthy eating*

INTRODUCTION

The role of diet in the determination of chronic diseases was known for a long time. The progress during the second half of 20th century led to major alteration in the constitution of diet, initially in industrialized countries but afterwards even in developing countries. Traditional diets, mainly based on vegetables were replaced with high fat/high energy diets and diets based on animal sources.

MATERIAL

This study had 2074 participants, with ages between 18 and 26 years from vocational

schools, colleges and universities in Timis County, of which 1296 females and 778 males. The mean BMI for this sample was 21.29kg/m^3, and the value of the median is 20.57.

METHOD

A fragment of the CORT questionnaire was applied. We wanted to see if the students had an aggregated behavior regarding the food consumption and diet pattern. We had applied the factor analysis in order to find more data on their diet constitution.

RESULTS

We have included 19 items in the main analysis of components after an orthogonal rotation was applied. The test Kaiser-Meyer-Olkin verified the adequacy of sampling, KMO = 0.733

And the value exceeds the acceptable limit of 0,5. The Bartett sphericity test χ^2 (171) = 4545.90, p<0.001, indicates that the correlations between items are high enough. During the initial analysis the eighteen values for each component were obtained.
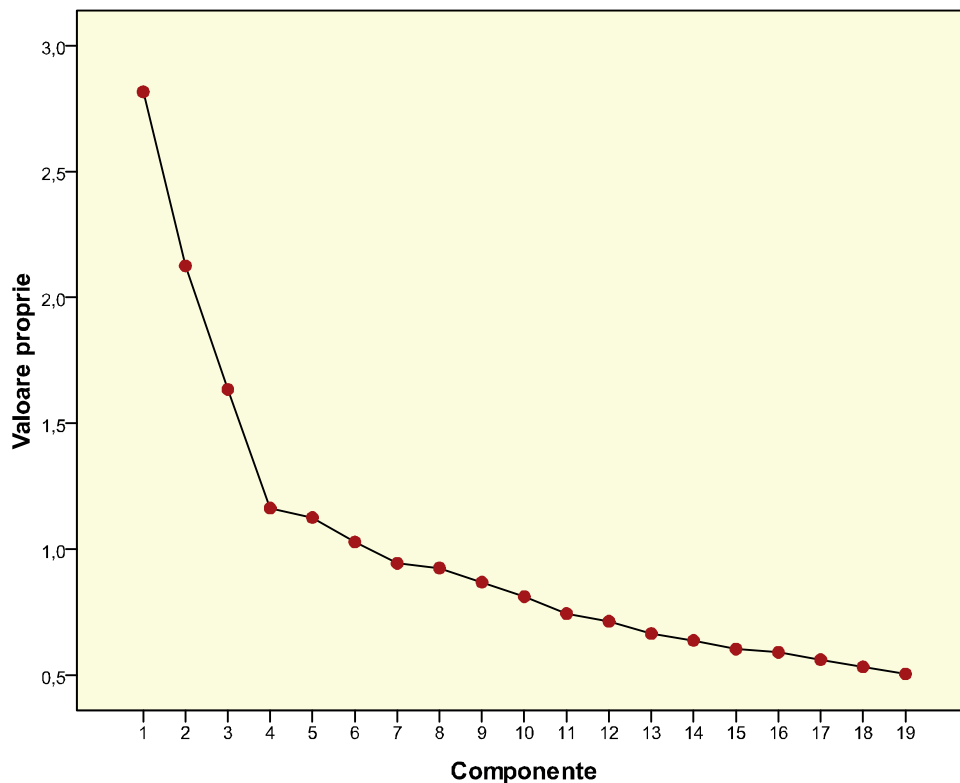
Figure 1. Graphical representation of analyzed components on their eigenvalues

Six components had their eigenvalues over 1 after Kaiser's criteria. Only 5 components were kept for the final analysis. These 5 components explain 46.66 of variance. The

Table 1 shows the factor load after the rotation. Depending on the items aggregation in the components we have.

Table 1. Summary of factorial analysis regarding the constitution of diet

Food consumed	Components				
	1	2	3	4	5
Fresh fruit juice	.127	**.626**	-.182	-.083	.109
Fresh fruits	-.089	**.727**	.163	-.018	.022
Fresh salads	.032	**.672**	-.024	.067	.036
Milk	.032	.147	.020	-.129	-.051
Yogurt, sanna, kefir	-.006	**.306**	-.027	.061	.014
White meat	.050	.183	-.088	.078	**.734**
Red meat	.202	.008	.119	-.129	**.689**
Sausages	.103	-.156	**.556**	-.033	**.489**
Margarine	-.005	-.294	**.553**	.033	.172
Sweets	.238	.196	**.666**	-.113	-.147
Sweetened drinks	**.595**	.055	**.359**	.171	.007
Chips/ snacks	**.644**	.147	**.343**	-.018	.015
Hamburgers / pizza	**.741**	.064	.032	-.039	.155
Fried potatoes	**.591**	-.136	.093	-.007	.188
Bread	.286	**-.329**	.026	**-.524**	.137
Number of meals	-.046	.003	-.114	**.726**	-.005
Breakfast	.283	-.158	-.056	**.521**	-.033
Coffee	.104	-.014	.102	**.558**	.038
Energy drink	**.574**	-.010	-.276	.098	-.009
Eigenvalue	2.81	2.12	1.63	1.16	1.12
% of variance	14.83	11.18	8.60	6.12	5.92

Component 1 (fast-food diet) represents the aggregation of soft drinks, chips, snacks, hamburgers, pizza, fried potatoes and energy drinks. This model explains 14.83% of variance.

The young people that have this pattern of diet like fast-food, foods high on sugar, salt and fat. These foods are easily obtained, cheap and do not require preparation effort. These foods are aggressively marketed and the students represent a target [1].

There are a lot of evidence incriminating the consume of fast-food and fried foods for exceeding the calories. 2 trials had found positive association between fast-foods consumption and the number of calories, suggesting that the fast-food eating pattern is indirectly promoting obesity. Supporting our finding, Tavernas and company had found an association between the fried food consumption, trans foods and sweetened drinks.

Component 2 (fruits, legumes, milk) represents the aggregated consumption of fresh fruits, fresh fruit juices, fresh salads, yogurt, and the consumption of small quantities of bread. This model explains 11.18% of variance.

Persons who choose these foods have an ideal pattern of diet for maintaining a healthy weight. Usually, the weight loss programs lead to an inadequate nutrition. For example, there are proofs that some weight loss diets tend to lead to an inadequate calcium intake [2]. Milk derivates, which contribute with 50% to daily intake of calcium, are recommended as major calcium source [3].

Component 3 (highly processed foods) represents aggregation of sausages, margarine, sweets, sweetened soft drinks, chips and snacks. This component is characteristic for persons that eat frequent cold dishes. This model explains 8,6% of variance.

Although it was seen an association between the increase of prevalence of obesity and the increase of snack consumption, the relation between these two is not completely understood [4]. Francis and colab. [5] had observed an important association between the weight increase and the consume of highly processed foods in children that had an overweight parent. There are several trials that had found that the sweetened drinks consumption is a good predictor of weight gain [6,7].

Because there is a big variety of foods and drinks with high content of nutrients and minerals and less calories it is important to reduce the consume of foods and drinks that contain empty calories such as snacks and sweetened calories for the prevention of further weight gain and the prevention of obesity.

Component 4 represents the aggregation of reduced bread consumption, reduced number of meals, sporadic consumption of breakfast and increased coffee consumption. This model explains 6.12% of variance.

Literature suggests a short term benefic effect of caffeine on energetic metabolism, although the effects on long term of chronic consumption of coffee on energetic equilibrium and weight status are unknown [8].

Sporadic consumption of breakfast can lead to appetite stimulating hormones, that will cause compensatory nutrition for latter [9]. Also, the reduced number of meals can exacerbate the hungry sensation producing overeating in existing meals.

This model is compatible with modern lifestyle with fewer meals, skipping the breakfast, exaggerated coffee drinking, without any snacks during the day due to reduced bread consumption, perhaps with a large meal at the end of the day.

Component 5 (high protein foods) represents the aggregation of consumption of white meat, red meat and sausage and salami. This model explains 5.92% of variance.

The high protein and low carbohydrates diets became popular due to high satiety and low energetic content when compared with other diets [10].

In the prospective study Meat Intake and Mortality done by Sinha and collaborators

[11] the total and specific mortality was examined. There were modest increases in total death risk, cancer deaths, and cardiovascular death for both women and man who consumed large quantities of red and processed meat. In contrast, the consume of white meat reduced all risks of deaths in men and women.

CONCLUSION

As shown above, students do not always have the best food choices available. Food choice is important not only for the maintenance of a healthy weight but also for the prevention of chronic diseases with high impact on life quality and the death rates such as cardiovascular diseases and cancer.

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PSEUDOMONAS AERUGINOSA NOSOCOMIAL INFECTIONS: RISK FACTORS AND SUSCEPTIBILITY TO TREATMENT

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REZUMAT

Un germen care reprezintă o cauză majoră a infecţiilor nosocomiale este Pseudomonas aeruginosa. Mortalitatea ridicată asociată acestui patogen, în special la pacienţii imunocompromişi, şi mortalitatea şi morbiditatea excesive asociate terapiei empirice, subliniază necesitatea existenţei unor date corecte pe care să se bazeze alegerea terapiei empirice. Tulpinile de Pseudomonas aeruginosa producătoare de metalo-β-lactamază (MBL) produc infecţii cu severitate şi mortalitate mai mare faţă de cele care nu produc aceste MBL. Este important să fie cunoscuţi factorii de risc care favorizează apariţia de infecţii cu aceste tulpini, şi, de asemenea, este importantă cunoaşterea ratelor de susceptibilitate la tratament a tulpinilor de Pseudomonas aeruginosa producătoare de MBL.

Cuvinte cheie: infecţii nosocomiale, Pseudomonas aeruginosa, metalo-β-lactamază, tratament

ABSTRACT

Pseudomonas aeruginosa is a major cause for nosocomial infections. The high mortality associated with this pathogen, especially in immunocompromised patients, and excessive mortality and morbidity associated with inefficient empirical therapy, highlights the necessity for correct data on which to base the choice of the empirical therapy. Metallo-β-lactamase (MBL) producing Pseudomonas aeruginosa strains lead to higher severity and mortality infections, up against those not producing these MBL. It is important to recognize the risk factors that favor the outbreak of infections with these strains and, also, to know the treatment susceptibility rates of Pseudomonas aeruginosa strains producing MBL.

Keywords: nosocomial infections, Pseudomonas aeruginosa, metallo-β-lactamase, treatment

INTRODUCTION

The pathogenic microorganisms existed and will exist in hospitals due to the biological conditions related to the human presence; trying to totally sterilize the hospital environment it is an unscientific and impracticable objective. By applying hygienic and sanitary measures and also administrative measures, the causes generating nosocomial infections must be reduced to minimum.

The nosocomial infection (NI) is an infection contracted in the sanitary units with beds (state and private), referring to any infectious disease that may be clinically and/or microbiologically recognized and for which there is an epidemiological proof it was contracted during the stay in the hospital/medical act or medical maneuvers, that affects either the patient – because of the medical care received, or the medical staff – because of their activity and it is linked by incubation to the period of medical assistance in that unit, regardless if the symptoms appeared or not during the time spent in the hospital.

The definition of the nosocomial infection is based on clinical, epidemiological, laboratory data and on other diagnostic tests. Each nosocomial infection case must be proved to be due to hospitalization or to ambulatory medical care in the sanitary units, and that it was not in incubation or in the onset/evolution phase in the moment of the hospital commitment/medical act/ medical maneuver [1].

The nosocomial infections were extremely frequent before the introduction of asepsis and antisepsis. In the last 20-30 years, following the introduction of more energetic hygiene measures, the frequency of NI receded almost to zero in most hospitals.

The infections contracted by the persons committed in medical and sanitary units (hospitals, maternal – infantile units, pediatrics hospitals, sanatoriums) may be caused by:
- germs: bacilli (*Salmonella, Shigella, Esherichia coli, Pseudomonas aeruginosa, Koch bacillus, tetanic bacillus* etc), cocci (*Staphylococcus, Streptococcus* etc);
- viruses (hepatitis, flu, roseola, chicken pox etc);
- fungi: *Candida albicans* etc.

Part of the causes that favors the outbreak and dissemination of NI are: the inadequate construction of the building, the unfit hygiene, commune circuit for patients with different diseases; overcrowded space and long time hospitalization. The unfit and uncontrolled kitchen area, the large flux of visitors and the lack of epidemiological control leads to new NI. Abuse of antibiotic treatment, transfusions, blood, plasma, ser perfusions, insufficient or unfit measures of sterilization and disinfection of the instruments, and in some situations of insects and rodents control, may be present in a hospital, where, in the conditions provided by the existence of organisms much more receptive towards certain germs, and the existence of numerous infection sources among patients, medical staff, administrative staff, the conditions for the outbreak and dissemination of NI are present [2].

Particularities of nosocomial infection with *Pseudomonas aeruginosa*

Pseudomonas aeruginosa is a microorganism causing most nosocomial infections. NI due to this germ are usually associated with high mortality, regardless of following adequate antimicrobial therapy. The treatment options for *Pseudomonas aeruginosa* infections are few due to a combination of the existing resistance to several classes of medicines and the capacity of this pathogen of developing resistance to more classes of drugs [3].

The metallo-β-lactamases (MBL) were recently highlighted as one of the most

feared resistance mechanisms due to their ability to hydrolyzing practically all agents containing β-lactam, including carbapenems, but also due to the fact that their genes are transported by unusually mobile elements. The prevalence of MBL production in *Pseudomonas aeruginosa* strains, important NI causing agent, rose in many countries from South-East Asia, Europe, Latin America and, more recently, from North America and Oceania. Until now, five major groups of metallo-β-lactamases retaining clinical importance were identified: IMP, VIM, SPM, GIM and SIM [4,5].

Recently was discovered that the infections due to MBL producing *Pseudomonas aeruginosa* were associated with higher rates of mortality than the infections due to *Pseudomonas aeruginosa* not producing MBL [6]. Likewise, it was demonstrated the transmission from patient to patient played a major role in disseminating the MBL producing *Pseudomonas aeruginosa* isolates inside the institutions were the studies were conducted [6,7].

The assessment of exposure associated to resistant pathogens infection was aimed for the correction of modifiable variables and for enhancing the knowledge on the epidemiology and pathogenesis of resistant organisms. Hirakata et al. have determined that the number of deaths resulted from the infections was significantly higher for patients infected with MBL producing *Pseudomonas aeruginosa* up against those infected with strains not producing MBL (5.8% up against 1.2%; OR = 5.00, 95% CI) [8]. Laupland et al. reported a higher number of deaths for patients infected with MBL producing *Pseudomonas aeruginosa* up against those infected with strains not producing MBL (25% up against 13%, RR = 1.98, 95% CI) [9]. Both studies suggested that MBL producing *P.aeruginosa* presented higher virulence, because of the higher mortality in this group of patients and of the higher frequency of infection.

Zavascki et al. considered that severe sepsis and septic shock were caused in some degree by the virulence of the pathogens; the high virulence of the MBL producing P.aeruginosa strains can be a conclusion of the fact that this kind of manifestations partially mediates the effect of MBL on mortality. Farther, the patients infected with this type of strains presented more often bacteriemia, and the survivors needed for significantly more time vasoactive medication [6].

Pseudomonas aeruginosa susceptibility patterns in nosocomial infections

Most isolates presented susceptibility only to aztreonam and polimxine B, or only to polimixin B, and only a few remained susceptible to ciprofloxacin and amikacin. The patients with β-lactam based therapies had mortality rates comparable to those of the patients with polimixine B based therapies, suggesting that aztreonam and, possibly, piperacillin-tazobactam, could be useful agents against these infections, as long as they present in vitro susceptibility. Adequate and well managed antimicrobial therapy may be the only modifiable factor capable of reducing mortality [6].

In a study conducted during the 1996 – 1998 period on NI in the intensive care units from Belgium, *P.aeruginosa* was isolated in 18% of the nosocomial pneumonia cases, resulting that it is the most frequently isolated pathogen in this type of infection. In the primary nosocomial bacteriemias, *P.aeruginosa* was isolated in 6% of cases [10].

Van Eldere et al. (2002) conducted a study whose objectives were determining the rates and patterns of susceptibility for *P.aeruginosa* isolates in NI. The level of resistance varied significantly from one hospital to another. In the fluoroquinolones group, ciprofloxacin manifested the lowest resistance (24%), levofloxacin demonstrated

27.5% resistance, and ofloxacin 37.5%. In the aminoglycoside group, amikacin was the most potent antibiotic (10.5% resistance), followed by isepamicin (12%), tobramicine (19.5%) and gentamicin (23.5%). Among the antibiotics based on β-lactam, meropenem was the most active (9.5% resistance); piperacillin and piperacillin/tazobactam presented 24%, respectively 17.5% resistance, ceftazidim 28.5%, ticarcillin/clavulanic acid 37% and aztreonam 55.5%. The distribution curves for the minimum inhibitory concentration (MIC) show the presence of significant subpopulation, with MIC below the limit for many antibiotics [11].

Risk factors for nosocomial infections due to metallo-β-lactamase producing *Pseudomonas aeruginosa*

Only two case-control studies assessed the risk factors for NI due to MBL producing *P.aeruginosa* [8,12]. These studies were limited either by lack of multivariate analysis or by the small number of patients, leading to a considerable diminish in the power to detect differences between exposures.

In the year 2006, Zavascki et al. conducted a study aiming to highlight the risk factors for NI due to MBL producing *P.aeruginosa*. In this study there were included patients from two teaching hospitals where the horizontal dissemination was demonstrated. This was a case-control study, with 86 cases and 212 samples included in the study [13]. All patients with positive cultures for *P.aeruginosa* were eligible for the study. Those with nosocomial infections, according to the CDC criteria, who were aged over 18 years, and without cystic fibrosis were included in the study. The cases were represented by the patients with NI due to MBL producing *P.aeruginosa*, and the controls were represented by the patients infected with non MBL producing strains of *P.aeruginosa*.

The incidence of infections due to MBL producing *P.aeruginosa* and non-MBL producing *P.aeruginosa* isolates was not significantly different in any of the months of the study at both hospitals (P = 0.11 for hospital 1 and P = 0.69 for hospital 2). The lung represented the most frequent location for NI (150 patients, 50.3%), followed by the urinary tract (61 patients, 20.5%), skin and soft tissue (47 patients, 15.8%), intra-abdominal location (25 patients, 8.4%), central venous catheter (23 patients, 7.7%), the primary blood stream (12 patients, 4.0%), other locations (7 patients, 2.4%). 27 patients (9.1%) presented infections at more then one site.

As it was expected, since MBLs determine resistance to virtually all β-lactams, exposure to this class of drugs was a significant risk factor for NI with MBL producing *P.aeruginosa*. Notably, the results indicated that the selective pressure imposed by antibiotic use, especially to β-lactams, remains an important risk factor for infections by antibiotic-resistant *P.aeruginosa* when patient-to-patient transmission has been documented. The dose and duration of antibiotic therapy were also associated with increased risk for resistant organisms, including MBL producing *P.aeruginosa*.

Exposure to fluoroquinolones also represented a risk factor for infections with MBL producing *P.aeruginosa*. The fluoroquinolones were reported in previous studies as a risk factor for the infection with MBL producing *P. aeruginosa* SPM-1 [12], which was the MBL type produced by the isolates of the Zavaski et al. study.

Admission to hospital 1 was an independent risk factor for infections by MBL producing *P.aeruginosa*, probably owing to the higher prevalence of MBL production by P. aeruginosa isolates from this hospital.

Intensive care unit stay also increased the risk for MBL producing *P.aeruginosa*

infections even adjusting for potential confounders such as antimicrobial exposure. No other specific medical or surgical ward was associated with higher incidence of MBL producing *P.aeruginosa* infections at both hospitals.

Renal failure has been found to be a risk factor for imipenem-resistant *P.aeruginosa* in a previous study conducted at hospital 1 [14], and the urinary catheter has also been reported as a risk factor for infections with *P.aeruginosa* multidrug-resistant [15]. It has been demonstrated that substances eluted from the siliconized latex of the urinary catheters were related to the loss of the OprD outer membrane protein, leading to imipenem resistance [16], but there is no reported mechanism associating MBL-mediated resistance with urinary catheter or another factor related to renal diseases.

Neurological disease was a significant risk factor for MBL producing *P.aeruginosa* infections. There is no obvious explanation for such an association but it might be possible that an unknown factor could mediate it. No geographical or temporal clustering was found among these patients. However, being bedridden, a frequent condition among neurological patients, has been found as a risk factor for multidrug-resistant *P.aeruginosa* [15,17]. Bedridden status might favor a higher rate of cross-

transmission as a result of a more frequent contact with healthcare professionals, because of their limited capacity to perform usual activities.

CONCLUSIONS

Patients with infections due to MBL producing *P.aeruginosa* strains present a higher mortality up against those infected with non-MBL producing *P.aeruginosa*. Adequate antimicrobial therapy and early treatment may be the only modifiable factor capable of lowering the mortality. The resistance of these germs to penicillins, cefalosporins, fluoroquinolons and aminoglycosides vary from one hospital to the other, but, in general is rising. It is necessary to adopt a correct, combined therapy, with large doses, in order to minimize the risk to develop resistance.

Aztreonam and, possibly, piperacillin-tazobactam seem efficient options for the treatment of NI due to MBL producing *P.aeruginosa* if there is in vitro susceptibility.

Exposure to β-lactams is a significant risk factor for MBL producing *P.aeruginosa* infections, even when patient-to-patient transmission plays a major role in the dissemination of isolates.

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Received for publication: 28.06.2010, Revised: 12.08.2010

SMOKING PREVENTION AMONG TEENAGERS: ROMANIAN CONTEXT AND CHALLENGES

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REZUMAT

Fumatul este unul dintre comportamentele cu risc, care are importante consecinţe asupra stării de sănătate, dezvoltării sociale şi a calităţii vieţii adolescenţilor. De asemenea, fumatul este în general primul drog utilizat de către tineri şi care ulterior poate fi urmat de alte droguri cum sunt alcoolul, marijuana sau chiar drogurile ilicite mai tari. Consecinţele serioase pe care le are fumatul în rândul tinerilor indică faptul că prevenirea fumatului în rândul acestora este foarte importantă şi trebuie să i se dea atenţie în momentul planificării unor acţiuni de promovare a sănătăţii. De aceea, acest studiu are 2 obiective. Primul este de a furniza o trecere în revistă a strategiilor care pot fi utilizate pentru prevenirea fumatului. În al doilea rand, studiul descrie acţiunile de prevenire a fumatului în rândul adolescenţilor realizate în România în ultimii ani. Aspectele prezentate se bazează pe date din literatură, precum şi pe experienţa autorilor în domeniu. Pornind de la aceste date, se fac recomandări pentru viitoare acţiuni de prevenire a fumatului şi promovare a sănătăţii în rândul adolescenţilor din România.
      Cuvinte cheie*: prevenirea fumatului, tineri din România*

ABSTRACT

One of the health risk behaviours, with important consequences on health, social development and life quality of teenagers is smoking. Moreover tobacco is generally the first drug used by young people who enter the subsequence of drug use that may include alcohol, marijuana and harder drugs. The serious consequences of adolescent smoking, in terms of both health and behaviour, prove that prevention of adolescent smoking seems very important and may be given priority when considering comprehensive preventive actions. Hence, this study has two objectives. First, it provides an overview of various smoking prevention strategies that can be used. Second, it describes the activities of smoking prevention developed among Romanian teenagers in the last years. The issues, which are presented, are based on the data from literature as well as on authors' personal files and experience. Based

on these data, recommendations for future smoking prevention and health promotion activities for Romanian teenagers are taken.

Keywords: smoking prevention, Romanian young people

INTRODUCTION

The leading causes of mortality and morbidity among youth can be traced to a relatively small number of preventable health-risks behaviours that are often initiated during youth and extended into adulthood [1]. One of the health risk behaviours, with important consequences on health, social development and life quality of teenagers is smoking [2,3]. Moreover tobacco is generally the first drug used by young people who enter the subsequence of drug use that may include alcohol, marijuana and harder drugs [4].The serious consequences of adolescent smoking, in terms of both health and behaviour, prove that prevention of adolescent smoking seems very important and may be given priority when considering comprehensive preventive actions. Hence, this study has two objectives. First, it provides an overview of various smoking prevention strategies that can be used. Second, it describes the activities of smoking prevention developed among Romanian teenagers in the last years.

MATERIAL AND METHODS

The study presents the action which could be useful for smoking prevention among teenagers, underlying the weaknesses and strengths of smoking prevention among Romanian teenagers. The issues, which are presented, are based on the data from literature as well as on authors' personal files and experience. Based on these data, recommendations for future smoking prevention and health promotion activities for Romanian teenagers are taken.

RESULTS

Mass media campaigns
Mass media strategies have been used for public education worldwide regarding a variety of public health issues, including tobacco use prevention and control. Mass media efforts are viewed as particularly appropriate for reaching youth, who are often heavily exposed to and greatly interested in media messages [5]. Moreover, media-based health promotion efforts have the potential to reach large segments of the population, especially those who are less educated, and to lower barriers of participation in health-related programs [6,7]. Mass media campaigns can provide high visibility for the message they want to present and the campaign planners can exercise control over the time of exposure and the selection of the messages that are disseminated. Nevertheless, an obvious limitation of the mass media campaigns is the one-way communication with minimal feedback loop or opportunities for interactions. At the same time, high quality mass media materials are expensive and airtime for campaign messages destined for radio and television is also costly.

Lantz and colleagues (2000) concluded in their review that sophisticated mass media campaigns that involve essential elements of social marketing and are theoretically driven may have an effect on the attitudes and behaviours of youth regarding tobacco use, although the impact of such campaigns is challenging to evaluate and has not yet been demonstrated. They also suggest that mass media interventions increase their chance of having an impact if the following conditions are met: (1) the campaign strategies are based on sound social marketing principles; (2) the effort is large and intense enough; (3) target groups are carefully differentiated; (4) messages for specific target groups are based on empirical findings regarding the needs and interests of the group; and (5) the campaign is of sufficient duration.

In Romania, few and only short-term mass media campaigns for smoking prevention were implemented, being mainly represented by short TV and billboards anti-smoking messages.

School based interventions

School-based programs offer an opportunity to prevent the initiation of tobacco use among adolescents, having several advantages [3]. In many countries, health education is part of the school curriculum, which facilitates the inclusion of the smoking prevention activities in this curriculum [8,9]. At the same time, school-based smoking prevention programs can reach wide audiences and there are opportunities for interpersonal communication, which is important for the fine-tuning of the message. Nevertheless, there are also several limitations. Numerous academic and non-academic demands placed on schools as well as the broad range of different health topics might impede a thorough implementation of all programs. Besides, the implementation of school-based smoking prevention programs depends not only on limited time, but also on sometimes insufficiently trained personnel [10].

Several reviews present different more or less effective school-based smoking prevention programs that have been developed and implemented worldwide [8-12]. Many smoking prevention programs have proved positive short-time effects, but the long-term impact of school based educational interventions is of concern. It appears that the effects tend to dissipate with time, with effects generally persisting in the range of 1–4 years [13,14]. However, most programs cannot but have limited effects when only a limited number of lessons are used. Program "boosters" or subsequent interventions appear to enhance the staying power of the intervention effects [15], although the most appropriate content of and timing for these booster sessions is not known. Programs that embrace a "social influences" model tend to be the most effective, especially when enhanced by an

extensive community based health education program [16,17].

In Romania, in the last few years, different governmental institutions such as the Ministry of Health and the National Agency against Drugs, as well as non-governmental organizations started to get more actively involved in activities of tobacco control. Table 1 presents the main educational programs for smoking prevention among adolescents developed in Romania. In 2006, for the first time in Romania, it was implemented and evaluated through a sound scientific methodology, using a randomised controlled trial, a smoking prevention program for secondary school children. The program, called "I do not smoke" (see Table 1) showed beneficial short term effects on smoking prevention, the participants in the program having a two times lower risk of becoming regular smokers than the non-participants over a period of nine months [18].

In 2007 The Ministry of Health decided to fund the dissemination within Romania of smoking prevention programs for young people who were tested before and proved to be efficient. Hence, it allowed the dissemination of the programs "I do not smoke" targeting secondary school students (in the school year 2008/2009) and "Adolescent smoking cessation" targeting high school students (in the school year 2007/2008 and 2008/2009). Unfortunately, this initiative is not continued anymore.

Despite of these actions and programmes, Romania is still confronted with many weaknesses with respect to smoking prevention through educational school based programmes. Several programmes which proved to be efficient are not implemented anymore because of lack of funding and the educational activities are generally occasional, being noticed the missing of long term strategies.

Table 1. Educational activities for smoking prevention and reduction among Romanian young people

Action / programme	Year of implementation	Main organizers	Target group	Activities
World No Tobacco Day	Annually on 31 of May	Ministry of Health, National Agency against Drugs, Non-governmental organizations	General population	Campaigns of information and increasing of awareness regarding dangers of smoking, including school based educational activities
National No Tobacco Day	Annually, on 18 of November since 2002	Ministry of Health, National Agency against Drugs, Non-governmental organizations	General population	Campaigns of information and increasing of awareness regarding dangers of smoking, including school based educational activities
Health education in schools	Since 2002	Ministry of Education and Research	School students aged 11-19 years	Lessons of health education regarding different issues, including smoking
Smoke Free Class Competition	2005 2006 2007 2008	Non-governmental Organization Pure Air, Romania; National Agency Against Drugs; Ministry of Education and Research	School teenagers aged 11-15 years	A few month competition, where the classes of pupils who do not smoke during the competition and performed different anti-smoking activities could win different prizes
Adolescent smoking cessation	2005 2007 2008	Non-governmental Organization Pure Air, Romania; Romanian Ministry of Health, National Agency Against Drugs Ministry of Education and Research	School teenagers aged 15-19 years	Courses and group counselling for smoking cessation
Quit and Win	2005	Non-governmental Organization Pure Air, Romania; National Agency Against Drugs, Ministry of Education and Research	School teenagers aged 15-19 years	A few months competition, where the teenagers who remain non-smoker or quit smoking could win different prizes

Action / programme	Year of implementation	Main organizers	Target group	Activities
I do not smoke	2006 2009	Non-governmental Organization Pure Air, Romania; Romanian Ministry of Health; National Agency Against Drugs, University of Medicine and Pharmacy from Cluj Napoca; Ministry of Education and Research	School teenagers aged 13-14 years	Peer-led smoking prevention programme on video
Protego	2006	National Agency Against Drugs; Ministry of Education and Research	Teenagers' parents from several big towns of Romania	Counselling of parents about how to talk with their children about substance use and abuse

Community programs

The increased understanding of the combined effects of environmental, social, and cultural conditions on tobacco and other substance use has resulted in an emphasis on interventions that include comprehensive, community-based approaches. Such an approach targets multiple systems, institutions, or channels simultaneously, and employs multiple strategies. Generaly, community interventions have multiple components, and involve the use of community resources to influence both individual behaviour and community norms and practices related to adolescent tobacco use [4].

In trials, community based approaches are compared with no intervention, with school-based programs or with mass media campaigns. Despite several methodological problems common to a number of studies about community programs, such as high dropout rates and inappropriate use of analysis, some evidence for effectiveness was found for certain community programs, but it still is a limited understanding of whether community interventions are effective and, of equal importance, which of their components are most useful in reducing youth tobacco use [4,8].

An important finding is that the effectiveness of school based programs appears to be enhanced when they are included in broad based community efforts in which parents, mass media, and community organizations are involved, and in which the social policy or social environment as well as individual knowledge, attitudes, and behaviours are targeted for change [17].

Unfortunately, until now no community programs for smoking prevention were available in Romania.

Advertisement ban

Of all consumer products, cigarettes are the most heavily advertised and marketed. There is great concern that tobacco advertising and marketing - including the distribution of promotional products such as clothing, sporting equipment, and gear for outdoor activities - is positively associated with youth smoking. Using both theory and the existing empirical evidence, researchers conclude that partial bans have little effect because they afford cigarette companies the opportunity to switch advertising expenditures to other promotional media and methods. In contrast, they find that

complete bans could reduce tobacco consumption by approximately 6%, an amount that may seem small but could still have an important public health impact [4].

In Romania, cigarettes were present practically in all mass media - on TV, radio, outdoor billboards, magazines, etc - with attractive spots, banners and articles. Since 2000, advertisement was regulated partially, being accepted some forms of indirect advertisement: outdoor, sponsorship for cultural events, advertisement inside journals, magazines and books [19]. Starting with January 2007 the advertisement for tobacco products on outdoor billboards, in mass media or the presence of the logo of the companies on other products than cigarette packages is also prohibited in Romania.

Moreover, starting with 2007 the cigarette packs contained anti-smoking messages and from 2008 anti-smoking images were also added, Romania being one of the first UE countries to introduce these anti-smoking images.

Cigarette availability for teenagers
While several studies suggest that the enforcement of youth access laws can lead to reductions in illegal sales to minors, the evidence that this actually translates into reduced tobacco consumption is limited. Furthermore, it is clear that in the face of increased enforcement of youth access laws, tobacco remains an alluring and addictive substance of great appeal to youth. What can be said with the evidence at hand is that youth access interventions can lead to a general reduction in illegal sales of cigarettes to minors. Whether this will translate into reduced and sustained reductions in youth tobacco use remains to be seen [4].

In Romania there is a complete ban for sale of single or unpacked cigarettes and for selling of tobacco products to minors (below age of 18) [19]. Nevertheless, the law is very poorly enforced. GYTS showed that 62.9% of teenagers who smoked bought cigarettes in a store [20].

Smoke-free areas in public places
Different studies about young adult smoking behaviour found evidence that clean indoor air laws may reduce teenage cigarette consumption [4]. The reasons why such laws may be effective in reducing youth smoking may be because they reduce the opportunities available for smoking as well as because clean indoor air laws may be a useful vehicle for creating a cultural norm that suggests smoking is socially unacceptable.

In Romania smoking in public places (except pubs and restaurants), workplaces, health care buildings and public transportation is banned [19], but the law is not very well enforced [19,20]. GYTS showed that over 8 in 10 Romanian teenagers were exposed to smoke in public places in the last week previous to the survey [20].

Price policy
Price policies can also have preventive effect. The evidence on the degree to which teenagers are responsive to changes in cigarette prices is mixed, but the general consensus is that higher prices are an effective deterrent to youth smoking. Higher prices discourage initiation among young smokers and encourage cessation among current smokers [21,22]. The World Bank considers price increases as the most effective and cost effective deterrent - especially for young people and others with low incomes, who must, of necessity, be highly price-responsive. It estimates that a price rise of 10% decreases consumption by about 8% in low and middle-income countries [22].
In Romania, for many years the prices were law, but starting with 2007 an important increase in the cigarette price was noticed.

CONCLUSIONS

In sum, although the detrimental consequences of smoking became obvious more than 40 years ago, unfortunately it seems that there is still no magic bullet for tobacco control. In order to be effective, smoking prevention has to address target groups at the micro level (the individual level, i.e., youngsters), at the meso level (the organizational level i.e., the family and the school) and the macro level (the policy level, i.e., those involved in developing and implementing policies at regional and national levels) [23].

In Romania, after the inclusion in the European Union in 2007, a speed up of improving the legislation against smoking was noticed, which is an important step for smoking prevention among Romanian adolescents. Nevertheless, more efforts are needed for the development of comprehensive smoke free laws in public places (including bars and restaurants), better enforcement of the legislation, and long-term strategies for educational activities implemented based on cooperation between the governmental institutions, academic areas, non-governmental organizations and mass media.

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FEEDING OF THE TODDLER (1-3 YEARS)

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REZUMAT

Alegerea alimentelor valoroase din punct de vedere nutritiv pentru copilul mic, deprinderea acestuia cu un orar al meselor şi cu activităţi fizice corespunzătoare vârstei sale au repercusiuni asupra sănătăţii şi stilului de viaţă ale viitorului adult. Părinţii sunt principalii răspunzători de ce, cum şi cât mănâncă copilul lor. Respectarea anumitor recomandări dietetice vor avea rezultate favorabile pentru creşterea şi dezvolarea fizică şi intelectuală a copilului şi vor contribui la menţinerea unei bune stări de sănătate.

Cuvinte cheie: *copil mic, alimente, recomandări dietetice*

ABSTRACT

Choosing nutritionally valuable foods for a toddler, accustoming him with a schedule of meals and physical activities appropriate to his age, have an impact on his health and his future lifestyle as an adult. Parents are primarily responsible for what, how and how much their child eats. Compliance with dietary recommendations will have positive results for physical growth and intellectual development of the child and will help maintain a good state of health.

Keywords: toddler, food, dietary recommendations

GROWTH AND DEVELOPMENT

Physical and cognitive development are important and swift in the childhood, involving increased metabolic requirements. Nutritional needs of the toddler differ from those of the infants, but also from those of older children, adolescents and adults.

Energy and nutrient needs are high, but the reduced capacity of the stomach in toddlers does not allow large amounts of food intake at a meal. Meals should be divided into three main meals and two snacks, but should be kept in mind that toddlers appetite varies from one meal to another, from one day to another, from one period to another, depending on the rate of growth and physical activity. Concentrated foods that provide nutrients and sufficient energy are recommended.

Growth during the toddler age

Weight gain is rapid between 1 and 2 years (though lower than in infancy), approximately 2.5 kg/year. After 2 years, gain weight drops to about 2 kg/year, the fat percentage decreases, so that when children

are 4-5 years old they are probably thinner as before.

Characteristics of food

During the infancy there is a desire to try new tastes and foods, to explore the world through textures and flavors, but at toddlers age fear and apprehension may appear in trying and eating new foods [1,2]. You should not worry when a toddler refuses a food even before trying it, or refuses a known food presented otherwise (in another package, cut more or less than he knew). Fear of trying new foods varies from one toddler to another, usually reaches a peak at one year and a half (but there may be great variations of this age), then decreases as the toddler notices and learns from others to eat certain foods [2].

NUTRITIONAL NEEDS

Energy Needs

Basal metabolic rate significantly increases in relation to body weight at 4-5 years, then decreases slowly up to 20-25 years.

Children have increased energy required for body growth and development due to higher basal metabolism, due to increased expenditure for thermoregulation, and more intense physical activity (games, sports).

Carbohydrate requirements

Carbohydrates serve as an energy source, 1 g provides about 4 kcal. They must cover 50-55% of the caloric total of the intake (less than for older children and adults, because protein requirements are higher). A minimum of 130 g/day is considered necessary for normal brain activity. It would be good if sugar and sugar products should not exceed 10% of the total carbohydrate intake for a day because sugar, candy, juices, sweet biscuits, cakes and sugar added cereals have high energetic value but are without valuable micronutrients.

The needs of indigestible carbohydrates - dietary fiber

There are no established intakes for indigestible carbohydrate for toddlers, there are only recommendations. For example, in England, amounts smaller than 18g/day have been proposed for children (minimum recommended for adults), and in the U.S., for children over 2 years the amount of fiber should be equal to the child's age in years - 5g/day.

Some authors [3] believe that a diet too high in fiber may result in rapid filling of the stomach, reduced appetite and children will not eat enough to secure their energy needs.

An excess of phytates may decrease the absorption of minerals (iron, zinc, calcium). The risk is higher in children with vegetarian diets.

Dietary fat requirements

Fats serve as important energy supply, 1 g provides 9 kcal. Fats must cover 30-35% of the caloric intake (more than for an adult) as a source of energy. Recommended for children are 1-2 g/kgBW/day, a minimum of 40 g/day and an equal proportion between the animal and vegetable fats.

There has been a sustained research on the role of omega-3 fatty acids, revealing that a decrease in their consumption would be associated with risk of atopy and learning disorders in children [2,4,5].

Protein requirements

Proteins have plastic, structural and functional role. Their energetic role is secondary, 1 g provides 4 kcal. In children, proteins should provide 13-18% of the caloric intake (more than for an adult), i.e. 1.5 - 2g/kgBW/day. For proper functioning of the body at least 40 g protein must be consumed per day.

During the growth period, 50-70% of the protein should be of animal origin, at a superior quality.

Vitamin requirements

During the toddler period there is a risk of deficiency for:
- Vitamin A - best sources are fat milk and colored vegetables (β-carotene). Children do not tend to consume large quantities of these foods.
- Vitamin D - Most children do not have sufficient amounts of vitamin D in food. Sun exposure in the months April to September is mandatory.
- Vitamin C - poor access to fresh fruits and vegetables in the winter months.

It would be advisable to provide supplemental vitamin A, D and C, particularly in children from families with low incomes.

Mineral requirements

At the age of 1-4 years there may be a likelihood of calcium, iron, zinc and copper deficiency. A good way to prevent such deficits would be to fortify with these minerals the cereals for breakfast.

DIETARY RECOMMENDATIONS

Children should eat according their own appetite. Quantities of food consumed in a meal may be very different from one child to another, from one table to another, from one day to another without having consequences on growth and development. Quantitative variations are linked to emotional states, health status and the intensity of physical activity [6].

Dietary recommendations at this age are most often related to qualitative aspects of food portions.

Bread, cereals and potatoes - at least one of the group at every meal.

Suitable for young children are white and half-white flour products (for fiber). Wholemeal is too rich in fiber for small children, they may have digestive problems or absorption problems for some micronutrients [2].

Fruits and vegetables should be consumed at every meal.
- It better be as varied and colorful as possible.
- Parents should give their own example at the consumption of these foods.
- When offered in pieces that can be eaten using their hands, children can have the satisfaction that they feeds alone, with ease.

Milk and derivatives should be consumed one serving three times daily.
Toddlers need less milk than in the first year of life.
In excess, they can reduce the craving for other foods (such as those rich in iron).
It is recommended:
- always whole-products for those under two years
- half-skimmed products after 2 years
- skimmed products are not recommended before 5 years

Meat, fish, should be kept in small children's diet 1-2 times per day
Nuts, eggs, dried vegetables, 2-3 times per day

These foods are rich in iron and protein.

When consuming nuts, eggs and vegetables it would be better to associate these with foods rich in vitamin C to ensure a good absorption of the non-hemic iron.

Many young children do not like chewing meat, so meat can be delivered as stews, moussaka, chicken meat (it's more tender)

sausages, homemade meatballs made of good quality meat.

Fish is recommended at least twice a week, especially if it's fat (rich in omega 3). Big fishes which live many years, as shark, swordfish may contain large amounts of heavy metals (mercury) and should be avoided. Small fish, who live less, as sardines, mackerel are recommended [2].

Whole nuts, unshelled nuts, are not recommended under 5 years, because of risk of allergies. Greater caution should be used for those who have ancestors with asthma, eczema or food allergies. Especially peanuts should be avoided, but hazelnuts, almonds are better tolerated and can be good sources of protein and other nutrients, especially for vegetarian children (with vegetarians parents!).

Butter of some nuts or shelled nuts are allowed at the age of 1-4 years.

Foods high in salt, sugar and fats should be consumed as little as possible.

Foods rich in sugar and fat are energy supplement, they may complete the menu, but will not replace the earlier food groups.

Water and other liquids

Optimal intake is 50-60 ml/kgBW/day. Recommendations for young children: 0.4 liters per day water from food and 1.8 liters per day of liquid water, i.e. a total of 2.4 l/day

Water demand is increased in the following situations:
- exposure to extreme temperatures (hot or cold)
- intense physical activity
- exposure to heating or air conditioning
- diet rich in fiber
- pathological fluid loss:

- fever (increase the loss by breathing through the skin, it is necessary to supplement with 500 ml/day for each degree above 37 ºC)
- loss of fluids through the gastrointestinal tract (diarrhea, vomiting)

Between meals the child should receive only water and possibly milk. Sweetened juices, including natural fruit juices, are offered only at the meals and not between meals to prevent tooth decay. They are not recommended for often consumption.

Meal Program

It is organized according to the daily schedule, play time and sleep time. Recommended option: 3 main meals and two snacks, thus small children do not get into hypoglycemia, are not very hungry or tired, and snacks can be an opportunity to break in an activity.

Healthy Snacks for Preschoolers [2]:
- Fresh fruit: apple slices, mango, pineapple, pear, melon, banana. No dried fruit (say dentists)
- Vegetable sticks: carrots, cucumber, celery, turnip
- Cubes of cheese, tomato slices and bread
- Pieces of toast with cream cheese or peanut butter
- Small sandwiches with butter, cheese and vegetables
- Sweet cream yogurt or cheese with whole pieces of fruit
- Fruit and vegetable sauce, yogurt, cheese sauce
- Homemade popcorn
- Semi flour biscuits
- Sugar-free cereal

Young children are encouraged to eat by themselves, as much as they desire (quantities may be variable from one day to another, even from a time of day to another). A method often used by parents to induce

children to eat everything on their plate is „if does not eat does not get the dessert." By this, the parents unwittingly suggests to the child that, that the desert has a higher value than other foods because it is used as a reward. Dessert can be a nutrient, such as a fruit salad or a fruit pudding. On the other hand, the „empty plate method" is no longer valid in today's child nutrition education. It can contribute to overnutrition and excessive increase in weight. Children should learn to stop eating once they feel satiated [7].

Children today are allowed:
- to eat with their hands,
- to make a mess on the table and clothes,
- to play with food (but not waste it),
- to learn how to use tableware earlier [2].

Importantly, respect for the preference of the child:
- some prefer foods soaked in sauce, others want them dry
- some want mixed foods, others want each on a different plate
- some do not like red meat because it is hard to chew.

Preferences are changing with time and children will eat whatever their families eat.

Eating in social groups

- Young children learn to eat by imitating adults and older children, so eating in a group helps children learn about new foods.
- Family meals should be a cause for joy and encourage children to enjoy food.
- Family meals are an opportunity for the child to communicate, to learn to speak. Delayed speech and poor eating habits often coexist [2].

CONCLUSIONS

Todlers have:
- ✓ high energy and nutrient requirements relative to their size, depending on the rate of growth and physical activity
- ✓ variable appetite
- ✓ fear of trying new foods (normal at this age).

Pre-school children must have a meal program but self-feeding and self-regulation of intake.

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CONTENTS