Abstract. – BACKGROUND: Most studies dealing with health problems of the Roma population suggests that a low economic status significantly contributes to their overall poor health. In Serbia, Roma people are members of a marginalized ethnic group with a low socioeconomic status which contributes to their much higher morbidity and mortality rate compared with the majority population. The questions we asked in this paper were: Are Roma children discriminated during hospital care? Do they get the same treatment as the non-Roma children?

PATIENTS AND METHODS: To answer these questions, we examined medical records of 59 Roma children and compared with 59 records of non-Roma children in order to determine whether there are any differences in the health status, as well as the length, course, outcome, and cost of treatment.

RESULTS: Roma children have statistically significant more comorbidity, more malnutrition, more skin diseases (especially parasitic and fungal infections) and were more frequently anemic. Also, the length of hospitalization of Roma children was significantly higher, as well as the number of laboratory tests performed and number of drugs prescribed, which contribute to the significantly higher costs of treatment for Roma children compared to non-Roma children. However, a significantly lower number of Roma children were discharged as “completely cured”.

CONCLUSIONS: The results of our study does not support hypothesis of discrimination of Roma children concerning medical treatment in observed hospital. At the same time, our results suggests that social interventions (e.g. hygienic housing, water supply, etc.) and prevention measures could prevent necessity of hospitalized treatment of Roma children and could diminish the drain on the health budget spent on treating the consequences of social neglect.

Key Words: Roma children, Health, Serbia.

Introduction

For centuries, the Roma (also known as Romá, Kalé, Sinti, Manouches, Travellers, Romanichals, Gypsies, Tziganes...) as an ethnic group have been faced with persecution and social exclusion. Although living conditions of the Roma significantly improved in Europe after the Second World War, social marginalization and discrimination against the Roma is still visible, particularly in the field of employment and health care.

There are a relatively small number of studies aimed at examining the health status of the Roma, especially concerning non-contagious diseases. After reviewing a literature, Zeman, Deken, and Senchina concluded: “The Roma peoples and other disenfranchised and impoverished groups would benefit from a concerted research and action focus on the part of health care scientists in regard to the factors of poverty, disenfranchisement, and oppression which contribute to an increased incidence of chronic and infectious health outcomes, poorer outcomes when these conditions occur, and poor health behaviours on the part of impoverished groups”

A review of the literature in this area shows that most studies that have examined the health status of Roma come from four countries: Spain, the Czech Republic, Slovakia and Hungary.

Research into the health status of Roma children in Slovakia and the Czech Republic showed that Roma children have a high prevalence of infectious diseases, are injured frequently, and more frequently suffer from intoxication which are the reasons why they are hospitalized more often in comparison to non-Roma populations.

Most research dealing with health problems of the Roma population suggests that a low economic status significantly contributes to their overall poor health, as well as to the low scholastic achievement.
In a study on the health of Roma children in Southeast Europe, which included in the sample children under the age of 8, it was shown that Roma parents rarely seek medical care when their children have health problems and are more likely to favor physical punishment in the process of child-rearing than non-Roma parents\(^7\).

The study done in England also reported that Gypsies and Travellers have poorer health status, were significantly more likely to have a long-term illness or disability, which limits daily activities or work\(^8\).

Regarding the situation of the Roma in Serbia, the fact is that they face a double handicap – first, they are members of a marginalized ethnic group with a low socioeconomic status, and secondly, a large number of Roma are part of the group of people internally displaced as a result of the wars in the former Yugoslavia. This status further contributes to their poor economic status, greatly influences their inadequate approach toward disease, and contributes to this population’s general poor health. If we take into account the parameters of the socio-economic position like income, education, and the level of social inclusion, it is clear that the Roma in Serbia are one of the most vulnerable ethnic groups in Southeast Europe.

A Multiple Indicator Cluster Study (MICS) conducted in Serbia in 2005, provided information about morbidity and mortality in children. The results of this survey show that the infant mortality rate in Roma settlements was 25%, compared to 8% in the general Serbian population. The mortality rate of children under five in Serbian Roma settlements was 28%, compared with 9% of the general population\(^9\). This suggests that children living in Roma settlements are over three times more likely to die before the age of five than children of the general Serbian population. The mortality rate among infants and children up to five years of age in Roma settlements lags far behind the Millennium Development Goal by 2015, which has called for the reduction of infant mortality to 4.5%, and for children under five years to 5%\(^10\).

Roma children aged 0 to 59 months more often suffer from pneumonia primarily due to poor living conditions and lack of heating in the winter season, compared to children of same age in total population\(^9\).

The aim of our study is to compare the health status of Roma children in relation to non-Roma children hospitalized at the Institute of Child and Youth Health Care of Vojvodina and to determine whether there are any differences in the health status, treatment, hospital length of stay, course, outcome, and cost of treatment between Roma and non-Roma children.

**Patients and Methods**

The study was retrospective comparative analysis of medical records at the Institute for Child and Youth Health Care of Vojvodina in Novi Sad, Serbia. The research was approved by the Ethical Committee of the Institute.

The research included children aged 1 to 24 months hospitalized at the Department of Pathology for Infants and Toddlers of the mentioned Institute in the period of six month (1.07.2012-31.12.2012). The Roma children sample (N=59) was a total sample admitted to the hospital and the non-Roma children sample was first 59 admitted in the same period, balanced by age and admission diagnosis – an equal number of children in both groups were admitted due to an acute infection of the lower respiratory tract (bronchitis, pneumonia, and bronchopneumonia) or digestive organs (gastroenterocolitis).

**Statistical Analysis**

The parameters for the health statuses of both groups of children included: anthropometric measures, comorbidity (number of diagnosis), anemia, skin diseases, course and length of hospitalization, and outcome of treatment. In order to assess the health status, anthropometric measures (height and weight) were analyzed. The WHO/NCHS population reference was used to calculate the results. Malnutrition (wasting) is defined as weight for height (Z-score less than -2), delay in height (growth) for age (Z-score less than -2) and underweight as weight for age (Z-score less than -2).

For statistical analysis Chi-square (\(\chi^2\)) and t-tests were used. Analysis was performed using STATISTICA for Windows software, \(p < 0.05\) was considered statistically significant.

**Results**

**Anthropometric Measures**

According to all three anthropometric measures, the Roma demonstrated poorer performance than non-Roma children, and in the case of malnutrition (low weight in relation to age) this difference was statistically significant (Table I).

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1. The health status of Roma children – A medical or social issue?
Roma children had been hospitalized even longer than 30 days, which was not due to the admission diagnosis, but rather subsequently discovered complications.

During hospitalization, the number of laboratory tests conducted on Roma children averaged 17.19, as opposed to 13.56 for non-Roma children, which was significantly higher ($F/1.116/ = 5.2921, p = .0232$).

The average number of drugs administered to Roma children during hospitalization (3.56) was slightly but not significantly higher than the average number given to non-Roma children (3.08).

Consequently, the average cost of hospitalization for the Roma children (94,749 RSD) was significantly higher ($F/1.116/ = 11.7712, p = .0008$) than the average cost for the non-Roma children (51,319 RSD).

Despite the substantially longer average length of hospitalization, a significantly lower number of Roma children were discharged as “completely cured” (Table IV). This outcome is the result of the significantly poorer general condition of Roma children on admission to a health institution (malnutrition, anemia, etc.) and necessities of a longer post-hospital treatment.
Discussion

Fighting hunger is, in itself, an important goal and results in a reduction in both morbidity and mortality. Anthropometric measures are good indicators for determining the nutritional status of individuals or populations and are useful for assessing health status. The delay in growth (low height for age) has a cumulative effect and is a result of chronic malnutrition or disease. Malnutrition (low weight for age) indicates a reduction in weight and height for age and reflects both chronic and acute effects. Wasting (low weight for height) is an indicator of current nutritional status. Roma children with those indicators have a higher risk of disease, medical complications, and adverse outcomes of treatment and death.

In the period 2005-2006, UNICEF carried out research which, among other things, dealt with health indicators for the Roma population. The data published in the Multiple Indicator Cluster Survey show differences in nutritional status between children in Roma settlements and the general population in Serbia. Twenty percent of children in Roma settlements had a delay in growth compared to 7.7% of children in the general population. It was also shown that 4.1% of Roma children had low weight for height, compared with 3.2% in the general population. The biggest difference, as was also seen in our study, was found to be malnutrition – 7.7% of Roma children are undernourished compared to 1.4% of children in the general population. Similar results were obtained among the Roma children in the territory of Macedonia. Czech Authors also found a significant difference in anthropometric measures when comparing the children of Roma and non-Roma. Our results are dramatically worse for the Roma, as well as for the non-Roma children, which was logical, given the fact that we observed hospitalized children, i.e. children with health problems.

The main reasons for the hospitalization of children included in this study were acute lower respiratory tract infections (bronchitis, pneumonia, and bronchopneumonia) or digestive system infection (gastroenterocolitis). In addition to these basic diagnoses, comorbidity was analyzed and was significantly higher in the group of Roma children. This may explain the poor health status of children what had been caused by malnutrition and poor socio-economic living conditions. Frequently outpatient treatment is not carried out properly because of poor cooperation with parents and their lack of education which can lead to an accumulation of complications and health problems. A study in Southeast Europe showed that Roma parents rarely seek medical care and the fact that only 27% of Roma children are properly vaccinated demonstrates that children from Roma settlements are excluded from the public health infrastructure. One has to bear in mind that the lifestyle of Roma children is determined by low socioeconomic status and unemployment of parents who have no health insurance. The consequence is that their access to doctors and medical institutions is significantly limited. It is possible that this is possible explanation for the fact that only 45.1% of children with pneumonia living in Roma settlements are treated with antibiotics. While the national average in this case is 56.8%, the average for Roma children is 45%.

A health survey conducted on Roma children in the Czech Republic showed that children under the age of two suffer more frequently from infectious disease when compared to the non-Roma population of children. Roma children are to a significantly greater extent exposed to tobacco smoke – only 9% of Roma children live in a non-smoking environment (no smoking in the immediate family) compared to 41% of non-Roma children. This data clearly indicates a serious problem given that cigarette smoking by mothers during pregnancy, as well as later on, are well-known risk factors for respiratory infections. Recurrent bronchitis among Roma children is also associated with exposure to air pollution due to coal burning stoves of poor quality.

Data on the frequency of anemia in children differ from author to author and depend on the degree of development of the country in question and the accepted normal range of hemoglobin, which can vary from 5% to 43%. The incidence was significantly higher in underdeveloped countries but in developed ones seems to run in families of lower socioeconomic status. For example, the results of research conducted in Israel in 2003 show that 15.5% of children in the population aged 6-18 months were anemic, which highlights the serious impact of anemia on growth, development, and the health status of children. In our study, a significantly higher number of Roma children were anemic, which is also one of the reasons for lower resistance to infection, the inferior status of immune response, and higher morbidity. Anemia is usually caused by prolonged, exclusive breastfeeding, poor quality
food, and reduced iron reserves due to maternal anemia during pregnancy, which is more of a rule than an exception when concerning the Roma population in Serbia.

Furthermore, data from the official report of the Government of Serbia suggest a higher incidence of skin diseases and asthma among Roma children and our sample demonstrated similar results. Skin diseases were significantly more common among the Roma in relation to non-Roma children. If we look at the etiology of skin diseases among Roma children we see a higher incidence of infectious dermatoses in relation to non-Roma children. For example, in a study conducted in Italy, dermatological infections, including scabies (mange), were also frequent (16%) in Roma children. A high prevalence of infectious skin diseases (scabies, pediculosis, piodermiae and fungal diseases) is the result of the poor socio-economic conditions in which Roma children are living. A large number of Roma households do not have running water or maintain regular personal hygiene, as suggested by a UNDP study. Skin diseases like eczema, and in particular chronic dermatitis, are common in the Roma population. A large number of children in our sample had napkin dermatitis (diaper rash), which was to be expected considering of gastroenterocolitis. Complications in the form of fungal superinfection were recorded only in the sample of Roma children, which also points to poor socioeconomic conditions and the inability to maintain adequate personal hygiene of Roma children.

The largest number of children examined in both groups received treatment ranging from 7-30 days. Interestingly, only Roma children were hospitalized for more than 30 days, while a short hospital length of stay (up to 7 days) was significantly less common in this group. Therefore, the number of hospital days was almost two times higher in the group of hospitalized Roma children. The hospital length of stay in this group can be explained by the number of problems that these children have: their poorer health status, and reduced resistance caused by malnutrition and anemia.

The Roma children in our sample received a higher average of drugs and had significantly more laboratory analyses performed during hospitalization. The reason for this situation is found in the children’s long hospitalizations, the children being in worse condition and prone to complications and adverse outcomes. On the other hand, this fact coupled with data on the hospital length of stay, indicates adequate medical care and a lack of discrimination against Roma children.

The hospital length of stay, the amount of applied drugs and significantly higher number of laboratory studies are also the cause of a significantly higher (by more than 60%) average cost of hospitalization for Roma children.

Our results, which show that Roma children have a higher prevalence of infectious diseases, parasitic diseases, and longer duration of hospitalization, are consistent with findings of other authors on the higher prevalence of infectious diseases, parasitic diseases and hospitalizations among Roma in relation to non-Roma children.

Conclusions

Discrimination is a term that is often associated with members of the Roma in many spheres of life, including health care. Our study, however, gives arguments supporting a finding that the children from the marginalized ethnic groups in health care facilities are provided with the same level of attention and quality of treatment as are members of the majority population. Of course, in order to generalize our findings in terms of the whole of Serbia, a survey of a representative sample is necessary. It should be noted, however, that the existing procedures of treatment significantly reduces the possibility of (discriminatory) individual approach, and that discrimination would not only be a violation of medical ethics, but also of the Law on Health Care. For this reason, we believe that our results can be interpreted as a valid indicator of the level of health care Roma children in Serbia receive.

Undoubtedly, the most important conclusion of this work is that primary prevention directed toward health education for the Roma could raise the level of health and hygiene and, at the very least, the dermatological status of Roma children. However, in order for preventive and educational work with children and their families to substantially improve the general health status of this ethnic group, social intervention (e.g. hygienic housing, water supply, etc.) is needed to ensure conditions for the implementation of lessons received. First of all, financial support of society for adequate food and adequate housing of Roma population are necessary. Such a combined effort could prevent the significant drain on the health
budget spent on treating the consequences of social neglect. Intervention with social measures is simpler and cheaper than long-term treatment in health institutions.

Conflict of Interest
The Authors declare that they have no conflict of interests.

References