

# "MILK AND ROLL" IN THE MORNING NUTRITION OF CHILDREN

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## REZUMAT

**Context.** Scopul studiului a fost de a evalua locul pe care consumul produselor lactate și de panificație, acordate conform OUG nr. 96/2002, îl ocupă printre preferințele alimentare din cursul dimineții ale elevilor din învățământul primar. **Metode.** Un grup de 220 de copii cu vârste cuprinse între 8 și 11 ani, de la școli publice din mediul urban și rural au răspuns la un chestionar cu 24 de itemi privind obiceiurile lor alimentare matinale. **Rezultate.** Rezultatele arată că 39,1% dintre subiecți consumă zilnic cornul și doar 20,9% - laptele. Când li se oferă, biscuiții, respectiv smântâna sau brânza topită sunt acceptate cu mai multă plăcere de către elevi. **Concluzii.** Statutul socio-economic familial pare să fie factorul principal ce determină copiii să consume sau nu gustarea oferită gratuit la școală.

**Cuvinte cheie:** mic dejun, școală primară, nutriție

## ABSTRACT

**Context.** The purpose of the study was to evaluate the place the consumption of milk and roll, granted according to the Government Ordinance no. 96/2002, occupies among the morning food preferences of pupils. **Methods.** A group of 220 children, aged 8 - 11, from both urban and rural primary public schools, answered a 24-itemed questionnaire regarding their morning nutritional habits. **Results.** The results indicate 39.1% of the subjects consume daily the roll and only 20.9% of them - the milk. When offered, biscuits, respectively sour cream or melted cheese, were more successfully accepted by the pupils. **Conclusions.** The social and economic status of the children families seems to be the predictive factor of consuming or non-consuming the free school break snack.

**Key words:** breakfast, primary school, nutrition

## INTRODUCTION

In accordance with the Romanian Government Emergency Ordinance (GEO) no. 96/2002 concerning the provision of milk and roll for pupils in public education,

since September 2002 free milk and roll have been offered to the pupils grades I-IV in public primary school, the days when they attend the courses [1].

The Regulation of application of GEO no. 96/2002 (approved by the Government Decision GD 932/2002) specifies that, in order to maintain the health and nutrition status of the children, the milk must contain at least 3.2% protein and less than 1.8% fat; only pasteurized milk (kept refrigerated at maximum 8°C) or UHT milk must be offered. The quality of the dairy (milk, buttermilk, powder milk, yoghurt) and of the bakery products (rolls and biscuits) has to meet the parameters set by law and the applicable standards [2].

GEO no. 96/2002 was amended by the Ordinance no. 70/2003; as a result, since September 2003, dairy and bakery products have been also granted for children in public 4 hour kindergartens [3].

GD no. 714/2008 repealed GD no. 932/2002. The new Specification for the procedures for awarding contracts for the supply of dairy and bakery products mentions that dairy products (UHT milk, pasteurized milk, buttermilk, yoghurt) in packs of 200 g/unit and bakery products (croissants, biscuits) in packages of 80 g/unit will be distributed in kindergartens and schools [4].

By GEO no. 95/2008, GEO no. 96/2002 was amended once again, so the syntagm "grades I-IV" has been replaced with the syntagm "grades I-VIII" [5].

The Law no. 32/2009 that approves GEO no. 95/2008 establishes dairy and bakery products are offered for students grades I-VIII in public and private schools and for children in public and private 4 hour kindergartens [6].

In this context, within the framework of a research aimed to evaluate the particularities of the morning nutrition of primary school pupils, we sought the estimate the place the consumption of milk and roll, granted according to the Government Ordinance no.

96/2002, occupies among the morning food preferences of pupils.

## SUBJECTS AND METHOD

In this study 220 children, aged between 8 and 11 years, were included. They all were primary school students either in an urban public school U (N = 128, representing 58.1%), or in a rural public school R (N = 92, representing 41.9%).

They were required to answer a 24-items questionnaire concerning their morning nutrition, including: at what time breakfast or snack is served; what food is consumed, during both school days and weekends. The emphasis was on the consumption of dairy and bakery products granted under the GEO no. 96/2002. The questionnaire included questions about the consumption frequency of the forementioned products, about their usage when they are not served in between class hours, about favorite items.

The study was conducted, in both schools, with the consent of the management, in the presence of the activity coordinating teacher of the class. Students were informed about the purpose of the study and about the content of the questionnaire. They answered voluntarily to the questions of the survey operator, while the other classmates were involved in independent recreational activities.

The evaluation of the nutritional condition of the batch of children was done using the body-mass index (BMI). A comparison was performed between the values of BMI based on the two somatometric indicators (height and weight) measured by the scholar medicine personnel during periodical examinations and the ideal values of BMI by age and by gender. Also, the health condition of the students was assessed based on primary records from the school surgery.

The teachers of the subjects provided us with information on their parental

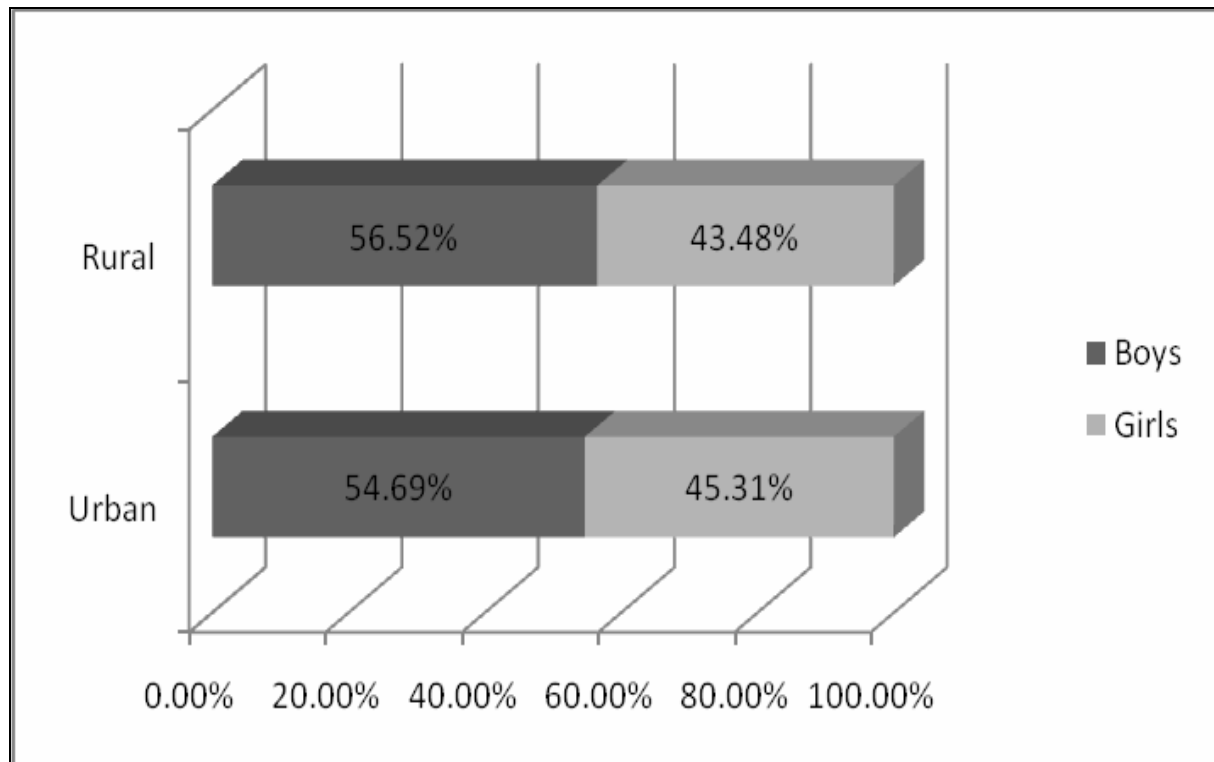
educational level and on their school performance.

Data were processed using SPSS computer program. The statistical significance of the data was evaluated using the  $\chi^2$  test.

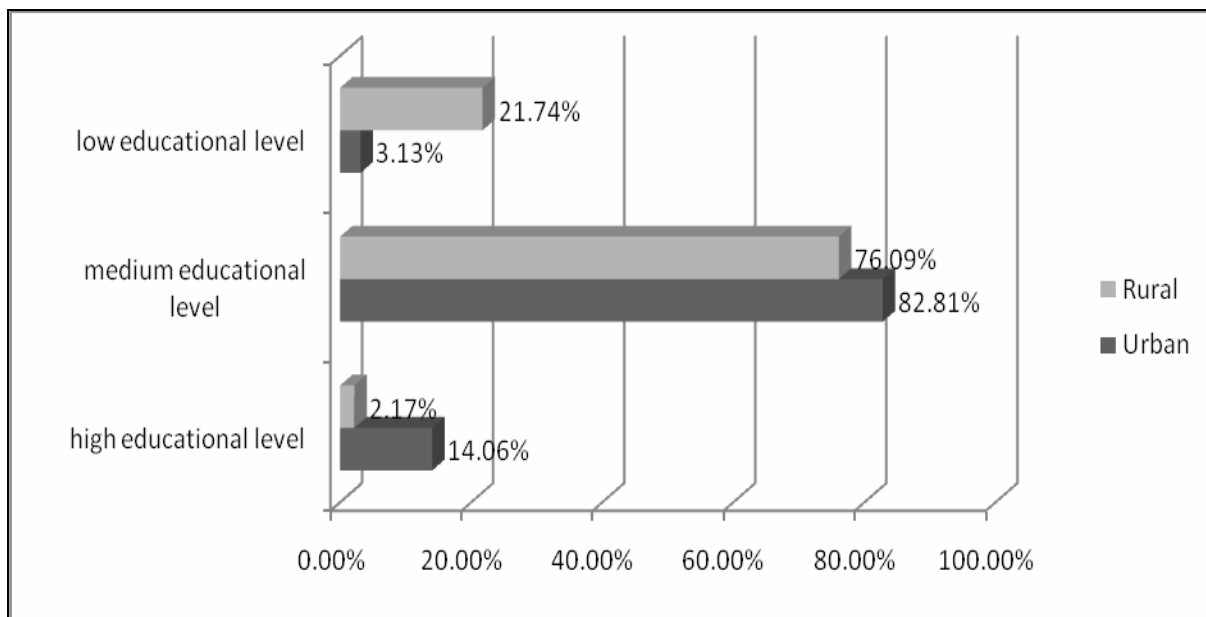
## RESULTS

As shown in Figures 1 and 2, the studied group structure was homogeneous by gender and residence environment, but, considering

the educational level of the parents, numerically unbalanced groups could be observed: the majority of the children came from families with medium educational level (82.81% in U and 76.09% in R). In rural only two children (2.17%) lived in a family with high educational level, while another 20 pupils did not take advantage of the support of their parents in school because of their minimum educational level (including illiteracy).



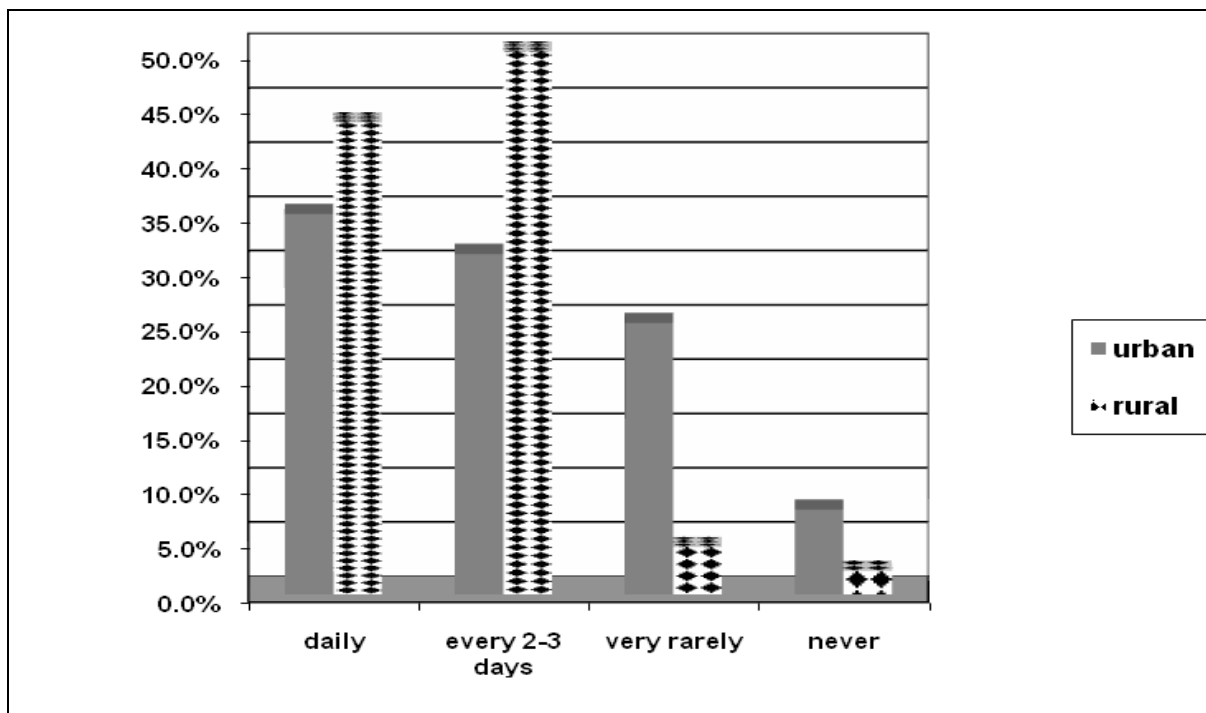
**Figure 1. Statistical distribution (%) of subjects according to the residence area, in correlation with the gender**



**Figure 2. Statistical distribution (%) of subjects according to the residence area, in correlation with the educational level of the parents**

Figure 3 shows the statistical distribution of pupils by roll consumption correlated with the area of residence. We observed that rural students consume the roll frequently (daily or every 2-3 days) in percent of 93.48% (N

= 86), versus only 66.39% (N = 85) - percentage of students urban "willing" to frequently consume the granted roll ( $p < 0.001$ ,  $\chi^2 = 21.68 > 10.8$ ).

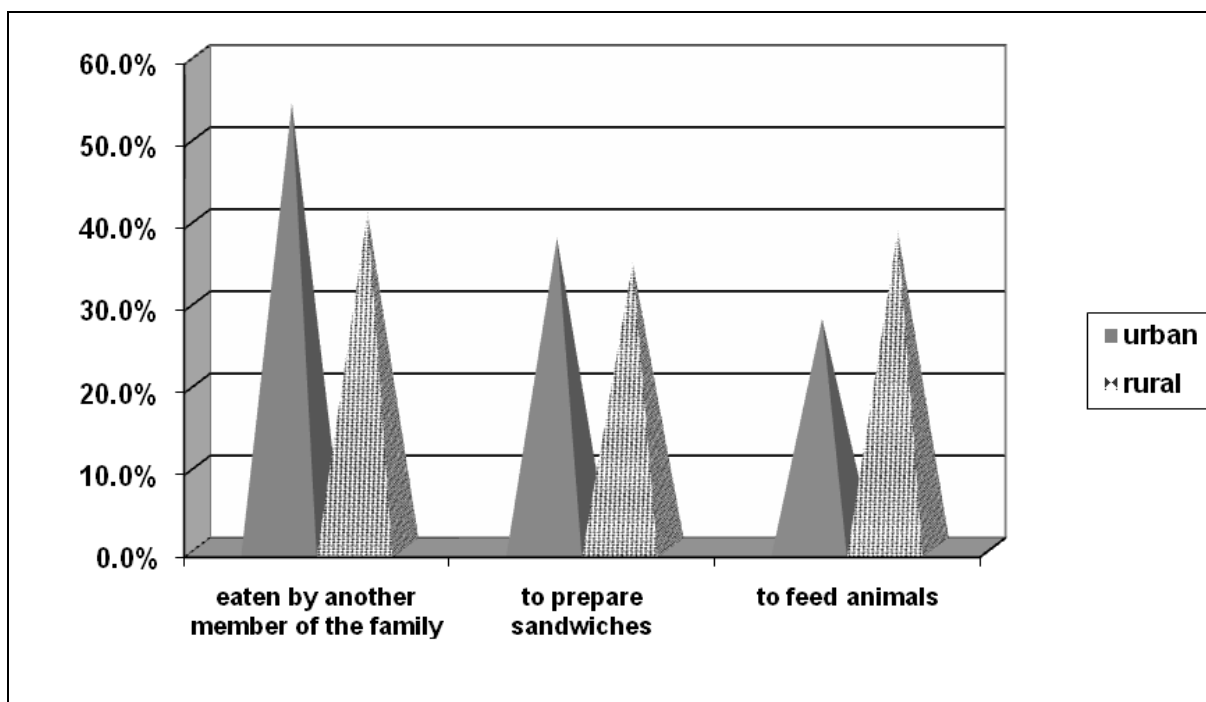


**Figure 3. Statistical distribution (%) of subjects according to the residence area, in correlation with the roll consumption**

The frequent consumption of the roll seems to be also influenced by the socio-economic condition of families of the children. Thus, while the product was consumed (daily or every 2-3 days) by 11 children (55%) with parents of higher education, the percentage increased to 77.84% (N = 137) for children from families with average socio-economic condition, and by 100% for children from families with poor condition ( $p < 0.01$ ,  $\chi^2 = 13.01 > 9.21$ ).

Figure 4 depicts the usage of the roll when students do not eat it (consumed by another family member, used at the preparation of sandwiches or as animal food).

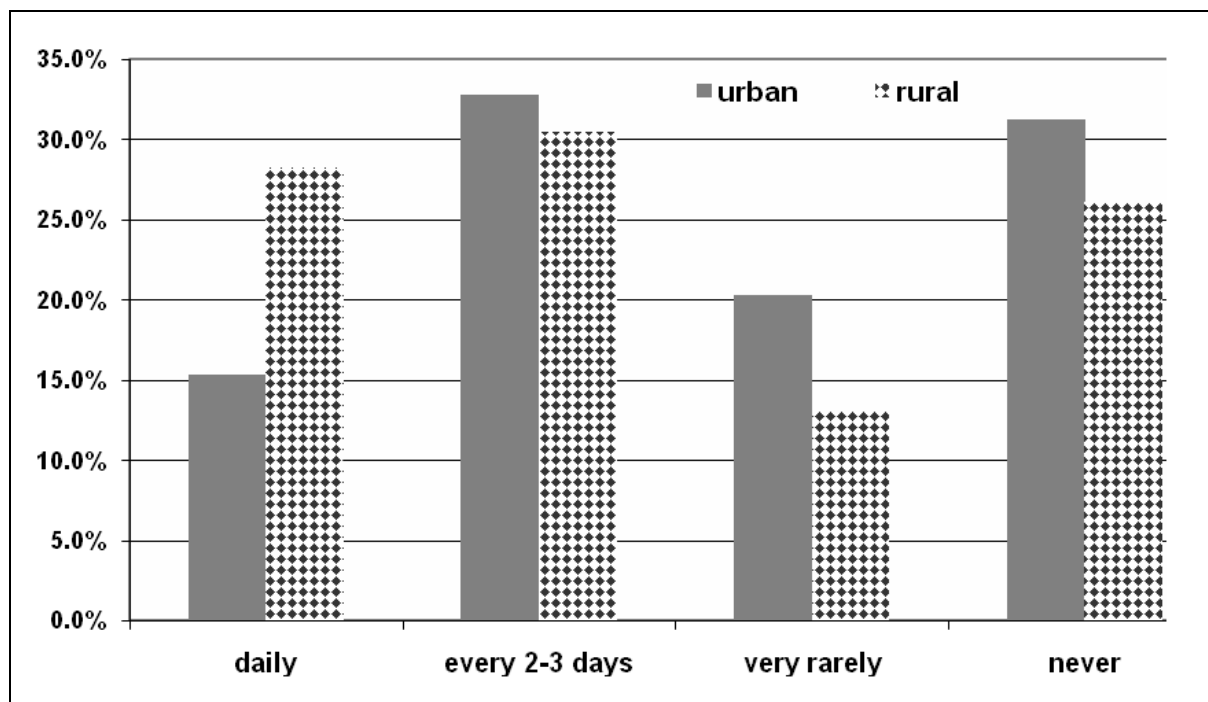
For both areas of residence, we noticed that, most often, the roll is consumed by another family member (younger siblings or grandparents). There are also situations (especially in rural areas) where the roll is used as animal food. While in rural areas there are no significant differences among the three ways of using the roll when it is not consumed by student itself, in urban areas the roll is used most often in the family diet (54.09%) and less frequent as animal food (27.86%) - statistically significant differences for  $p < 0.001$ ,  $\chi^2 = 16.97 > 10.8$ .



**Figure 4. Statistical distribution (%) of subjects according to the residence area, in correlation with the roll consumption when it is not eaten by the children**

Figure 5 shows the statistical distribution of pupils by milk consumption correlated with area of residence. We observed that rural students frequently consume milk (daily or every 2-3 days) in percent of 58.69% (N =

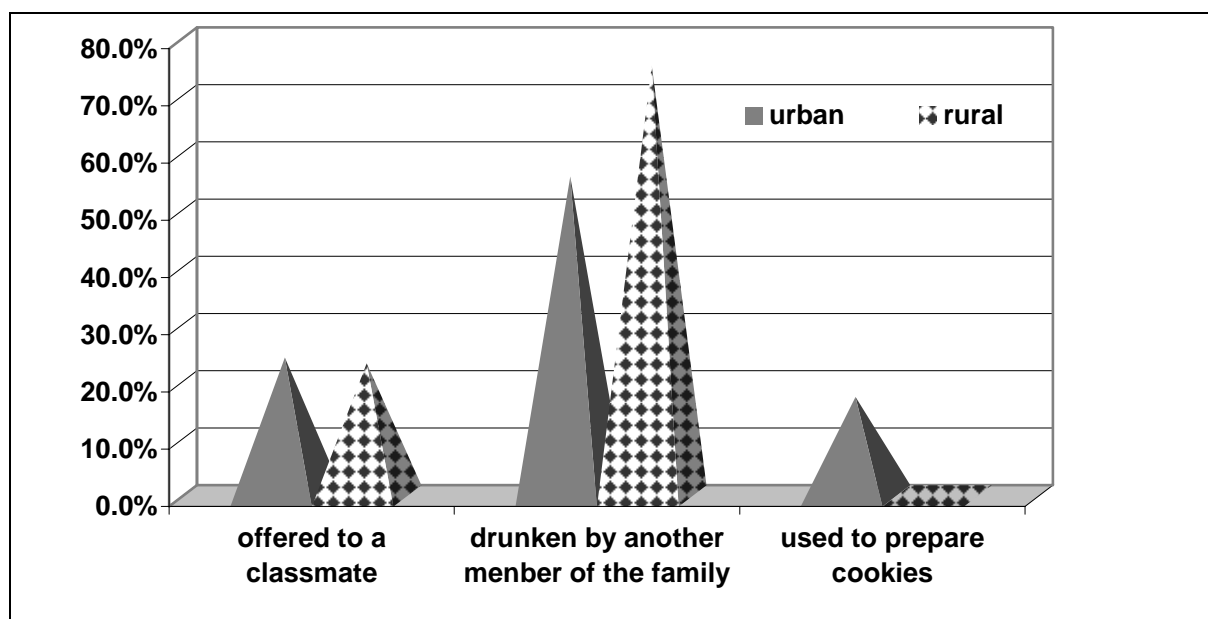
54), compared with only 48.4% - the percentage of urban students "willing" to frequently consume the granted milk ( $p < 0.05$ ,  $\chi^2 = 5.42 > 3.84$ ).



**Figure 5. Statistical distribution (%) of subjects according to the residence area, in correlation with the milk consumption**

Figure 6 presents the statistical distribution of the usage pattern of milk when students do not drink it, correlated with area of residence. Like in the case of the roll, milk not consumed by students themselves is drunk most often by another family member. It can also be given to other

colleagues (in equal proportions in the two areas of residence) or used for preparing cakes in the family household - a situation encountered only in urban areas, in 17.25% of cases in which the student does not drink the milk.



**Figure 6. Statistical distribution (%) of subjects according to the residence area, in correlation with the milk consumption when it is not drunk by the children**

A number of 114 (93.44%) U students, respectively 81 (82.65%) R declared themselves very happy if they were to get another bakery product instead of roll; in the order of preference, children would enjoy eating croissants with either chocolate or jam, crackers, sandwiches with salami and/or cheese, cheese pie or fruits.

According to 90 (70.31%) of the students from urban areas and 27 (29.34%) of the students from rural areas, even milk could be replaced by cream, cheese or (the best) by soft drinks.

BMI calculation identified the presence of 167 students (75.9%) with normal nutritional condition. Out of the 53 students who recorded nutritional disorders, only five were underweight, their BMI having values below the 5 percentile corresponding to the gender and the age. Other students presented weight above normal, from which 16 (7.27% of the whole group) were overweight (BMI values between 85 and 95 percentiles) and 32 (14.54%) obese (BMI values above 95 percentile).

No significant correlation between the calculated value of BMI and the consumption of dairy and bakery products was observed in the present study.

No significant influence on the school performance of the subjects by the frequency of granted bakery and milk consumption was observed.

The evaluation of the health condition of the students showed morbidity within the limits for their ages. In this study, the bakery and dairy consumption seemed not to have a significant influence on children's health.

## DISCUSSION

It is widely recognized diet and nutrition are important factors in the promotion and maintenance of good health throughout the entire life course [7]. Thus, eating behavior

“born” since early childhood will permanently influence the individuals’ health. Nowadays sedentary lifestyle and wrong eating habits are too frequently among children. After school, they used to play out in the field but today they prefer the TV remote control or internet browsing. Aggravating the problem is the fact that when children watch TV they snack more, often on unhealthy foods high in salt and calories and low in fiber.

In this context, breakfast should be considered playing an important role in a global prevention strategy to reduce health risks for children and youth. It contributes significantly to a complete diet, balanced both in terms of energy and in terms of nutrients. For school-age children, the benefits of breakfast consumption are even more obvious: it supplies an optimal contribution with caloric and catalytic nutrients, required for growth and development; it maintains the normal weight and improves the school performance [8-11].

In this study, breakfast or morning snacks based on milk and bread products granted for primary school children seem to be primarily influenced by the poor socio-economic condition of children families (especially in rural areas). Thus, the study results show significantly higher percentages of students from rural areas who consume milk frequently ( $p < 0.05$ ) and especially roll ( $p < 0.001$ ), compared with urban students. Also, the use of the roll is mainly referred by children from poor socio-economic families ( $p < 0.01$ ).

This bears out the idea that the "croissant and milk" program (free meals in schools) should target children from families that really need this kind of support. Ideally, parents should explicitly opt for being or not being included in this program, but this selection would be hard to manage in practice. A more feasible version of social

targeting is that schools should separately opt for being or not being included in the program. Schools know exactly what the social situation of every student is, so schools leaving the program voluntarily would not create logistic or political problems [12].

In both areas of residence, the study emphasized significantly higher percentages of children who claim they never consume the granted milk, compared with the ratio of those who never consume the roll ( $p < 0.001$ ). The roll looks like a product much more appealing to children, than the milk.

We noted that almost all rural students consume milk on a daily basis, but many of them prefer the full product, obtained from the animals in their household.

Students have noted that during the school year, there were several days in which they received crackers instead of roll. The crackers had more success at children than the roll, being consumed daily by many subjects ( $p < 0.001$ ) in both urban and rural.

In the case of the milk, students also pointed that, for several days, this product has been replaced with other milk derivatives, namely with cream or cheese. Both these products had been more appreciated than milk, resulting in a number of daily consumers significantly higher ( $p < 0.001$ ) in both areas of residence.

We observed that the enthusiasm of children in rural areas for the hypothetical possibility of replacing the roll and milk with other products suggested by the children (croissants with chocolate or jam, biscuits, sandwiches with salami and/or cheese, cheese pie, soft drinks) was significantly lower ( $p < 0.05$ , respectively  $p < 0.001$ ) than that of the children in urban areas. For students from rural areas, the observed

"cautiousness" of expressing the personal opinions with regard to the replacement of roll and milk with favorites products could be due, on the one hand, to a poor awareness of food supply (related to the small variety of products found in village shops). On the other hand, the poor economic condition of rural families could be an obstacle for these children to express their food preferences. They are, most likely, accustomed to meet an endless deferral of their desires for financial reasons.

## CONCLUSIONS

The relationship between health and income, with the poorest sections of the population being the most vulnerable, is generally accepted. Poor people are at an increased social disadvantage in terms of the incidence of diseases, as well as access to treatment. They also show lower rates of acceptance of health-promoting behaviors compared with other sectors of the society. Thus, the main goal of the public health policy is to provide these people the best chance to enjoy many years of healthy and active life. Integrated interventions, which include health, nutritional, and educational components, are required for children to prevent the adverse consequences of inappropriate dietary patterns and to benefit fully from education [7].

Presently, many countries, both developing and developed, have invested large amounts of money in school feeding programs to improve attendance, achievement levels, nutritional status, and sometimes to provide extra income for poor families by reducing the amount of money they spend on food. But the indication is that where resources are limited, school meals should be targeted to undernourished children who are more likely than adequately nourished children to benefit in school-achievement levels [13,14].



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# MOTHERS' KNOWLEDGE AND ATTITUDE ABOUT VACCINE AGAINST HPV

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## REZUMAT

*Virusul papiloma uman (HPV) este cea mai importantă cauză de cancer cervical în întreaga lume. În România, în fiecare an, aproximativ 3500 de femei sunt infectate și aproximativ 2000 mor din cauza acestei afecțiuni. În noiembrie 2008 Ministerul Sănătății din România a început un program național de sănătate organizând vaccinarea anti-HPV a fetelor cu vârsta între 12 și 14 ani. Au fost cumpărate 110 000 doze de vaccin care au costat 23 milioane de euro, dar datele din primul trimestru al anului 2009 au arătat că doar 2,57% din populația țintă a fost vaccinată, probabil datorită unei lipse de informație. În noiembrie 2009 a început cea de-a doua campanie de vaccinare. În trei luni, 11731 fete au fost vaccinate, aproximativ 10%. În același timp, populația țintă a fost mărită la fetele care au vârsta între 12 și 24 ani. În prezentul studiu încercăm să răspundem întrebării de ce participarea a fost atât de redusă și analizăm nivelul de informare al mamelor despre cancerul cervical, eficiența și efectele secundare ale vaccinului anti-HPV. Cele mai multe dintre mamele fetelor cu vârsta între 12 și 14 ani de la școli din Târgu-Mureș au cunoștințe insuficiente despre relația care există între HPV și cancerul de col și mai mult de 2 treimi dintre ele prezintă o temă irațională față de efectele secundare și sunt neîncredătoare față de efectele vaccinării.*

**Cuvinte cheie:** cancer de col, vaccinare împotriva HPV, program național, cunoștințele și atitudinea mamelor

## ABSTRACT

*Human papillomavirus is the main cause of cervical cancer around the world. In Romania in each year approximately 3500 women are infected and about 2000 die because of this illness. In November 2008 the Romanian Health Ministry has started the national health program organizing the anti-HPV vaccination of girls aged 12-14. There were bought 110000 doses of vaccine with 23 million euros, but the data of the first quarter in 2009 show that only 2.57% of target population was vaccinated, probably due the poor information.*

*In November 2009 the second vaccination campaign was started. In three months 11731 girls were vaccinated, about 10%. In the same time the target population was widened to girls aged 12-24. In our study we tried to answer why the participation was so low and we analyzed the information level of mothers about cervical cancer, the efficiency and the secondary effects of anti-HPV vaccine. The majority of mothers of 12-14 aged girls from some schools from Târgu-Mureș have insufficient knowledge about the relationship between HPV and cervical cancer, and more than two-third of them have irrational fear because of secondary effects and are distrustful regarding the efficiency of vaccination.*

**Keywords:** cervical cancer, vaccine against HPV, national program, mothers' knowledge and attitude

## INTRODUCTION

*Human Papilloma Virus (HPV)* is one – but not the only one - reason of getting infected with cervical cancer [1,4]. Out of the 100 HPV types of viruses approximately 40 cause infections of the mucous membrane of the genital organs [5]. There are 630 millions of people in the world infected with HPV who can spread this disease unconsciously, having no symptoms at all.

The Free National Vaccination Campaign reduces the risk that future generations will develop cervical cancer. Vaccination is one of the most successful and less expensive methods of intervention in public health programs [6,8,11].

But for HPV prevention, cervical cancer will continue to be the second cause of mortality among women suffering of cancer, after breast cancer [3].

## MATERIALS AND METHODS

The Free National Vaccination Campaign reduces the risk of developing cervical cancer for the future generations. In November 2008, the Ministry of Public Health in Romania started a national health program concerning the free vaccination of HPV for 4 grader primary schoolgirls. 110.000 doses of vaccine, costing approximately 23 million euros, have been bought, but due to the controversial information concerning the safety of vaccination, side-effects and complications, the incorrect way of informing the

population according to the statistical data of the first trimester of the year 2009, only 2.57 % of the target population (girls from the 4th grade) got the vaccination [13].

After the first unsuccessful phase of the vaccination, in November 2009 a new vaccination campaign was started. This meant that until the 17th of February 2010, 11731 girls between ages 12-14 have been vaccinated, which mean approximately 10 percent. At the same time there was an increase in the number of target population, the age of the people vaccinated being between 12-14 years.

In our study we were looking for answers concerning the causes of low participation in the vaccination program against HPV and we tried to analyze how informed the parents were about cervical cancer and HPV vaccine – efficiency and eventual side-effects of the vaccine.

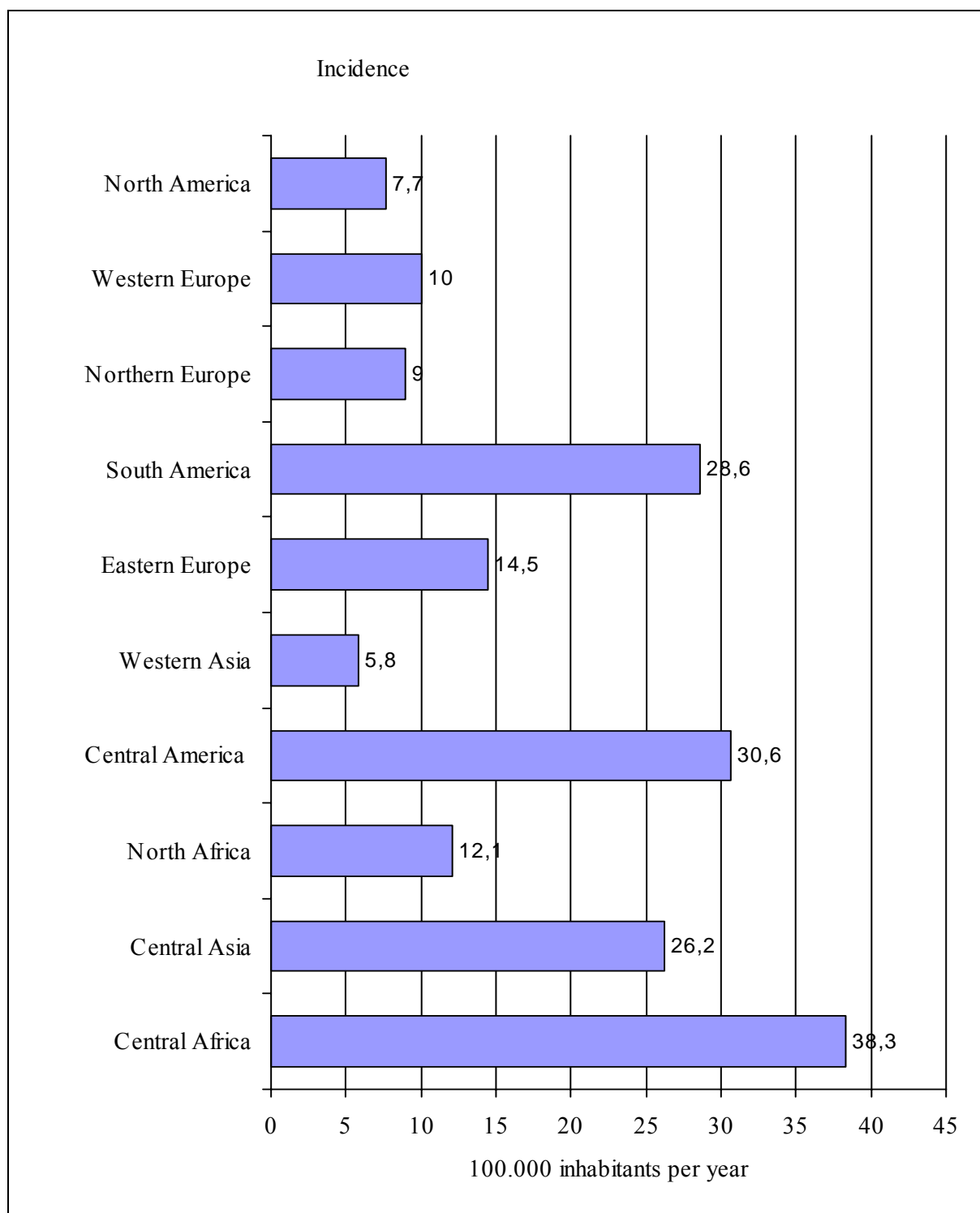
From the 1 of October until the 1 of February 2010 we surveyed the parents' knowledge – with daughters between 12-14 years- using a questionnaire about cervical cancer and HPV vaccine. The total sample consists of N=164, mothers of students in Secondary Schools in the county of Targu - Mures.

## RESULTS AND DISCUSSION

In Romania cervical cancer is the most frequent form of cancer among women aged 15-44 years. 6 women die daily because of this disease and 9 are diagnosed [9,12].

The incidence of cervical cancer is the highest in Central Africa, Central America, South America and Central Asia, following

Eastern Europe [7]. The lowest statistical values can be also found in Western Asia and North America (Graphic 1).



**Graphic 1. Worldwide incidence of cervical cancer**

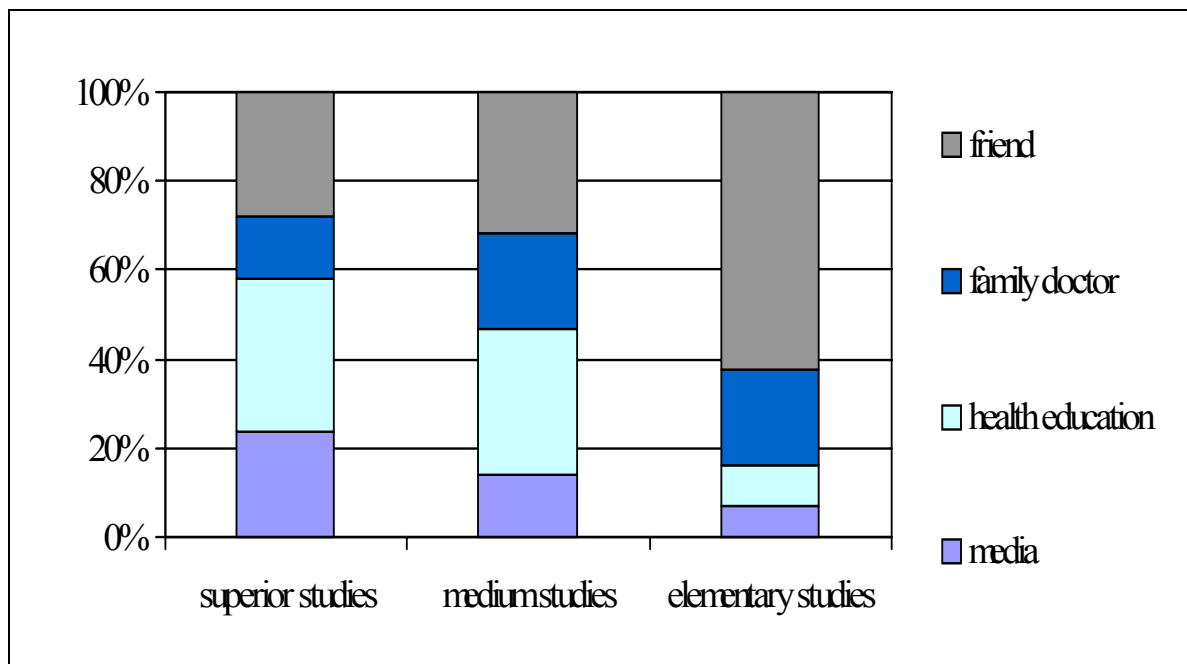
In our study the majority of the mothers interviewed were between 33-36 years, with

a medium age of 35.21, standard deviation 2.65.

Taking into consideration the parents' knowledge about the causative relationship between *Human Papilloma Virus* and cervical cancer, the insufficient knowledge is due to the fact that 73.74 % of the interviewed women have never heard about this relationship. This survey reveals that lack of proper information can play a significant role when parents don't have the necessary information.

Among those persons who have already heard about the causative relationship

between *HPV* and cervical cancer, we also studied the source of information in terms of education (Graphic 2). The results show that among mothers with a higher education 34.81 % received the information through health education. Of those with lower studies, only 8.69 % were informed in this way about *HPV* and cervical cancer ( $p < 0.001$ ). In this latter category, the majority of information is provided by friends and then by the family doctor.

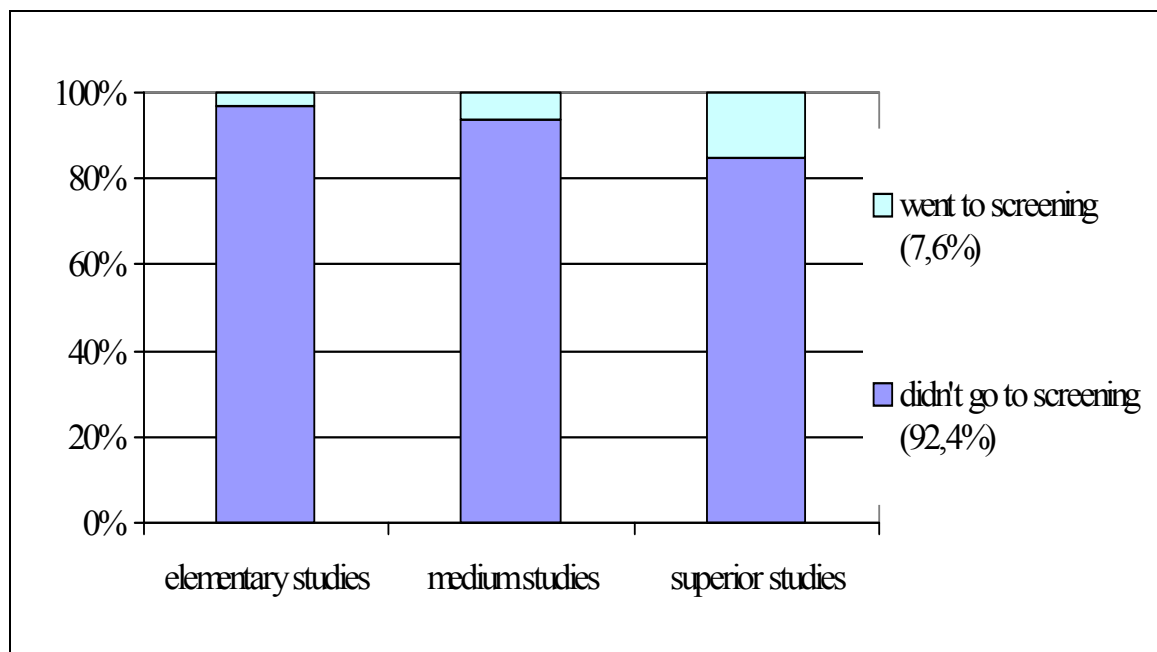


**Graphic 2. Source of information and education**

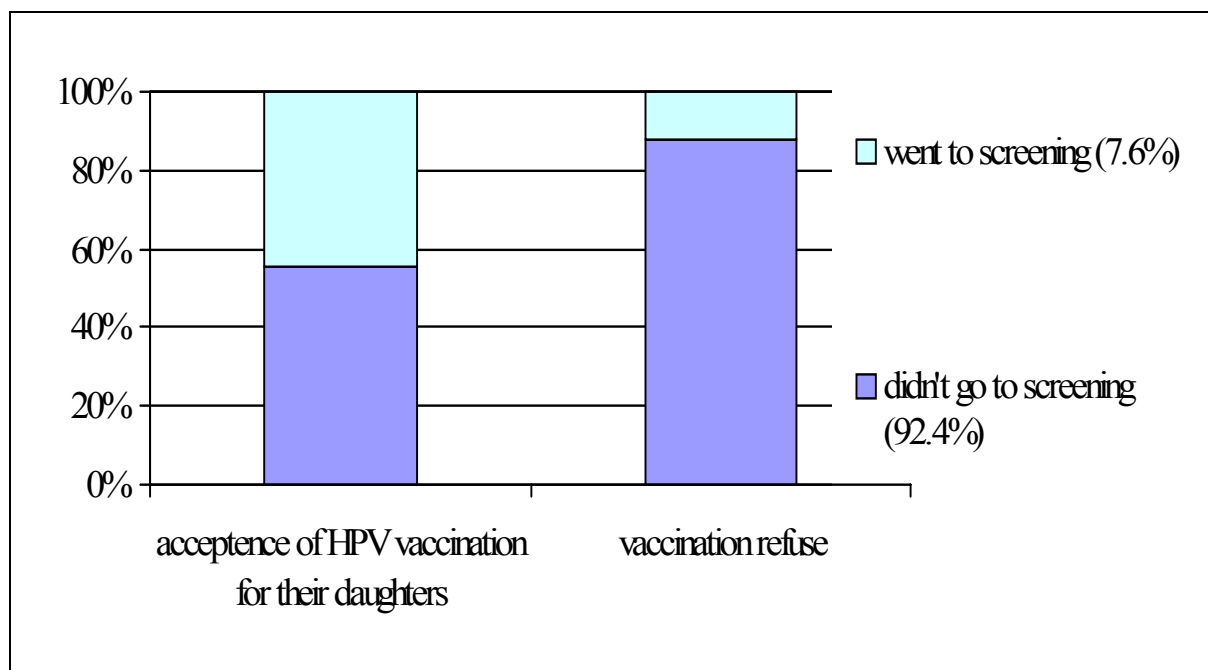
The study of the relationship between the participation in screening and educational level shows that the participation in screening was higher for women with a higher educational level than for mothers with a lower educational level:  $n=151$ , Chi-square test,  $p < 0.001$  (Graphic 3).

The study of the relationship between the participation in screening and HPV vaccine

acceptance shows significant results. The acceptance of vaccine was higher when the mothers were personally present in screening. The results show that among mothers who accepted the HPV vaccine, 44.30 % were present in screening and among those who refused to accept it only 12%:  $n=151$ , Chi-square test,  $p < 0.001$  (Graphic 4).



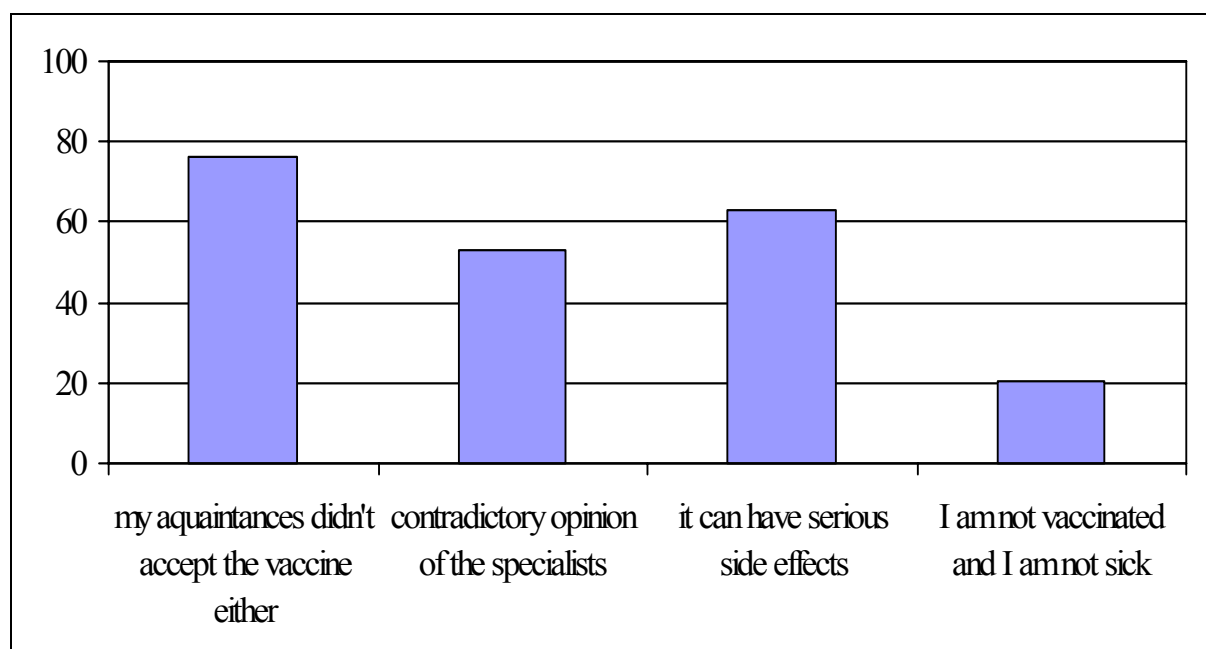
**Graphic 3. The study of relationship between the participation in screening and educational level**



**Graphic 4. The relationship between screening and acceptance of vaccination**

At the refusal of HPV vaccine the following things play an important role: not accepting the vaccine by the relatives, fear of the

adverse reactions, contradictory opinions of the specialists, contradictory opinions supplied by the mass media (Graphic 5).



**Graphic 5. Reasons for non acceptance of HPV vaccine**

## CONCLUSIONS

Cervical cancer cases are frequent in Romania. They represent the number one cause of death from cancer among women between the ages of 15 and 44. The high rates are due to the fact that women in Romania have a very poor knowledge about the causes that lead to this kind of cancer and about preventive measures [2,10].

The Free National Vaccine Campaign reduces the risk that future generations will develop cervical cancer.

We may affirm that the great majority of the mothers questioned don't have adequate information about cervical cancer. Neither do they have adequate information about HPV vaccine for preventing cancer.

There's a positive and significant association between the education level and participation in screening. The mothers who

previously participated in screening accepted in a higher percentage the vaccination of their daughter.

The role of correct information received from specialists and mass media must increase in the future.

We propose the organization of some courses "Education For Health" at school level and civil organizations because they represent one of the main ways of promoting adequate knowledge on various aspects of health and also in the formation of attitudes and skills vital to a healthy and responsible conduct.

In the future we suggest the organization of a new screening programs for cervical cancer with the aim of detecting cancer as soon as possible.

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# EPIDEMIOLOGICAL ASPECTS OF HUMAN CRYPTOSPORIDIOSIS IN S-W ROMANIA

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## REZUMAT

**Obiectiv:** Studiul desfășurat în perioada mai-decembrie 2008 și-a propus determinarea prevalenței criptosporidiozei umane în diferite segmente de populație. **Material și metodă:** S-au testat 221 de subiecți, structurați în 4 eșantioane: 51 sugari distrofici, 49 copii instituționalizați în cadrul Complexelor de Recuperare și Reabilitare Neuropsihiatrică Lugoj și Timișoara; 51 copii din populația generală, cu diagnosticul prezumtiv de Giardioză și 70 pacienți internați în Spitalul de Boli Infecțioase și Pneumoftiziologie, Timișoara, pentru altă patologie decât infecția HIV/SIDA. **Rezultate:** Prevalența cumulativă a fost de 2,26%, prin identificarea a 4 cazuri la subiecți asimptomatici - 2 sugari cu distrofie de grad II, 2 adolescenți cu retard mental sever și un caz simptomatic, la un sugar internat cu enterocolită acută de model invaziv. **Concluzii:** Deși prevalența este redusă, caracteristicile celor 5 cazuri arată importanța portajului asimptomatic în populația generală, ca și rolul transmiterii interumane, inclusiv în centrele de zi sau unități medicale.

**Cuvinte cheie:** Cryptosporidium, prevalență, sugari, portaj

## ABSTRACT

**Purpose:** This study, carried out from May to December 2008, has set out to investigate the prevalence of human cryptosporidiosis in different population segments. **Material and method:** 221 subjects were tested, divided in 4 groups: 51 dystrophic infants; 49 children institutionalized within the Neuropsychiatric Recovery and Rehabilitation Complexes of Lugoj and Timișoara; 51 children belonging to the general population, with the presumptive diagnosis of Giardiasis; 70 patients hospitalized in the Infectious and Pneumo-Tuberculous Disease Hospital in Timișoara, for infectious pathologies other than HIV/AIDS. **Results:** The cumulative prevalence identified was 2.26%, determined by the discovery of 4 asymptomatic cases – 2 infants with 2nd degree dystrophy, 2 teenagers with severe mental retardation, and a symptomatic case of one infant hospitalized for invasive acute enterocolitis. **Conclusions:** Although the prevalence is low, the characteristics of the 5 cases show the importance of asymptomatic carrying in the general population, as well as the role of interhuman transmission, including in daytime centres or medical units.

**Keywords:** Cryptosporidium, prevalence, infants, carrying

## INTRODUCTION

The *Cryptosporidium* genus of the Coccidiasina subclass includes 10 species, validated based on their morphological features, host specificity, and molecular biology studies. Most of the human isolates belong to the same species, namely *Cryptosporidium parvum*, but recent international molecular biology studies have shown that humans can also be infested with *C. hominis*, *C. meleagridis*, *C. felis*, and *C. muris*.

The cases of human cryptosporidiosis are universal on the inhabited continents, with a seasonal variation manifested in higher prevalence rates in the warm and damp season. The parasitic disease affects both sexes, with an age group distribution depending on faecal-oral exposure, observance of personal and collective hygiene rules, and immunity development. In developing countries, the highest prevalence rates are found in preschool children, while in industrialized countries, exposure to contaminated water affects all age groups.

Transmission is direct – by sexual intercourse (in the case of homosexual HIV-positive patients) or indirect – simple or cross-transmission. It may occur through the consumption of contaminated food (no pasteurized milk, apple juice, chicken meals, raw vegetables), contact with domestic or synanthropic animals [1]. However, water is the main transmission route. Both *C. parvum* and *C. hominis* are transmitted through faecal contaminated water, especially used water coming from the animal farming sector. Over 50 cryptosporidiosis epidemics have been documented as water-transmitted, the largest being recorded in Milwaukee, with over 600 cases confirmed by coproparasitological examination and 403,000 patients with symptomatic acute diarrhoeic disorder, following the contamination of one of the

city's two water treatment plants. After the 1990's, there was a rise in the number of cryptosporidiosis epidemics associated with contaminated recreational water – public pools, parks, lakes, rivers, fountains [2].

*Cryptosporidium* sp. is a human opportunistic parasite affecting both immunodepressed and immunocompetent subjects. Actually, the whole cryptosporidiosis clinic is divided in:

- **Affecting immunocompetent subjects in developed countries** – recorded through water contamination, contact with animals or while travelling, in the form of an acute diarrhoeic disorder, of a non-invasive pattern, accompanied by nausea, vomiting, abdominal pain, and fever. The incubation time is 1 week (ranging from 1 to 30 days) and the onset period is between 1 and 10 days. The body's resistance to this category leads to a large number of asymptomatic or oligosymptomatic infections, which explains the higher frequency of seroconversion versus the clinical diagnosis of the disease [3].
- **Affecting children in developing countries**, especially in Africa, Asia, South America – manifested as an acute disease with watery diarrhoea, mucus, diarrhoea persisting over 14 days, dystrophy, retardation in the physical-psychological development or premature death. Children over 1 year of age can recover the growth deficit, but those under 1 year of age often do not. Even an asymptomatic infection at this age can have long-term consequences.
- **Affecting immunocompromised persons** – the HIV infection is most often associated with cryptosporidiosis. Clinical manifestations vary, from a self-limited disease, compared with immunocompetent

persons, to chronic diarrhoea, associated with weight loss, malabsorption, and even a watery diarrhoea aspect of the choleriform type. The pathology is often mistaken for microsporidiosis, disseminated *Mycobacterium* sp. infections, or colitis with a cytomegalovirus. Moreover, respiratory conditions can be associated – bilateral lung infiltrates with dyspnoea or biliary infiltrates – non-lithiatric cholecystitis, sclerotic cholangitides, pancreatitides in subjects with severe immunosuppression. The optimization of retroviral treatment has dramatically reduced the incidence of cryptosporidiosis in HIV-positive patients. Cases have also been described in patients with primary immunosuppression, organ transplants, oncological pathology, diabetes mellitus.

The identification of *Cryptosporidium* sp. as an etiological cause of a severe pathology which can contribute to the death of an HIV/AIDS infected patient has led to a disregard of the prevalence of the parasitosis in the immunocompetent and asymptomatic population [4].

Even though the prevalence of human cryptosporidiosis in the extra-epidemic periods is low – 1-2% – for Europe and the infection rate of people with acute diarrhoeic diseases is 2.2% for industrialized countries and 8.5% for developing countries, the epidemiological potential is not negligible, due to:

- the many potential hosts for zoonotic transmission (cattle, sheep, horses, pigs, dogs, cats, chickens, turkeys, mice, rats);
- the possibility of transmitting oocytes, which can last in the ambient environment and can stand usual chlorination doses;

- the possibility of human to human transmission in daytime medical centres or nosocomial transmission in regular medical centres;
- the existence of asymptomatic infections (of the bearer type);
- and the epidemic potential by transmission through water or food [5,6].

The introduction of PCR diagnostic methods has increased the frequency. Thus, in a surveillance study on a wide area in the US, Amin O.M. identifies a rate of 4.2% [7]. In Brazil, Pereira S.J. and colleagues found oocysts in 18.7% of the acute diarrhoeic disorders in children, and in Uganda, in 2003, the team led by Tumwine J.K., documented the involvement of *Cryptosporidium* sp. through PCR in 22% of the acute diarrhoeic disorders [8, 9]. The serological surveillance using the ELISA method shows a seroprevalence of 30% for adult Americans, 64% for those in Latin America, reaching up to 75% among Chinese children and 90% among children in Brazil over 1 year of age [2].

This study has set out to investigate, for the first time, the prevalence of human cryptosporidiosis in different population segments, in the S-W of Romania, a territory under the care of the Timișoara Regional Center of Public Health. This is part of the national project no 51-034/2007: "Possible epidemiological chains and means of controlling cryptosporidiosis in animals and humans".

## MATERIAL AND METHOD

A descriptive, transversal study was carried out during May-December 2008, comprising 221 subjects structured in 4 groups:

- I. 51 babies hospitalized in the Dystrophic Unit of the "Louis Turcanu" Emergency Clinic for Children, Timișoara;
- II. 49 children receiving residential care within the Neuropsychiatric

Recovery and Rehabilitation Complexes of Lugoj and Timișoara;  
**III.** 51 children belonging to the infantile population requesting the services of the private clinical laboratory Bioclinica S.A., for a presumptive diagnosis of Giardiasis;  
**IV.** and 70 inpatients at the Infectious and Pneumo-Tuberculous Disease Hospital in Timișoara, for infectious pathologies other than HIV/AIDS, of which 49 adults and 21 children.

The examination of spontaneously discharged faecal matter, taken to the laboratory within 24 h, was done through direct microscopy and modified Ziehl-Neelsen coloration, but also by the ELISA method, using BIO X Cryptosporidium parvum ELISA kits (Bio K 070 Bio-X Diagnostics, Belgium).

## RESULTS

The main epidemiological and clinical characteristics of the 4 subject samples are shown in Figures 1-4.

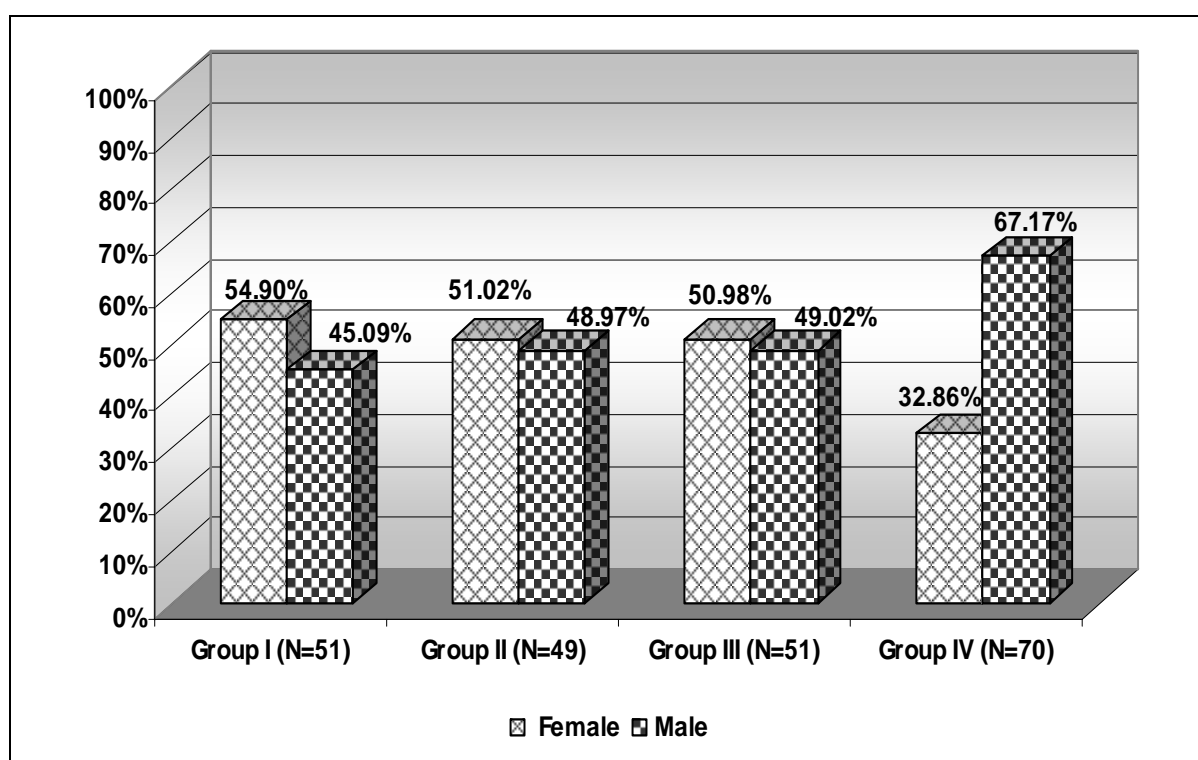


Figure 1. Sex distribution of the subjects

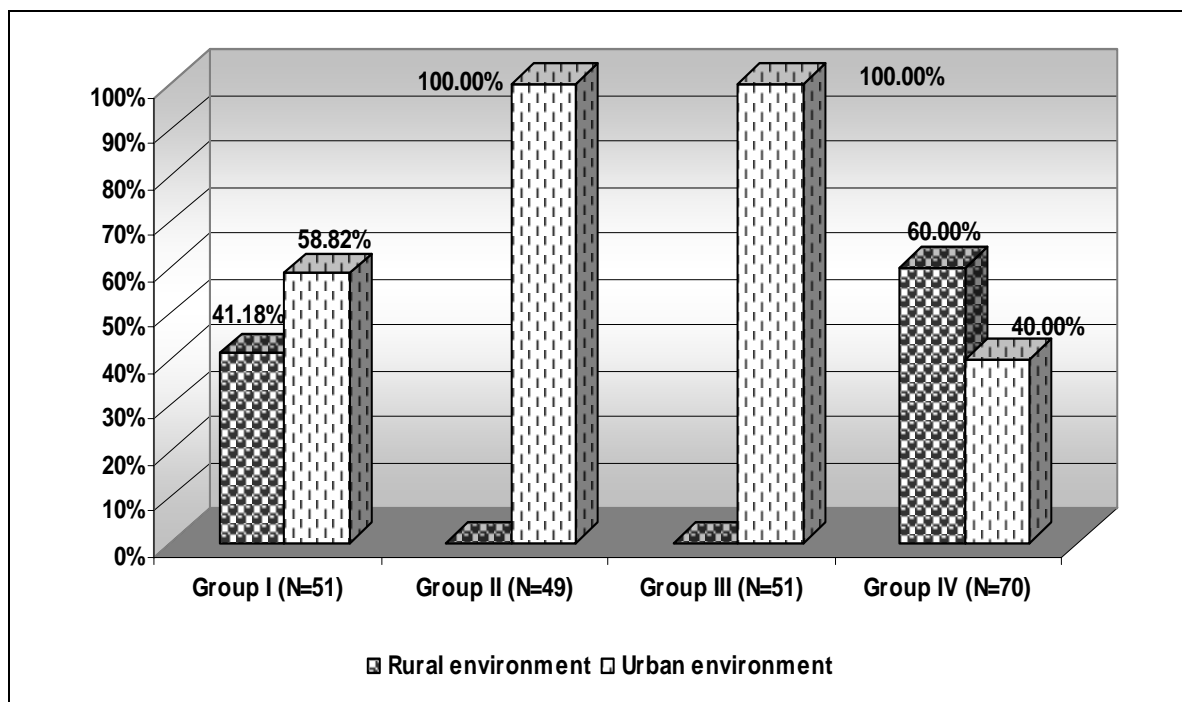


Figure 2. Distribution of the subjects according to their environment of origin

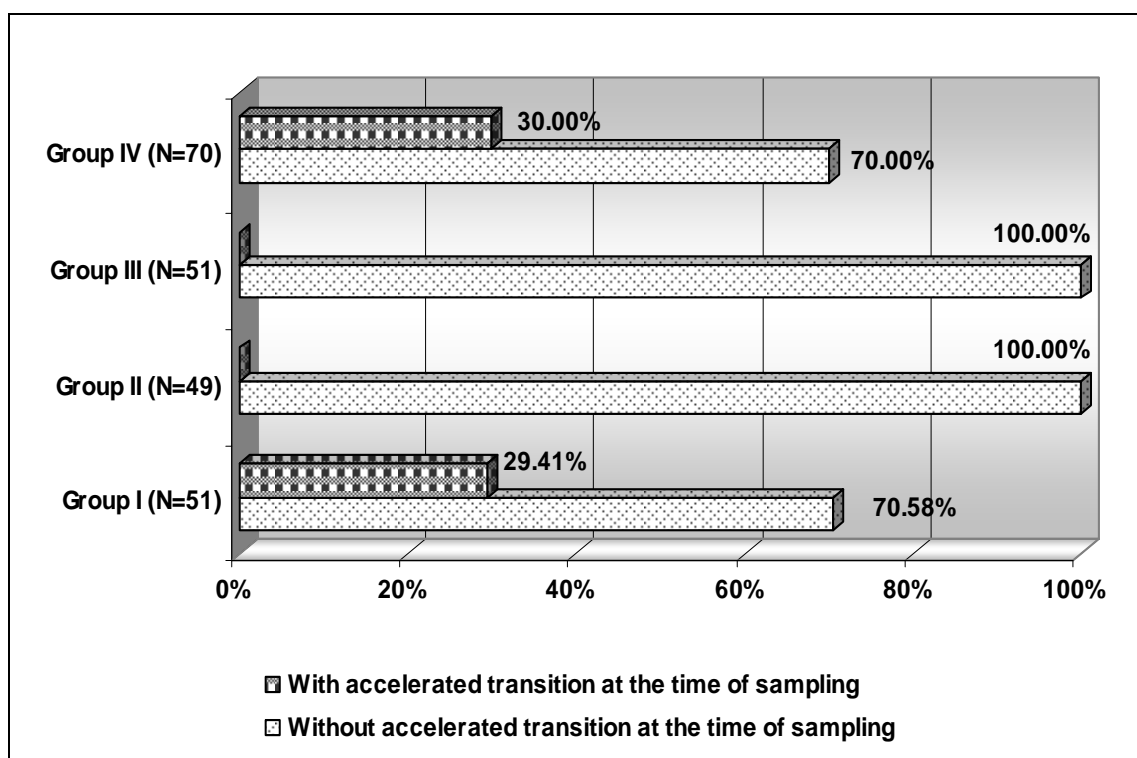


Figure 3. Subject distribution depending on the symptomatology

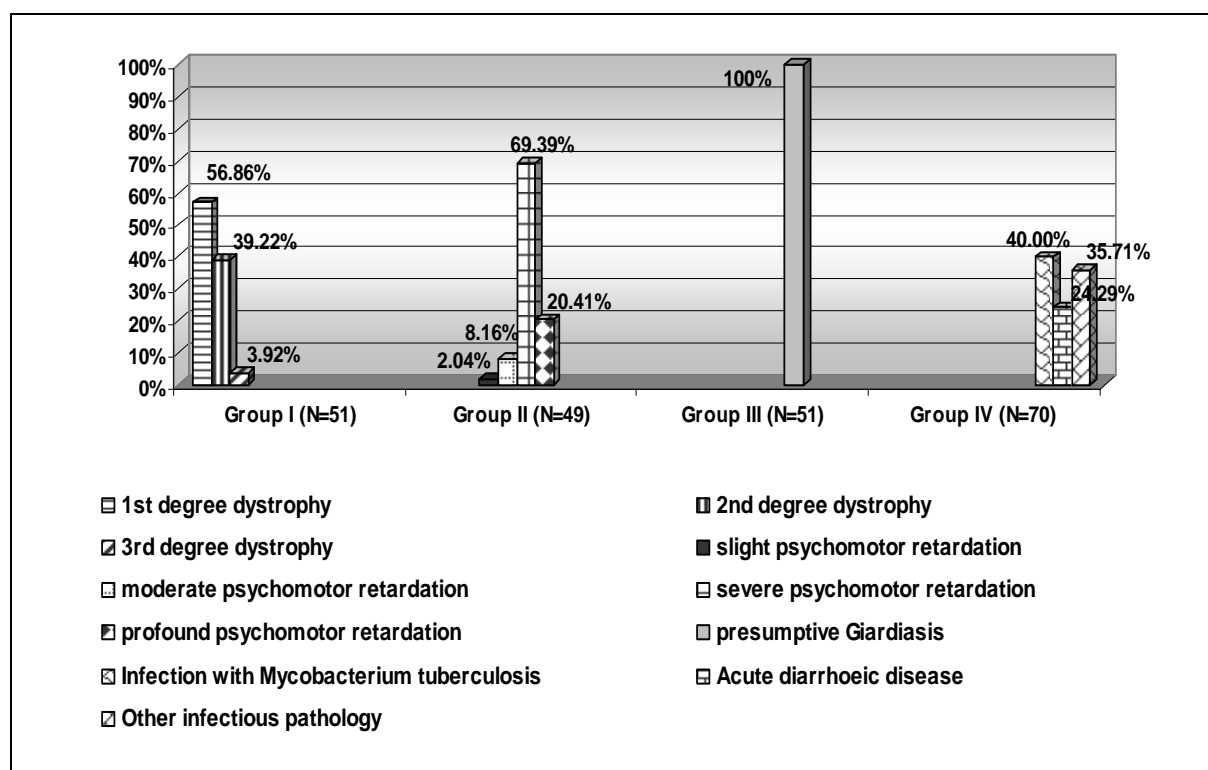


Figure 4. Patient distribution according by basic pathology

Of the 221 subjects included in the study, 4 positive cases for cryptosporidiosis were identified, with the following characteristics:

**In group I** (with average age = 6.68 months) 2 infants were identified (one male and one female), born in Timișoara at full term, weighing 3000 and 3,400 g at birth respectively, but displaying 2nd degree dystrophy and deficiency anaemia at the time of the sampling (the age of 2 and 4 months, respectively). In addition to the age-generated immunosuppression and the protein-caloric deficit, both showed super-added pathology – congenital infection with *Treponema pallidum* and hypoxic encephalopathy at birth, respectively. The infants were asymptomatic, with no accelerated transition at the time of the sampling, artificially fed, no contact with their family, and located in different rooms.

**In group II** (average age = 10.02 years) two cases were identified, in 2 male teenagers, 14 and 15 years of age, with severe mental

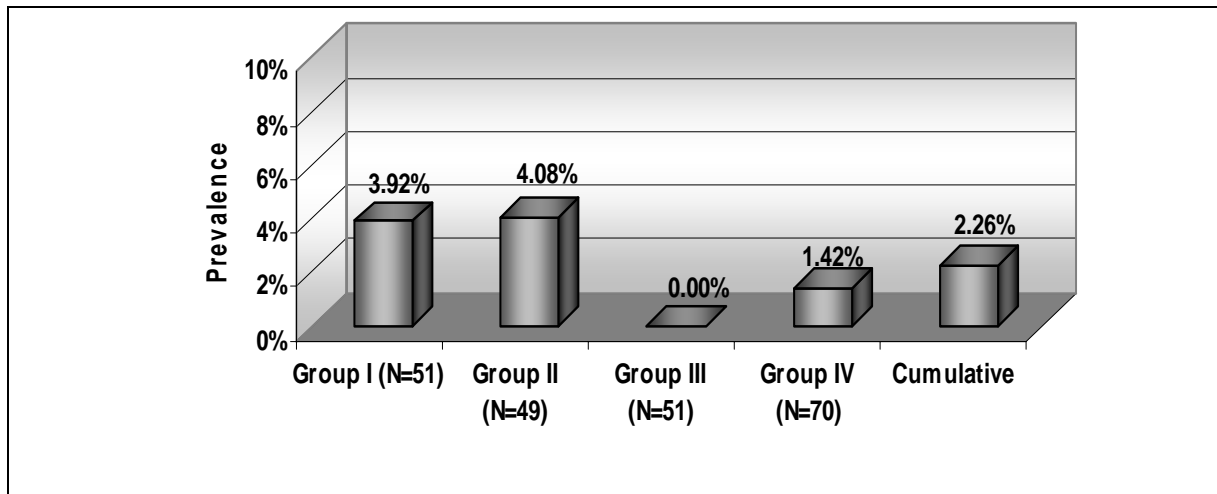
retardation, with no immunosuppressive pathology, coming from a closed community – the Neuropsychiatry Recovery and Rehabilitation Complex in Lugoj, asymptomatic at the time of the sampling, roommates.

**In group III** (average age = 2.11 years) consisting only of children with a presumptive diagnosis of Giardiasis, no cryptosporidiosis cases were identified.

**In group IV** (average age = 29.22 years), 1 male infant was identified, 3-month-old suckling, normotrophic, coming from the rural environment, fed artificially, hospitalized with the diagnosis of acute enterocolitis of the invasive type; acute dehydration syndrome 5%, with no other causes of immunosuppression than the young age.

Considering no epidemic peaks of diarrhoeic disease were recorded during the summer - autumn of 2008-2009 on the territory in the care of the Timișoara

Regional Centre of Public Health, the (Figure 5).  
cumulative prevalence was 2.26%



**Figure 5. The prevalence of human cryptosporidiosis in the groups studied**

## DISCUSSION

Human cryptosporidiosis, a disease with a similar epidemiology to giardiasis, has many known risk factors:

- Young age (infants, small children) – through various mechanisms: diaper wearing, thumb-sucking, dental eruption, weaning, reduced infection control possibilities;
- Immunodeficiency – HIV/AIDS infection, another congenital or acquired immunodeficiency, malnutrition;
- Contact with animals – during recreational activities, in the living environment;
- Professional exposure – in animal farming, veterinary medicine, care staff, in medical laboratories;
- Contact with a person clinically or sub clinically infested with *Cryptosporidium* sp. parents, child-care staff, people in the family;
- Intake of insufficiently cooked food – no pasteurized milk, insufficiently cooked meat;
- Exposure to untreated or insufficiently treated water – consumption of contaminated water, contact with surface water (rivers, lakes, puddles), recreational water (pools, improvised fountains);

- Travelling from developed to underdeveloped countries, from the urban to the rural environment;
- Precarious hygiene – consumption of unsuitable water and food, insufficient vector control, etc [3,5,10,11].

This study focused especially on the infant and child population because it cumulates several risk factors, also highlighted through the analysis of the possible ways of transmission. Thus, in the case of the 2 infants in group 1, the cause was indirect transmission from the asymptomatic healthcare staff, due to the increased receptivity as a result of the precarious immunity characterizing small age and dystrophy. The cases in group II occurred either by contact with the stray animals (dogs, cats) in the complex yard or by indirect human to human transmission, from the contaminated asymptomatic or oligosymptomatic child-care staff or from a roommate, in the context of severe personal hygiene deficiencies, worsened by the mental handicap or the collective hygienic deficits. The case in group IV indicates the possibility of transmission either by the consumption of contaminated milk/water or by indirect transmission from asymptomatic

family members, on the background of the precarious immunity due to the young age.

The cumulative prevalence rate identified was 2.26%, comparable with the one found by Lazăr L. and Rădulescu S. following the investigation of 481 coproparasitologic examinations – 2.48% [12]. A team of the Institute of Public Health in Iași studied the aetiology of acute diarrhoeic disorders in hospitalized children and determined 4 cases of cryptosporidiosis (3.2%) [13]. In 1996, a team led by Brannan D.K. investigated the prevalence of parasitic intestinal diseases on a sample of 92 institutionalized Romanian children and identified a high rate of 12% of *C. parvum* among the parasitized subjects [14]. Cojocaru S. and Cojocaru R. at the "Carol Davila" University of Medicine and Pharmacy identified a cryptosporidiosis prevalence of 1.8% among 167 HIV-positive children who died between 1990-1997 [15].

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## CONCLUSIONS

1. 5 sporadic cryptosporidiosis were identified, 4 of them asymptomatic, coming from the urban environment, and just one symptomatic, coming from the rural environment, all in subjects with existing risk factors;
2. The cumulative prevalence identified was 2.26%;
3. Although the prevalence is low, the characteristics of the cases identified highlight the importance of asymptomatic carrying in the general population, as well as its role in the human to human transmission, including the nosocomial one;
4. The young age, contact with a clinically/sub clinically infected person and precarious sanitation favoured the occurrence of human cryptosporidiosis cases.

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# THE PREVALENCE OF MYCOTIC INFECTIONS IN ALLERGIC PATIENTS WITH ENT PATHOLOGY

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## REZUMAT

**Obiectiv:** evaluarea distribuției speciilor de fungi din produse patologice ale pacienților din sfera ORL și testarea sensibilității lor la preparate antifungice. **Material și metodă:** Au fost recoltate un număr de 602 produse patologice (exudate faringiene, nazale, secreții otice, secreții parotidiene) de la pacienți spitalizați sau din ambulatoriu. Identificarea fungilor s-a efectuat în paralel pe: API Candida (BioMerieux France) și galerii Candifast (ELITech France), iar testele de sensibilitate prin metoda difuzimetrică clasică și galerii Candifast. **Rezultate:** Din cele 602 produse patologice recoltate în perioada mai sus menționată, au fost izolate 82 de tulpini de fungi (13,62%). Patogenii fungici cel mai frecvent izolați au fost: *C.albicans*, *C.tropicalis*, *A.niger*, *C.famata*, *C.parapsilosis* și *C.kefyr*. Majoritatea tulpinilor de *C.albicans* au fost rezistente la Amphotericină B, precum și la 5 Fluorocitozină. **Concluzii:** *C.albicans* reprezintă specia fungică cel mai frecvent izolată în rândul pacienților investigați. Ambele sisteme de identificare utilizate au fost la fel de performante, dar performanța testelor de sensibilitate a fost mai bună pe galeriile Candifast decât prin metoda difuzimetrică clasică.

**Cuvinte cheie:** otite externe micotice, *C.albicans*, galerii Candifast, antifungigramă

## ABSTRACT

**Aims:** to evaluate the distribution of fungi species in pathological products of ENT patients and to test their sensitivity to antifungals. **Material and Methods:** A total of 602 pathological products (throat swabs, nasal secretions, ear, parotid gland secretions) were collected from hospitalized or ambulatory patients. Identification of fungi was carried out in parallel on the API Candida (BioMerieux France) and Candifast galleries (ELITech France) and susceptibility testing by disc diffusion method and Candifast classical galleries. **Results:** Of the 602 pathological products collected in the period mentioned above, 82 strains of fungi were isolated (13.62%). The most frequently isolated fungal pathogens were *C.albicans*, *C.tropicalis*, *A.niger*, *C.famata*, *C.parapsilosis* and *C.kefyr*. Most strains of *C.albicans* were resistant to amphotericin B and 5 Fluorocytosine. **Conclusions:** *C.albicans* is the fungal species most frequently isolated in patients investigated. Both of the identification systems

used were equally accurate, but the performance of the sensitivity tests was higher on the Candifast galleries than on the classical disk diffusion method.

**Keywords:** fungal external otitis, *C.albicans*, Candifast galleries, antifungigram

## INTRODUCTION

Fungi occurred 400 million years before mankind. Evolution has provided us with a complex system of barriers that protect us from attacks of microscopic fungi.

Species of yeast and fungi filamentoti became symbiant, residents or floating microbiota of our coatings. The most common mycosis are fungal dermatophytosis, micetoam and mucocutaneous candidosis [1].

In the USA, *Candida* spp. became the fourth most common cause of systemic infections in intensive care units, and the National Nosocomial Infections Surveillance System reported 30,477 nosocomial fungal infections for 1980-1990, with an increase in prevalence from 2.0 to 3.8 infections per 1,000 discharged patients. If we refer strictly to nosocomial opportunistic mycoses, the mortality rate may reach 70-80% of patients [2].

Research has shown the presence of various fungi in the normal ear, as well as in the infected ear. Numerous clinical and laboratory studies support the first hypothesis, the most common strains identified being *Candida* spp. and *Aspergillus* spp.[3].

Fungal external otitis are fungal infections of the external ear canal (EEC) skin. The complications they induce in the middle ear are rare, and pose no risk of functional and vital problems. This is a frequent disease worldwide, with incidence varying according to geographic area, climate (temperature, relative humidity), season and living environment (urban, rural) [4].

*C.albicans* is present in high proportion of healthy individuals, as a commensal germ in many sites of the oral ecological niche and

beyond. Asymptomatic colonization rate may reach 50% of healthy individuals [5].

When the host is subjected to aggressive intervention of various factors which destabilize its homeostasis and induce detrimental reactive changes, *C.albicans* displays its prompt pathogenic factors causing infections with various clinical aspects.

It is thus demonstrated the opportunistic nature of this cosmopolitan species, a fact underlined by the axiomatic assertion that "candidosis is the disease of the diseased" [5]. Other species of the *Candida* genus, less important in human pathology are: *Candida tropicalis*, *Candida kefyr* (*C. pseudotropicalis*), *Candida krusei*, *Candida parapsilosis*, *Candida glabrata*, *Candida famed*, *Candida guilliermondii*.

New technologies and medications used to monitor severe patients are more and more aggressive on the anti-infectious barriers and often require lengthy hospitalization. This cumulates risk factors for opportunistic systemic mycoses: cytostatic drugs, immunosuppressive drugs, transplant surgery, frequent and prolonged vascular catheterization [6].

Widespread use of antibacterial antibiotics promotes fungal colonization of catheters and coatings, while the use of antifungal antibiotics like fluconazole promotes colonization with non-albicans *Candida* species, more resistant to azoles [2].

## MATERIAL AND METHOD

Clinical material comes from patients of the ENT ambulatory department in Timisoara.

Samples were collected in the ambulatory, and the identification of isolated microorganisms was performed in the

Bacteriology Department of ENT Timisoara. Confirmation of identification and susceptibility testing to antifungal chemotherapy was performed in the Microbiology laboratory of the Victor Babes University of Medicine and Pharmacy, Timisoara.

Between January 1, 2008 - October 31, 2009 a total of 602 pathological products (throat swabs, nasal swabs, ear discharge, lingual secretions, parotid secretions) were collected from hospitalized or ambulatory patients with ENT pathology, to assess the distribution of fungi species, and to test the resistance to antifungals of the isolated strains.

Confirmation of identification and susceptibility testing to antifungal chemotherapy was performed in the Microbiology laboratory of the Victor Babes University of Medicine and Pharmacy, Timisoara.

Identification of fungi was carried out in parallel on the API Candida (BioMerieux France) and Candifast galleries (ELITech France), while susceptibility testing was

performed by classical disc diffusion method and Candifast galleries.

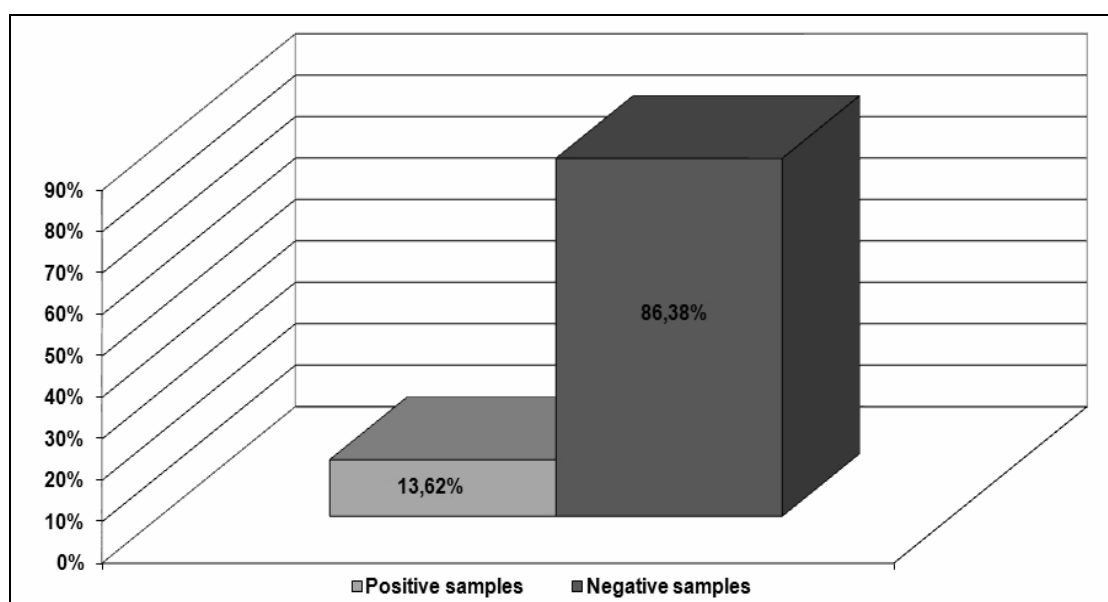
National and international studies in the field recommend, where possible, the replacement of the classical disk diffusion method with other methods:

- Microdilutions - colorimetric assessment
- Microdilutions - MIC spectrophotometric assessment
- RPMI - agar diffusion discs / E test
- API strips (5FC, amphotericin, fluconazole, itraconazole, voriconazole)
- Vitek 2 Compact Cards (amphotericin, fluconazole, itraconazole, voriconazole).

In this regard, the Candifast system used for this study meets the requirements of the colorimetric assessment microdilutions method. Accuracy was high (98.5% accordance with FUNGITEST-Biorad tests, ATB Fungus galleries and the BioMerieux VITEK system).

## RESULTS

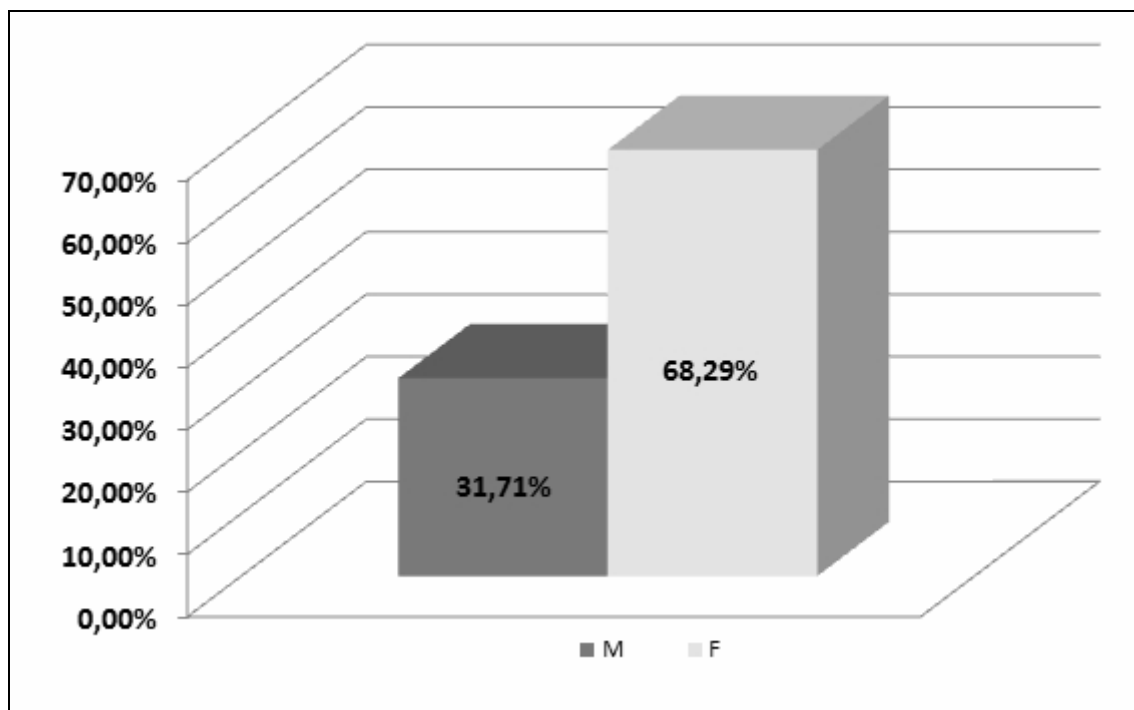
Of the 602 pathological harvested products, 82 (13,62%) strains of fungi were isolated (Figure 1).



**Figure 1. Distribution of positive samples from patients with ENT pathology**

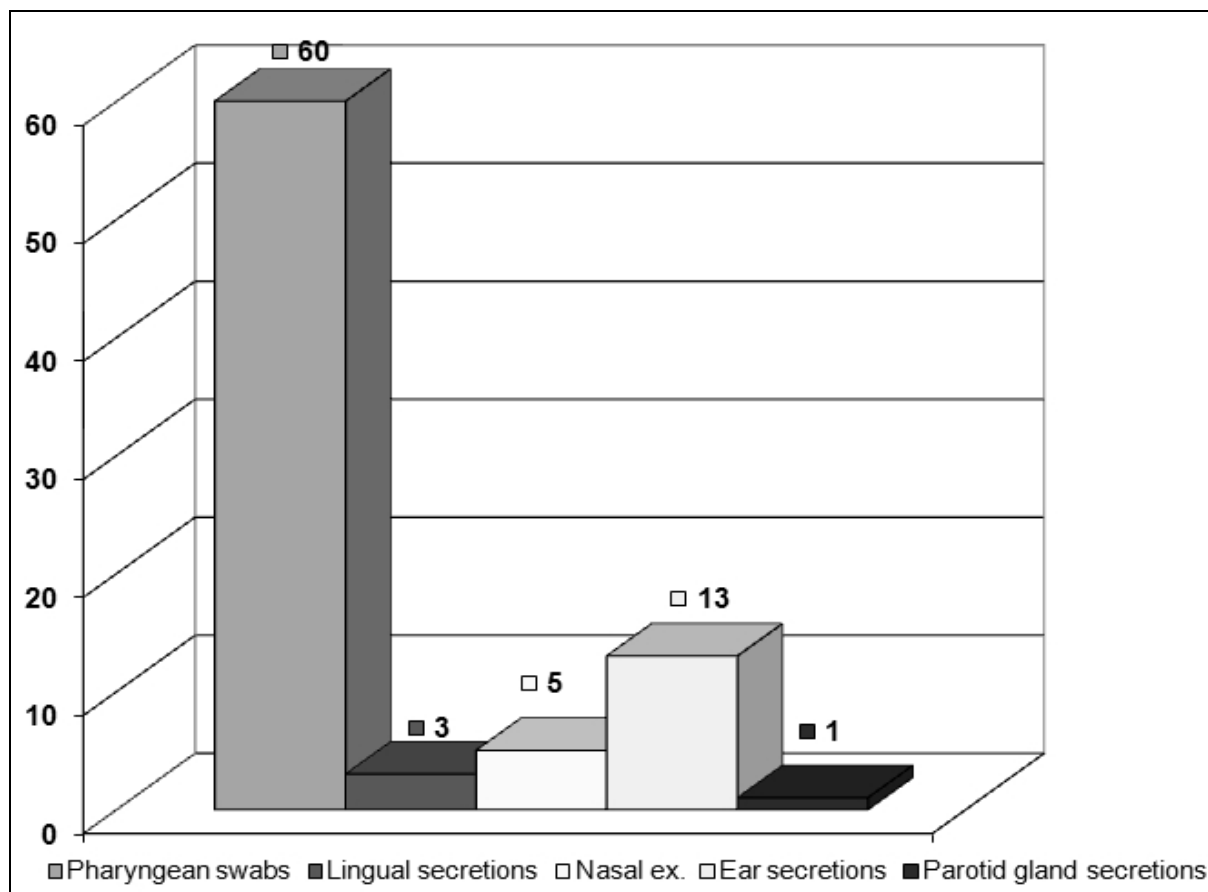
**Table 1. Gender distribution of patients**

DEPT.	MALE (No)	MALE (%)	FEMALE (No)	FEMALE (%)	TOTAL
ENT	56	68,29	26	31,71	82

**Figure 2. Gender distribution of patients**

Numerical differences between the sexes (Table 1, Figure 2) requires further research of the local and general immunity decrease, more pronounced in men than in women,

linked to a number of contributory factors such as physical effort, observance of a food and rest regimen in accordance with activity type, drinking or smoking habits.



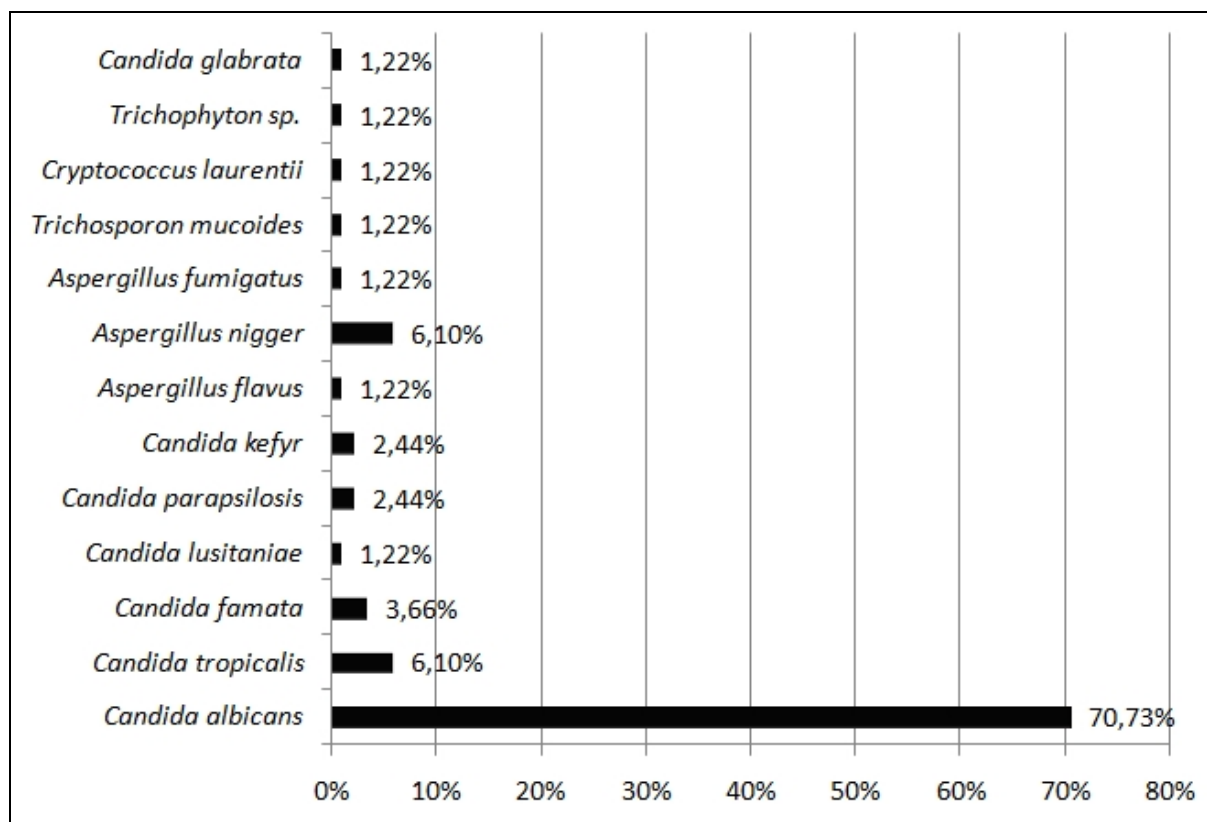
**Figure 3. Distribution of pathological products**

We can see from Figure 3 that most of the pathological products collected were 60 pharyngeal swabs, followed by 13 ear

secretions. At considerable distance ranged nasal exudates, lingual secretions and parotid gland secretions.

**Table 2. Distribution of isolated species**

Fungal species	Number	Percent %
<i>Candida albicans</i>	58	70,73
<i>Candida tropicalis</i>	5	6,09
<i>Candida famata</i>	3	3,65
<i>Candida lusitaniae</i>	1	1,21
<i>Candida parapsilosis</i>	2	2,43
<i>Candida kefyr</i>	2	2,43
<i>Aspergillus flavus</i>	1	1,21
<i>Aspergillus nigger</i>	5	6,09
<i>Aspergillus fumigatus</i>	1	1,21
<i>Trichosporon mucoides</i>	1	1,21
<i>Cryptococcus laurentii</i>	1	1,21
<i>Trichophyton sp.</i>	1	1,21
<i>Candida glabrata</i>	1	1,21
<b>Total</b>	<b>82</b>	<b>100,00</b>

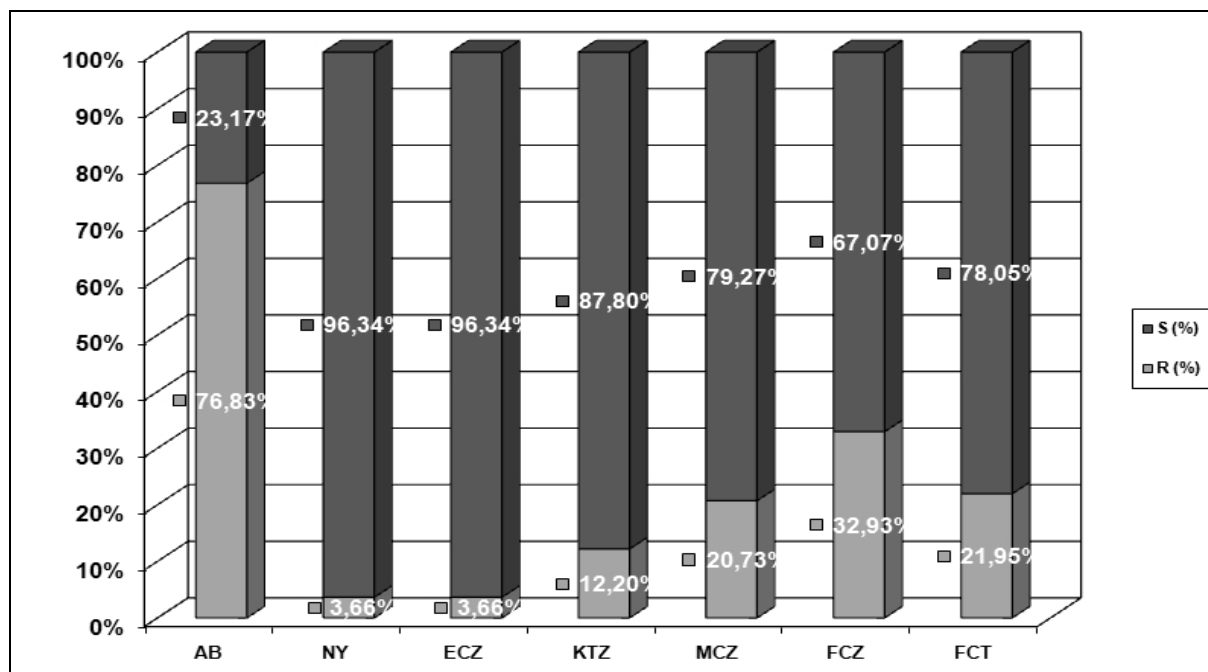


**Figure 4. Distribution of isolated species**

The most frequently isolated species from the ENT department was *Candida albicans* (70.73%), followed by *Candida tropicalis* (6.09%) and *Aspergillus niger* (6.09%) (Table 2, Figure 4).

From the total of 72 strains, 41 strains of *Candida sp.* had microbial associations (1

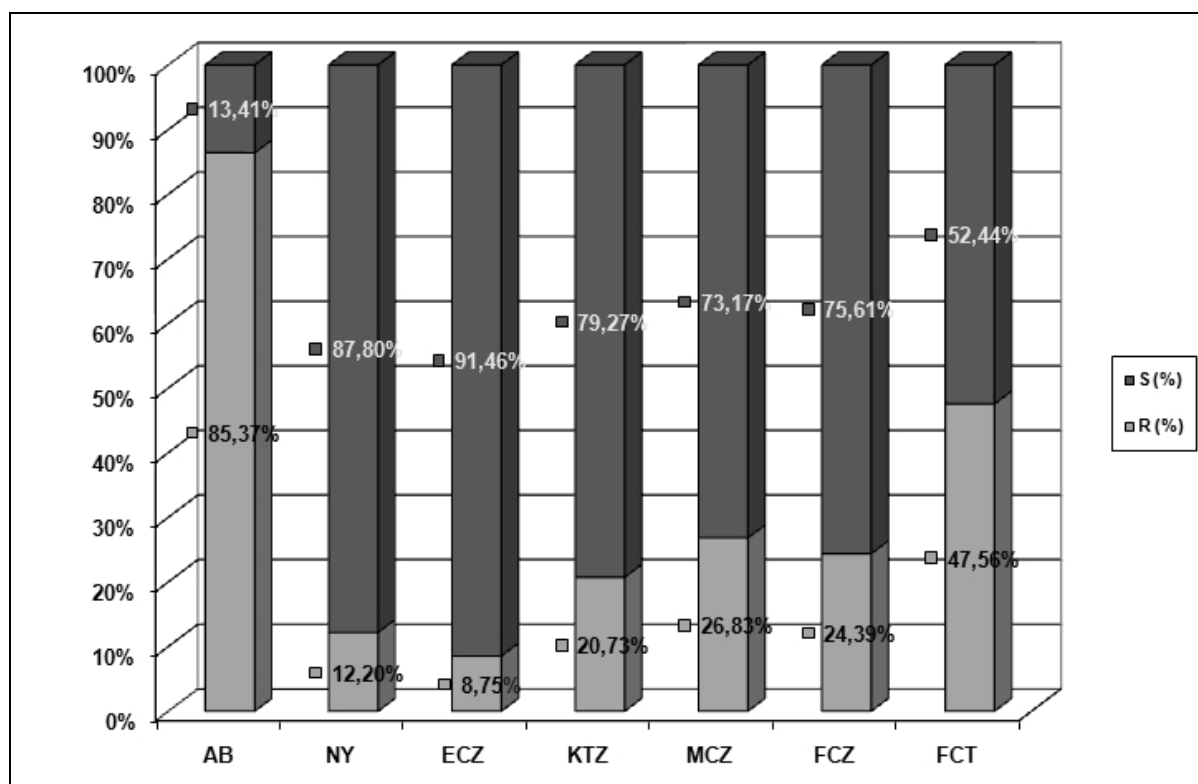
strain was associated with *S.aureus* and *Pseudomonas sp.*, 1 strain with *S.aureus* and *Klebsiella oxytoca*, 1 strain with *S.aureus* and *E. coli*, 19 strains with *S. aureus*, 14 strains with *E. coli*, 3 strains with *Serratia marcescens*, 1 strain with *Pseudomonas sp.*, and 1 strain with *E.cloacae*).



**Figure 5. Antifungal resistance. Dilution method - Candifast**

Of the 82 strains of fungi, the highest resistance were presented to AB (Amphotericin B), followed by resistance to 5 - FC (5 - Fluorocytosine) (Figure 5, Figure 6).

Only six strains of *Candida albicans* and one strain of *Candida parapsilosis* showed sensitivity to all antifungals.



**Figure 6. Antifungal resistance. Diffusion method – Antifungigram**



Through the disk diffusion method, only one strain of *Candida albicans* and one strain of *Candida parapsilosis* showed sensitivity to all antifungals.

Note that none of the strains showed resistance to all seven antifungals tested.

## DISCUSSIONS

Fungal external otitis are frequently diagnosed diseases, usually based only on clinical examination by the otolaryngologist specialist. Although pruritus was repeatedly cited as a common symptom, there are studies that reveal it in only 23% of cases [7].

Numerical differences between genders (fungal external otitis is more common in men than in women, 68.29% vs. 37.71%) seems at first difficult to explain, because the macro and microclimate conditions are generally similar.

The saprophytic flora represented by a large variety of pathogenic bacteria and fungi becomes pathogenic when the balance between them is broken by the contributory factors and risk factors, local or general.

More common ethyologic agents identified and confirmed in this study were *C.albicans*, *C.tropicalis*, *A.niger*.

*Candida albicans* remains the most commonly encountered fungal pathogen among hospitalized patients. In addition, several reports documented an increasing frequency of non-*albicans Candida spp.* It was proposed that these shifts may result from selective pressures imposed by increased utilization of antifungal agents such as azoles. It is clear, however, that antifungal susceptibility patterns and frequencies with which various *Candida spp.* are isolated vary considerably among institutions and even among units in the same institution [8].

Clinical resistance to antifungal agents was rare until the late 1980s, with only few isolated cases in patients with chronic mucocutaneous candidosis. The incidence of fungal infections, including resistant infections, has increased during the last 10 years, reflecting increased incidence of immunodeficiency associated with cancer chemotherapy, organ and bone marrow transplant, and the HIV epidemic. Although the prevalence of drug resistance in fungi is below that observed in bacteria, many mycologists consider that selective pressure will, over time, lead to more widespread resistance [9].

There is considerable knowledge concerning the clinical, biochemical and genetic aspects of resistance to antifungal agents. However, sample selection and inadequate information regarding denominators limit current epidemiological data. At present, there is no established national surveillance scheme to identify changes in antifungal susceptibility that are clearly linked to over-the-counter (OTC) medicine use. In addition, there are no large-scale epidemiological surveys of the extent of antifungal drug resistance in the published world literature.

Given that medical practice has shown so far that antifungal therapy is not effective enough in all cases of otomycosis, it is necessary that every patient with this pathology to be properly and fully evaluated, locally and systemically [10].

The purpose of this study was to evaluate the distribution of species of fungi in patients with ENT pathology, and to test their resistance to antifungals.

Identification of fungi was carried out in parallel on the API Candida (BioMerieux France) and Candifast galleries (ELITech France) and susceptibility testing by disc diffusion method and Candifast classical galleries.

While fungi identification posed no special problems (as both of the identification systems used were equally accurate), in terms of sensitivity testing the performance was higher on the Candifast galleries than on the classical disk diffusion method.

## CONCLUSIONS

1. *C.albicans* is the most frequently isolated fungal species in the allergic ENT patients investigated.
2. Fungi identification techniques have improved and have a positive impact on antifungal therapy.

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3. In the positive pathological products from the ENT department, we have identified other microbial agents besides *Candida albicans*. The combination of *Candida albicans* with *S. aureus* was most common, followed by *Candida albicans* and *E. coli*. *Candida albicans*, *E.coli* and *S.aureus* was the largest association.
4. Most *C.albicans* strains were resistant to Amphotericin B and 5 Fluorocytosine.
5. Both identification systems have a similar performance, but in terms of susceptibility testing, Candifast system performances are superior.
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# THE EVALUATION OF SCHOOL AND INTELLECTUAL PERFORMANCES OF PUPILS

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## REZUMAT

*Scopul acestui studiu, în contextul unei investigații mai ample, a constat în determinarea numerică a subiecților din lotul selectat care prezintă valori medii sau cu 2, 3, 4, 5, 6 SD cu + sau - față de medie ( $M \pm SD$ ). Lotul este constituit din 160 de elevi, 80 de nivel gimnazial, 80 de nivel liceal, cu câte 20 de subiecți pentru an de vârstă (de la 11 la 18 ani). Repartiția pe sexe a fost aleatorie. Acestora li s-au aplicat câteva teste psihologice uzuale (de aptitudini și inteligență). De asemenea, a fost identificată situația la învățătură corespunzătoare anului școlar anterior absolvit. S-a constatat că, atât la situația școlară, cât mai ales la testele psihologice, majoritatea subiecților se situează la valori medii, dar și existența unui număr apreciabil cu valori sub medie, în timp nici un subiect nu se situează peste medie. Diferențierea pe sexe nu este semnificativă.*

**Cuvinte cheie:** elevi, aptitudini, inteligență, situație școlară

## ABSTRACT

*The object of this study, within the context of a more ample investigation, consisted in the numeric determination of the subjects from the selected sample who present average values or 2, 3, 4, 5, 6 SD over or below the average ( $M \pm SD$ ). The sample consists of 160 pupils, out of which 80 from secondary school and 80 from high school, having 20 subjects for each year of age (from 11 to 18 years old). The distribution in sexes was random. Some usual psychological tests (aptitudes and intelligence) were applied to these. It also was identified the study situation corresponding to the previous graduated school year. It was observed that, on study situation, as well as especially on psychological tests, most of the subjects have average values, but also was observed the existence of a sensible number of values below the average, while no subject is situated over the average. The difference in sexes is not significant.*

**Keywords:** pupils, skills, intelligence, school situation

## **INTRODUCTION**

The human as bio-psycho-social being is subjected to some biological, mental and social transformations, both qualitative and quantitative, until the reach of a functional state called maturity. All these transformations were reunited under the general term of “development”. Thanks to the continuous change and transfiguration of its mental life, it can be asserted that the human being is almost never identical to itself [1].

Within the UN reports regarding the institutionalized instruction and education as a stimulation factor for the mental and intellectual development of children and teenagers, it is considered as especially opportune the early start of the process of “socializing” in terms of acquisition of knowledge and rules on how to use this knowledge, how to digest the rules, the values of the society, the rules of behavior in society, by the assimilation of value regulations of the social group. It is considered just as important the continuity of this form of “apprentice” for the normal development of children and young people.

It was established that the neurological and mental development of children is positively influenced if the knowledge functions are stimulated during the first years of life and that a very gifted child on birth will have a slowed neurological and mental development if his life environment does not offer him conditions of mental and intellectual stimulation.

The efficiency of school preparation is conditioned by multiple factors: the family, the cultural and educational environment, the health status, the neurological and mental development status, the motivation, the social environment, etc.

As it regards the level of neurological and mental development, the examination of children through psychological tests, as an

application for individual cases of the methods of the experimental psychology, has a long history.

The standardization of tests, placing the subjects under identical conditions, gives the possibility of quantification. However, this quantification supposes a reference method and a standard which is “a standard used for classifying the individual values compared to the ensemble of characteristic values of a population” [2-4].

The process of child formation as a social individual must allow, among others, the development and the acquisition of mental abilities, general knowledge and social skills which are necessary in collectivity [5,6].

The goal of the present study is that of identifying their existence as well as their evolution from one school stage to another.

## **MATERIAL AND METHOD**

The study was conducted on children of different ages, between 11 and 18 years, who study in secondary schools and high schools in Craiova. All the subjects in number of 160, of both sexes, were structured into 8 groups of 20 pupils, out of which 4 groups with ages of 11, 12, 13 and 14 years old (secondary school pupils) and other 4 groups with ages of 15, 16, 17 and 18 years old (high school pupils).

To these pupils there were applied some abilities tests, out of which the most frequent used Kraepelin, Praga, Platonov, as well as the intelligence test Raven [7-10].

The age of every subject from the subgroup was established according to the methodology of the Public Health Institute Bucharest [11]. Within every subgroup the 2 sexes are aleatory represented, different from a subgroup to the other.

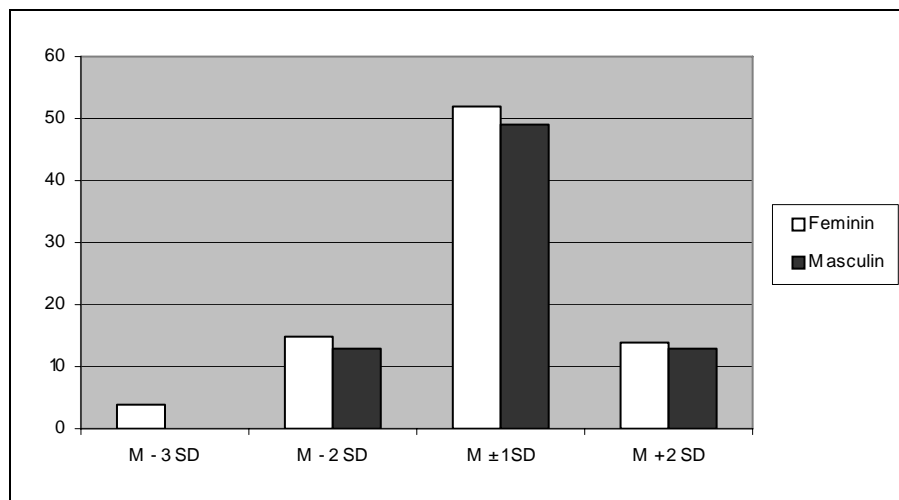
For the statistical and mathematical processing of the data, there were used the

software packets EPI 2000, distributed by OMS, SPSS and the data base was done in Excel.

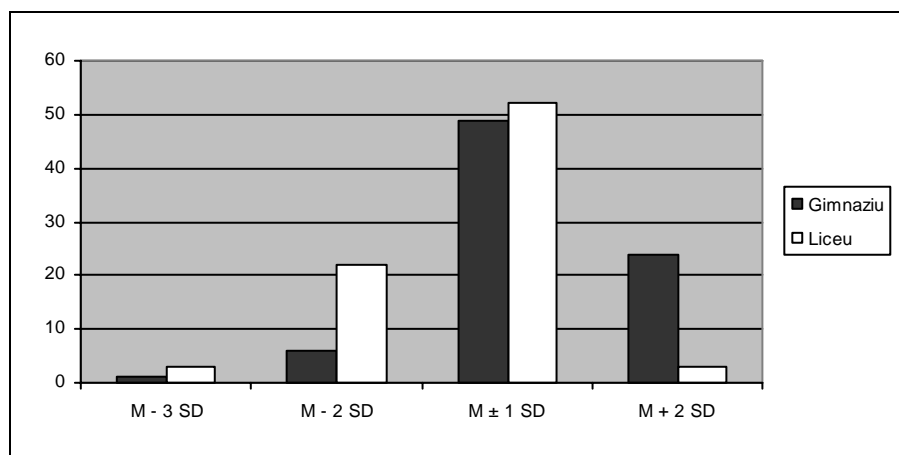
The average values and the standard deviations (SD) were computed separately for each year of age and then the evolution of the 8 subgroups was graphically represented, separated on sexes, as well as over all.

## RESULTS

The study situation (SS) according to Figures 1 and 2 doesn't present differences regarding the average values between the girls and the boys. However, there are recorded values under the average ( $M - 2$  SD,  $M - 3$  SD), which most prevail at high school and values over the average ( $M + 2$  SD) of approximately 5, 6 times more in secondary school than in high school. So, generally speaking, SS for high school is worse than for secondary school.



**Figure 1. The study situation, differences regarding the average values between the girls and the boys**



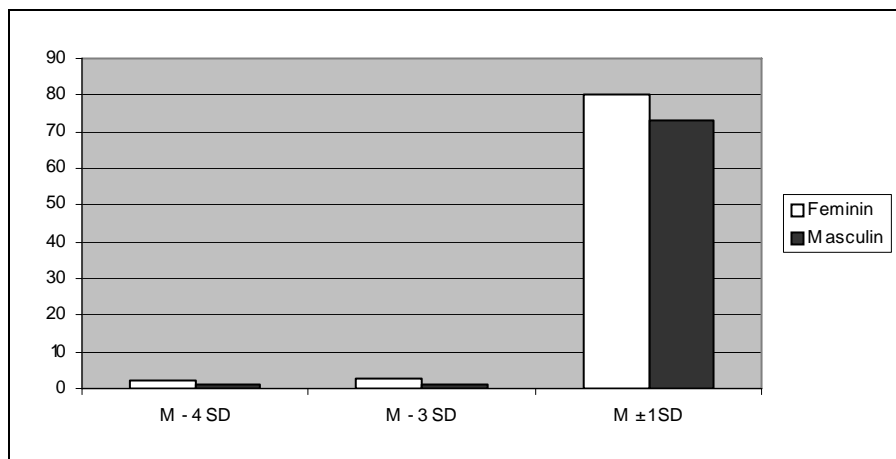
**Figure 2. The study situation differences regarding the average values between secondary school and high school**

The results of the Raven test, separated on sexes indicate practically even values. However, it is remarkable that not one

single individual exceeds the average value. On the other hand, there are plenty of values reaching  $M - 4$  SD ( Figure 3).

An identical situation is observed also in the results separated in secondary – high school (Table 4). So there are no particular intelligences or elites, neither in secondary

school, nor in high school, just average values, with plenty of values under the average in secondary school.



**Figure 3. The results of the Raven test, separated on sexes**

**Table 4. The results of the Raven test, secondary school and high school**

Raven	Stage		Total
	Secondary	Highschool	
M+SD			
M - 4 SD	3		3
M - 3 SD	4		4
M ± 1 SD	73	80	153
Total	80	80	160

The results of the Kraepelin psychological test record an evolution strict identical to the results of Raven intelligence test, separated on sexes, as well as stage (secondary – high

school), according to the Tables 5 and 6, no individual exceeding the average with more than a standard deviation.

**Table 5. The results of the Kraepelin psychological test, separated on sexes**

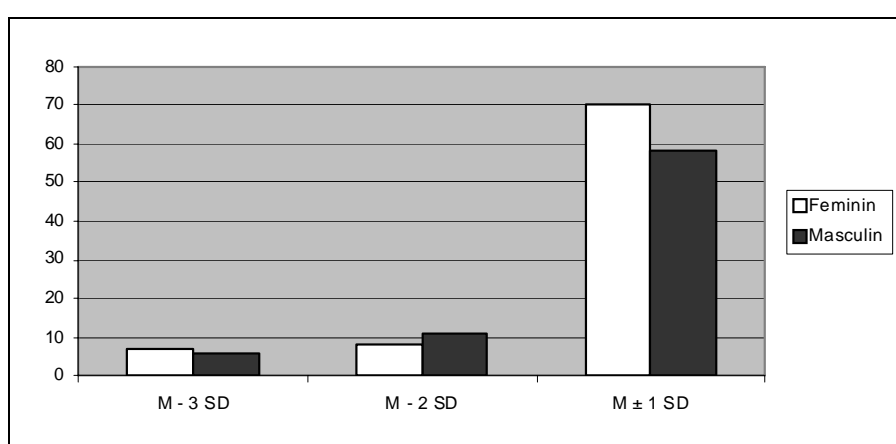
KraepelCant	Sex		Total
	f	m	
M+SD			
M - 4 SD	3	3	6
M - 3 SD	3	4	7
M - 2 SD	2	5	7
M ± 1 SD	77	63	140
Total	85	75	160

**Table 6. The results of the Kraepelin psychological test, secondary school and high school**

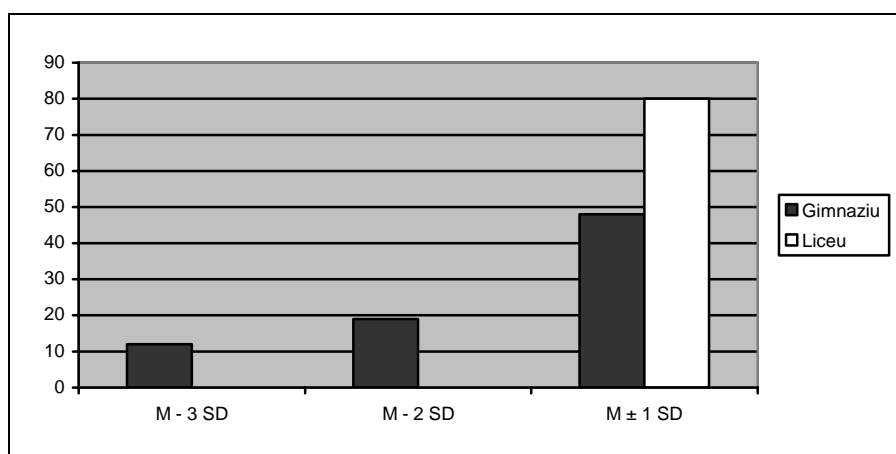
KraepelCant	Stage		Total
	Secondary	Highschool	
M + SD			
M - 4 SD	6		6
M - 3 SD	7		7
M - 2 SD	7		7
M ± 1 SD	60	80	140
Total	80	80	160

The results of Praga psychological test record quantitative the same evolution as the

previous psychological tests, according to Figures 7,8.



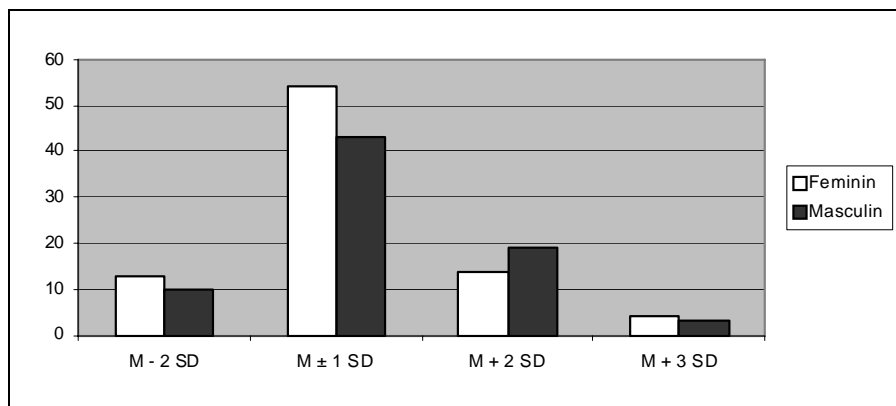
**Figure 7. The results of Praga psychological test, separated on sexes**



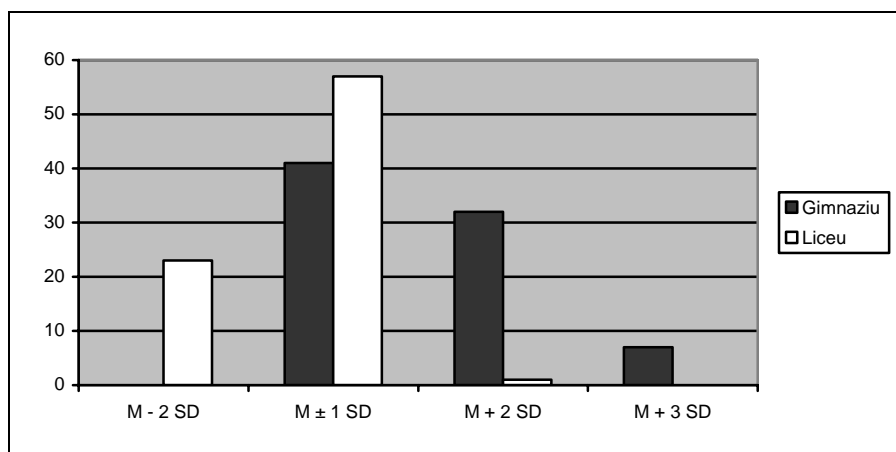
**Figure 8. The results of Praga psychological test, secondary school and high school**

In Platonov psychological test, it is recorded in the separation on sexes, quantitative, a slight tendency to a bit weaker results in girls ( $M + 2$  SD), as well as weaker results in secondary school pupils ( $M + 2$  SD,  $M +$

$3$  SD), according to Figures 9 and 10; we repeat that the values of Plantonov test are contrary proportional to the intellectual performances determined.



**Figure 9. Platonov psychological test, separated on sexes**



**Figure 10. Platonov psychological test, secondary school and high school**

## DISSCUTIONS

The study situation (SS) has a greater incidence of weak values in high school pupils, as well as values over the average in secondary school pupils.

The results of Raven, Kraepelin, Praga and Platonov tests show no differences between sexes, but only between stages, secondary – high school it indicates results a lot under the average (especially in secondary school), although the secondary school had a better

study situation. Are there grades given easier in secondary school? It is remarkable however, that not one single subject exceeds in all these tests the value  $M \pm 1$  SD, and on the other hand, values much under the average, even as low as  $M - 4$  SD, are plenty.

## CONCLUSIONS

We observe that in the study situation and especially in Raven, Kraepelin, Praga, Platonov psychological tests, there are only



subjects situated around the normal value (most of them)  $M \pm 1$  SD and a great number of subjects have values under the average with 2, 3, 4, 5, 6 SD, but not one single subject over the average.

In conclusion, we have average elements (most of them), then weak and very weak as regards the study situation, as well as the psychological tests and we have not even one single peak.

These results make us state that the tests which have been used so far might not be enough to estimate the pupils' intellectual performance. The school situation does not obviously depend only on IQ or on other features (speed reaction, attention, concentration) but also, to a great extent, on the other qualities of human personality

such as: tenaciousness, responsibility, resistance to long-term intellectual effort (which may sometimes be monotonous), perseverance, inventiveness, interest for what is new in science, culture, art, music, etc. The attraction towards easy entertainment which may take a great deal of time (computer games, card games, watching TV programs for hours, entertainment in different circles of friends and others) may also affect the school situation.

In order to discover diligent pupils by means of psychological tests we should find those psycho-technical methods that explore the qualities or defects better or we should discover some new tests in order to reveal what we couldn't do in the above mentioned paper.

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# CHARACTERISTICS OF ALCOHOL CONSUMPTION IN PATIENTS ADDRESSING A MEDICAL EMERGENCY SERVICE

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## REZUMAT

*Studiul investighează consumul de alcool, inclusiv dependența de alcool, la pacienți care s-au prezentat la Unitatea de Primire a Urgențelor din Spitalul Județean Deva. Grupul de lucru a fost alcătuit din 431 de bolnavi cu vârsta medie de 64,28 de ani, 49,88% femei și 50,12% bărbați. Metoda de lucru a fost studiul populațional transversal de evaluare a stării de sănătate a pacienților și a unor factori de risc asociați. Un procent de 30,4% dintre bolnavi s-au declarat consumatori zilnici de alcool: 4,2% consumă sub 50 ml, 10,7% consumă între 50 și 200 ml, iar 15% consumă peste 200 ml. Sexul masculin consumă mai mult alcool și declară sentimentul de vinovăție asociat consumului de alcool mai pregnant decât sexul feminin. Un procent de 11,4% dintre bolnavi s-au gândit să renunțe la consumul de alcool, iar 9,3% nu s-au gândit. Procentul consumatorilor de alcool la prima oră a dimineții, indicator al dependenței, este mult mai mare în rândul bărbaților decât al femeilor.*

**Cuvinte cheie:** consum de alcool, bolnavi, serviciul de urgențe medicale

## ABSTRACT

*The present study investigates the alcohol consumption, including alcohol addiction, in patients coming to the Emergency Receiving Unit from Deva County Hospital. The sample was composed of 431 patients with a medium age of 64.28 years, 49.88% women and 50.12% men. The method used was the transversal population survey to evaluate the health status of the patients and some of the associated risk factors. 30.4% of the patients declared to consume alcohol daily: 4.2% consume 50 ml, 10.7% consume between 50 and 200 ml, and 15% consume more than 200 ml. The masculine gender consumes more alcohol and declares a more acute guilt feeling associated to the consumption as opposed to the feminine gender. A percent of 11.4% of the patients thought about giving up the alcohol consumption, and 9.3% never thought about this. The percent of alcohol consumers during the first hour of the morning, an indicator of addiction, is larger among men than women.*

**Keywords:** alcohol consumption, patients, medical emergency service

## INTRODUCTION

Among the most important contemporary risk factors for the health status is the alcohol consumption.

When we consider alcohol as a risk factor for the peoples health, we are interested in both the quantity consumed and the consumption pattern (consumption frequency, type of alcohol, the occasion for the alcohol consumption, the frequency of intoxications). Alcohol is maybe the most frequently consumed psychotropic substance, but it also is the most available one. The spreading of alcohol consumption in the entire civilized world highlights the fact that in the majority of cultures, alcohol was perceived as benefiting and determining positive effects, without counting the negative effects for the individual health status and the social costs [1–3].

## METHOD

Epidemiological retrospective study. This study was intended to assess the alcohol consumption, including alcohol addiction, in patients addressing to a medical emergency unit.

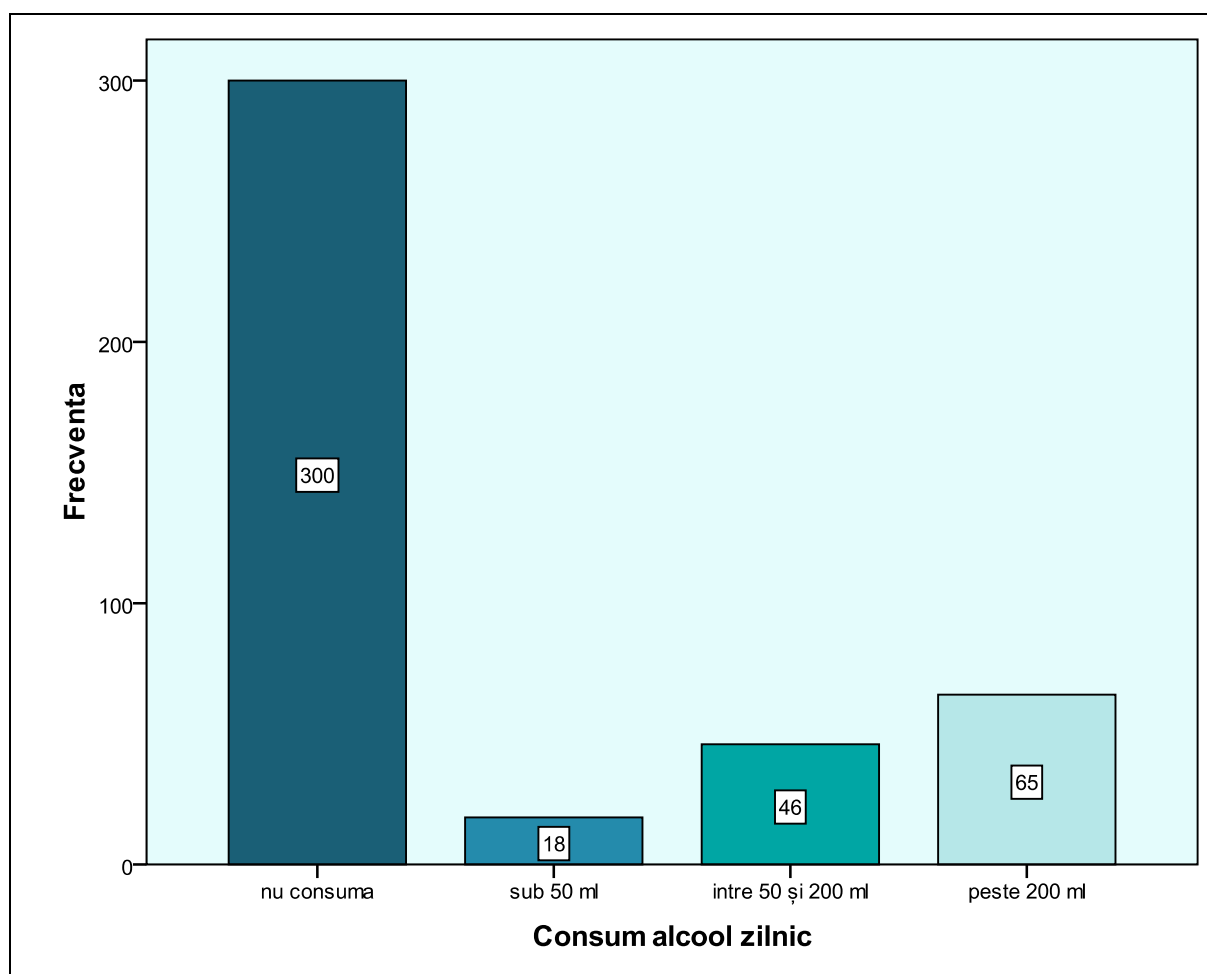
## RESULTS AND DISCUSSIONS

### 1. Daily alcohol consumption

From the total number of 431 patients in the sample, 69.6% (300) declared they do not consume alcohol. Those consuming under 50 ml/day represent 4.2% (18), those consuming between 50 and 200 ml/day represent 10.7% (46), and a large percent, 15% (65) declared they consume more than 200 ml daily (Table 1, Figure 1).

**Table 1. The cases' distribution related to the daily alcohol consumption**

Daily alcohol consumption	Number	Percent
Missing data	2	0,5
No consumption	300	69,6
Consumption under 50 ml	18	4,2
Consumption between 50 and 200ml	46	10,7
Consumption over 200 ml	65	15,1
Total	431	100,0



**Figure 1. The distribution of daily alcohol consumers cases**

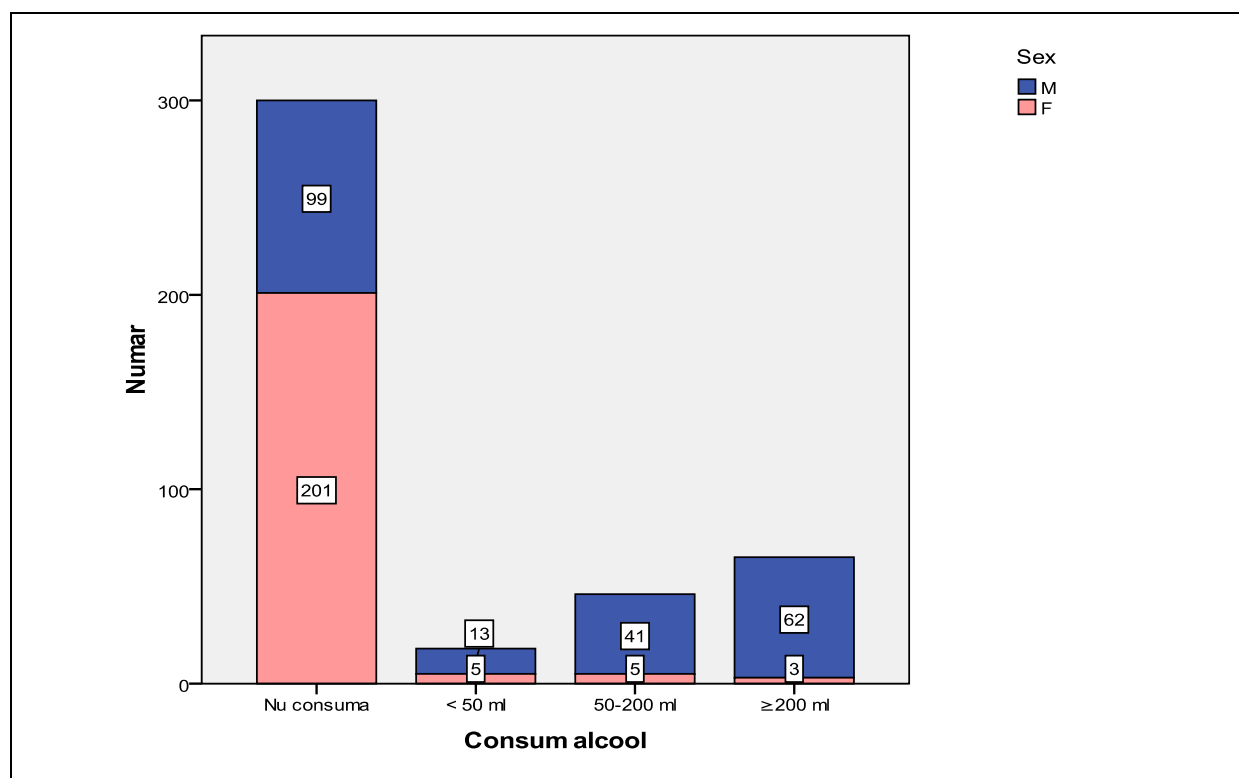
From the point of view of the quantity of alcohol consumed, the masculine gender (Table 2, Figure 2) has the tendency of consuming more alcohol than the feminine

gender, ( $\tau$ )=-0.505,  $p=0.01$ , the effect of the masculine gender on the alcohol consumption being a medium one,  $r=25.5$ .

**Table 2. The distribution of cases related to the daily alcohol consumption, on genders**

Daily alcohol consumption	Sex		Total
	M	F	
No	99	201	300
	33.0%	67.0%	100.0%
Yes, < 50 ml	13	5	18
	72.2%	27.8%	100.0%
Yes, 50-200 ml	41	5	46
	89.1%	10.9%	100.0%
Yes, $\geq 200$ ml	62	3	65

	95.4%	4.6%	100.0%
Total	215	214	429
	50,1%	49,9%	100,0%



**Figure 2. The distribution of daily alcohol consumers cases based on sex**

Stands out the fact that from the 300 abstinent patients, 67% (201) of the women declared themselves alcohol non-consumers, and in return, the percent of men is only half, 33% (99). Although the number of respondents is almost equal, a obvious differentiation related to gender is present, men being more important alcohol consumers than women, both totally, and for each consumption category, and in overwhelming proportions.

## 2. The guilt regarding the alcohol consumption

Along the duration of the study, we tried to assess the number of patients presenting a feeling of guilt regarding the alcohol consumption, as a first step to acknowledge the alcohol addiction and a first step towards stopping this consumption. In the 300 abstinent patients, this feeling had no reason

to appear, and it also was missing in those consuming less than 50 ml alcohol (18 cases).

From the 111 participants consuming more than 50 ml alcohol/day:

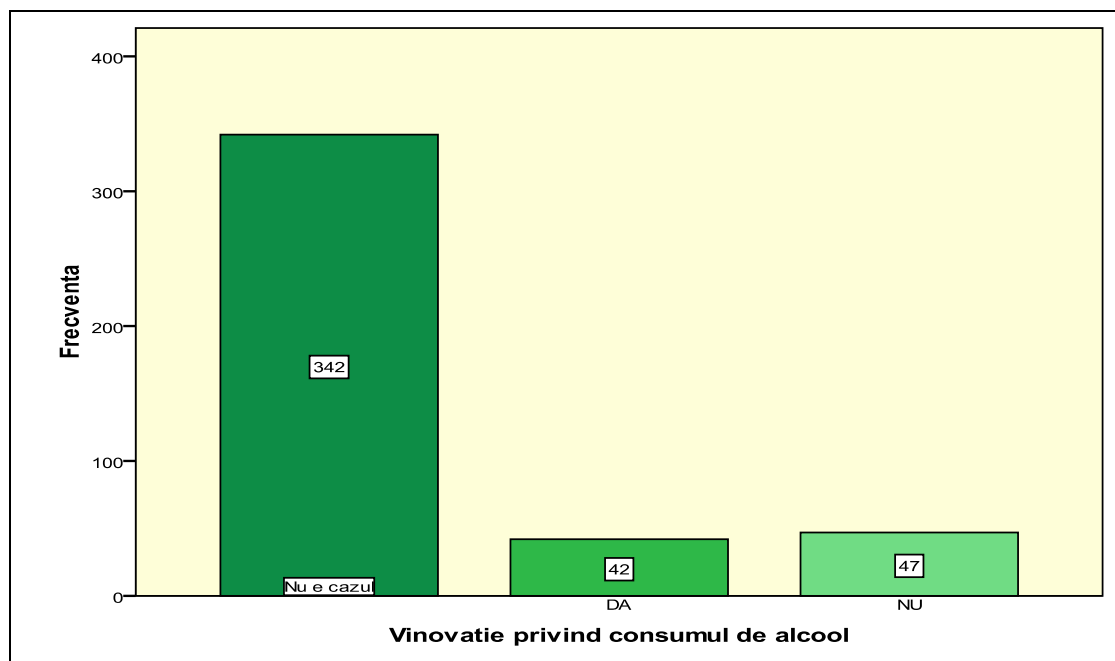
- 89 answered to the question about guilt regarding the alcohol consumption, of which 42 (9.7%) answered affirmatively
- 89 answered to the question regarding the renunciation to alcohol, of which 49 (11.4%) answered affirmatively
- 89 answered to the question regarding the suggestion of quitting alcohol consumption, of which 52 (12.1%) answered affirmatively
- 85 answered to the question regarding alcohol consumption at the

first hour in the morning, of which 29 (6.7%) answered affirmatively. Out of the consumers of more than 50 ml per day alcohol, 89 answered to the question regarding the feeling of guilt, and of this, 42

(9.7%) answered affirmatively and 47 (10.9%) answered negatively. The feeling of guilt, and his absence also, are found in similar proportions (Table 3, Figure 3).

**Table 3. The cases' distribution related to the feeling of guilt because of the alcohol consumption**

The feeling of guilt because of the alcohol consumption	Number	Percent
There is not the case	342	79.4
Yes	42	9.7
No	47	10.9
Total	431	100.0



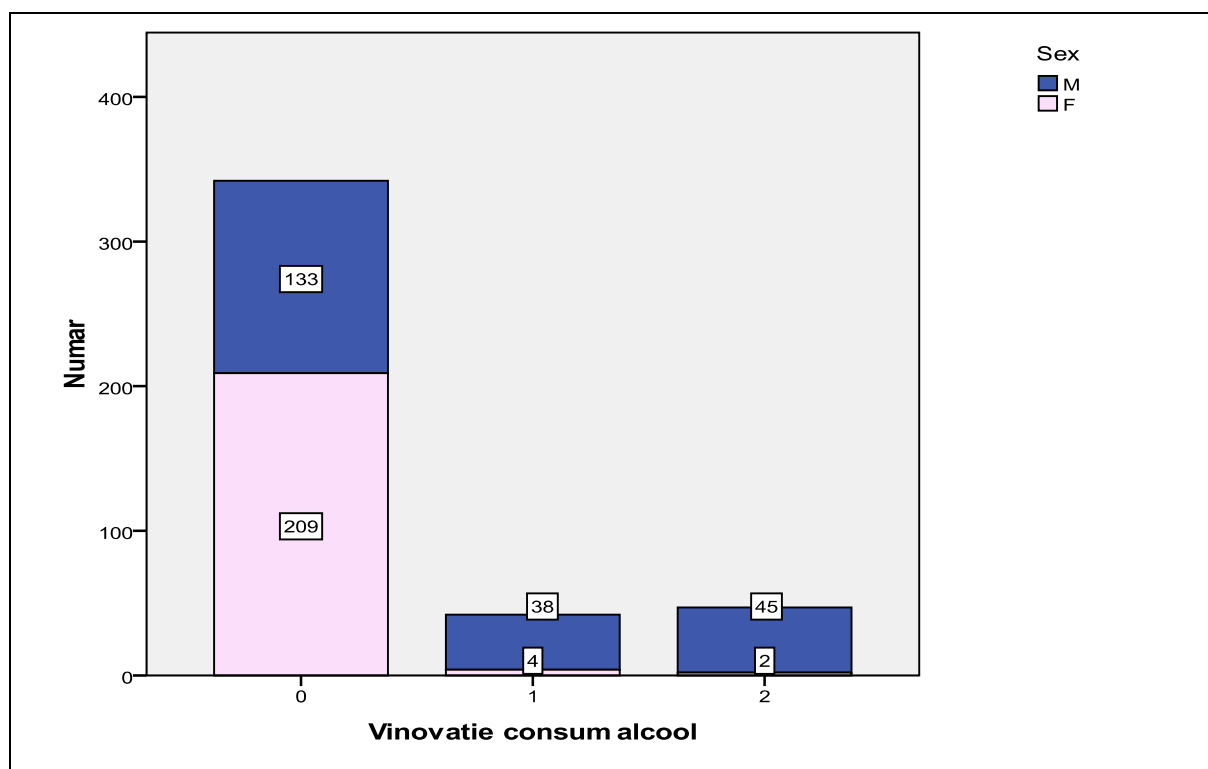
**Figure 3. The cases' distribution related to the feeling of guilt about the alcohol consumption**

Based on gender, the feeling of guilt is more important among men than women, respectively 90.5% (38) men and 9.5% (4)

women. For the men, the lack of this feeling is also greater, 95.7% (45), than for the women, 4.3% (2) (Table 4, Figure 4).

**Table 4. The cases' distribution based on the feeling of guilt about alcohol consumption, on sexes**

The feeling of guilt about alcohol consumption	Sex		Total
	M	F	
There is not the case	133	209	342
	38.9%	61.1%	100.0%
Yes	38	4	42
	90.5%	9.5%	100.0%
No	45	2	47
	95.7%	4.3%	100.0%
Total	216	215	431
	50.1%	49.9%	100.0%



**Figure 4. The cases' distribution based on the feeling of guilt about the alcohol consumption, on sexes**



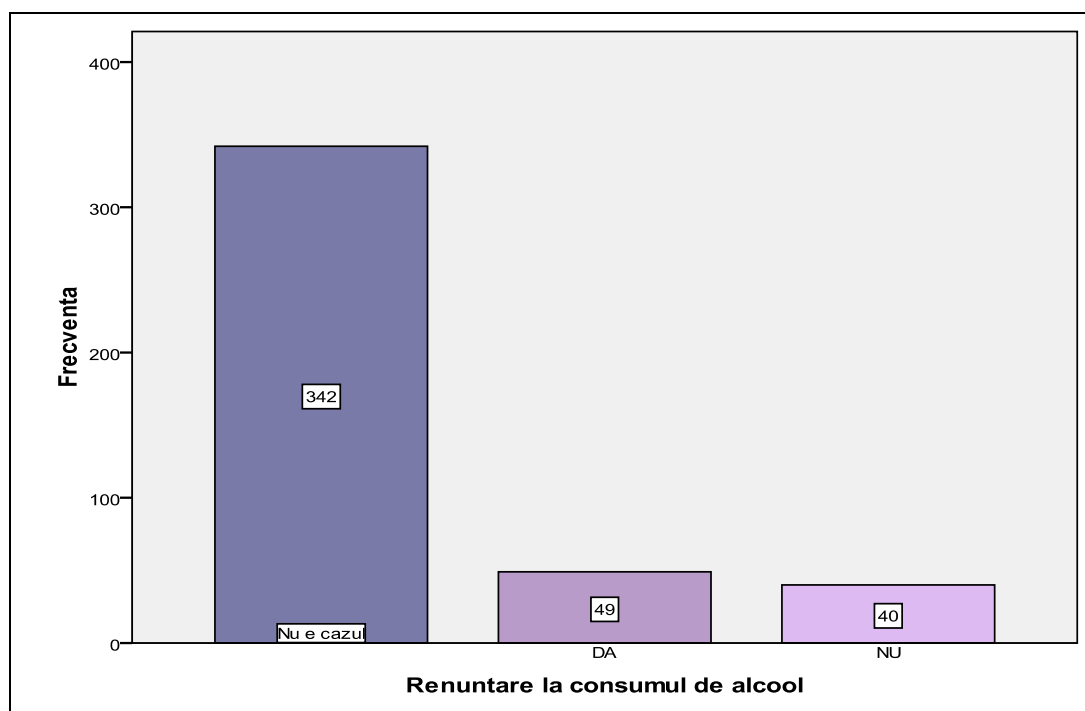
### 3. Quitting alcohol consumption

When asked if they thought about quitting the alcohol consumption, 11.4% (49) of the

participants to the study answered affirmatively, and 9.3% (40) answered negatively (Table 5, Figure 5).

**Table 5. The distribution of daily alcohol consumers accordingly to their wish to quit**

The wish to quit the alcohol consumption	Number	Percent
No response	342	79.4
Yes	49	11.4
No	40	9.3
Total	431	100.0



**Figure 5. The distribution of daily alcohol consumers based on their wish to quit**

As for the distribution, based on gender (Table 6, Figure 6), of the wish to quit alcohol consumption, from the total of 49 patients, 91.8% (45) are men and 8.2% (4) women.

The percent of men thinking to give up alcohol consumption is almost equal to the percent of men who never think about this possibility.

Table 6. The distribution of daily alcohol consumers based on their wish to quit, on sexes

The wish to quit alcohol consumption	Sex		Total
	M	F	
There is not the case	133	209	342
	38.9%	61.1%	100.0%
Yes	45	4	49
	91.8%	8.2%	100.0%
No	38	2	40
	95.0%	5.0%	100.0%
Total	216	215	431
	50,1%	49,9%	100,0%

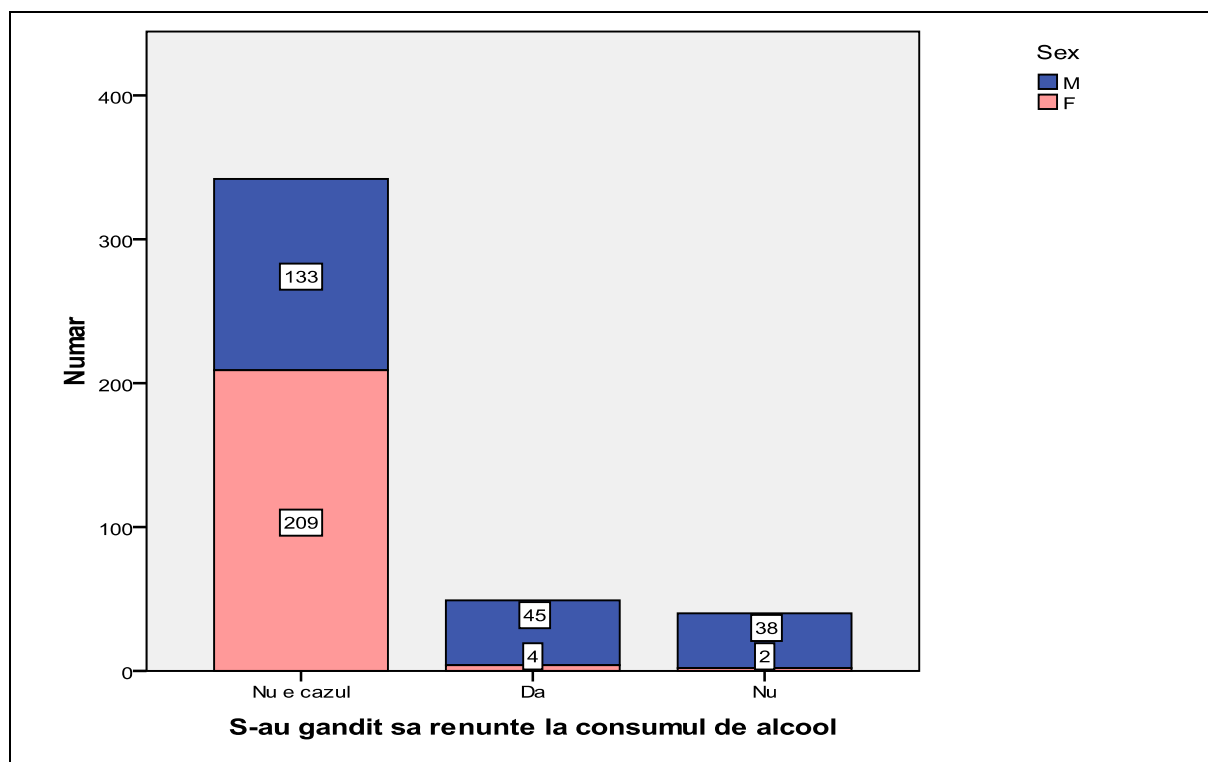


Figure 6. The distribution of daily alcohol consumers based on their wish to quit, on sexes

#### 4. Recommendations to quit the alcohol consumption from the entourage

One of the questions comprised in the questionnaire was if the patients were suggested by someone in the family or in the entourage to give up the alcohol consumption. In this way, conclusions can

form, even moral ones, about the impact of alcohol consumption on the family.

The suggestion to give up alcohol consumption came mainly from the partners and from the parents, brothers, sisters, children, and only at last from the family

physician or the psychiatrist. This is a normal situation, the effects of alcohol consumption being first felt in the family.

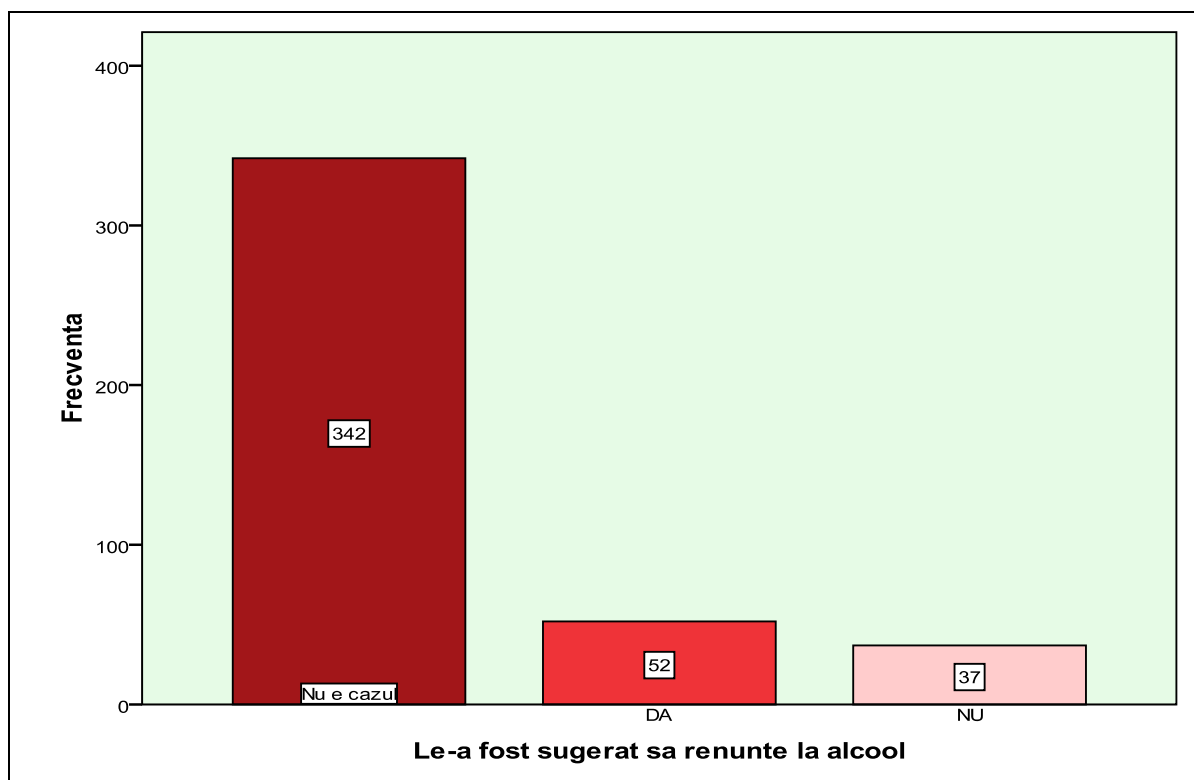
One interesting observation is that the number of persons who were suggested to quit alcohol consumption is larger than the number of persons thinking to give up the consumption, or than the number of persons

having a feeling of guilt about the alcohol consumption.

Of the 111 patients consuming more than 50 ml alcohol/day, 89 answered the question about the suggestion to quit alcohol. Of this, 12.1% (52) answered yes, and 8.6% (37) answered no (Table 7, Figure 7).

**Table 7. The distribution of daily alcohol consumers based on the impact on the family and entourage**

Quitting alcohol suggested	Number	Percent
No answer	342	79.4
Yes	52	12.1
No	37	8.6
Total	431	100.0



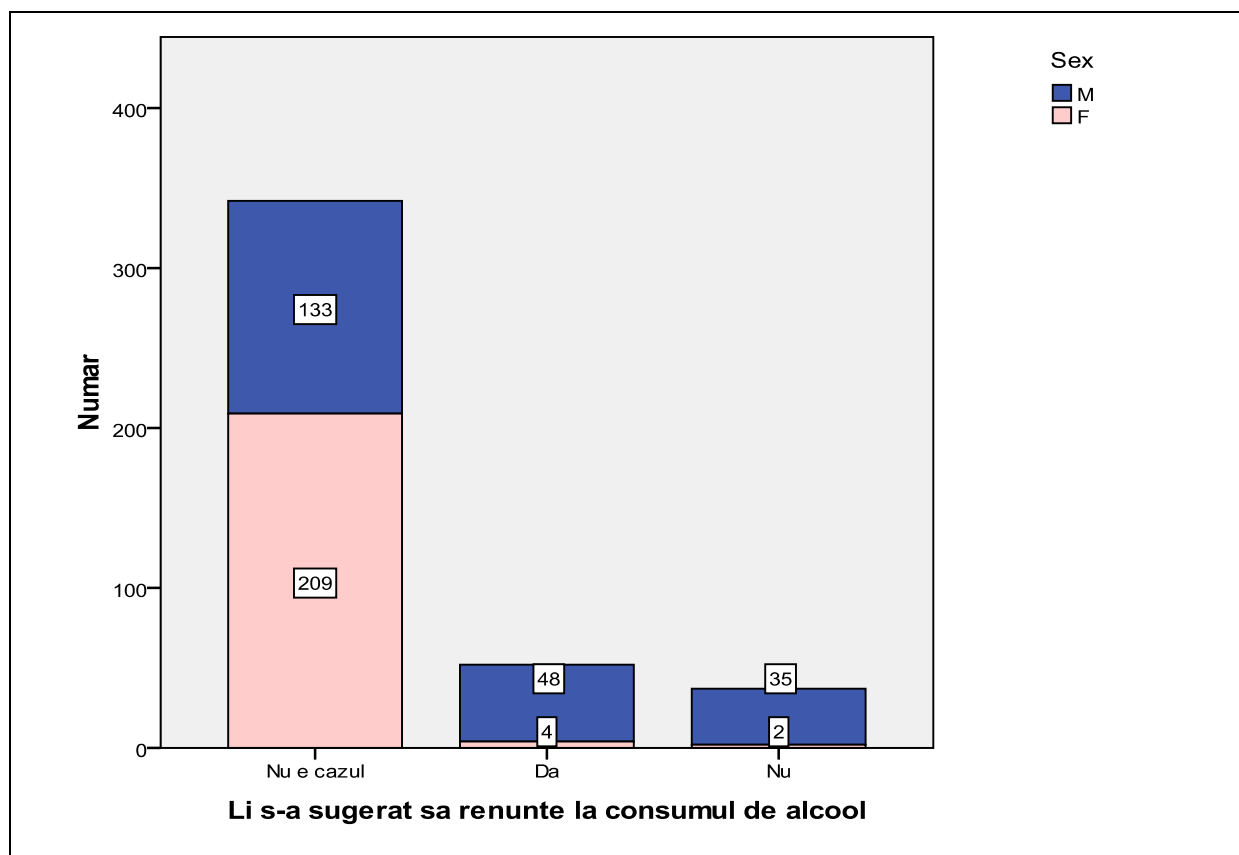
**Figure 7. The distribution of daily alcohol consumers based on the impact on the family and the entourage**

The suggestion to give up alcohol consumption was made more often to the male participants than to the female ones: for

men 92.3% (48), for women 7.7% (4) (Table 8, Figure 8).

**Table 8. The consumers' distribution according to gender and based on the suggestion to give up alcohol consumption**

The suggestion to give up alcohol consumption	Sex		Total
	M	F	
There is not the case	133	209	342
	38.9%	61.1%	100.0%
Yes	48	4	52
	92.3%	7.7%	100.0%
No	35	2	37
	94.6%	5.4%	100.0%
Total	216	215	431
	50.1%	49.9%	100.0%



**Figura 8. The consumers' distribution according to gender and based on the suggestion to give up alcohol consumption**

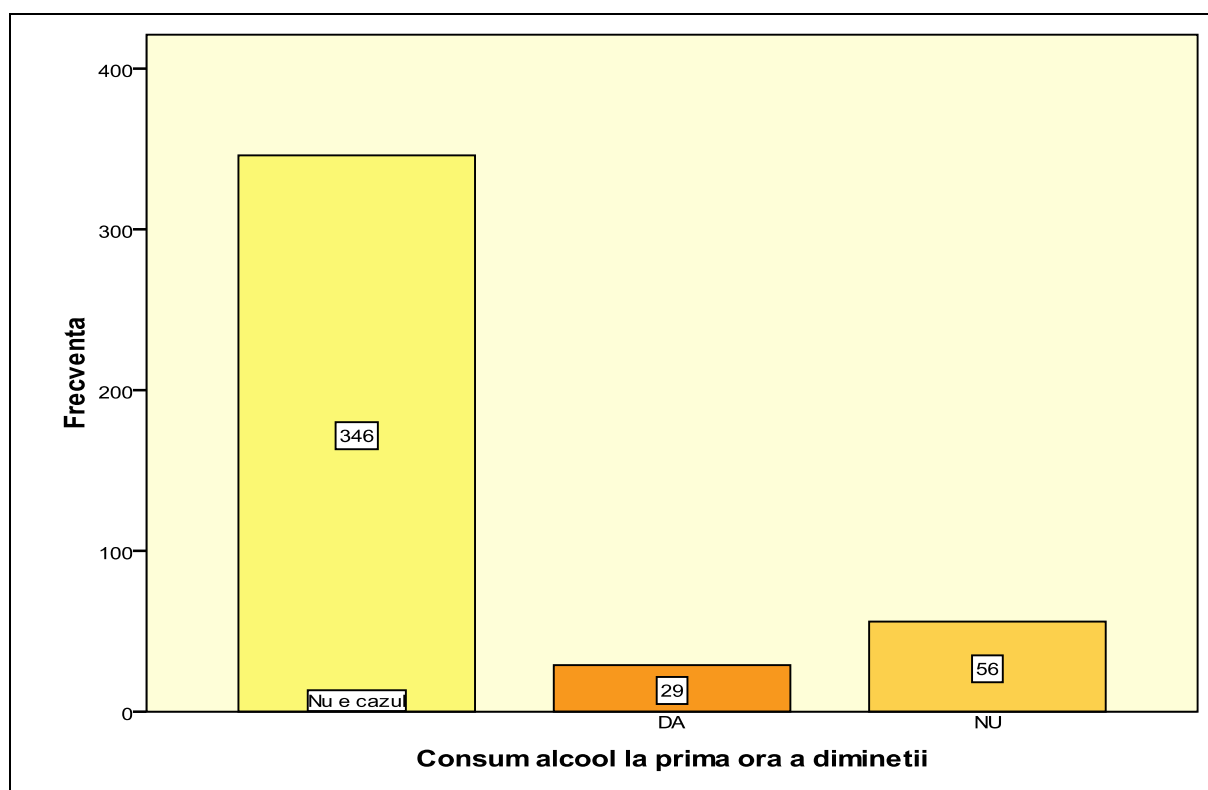
### 5. Alcohol consumption in the first hour in the morning, indicator of alcohol addiction

Of the 85 respondents to the question about the alcohol consumption in the first hour of

the morning, 6.7% (29) patients answered affirmatively, and the rest of 13% (56) negatively (Table 9, Figure 9).

**Table 9. The consumes' distribution according to the alcohol consumption in the first hour in the morning**

Alcohol consumption in the first hour of the morning	Number	Percent
There is not the case	346	80.3
Yes	29	6.7
No	56	13.0
Total	431	100.0



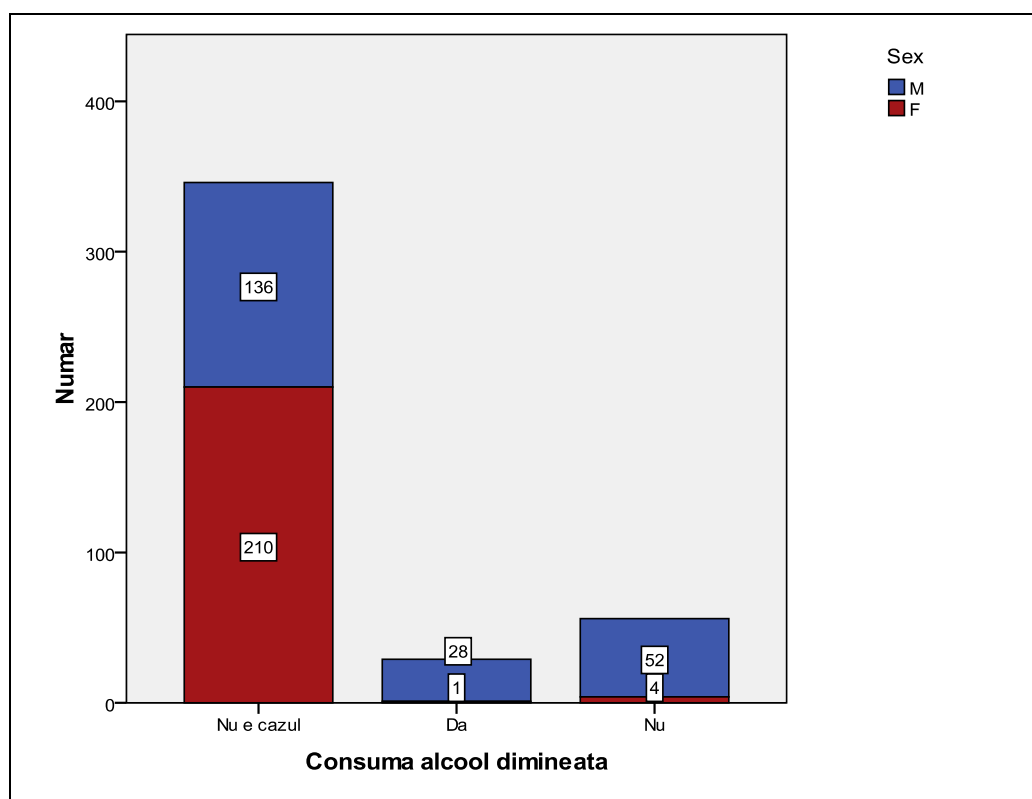
**Figure 9. The distribution of the alcohol consumers early, at the first hour in the morning**

The percent of consumers in the first hour in the morning is much larger for men than for women, 96.6% (28) up against 3.4% (1). Out of the 56 patients consuming alcohol in

the first hour in the morning, 92.9% (52) are men and 7.1% (4) are women (Table 10, Figure 10).

**Table 10. The distribution of alcohol consumers in the first hour of the morning based on gender**

Alcohol consumption in the first hour in the morning	Sex		Total
	M	F	
There is not the case	136	210	346
	39.3%	60.7%	100.0%
Yes	28	1	29
	96.6%	3.4%	100.0%
No	52	4	56
	92.9%	7.1%	100.0%
Total	216	215	431
	50.1%	49.9%	100.0%



**Figure 10. The distribution of alcohol consumers in the first hour in the morning based on gender**

Etilic alcohol is consumed as alcoholic beverages. Once consumed, the alcohol is quickly absorbed, from the liver getting to the circulatory system and is methabolized in the liver. The liver is able to methabolize only a certain quantity of alcohol in one hour, the quantity not methabolized accumulates and determines alcoholic intoxication. The greater the alcohol quantity, greather the level of alcohol in the blood stream, increasing the risk of damaging effects [4,5].

The consumption patterns are more difficult to described than the total alcohol consumption volume. The consumption patterns are measured in a variety of ways. Many indicators are differently used, according the context, as well as the frequency of seldom drinking a large quantity of alcohol. In order to determine the consumption patterns in comparatively comaring the risks for health, values were used based on the following variables:

- The frequency of episodic consumption of very large quantities of alcohol (binge drinking)
- Alcohol consumption during meals
- Alcohol consumption in public places [6,7].

A posible quantification is defining the recent alcohol consumption, as consuming at least one portion of alcohol in the last 30 days, one portion meaning: 25 ml of strong alcohol, 100 ml of wine, 250 ml of beer. The frequent consumption is defined as the alcohol consumption “in 10 or more days in the last month”. The recent excesive alcohol consumption (binge drinking) is defined as the consumption of 5 or more alcohol portions one after another in a few hours, during the last 30 days before the questioning. The prevalence of intoxications of “20 times or more during the lifetime” or of “3 times or more in the last 30 days” are used as important marks for the assessment of the consumption pattern [8–10].

The cultural model of consumption may have seriouise implications for both the public health of a country and for the general social-economic situation. The alcohol addiction installs after many years, and the majority of people asking for medical help are over the age of 30 years. For this reason, it is very important when the children and adolescents start to consume alcohol [11,12]. The parents and the family are particularly important for more reasons. The children learn beginning with the pre-school period what drinks are consumed and on what ocasions, during games they imitate the parents proposing a toast, raising glasses, imitating a drunk person thay find funny. Parents are the first models of alcohol consumption for their children [13]. When parents consume frequently alcohol, their favorite drinks are available in large quantities around the house, the intensity and the frequency of consumption are decisive co-determinants, the children and adolescents trying the alcoholic beverages. The educational experience, especially pleading for a moderate alcohol consumption and the advices regarding the potential damaging effect of alcohol for the health status, is questionalble when parents themselves tend to have an abusive alcohol consumption. The initiation in alcohol consumption takes place in the family on aniversaires, baptisms, weddings. The persistance of alcohol consumption by the adolescents depends on a series of factors: genitic factors, parental model, educational style and the comunication in the family, entourage and the group of friends. More early the onset of consumption and the quantity consumed larger, more we expect a larger degree of addiction to be present, and a mor important negative effect on the health status [14,15].

About the alcohol politics, EU has 5 definite priorities of what alcohol consumption means. This strategy was adopted by the European Cometee in 2006. The goals of the strategy are:

- The protection of young people, children and the human foetus
- Reduction of lesions and deaths due to alcohol consumption, both in case of diseases and traffic accidents
- The prevention of negative effects of alcohol among adults and the reduction of the negative impact on the behavior in the work place
- The information, education and sensibilization about the damaging impact of the alcohol consumption
- The development, support and maintenance of a comune data base [16].

## CONCLUSIONS

The study was conducted in a population composed of 431 patients presented to a medical emergency hospital. 69.6% of the patients declared they do not consume alcohol. Those consuming less than 50 ml/day are in proportion of 4.2%, those consuming between 50 and 200 ml/day represent 10.7% and 15% declared they consume more than 200 ml a day.

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The masculine gender tend to consume more alcohol then the feminine gender.

The feeling of guilt associated to the alcohol consumption is more important among males than females. For men, even the lack of this feeling is more important than for women.

11.4% of the participants to the present study answered afirmatively to the question regarding the wish to give up alcohol consumption, and 9.3% answered negatively. The percent of male participants thinking to give up alcohol consumption is almost equal to the one of male participants who never thought about this.

Men received more often than women the suggestion to give up alcohol consumption coming from the family entourage.

The percentage of alcohol consumers in the first hour in the morning is larger among men than women.



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# THE SELF-DECLARED HEALTH STATUS IN PUBLIC SERVANTS IN OCCUPATIONAL STRESS CONTEXT

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## REZUMAT

*Stresul ocupațional este răspunsul pe care indivizii îl pot avea atunci când cererea și presiunea exercitate la locul de muncă depășesc cunoștințele și capacitățile acestor indivizi. Persoanele care sunt stresate au o stare de sănătate mai precară, sunt mai puțin motivați și mai puțin productivi. Grupul de lucru a fost alcătuit din 210 funcționari publici, angajați ai unor instituții de stat din Județul Hunedoara, iar metoda de lucru a fost studiul populațional transversal de evaluare a unor factori de risc ai stresului profesional. În funcție de autoaprecierea stării de sănătate, 12,4% dintre funcționarii publici consideră că sănătatea lor este foarte bună, iar 19% consideră că starea lor de sănătate prezintă probleme. S-a putut observa o corelație semnificativă statistic între perceperea stării de sănătate cu probleme și efectuarea unor tratamente, cât și între perceperea stării de sănătate cu probleme și efectuarea de concedii medicale.*

**Cuvinte cheie:** stare de sănătate, riscul profesional, managementul de risc

## ABSTRACT

*Occupational stress is the answer the individuals may give when the demands and the pressure in the work place exceed their knowledge and their capacities. The stressed persons have a more precarious health status, are less motivated and less payable. The sample was composed of 210 public servants, employed in some state institutions in the Hunedoara County, and the working method was the population transversal survey for the assessment of some risk factors for the occupational stress. According to the self-evaluation of the health status, 12.4% of the public servants feel that their health is very good, and 19% feel that their health status displays problems. A statistically significant correlation was observed between the perception of the health status as being problematic and the following of some treatments, and also between the perception of the health status as being problematic and caring out sick leave.*

**Keywords:** health status, occupational risk, risk management

## INTRODUCTION

Occupational stress and fatigue, also called the diseases of the century, are the most serious dysfunctions resulting from desk work. This is the cause for which the necessity of ergonomic organization of work in an office appeared [1–3].

Stress is a constant dimension of our every day life. The contemporary transitional society highlights on the life stage new types of stressful situations, as: uncertainty, rapid and often unpredictable changes, competition, unemployment, the necessity for rapid reorientation and recertification and, not least, the decreasing of the standards of living.

Humans, as individuals, seldom have the possibility to influence stressful external events. The best they can do is to learn strategies making them more resilient in front of psychic aggressions and more efficient in the professional activity.

If the level of stress is too high, each one of us may have a psychic break-down; even if the person is extremely well balanced, temporary psychological disorders may appear. The individual may experience a state of dysfunction or even a sudden break-down following a severe psychic trauma (accident, fire, the death of a close member of the family).

The reaction to the stress installs gradually when the individual is submitted for a long time to psychological tension conditions, especially when is damaged one's image, or marital situation, professional or material situation. Usually, the individual recovers when the stressful situation stops, although sometimes some damages or an increased vulnerability to certain stress factors remain.

The concept of stress appears for the first time during the physiology research on animals carried on by Hans Selye in 1950, who describes the so-called "general

adaptation syndrome" characterizing the reaction of biological organisms in conditions of stress.

After Selye, the general adaptation syndrome comprises three phases:

- The alarm phase, defined by a general mobilization of the organism in order to face the aggression.
- The resistance phase, composed of the assembly of systemic reactions triggered by the prolonged action to damaging stimuli towards which the organism created adaptation means.
- The exhaustion phase, when the adaptation cannot be maintained anymore, the signs of the alarm reaction appear again, signs irreversible. This phase usually concludes with the death of the organism [4].

Pavelcu describes the psychological stress phases according to the physiological stress model described by Selye. According to the author's opinion, to the alarm phase it corresponds an investigative stage characterized by a conflict between subject and the environment. For the resistance phase, on the psychological level, it corresponds an intense feeling of frustration and menacing, and to the exhaustion phase corresponds the installation of all negative consequences of stress on psychological level: aggressiveness, anxiety, depression, panic, generally a neurotic behaviour [4].

Irina Holdevici shows that in the speciality literature the concept of stress has generally two acceptances:

- Stressful situation referring to a damaging physical stimulus or to an event with strong emotional signification.
- The organism's status, characterized by acute tension, over tension imposing the mobilization of all physical and psychical resources of the organism in order to face the threat [5].

In the present study we set out to evaluate the health status in public servants by means of self-reporting.

## METHOD

The work method was the transversal population survey for the assessment of some risk factors for the occupational stress, and included The questionnaire for the assessment of occupational risk factors, offering information: general, of neuro-psychic solicitation, of sight organs solicitation, of muscular and skeletal system solicitation.

The questionnaires were answered through direct interview. The study was carried out with the written approval of the institutions where the study participants belonged. The participants were included in the study only after their freely express consent, respecting the individual rights and guaranteeing the protection of possible negative effects. During the research there were always respected the principles of anonymity and confidentiality.

The data analysis and interpretation utilizes the modern advanced medical statistic

methods. Data were electronically filed using the Microsoft Excel program 2001 and were analyzed using the SPSS 18 program. The statistical significance threshold  $p < 0.05$  were considered statistically significant, and  $p < 0.01$  were considered very statistically significant. The following statistical tests were applied: the chi-square test, the Mann-Whitney test, the Pearson correlation.

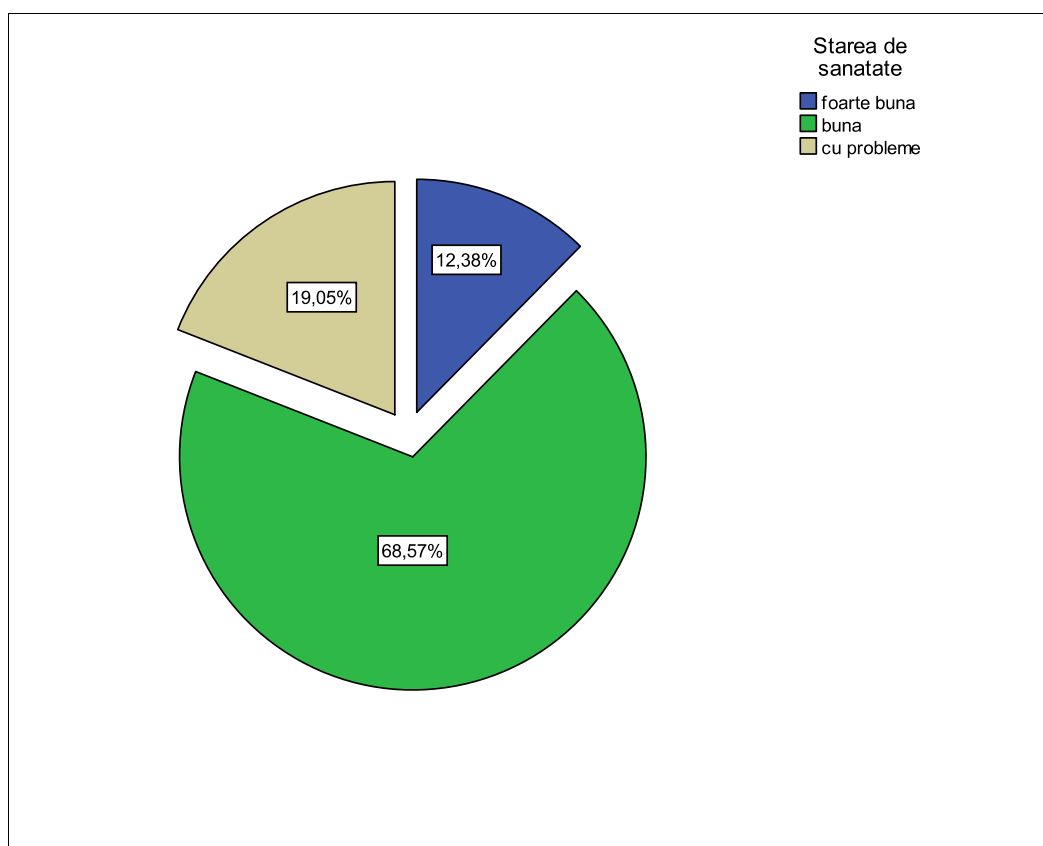
The study sample was composed of 210 participants, public servants, employed in three state institutions in the Hunedoara County. After age criteria, 50% (105) of the participants are in the age group 36 – 50 years old, 30% (63) are in the over 50 years old group and 20% (42) are in the 20 – 35 years old group.

## RESULTS AND DISCUSSIONS

### 1. The self-reported health status (Table1, 2, Figure 1)

**Table 1. The participants' distribution based on the health status**

Health status	Frequency	Percent	Valid percent	Cumulative percent
Very good	26	12.4	12.4	12.4
Good	144	68.6	68.6	81.0
Problematic	40	19.0	19.0	100.0
Total	210	100.0	100.0	



**Figure 1. The percentual distribution of the participants to the study based on their health status**

Most frequently, the participants to the study considered their health status good, 68.6% (114), and 12.4% (26) of the

participants considered their health status very good. 19% (40) considered their health status problematic.

**Table 2. The participants' distribution based on age groups and health status**

Age groups		Health status			Total
		Very good	Good	Problematic	
20 - 35 years	Number	7	31	4	42
	%	16.7%	73.8%	9.5%	100.0%
36 - 50 years	Number	15	72	18	105
	%	14.3%	68.6%	17.1%	100.0%
Over 50 years	Number	4	41	18	63
	%	6.3%	65.1%	28.6%	100.0%
Total	Number	26	144	40	210
	%	12.4%	68.6%	19.0%	100.0%

Related to the age groups, a good health status is declared with a medium between 65.1% (41) and 73.8% (31), decreasing as the age increases. A very good health status is more frequently declared by participants in the 20–35 years age group, 16.7% (7),

and a problematic health status by those over 50 years, 28.6% (18).

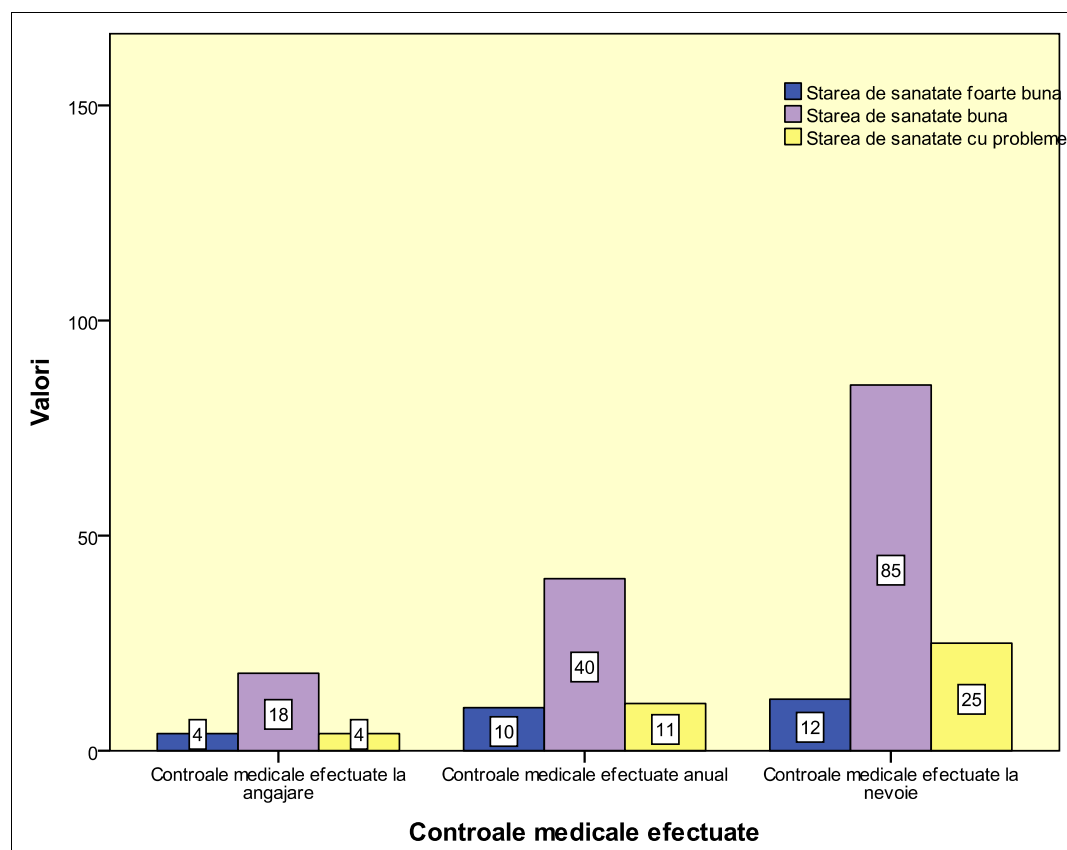
There were not found any statistically significant differences in health status

perception based on the distribution according to age groups,  $p > 0.05$ .

## 2. The self-reported health status and the medical checks (Table 3, Figure 2)

**Table 3. The participants' distribution based on health status and medical checks**

Health status		Medical checks			Total
		For employment	Every year	When needed	
Very good	Number	4	10	12	26
	%	15.4%	38.5%	46.2%	100.0%
Good	Number	18	40	85	144
	%	12.5%	27.8%	59.0%	100.0%
Problematic	Number	4	11	25	40
	%	10.0%	27.5%	62.5%	100.0%
Total	Number	26	61	122	210
	%	12.4%	29.0%	58.1%	100.0%



**Figure 2. The participants' distribution based on the health status and the medical checks**

The medical checks carried on when needed are reported in increasing order related to the degradation of the self-reported health status: 46.2% (12) of the participants with

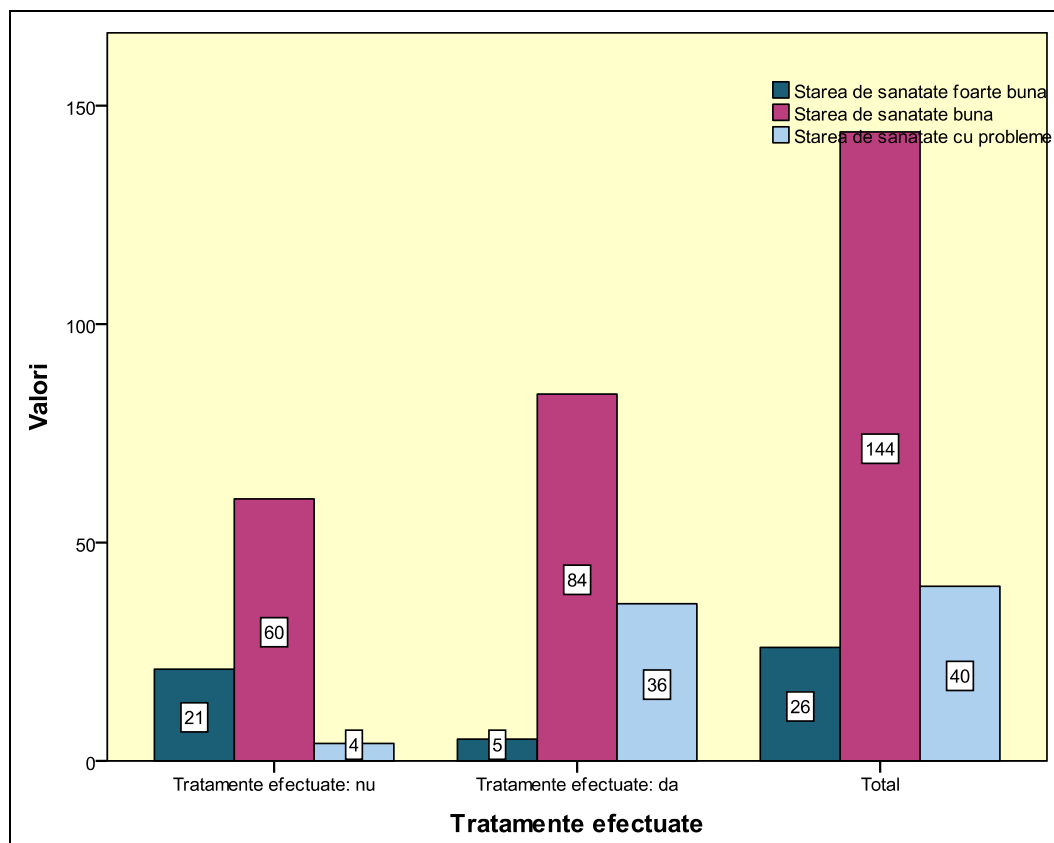
very good health status, 59% (85) of the ones with good health status and 62.5% (25) of the ones with a problematic health status.

No statistically significant correlations were observed between the perception of the health status and the frequency of the medical checks,  $p > 0.05$ .

### 3. The self-reported health status and the medical treatments (Table 4, Figure 3)

**Table 4. The participants' distribution based on the health status and the medical treatments performed**

Health status		Treatments performed		Total
		no	yes	
Very good	Number	21	5	26
	%	80.8%	19.2%	100.0%
Good	Number	60	84	144
	%	41.7%	58.3%	100.0%
Problematic	Number	4	36	40
	%	10.0%	90.0%	100.0%
Total	Number	85	125	210
	%	40.5%	59.5%	100.0%



**Figure 3. The percent distribution of the study participants based on their health status and the treatments performed**

As the health status is perceived as being less optimal, the percent of medical treatments is increasing: 19.2% (5) indicate

treatments, with very good health status; 58.3% (84) of the participants with good

health status; 90% (36) of those with a problematic health status.

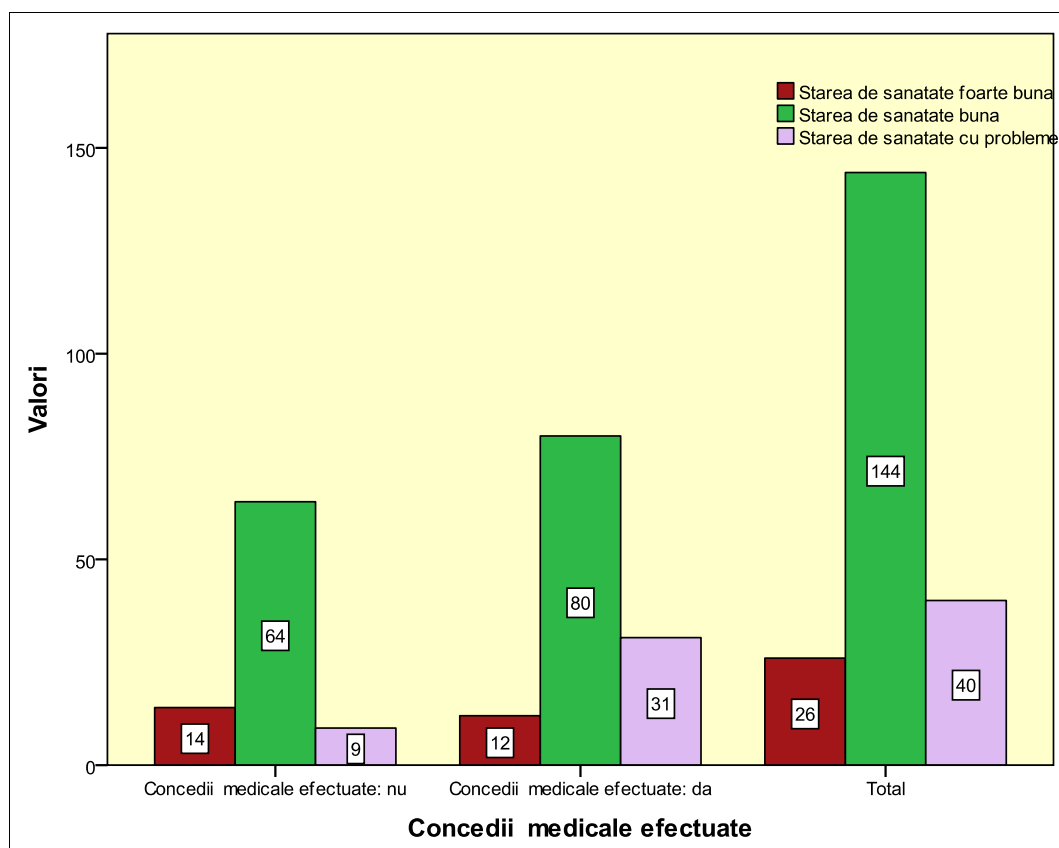
A statistically significant correlation was observed between the perception of the health status as problematic and the performance of medical treatments,  $\rho = 0.394$ ,  $p = 0.00$ . The importance of the effect between the two compared variables was 15.52%.

A statistically significant correlation was observed between performing treatments for diverse pathologies and the frequency of medical checks,  $\rho = 0.205$ ,  $p = 0.003$ . The importance of the effect between the two correlated variables was 4.21%.

#### 4. The self reported health status and the medical leave (Table 5, Figure 4)

**Table 5. The participants' distribution based on health status and medical leave**

Health status		Medical leaves		Total
		no	yes	
Very good	Number	14	12	26
	%	53.8%	46.2%	100.0%
Good	Number	64	80	144
	%	44.4%	55.6%	100.0%
Problematic	Number	9	31	40
	%	22.5%	77.5%	100.0%
Total	Number	87	123	210
	%	41.4%	58.6%	100.0%



**Figure 4. The participants' distribution based on health status and medical leaves**



The prevalence of medical leaves increases with the declaration of a less than optimal health status: 46.2% (12) for the participants with very good health status, 55.6% (80) for the participants with good health status and 77.5% (31) for those with a problematic health status.

A statistically significant correlation was observed between the perception of the health status as being problematic and the medical leaves,  $p = 0.186$ ,  $p = 0.006$ . The importance of the effect between the two correlated variables was 3.45%.

Occupational stress is known in the entire world as a pathology affecting not only the health status of the active persons, but also the integrity of the organization they came from. The International Work Organization considers the occupational stress as a global epidemic. While often the unwanted effects on the organism are highlighted, even the financial consequences of occupational stress are catastrophic [6].

The occupational stress may be the answer of the individuals when the demands and the pressure in the work place exceed the knowledge and the capacities of these individuals.

The sources of occupational stress are various. In persons caring out desk work, the stress is related to the interpersonal relations derived of their work. "The human pressure" caused by tensed relations between the team members or by conflicts may lead to stress [7]. The stressed persons have a more precarious health status, are less motivated and less payable, and the organizations they came from have less chances to succeed on the high competition market.

The stress has different ways of affecting the people. Stress may trigger unusual or

dysfunctional behaviours in the work place and contributes to the degradation of the psychical and physical status. In extreme situations, the prolonged stress or the traumatic events in the work place may lead to psychological problems, which may evolve towards different psychiatric pathologies. The persons under the influence of stress may have health damaging behaviours as, for example, smoking or excessive alcohol or forbidden substances consumption [8,9].

The apparition of stress may be prevented by risk management, process that tries to assess the possible risks in the working environment which may cause dangerous situations for the employees [10-14].

## CONCLUSIONS

Based on the self-appreciation of the health status, 12.4% of the 201 public servants studied, consider their health status very good, and 19% consider their health status problematic.

A statistically significant correlation was observed between the perception of the health status as being problematic and the performance of medical treatments, the importance of the effect between the two correlated variables being 15.52 %.

A statistically significant correlation resulted between the perception of the health status as being problematic and the medical leaves, and the importance of the effect between the two correlated variables was 3.45%.

A statistically significant correlation was observed between the treatments for diverse pathologies and the frequency of medical checks, the importance of the effect between the two correlated variables being 4.21%.

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# THERAPEUTIC ARTERIOVENOUS FISTULA – ONE DAY SURGERY

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## REZUMAT

*Fistula arterio-venoasă subcutanată, a fost introdusă în 1966 de Cimino, Brescia și Hurwich. Ea reprezintă principala cale de asigurare a accesului vascular pentru hemodializa cronică, deoarece permite puncționarea repetată a unei vene subcutanate cu flux vascular la o presiune înaltă. Scopul lucrării de față este de a demonstra posibilitatea efectuării fistulelor arteriovenoase în scop terapeutic la pacienții cu insuficiență renală cronică în cadrul unei internări de scurtă durată, respectiv internarea de zi.*

**Cuvinte cheie :** fistulă arterio-venoasă, internare de zi, bloc operator, experiență în chirurgia vasculară

## ABSTRACT

*Subcutaneous arterio-venous fistula, was introduced in 1966 by Cimino, Brescia and Hurwich. It is the main way of providing chronic hemodialysis vascular access, because it allows Repeated Puncture of subcutaneous veins vascular flow to high pressure. The purpose of this paper is to demonstrate the possibility of making in therapy of arteriovenous fistulae in patients with chronic renal insufficiency in a brief hospitalization, admission that day.*

**Keywords:** arterio-venous fistula, hospitalization days, surgery block, experience in vascular surgery

## INTRODUCTION

Chronic renal failure [CRF] is slow and gradual reduction of kidney filtration capacity. IRC usually occurs as a complication of another disease or condition. Unlike acute renal failure, IRC is installed gradually over several years as kidney damage. Evolution is so slow that the

first symptoms appear only after the disease has caused significant clinical and biological consequences.

Chronic renal failure have few signs and symptoms in the early stages of onset. For this reason, many patients with chronic renal failure are not aware of the disease until

renal function is reduced to 25% of normal values.

The goal of treatment is to stop the chronic renal failure or slowing disease progression. This may evolve into end-stage renal failure, where renal function is much reduced below normal values. In this case, patients need artificial blood filtration (dialysis) or a kidney transplant to survive [7].

Vascular accesses are all methods through which the extracorporeal dialysis, using the approach of vessels (one or two) connected to an artificial kidney.

Approach methods are divided into two main groups:

- The shunt, which may be:
  - External - utilizes the tubes or special devices
  - Internal - means anastomosis (between their vessels) and vascular grafts, synthetic or biological.
- Without the shunt, respectively:
  - Central catheter
  - Puncture blood vessels
  - Arterial superficialization (femoral or radial)
  - Interarterial bypass (jump-graft method).

Internal arterio-venous fistula is now the best form of vascular access for hemodialysis in the long term.

Subcutaneous arterio-venous fistula first was conducted in 1966 by Brescia and Cimino, between radial artery and cephalic vein. Anastomosis between the two vessels was in the third distal forearm. The principle underlying arteriovenous access over the connection is to relieve arterial flow directly into a vein, thereby increasing its size and making it so accessible for the needs of hemodialysis [1-4].

**The basic criteria required to achieve such a fistula are:**

- ✓ Upper limb vessels to be used for the fistula, should be protected by not managing their parenteral treatment.
- ✓ Access to vessels should be simple, easy and functional.
- ✓ It will perform a complete preoperative exploration of vascular limbs, to choose the best options both clinical and paraclinical, using Doppler vascular ultrasound to assess the potential for further development of fistula created.
- ✓ It indicated that the fistula achieved non-dominant member and as distal, proximal vessels to keep for possible future access road. Thus, fistulas can be achieved between the ulnar artery and basilic vein, between the brachial artery and cephalic vein or between brachial artery and basilic vein.
- ✓ We must ensure a constant flow during dialysis, between 100-300 ml of blood per minute. As determined by a well-calibrated arteriovenous anastomosis.
- ✓ Connecting and disconnecting the artificial kidney is to be simple and repeatable.
- ✓ Shunt haemodynamics should not cause cardiac overload.
- ✓ Avoid the risk of surrounding tissue or peripheral ischemia.
- ✓ Surgery should be carried out under strict asepsis in the operating room.
- ✓ Measures will be taken pre, intra and postoperative that prevent complications such as thrombosis, infection, aneurysm dilatation, rupture and hemorrhage. Technique of achievement fistula should avoid the appearance of secondary complications [5].
- ✓ How to achieve fistula should not interfere with patient's daily activities.

## **Preoperative preparation of patients with renal failure**

### **Choosing arteries**

Arteries are assessed simple, first by palpation. Elastic arteries and better pulse beat strong, are suitable for achieving the fistula. Radial artery is palpated in the fossa radial brachial hand is slightly pronated. Brachial artery is palpated in internal portion of the elbow region.

Allen test is used to detect the obstruction of the radial and cubital artery by observing the color change to compression of separate palmar radial artery and cubital. The technique of making the test is as follows: the patient takes the hands outstretched fist clip for the evacuation of blood from his hand. Strongly with each examiner compresses the radial artery and cubital thumb. The patient then opens his hand without fingers to stretch and decompress examiner cubital artery. If fingers resuming their color, cubital artery is permeable, if pale or lessening continues slowly, there is a total or partial obstruction of the artery. Repeat the maneuver to the radial artery. Same maneuver can be applied and brachial artery, radial and cubital in the same examination.

Radiography of the forearm can be done in patients with arterial hypertension or diabetes, to detect the degree of calcification of the arterial wall. Avoid arteries with parietal calcification in the choice for fistula, because thrombosis are more often, using only in limited circumstances, you can not address other arteries.

### **Choosing veins**

Venous network is very different from one patient to another, being specific to each individual practice. Inspection of the superficial vessels in the arm and forearm are essentially required preoperatively, because quite often veins present changes, secondary intravenous injections (chronic inflammation, thrombosis) [6]. In examining

effective, apply a tourniquet above the site fistula making at an appropriate distance to highlight the veins. Vein patency is checked by compressing proximal veins with your finger, pushing the column of blood to see if the vein is dilated, followed by decompression rates of discharge to see the vein.

Veins with changes due to repeated injections, although apparently have a good size, are not used, preferring the veins with a caliber smaller but permeable and good flow. Skin changes - retractile scars, burns, scars after skin wounds, after iterative fistulas, contra achieve fistula at the upper limb [5,7]. It uses the Doppler examination, noninvasive, with obtaining good results.

Time to make a decision to enter the vascular access for dialysis program depends on several factors:

- The severity of chronic renal failure
- Blood pressure
- The degree of body hydration
- Angioaccess emergency or not
- Patient age.

There are three categories of surgical access:

### **Primary access surgery**

It is intended for patients who have no more dialysis.

In case of hyperkalemia, acidosis, hyperhydration.

In these situations it is preferred as a way for dialysis access, arteriovenous fistula type Cimino-Brescia.

In emergency situations, patients with electrolyte imbalances or IRC IRA major is preferred by immediate access through central venous catheter that can be used for several weeks. If the patients require further dialysis it is necessary to make an arteriovenous fistulas for permanent access [1,5].

### **Secondary access surgery**

Secondary access procedures are used in situations when no distal arteriovenous

fistulas can practice: - radio-cephalic fistula failure, inadequate operation. They are the forearm fistulas, fold of the elbow fistulas, arm or leg, fistulas with synthetic or vein graft [1,5].

### **Tertiary Access Surgery**

Is addressed to the patients with IRC for many years in a hemodialysis program, which the venous vascular system is almost completely exhausted. In these circumstances vascular approach is made by permanent central venous catheters - the internal jugular veins, subclavian, femoral, or implantation of artificial devices in the femoral vessels [1,5].

### **Location arteriovenous fistulas**

Fistulas location of choice is the upper limb, the hand, forearm, upper arm.

#### **- *Fistulae made at the anatomical snuff-box***

Anastomosis is easily accomplished because the vessels are superficial and easy to dissect. Use the radial artery and cephalic vein home branch.

Advantages: arterial flow distribution in the proximal vein, distal vein, the distal portion of the artery.

Disadvantages: edema of hands and distal veins, requiring distal vein ligation.

#### **- *Fistulae made in the third distal forearm***

This fistula is performed classic Brescia-Cimino type. The best location is approx. 3-4 cm. proximal radio-carpal joint, the non-dominant forearm. Radial artery and cephalic vein generally have a trajectory near the surface.. Place where the artery pulse pressure it feels best represents the anastomosis site. Trunk main tributary veins entering the venous anastomosis can be ligation and divide if those vein prevent by their path, the mobilization of the cephalic vein, necessary to achieve the anastomosis. Vascular caliber is conveniently achieving adequate fistulas.

Advantages: the punctured vein path is long, allowing prolonged use of the fistula. Fistula

does not feed the heart long time and may suffer further corrections.

Disadvantages: where artery and vein are located at a distance, resulting in a difficult mobilization and risk of angulation subsequent to fistula.

Other sites in the forearm are used by way of exception: ulnar artery with basilic vein, radial artery with basilica vein.

#### **- *Fistulae achieved average one-third of the forearm***

At this level fistula is performed exceptionally as the radial artery is located deep and the risk of distal forearm and hand ischemia by arterial theft is high.

#### **- *Fistula at the level of fold of the elbow***

Indicated if the fistula may not be run in the distal forearm. Execution of a fistula is preferred at this level in non-dominant member before a distal fistula to the dominant member attendees to enable the patient performing routine activities carried out with the upper limb.

Anastomosis can be achieved between: brachial artery and cephalic vein, brachial artery and mediocephalic vein, brachial artery and mediobasilic vein, brachial artery and basilic vein.

Disadvantages: Arterial steal phenomena or heart failure, when the arterial flow is high.

#### **- *Fistulae made in the forearm proximal third***

Their indications are limited, where the venous capital in areas of choice is exhausted. It can take between radial artery and mediocephalic vein, radial artery and mediobasilic vein, radial artery and communicating deep vein, ulnar artery and mediobasilic vein.

And in this case can appear the phenomenon of arterial failure or theft.

#### **- *Fistulae made in the arm***

At this level, the fistula can be made between the brachial artery and cephalic vein or basilica vein. The basilic vein need to be superficialised for punction or

vascular prostheses may interject. Fistulas have the same drawbacks as previous heart failure and theft artery to distal ischemia [1,4,5].

Anastomoses arteriovenous fistulas used for implementation are:

- Termino-terminal arteriovenous anastomosis
- Termino-lateral arteriovenous anastomosis
- Latero-terminal anastomosis arteriovenous
- Latero-lateral arteriovenous anastomosis.

### **Cimino-Brescia Fistula**

The basic technique for achieving vascular access for hemodialysis, is a fistula made in the lower third of the forearm, respectively Cimino-Brescia fistula.

Description of technique:

1. Positioning the patient: supine on the operating table with arm abduction to 90° and extension, on a small table. The radial artery sights and mark its path with a resistance marker. The sights by palpation and with a forearm tourniquet applied to dilate the veins, the vein to be used. Usually it is the cephalic vein at this level, but can be used and other veins that are more conducive to carry out anastomosis. It marks its path with a marker. Draw the line skin incision between the two previous parts, the proximal radius stilod process.

2. Field operator training: skin disinfection with iodine alcohol 5%, applied twice with sterile swabs, patient isolation and operating field with sterile materials, to isolate the distal forearm.

3. Anesthesia: may be made before patient isolation, namely brachial plexus anesthesia with marcaine, providing analgesia, anesthesia and chemical sympathectomy and surgical comfort increased, or local anesthesia, the surgeon performed with xilină 1% 10-20 ml, depending on patient tolerance and weight.

4. Surgical approach: It can make longitudinal incisions, approx. 2-4 cm, the trail above, or transverse incisions, joining the previously marked vessels, a method that complies with Langer's lines (horizontal at members), better and more aesthetic healing, issuing of a much larger region for vein puncture if it surgical wound does not overlap efferent vein. Longitudinal incisions are prone to keloid scars transformation.

5. It is recommended latero-lateral anastomosis or latero-terminal because the end-to-end anastomosis can cause ischemia of the hand.

### **Arteriovenous fistula at the fold of the elbow**

The fold of the region is an alternative implementation of arteriovenous fistulas in patients with CRF in which the fistula made in the third distal forearm can not be used because of complications due to prolonged use.

At this level it will be practice effective fistulas, functional, between the brachial artery and cephalic vein, mediocephalic, or mediobasilic vein.

Description of technique:

1. Patient positioning, preparation of the operative field and anesthesia are identical like in arteriovenous fistula of the distal third forearm

2. Surgical approach. Curved skin incision is made, with the concavity upwards, cross-shaped or "S", about 4 cm, just below the fold of the elbow. In fact, both the length and position of incision depends on the particular situation of each patient, depending on the design and layout and type of fistula vein to be achieved.

3. The objectives of the fold of elbow fistula are:

- Fistula is done as a distal fistula.
- Do not bend or compress with the forearm flexed.
- Radial artery is preferred, on which reintervention is possible in case of complications. In this case,

the ulnar artery can ensure a smooth flow to the forearm arteries.

- It is recommended latero-lateral or latero-terminal anastomosis because the end-to-end anastomosis cause major ischemia in the forearm and hand. [1,2,4,5]

### **Regarding postsurgical arteriovenous fistula**

Upper limb who underwent fistula remains at rest 3-4 days, with the forearm raised, supported or not on a splint to prevent postoperative edema.

Postoperative hematomas are resolved by the application of ointments with heparin.

Persistent haemorrhage that did not stop by applying dressings, requiring open surgical wound and surgical solution by tracing source and hemostasis. Existence coagulation disorders sometimes encountered in patients with CRF, is a complication which is resolved difficult and in time.

After several days, begin muscle exercises to facilitate the development of fistula, initially by repeated opening and closing the fist in series, followed by cca 7 days of using a ball or rubber ring, which is closely repeated in series as the punch. Muscle contraction contribute to the development of fistula.

The first puncture of the fistula is realized after the healing of the wound and fistula maturation, respectively vein dilatation. The range is wide, with an average approx. 21 days. There have been cases in which the fistula were successfully punctured after three days postoperative, but also at an intervals more than a month.

Puncture fistula is made with two pins or a simple pin - unipuncture. two needle puncture runs as follows: a needle proximal - arterial cannula, a needle distal - venous cannula. Arterio-venous fistulas with short-segment uses a single needle dialysis, antegrade oriented.

### **Long operating rules of a fistula**

1. No local anesthesia at the puncture site to prevent subcutaneous tissue sclerosis
2. Avoid repeated puncture in the same place at short intervals to prevent aneurysm formation.
3. Punctures are made at 5-6 cm. below of anastomosis to prevent aneurysm formation and compromised vascular wall.
4. After dialysis, fistula should be followed a few hours to detect the occurrence of bleeding or thrombosis consecutive puncture.
5. To detect any complications arising or emerging, can make a fistulography after approx. 3 months of starting use of the fistula [4,6].

## **CONCLUSIONS**

Making therapeutic arteriovenous fistulas in day surgery is possible only under the following circumstances:

1. The strict observance of all principles of making the anastomosis are respectively in the operating room, with a strict aseptic, with a careful selection of cases.
2. The primary access surgery, or at most secondary access surgery for the fistula to the fold of the elbow.
3. Performed by surgeons with experience in vascular surgery.
4. The possibility of postoperative patient monitoring, with prompt delivery to the hospital early the occurrence of postoperative complications - haemorrhage, thrombosis.



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