Republic of Serbia
MINISTRY OF HEALTH

THE INSTITUTE OF PUBLIC HEALTH OF SERBIA
"Dr Milan Jovanović Batut"

RESULTS OF THE NATIONAL HEALTH SURVEY OF THE REPUBLIC OF SERBIA
2013

Belgrade, 2014.

◆ The 2013 Serbian National Health Survey is the third national health survey carried out and financed by the Ministry of Health of the Republic of Serbia.

◆ The analysis of representative and most important results was conducted by the Institute of Public Health of Serbia "Dr Milan Jovanović Batut"

RESULTS OF THE NATIONAL HEALTH SURVEY OF SERBIA, 2013

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FOREWORD

The publication "Results of the Serbian National Health Survey in 2013" provides valuable information on the health status of the population and the factors influencing it. It was created based on the analysis of the results of the third consecutive national health survey (2000, 2006, 2013) implemented by the Ministry of Health of the Republic of Serbia.

The information on socio-economic health determinants, health status, lifestyles, functional capabilities, use of health care and health care costs were collected systematically, by way of interviews and measurements within the representative population sample.

In order to have health indicators that are comparable with those of the European Union countries, the Survey was conducted in line with the European Health Interview Survey – wave two (EHIS-wave 2). At the same time, wherever possible, the methodology used in the Serbian National Health Survey 2006 was used in this one, in order to monitor the trend of selected national health indicators.

The results obtained through the Survey are significant because they represent a documentary basis for the process of rational decision-making in the areas of health promotion and disease prevention, as well as planning of a more efficient and qualitative health care with the aim of reaching a longer and better-quality life of the population of Serbia.

MINISTER OF HEALTH

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I

Serbian Public Health Survey: the Review

1.1. Introduction

The Serbian National Health Survey 2013 (without data on Kosovo and Metohija) is the third national health survey conducted by the Ministry of Health of the Republic of Serbia, while the analysis of the obtained data was carried out by the Institute of Public Health of Serbia "Dr Milan Jovanović Batut". The first such survey was published in 2000, the second in 2006. In the third Survey, harmonization of research instruments with those of the European Health Interview Survey wave 2 (EHIS wave 2) (1, 2) was done, with the aim of reaching the highest level of comparability with results in the European Union countries, in accordance with defined, internationally adopted indicators (ECHI, OMC, WHO, UNGASS, MDG…). The Serbia National Health Survey was carried out by way of interviews, anthropometric measurements and blood pressure measurements.

1.2. Survey Goals and Areas

The major goal of the health survey was to obtain the description of the health status of the population through interviews, at the level of the Republic and the four statistical regions (Vojvodina, Belgrade, Šumadija and Western Serbia, Southern and Eastern Serbia). The main idea of the research was to obtain information on how people feel about their own health, to which degree they use health care and how they care about their own health – by accepting certain lifestyles or relying on preventive and other health care services.

In order to reach the major goal of the research, the following **specific goals** were defined:
• Identification of the main health problems

• Description of the health status and health needs of the population

• Assessment of the coverage by and distribution of health indicators

• Analysis of the level of health care use and its determinants

• Projection of possible trends in the health population status.

The ultimate goal of the health survey was for it to serve as an instrument integrated in the decision-making process to create adequate health care policy.

The Serbian National Health Survey included six main areas of research:

• Household characteristics
• Basic (socio-demographic) characteristics

- Health status (health self-assessment, chronic non-communicable diseases, accidents and injuries, physical limitations and functional limitations related to sensory perception, capability of performing everyday activities, pain, mental health)
- Use of health care (use of out-of-hospital and hospital health care, use of medicines, preventive examinations, non-realized health care needs, satisfaction with health care)
- Health determinants (nutrition, physical activity, risk factors, provision of informal care or assistance, hygiene habits, smoking, use of alcohol, use of psychoactive substances, sexual behaviour, violence, social support)
- Basic anthropometric measurements (height, body mass, waist circumference) and blood pressure measurement.

1.3. Sample Description

Target Population

The target population in the Serbian National Health Survey comprised persons of 15 years of age and over, who lived in private households and resided on the territory of the Republic of Serbia during the collection of data.

A special target population group comprised children aged 7–14.

The following categories of persons belonging to the target population were not included in the survey:

- Persons who live in collective households and institutions
- Persons who live on the territory of the Autonomous Province of Kosovo and Metohija, which is under jurisdiction of UNMIK (UN Mission in Kosovo).

In the process of expanding the population included in the survey by including persons aged 7–14, these respondents were not taken into consideration when calculating the sample size.

Type of Sampling Frame

In this survey, the most complete population register in our country was used – the one that includes sampling units defined within the target population – the 2011 Census of Population, Households and Apartments in the Republic of Serbia – the list of all households in all Census circles.

Sample Design and Sampling Techniques

In line with recommendations for conducting of EUROSTAT health survey, European Health Survey wave 2 – Methodological Manual (EHIS wave 2, Methodological Manual) (1, 2) the National Representative Probability Sample was used – stratified two-stage cluster with the probability of selecting sampling units in each sampling stage known in advance.

A sample is selected so that it provides statistically reliable estimate of a larger number of indicators that indicate the health of a population, both on the national level and on the level of geographic areas/statistical regions (hereinafter: the region): Vojvodina, Belgrade, Šumadija and Western Serbia, Southern and Eastern Serbia, and on the level of cities and other settlements/areas.

The mechanisms that were used for random sampling of households and respondents are a combination of two sampling techniques: stratification and multi-stage sampling.

Stratification – the population data for Serbia (2011 Census) were used in order to crate initial strata. Also, two variables were used in order to identify strata and estimate their size and percentual presence in the sample – region (4 territorial strata according to NUTS2) and the type of settlement, or, division of settlements into cities and other settlements. Variables of region and type of settlement were at the same time used both for stratification of the population and for the sample stratification, so the samples were stratified in two dimensions. As main strata in a sample, four statistical regions were identified: Vojvodina, Belgrade, Šumadija and Western Serbia, Southern and Eastern Serbia. By further division of the four strata into city and other settlements, there ultimately were 8 strata in Serbia.

Two-stage sampling – the first stage units are census circles selected on the basis of Probability Proportional Sampling – PPS. In the first stage, a total of 670 census circles was selected. The second stage units were the households. The lists with households in all selected census circles had been updated prior to the household selection. Upon completion of the update within each selected census circle, 10 households and three reserve households from the household list were selected. The households were selected by using the *Simple Random Sample Without Replacement – SRSWoR*. Thus, the households were selected with equal selection probability and with no repetitions.

The basic information on sampling stages is outlined in the following table:

Primary sampling units – Census circles

Definition: a "census circle" is a spatial unit defined in accordance with the number of residential units and residents, for the purpose of census and other statistical researches.

The primary sampling unit type: Probability Proportionate to Size Sampling (PPS sampling).

Selection method: *Lachirie* (cumulative).

Secondary sampling units – Households

Definition: Household is a union of family members or other persons who live together in the same dwelling, sharing their income to cover the basic needs (rent, food, etc.)

The secondary sampling unit type: Simple Random Sample Without Replacement (SRSWoR).

Selection method: Systematic random starting point sampling, and equal sampling interval.

Levels of accuracy

The sample is selected in such a fashion that it provides statistically reliable estimates for the level of the whole Serbia, followed by the level of individual regions (Vojvodina, Belgrade, Šumadija and Western Serbia, Southern and Eastern Serbia), and the level of individual settlement type (urban, rural). In this group, the lowest level of estimate is for the Belgrade region; for that reason, the error of the estimate is the highest in that region. In this case, for the variable with 50% incidence in the adult population, it is +/– 1,9%, while for the variable with 10% incidence it is +/– 1,2%.

The Sample Size

Starting from the requirements for estimate precision and reliable estimate levels, in accordance with recommendations for conduction of the national health survey (3, 4), a number of interviewees was planned in order to provide the necessary sample size across strata. A sample of 6,700 households was planned, with expected 19,284 members (Table 1). The sample of 6,500 households was realized, with registered 19,079 members.

TABLE 1. Distribution of the planned sample according to the target population and expected number of individuals

	Number of census circles (clusters)			Number of households			Expected number of individuals
	Urban	Other	Total	Urban	Other	Total	Total
Belgrade	135	27	162	1,350	270	1,620	4,450
Vojvodina	113	74	187	1,130	740	1,870	5,180
Šumadija and Western Serbia	86	93	179	860	930	1,790	5,462
Southern and Eastern Serbia	74	68	142	740	680	1,420	4,192
Total	408	262	670	4,080	2,620	6,700	19,284

Table 2. Distribution of the realized sample and registered number of individuals

	Number of households			Registered number of individuals
	Urban	Other	Total	Укупно
Belgrade	1221	255	1476	4179
Vojvodina	1101	729	1830	4915
Šumadija and Western Serbia	858	929	1787	5637
Southern and Eastern Serbia	729	678	1407	4348
Total	3909	2591	6500	19.079

1.4. Survey Instruments

In the 2013 Serbian National Health Survey, the following three types of questionnaires were used:

1) Household questionnaire – for collection of information on all household members, on characteristics of the household, as well as on the characteristics of the household dwellings. The questionnaire is completed during verbal communication between the interviewer and the interviewee who represents the main person in the household in relation to answering the question of interest.

2) Face-to-face questionnaire, which is completed with each household member (two versions of this questionnaire were used, one for each household member aged 15 and over, and the other for each child aged 7–14, who lives in the household).

3) Self-administered questionnaire, which is independently completed by each household member aged 15 and over, without participation of the interviewer. This type of questionnaire was used because it had been estimated that sensitive questions, those dealing with alcohol use, sexual behaviour, etc, were not convenient for face-to-face questionnaire completion.

To complete the questionnaire, the computer-assisted personal interviewing (CAPI) procedure was used, as well as the paper-and-pencil procedures (PAPI) in completion of self-administered questionnaires.

1.5. Collection of Data

The field work took place from 7 October to 30 December 2013, following the legislation relating to *European Health* Interview *Survey* (EHIS wave 2) – stating that work in the field should last at least three months, one of which at least had to be in the period September–December, or, in the fall (5).

In order to reach a high level of collected data, so that the rate of household answers would be at a high level, and in order not to disturb the representativeness of the sample – prior to starting the field work, selection of team members, who were to conduct the field work, was done, the training for interviewers was organised, and guidelines for supervision and field work control prepared.

68 teams with a total of 204 interviewers were gathered for field work. Each team comprised three members, one of whom was a health care worker, or, doctor or medical nurse/technician. For supervision and field work control, 13 field supervisors were in charge. The control procedure of the whole survey process, during all its phases, included the control of sampling and control of field work.

The supercontrol at the end of the field work was performed. For this purpose, 10% of the census circles were randomly singled out from the sample as a whole. The supercontrol results showed that the procedure of aggregating data had gone well, meaning that both interviewers and supervisors followed the instructions obtained during training.

From the very beginning of the field work, with the aim of informing the public and stimulating the citizens to participate in the Survey, intensive media campaign had been conducted, under the title "Hello, how are You?" (including advertising in the print media, on the Internet, billboards, radio and television stations), as well as a PR campaign (working breakfast of the Minister with media representatives, press conference prior to commencement of the survey, presence of survey team members in the public media, etc.).

1.6. Ethical Aspects, Participation of Interviewees in the Survey and the Response Rate

Ethical standards in the Health Survey harmonized our country's specific legislation with the international standards (Helsinki Declaration – *World Medical Association Declaration of Helsinki*, adopted by the 18th General Assembly of the World Medical Association in 1964, improved and ammended by 2008 at the 59th General Assembly) (6).

In order to respect privacy of the survey subjects and confidentiality of information collected on the subject, all necessary steps were undertaken, in line with the Law on Protection of Personal Data ("Official Gazette of RS", No. 97/08, 104/09), Law on Official Statistics ("Official Gazette of RS, No. 104/09) and Directive of the European Parliament on Protection of Individuals with regard to the Processing of Personal Data *(Directive 95/46/EC)*.

The field researchers were obliged to provide the Survey participants with printed document informing them about the Survey (Information on the Survey signed by the Minister of Health) and the approval of the Ethical Board on its enforcement and the rights of interviewees, and on where and how they could lodge appeals/complaints should they find that their rights had in any way been violated. Also, each interviewee had to obtain the signed informative approval – acceptance of their participation in the Survey.

Aggregation of data identifying interviewees was avoided as much as possible in this Survey (necessary identificators were removed in the earliest stages of statistical analysis and replaced by codes), while survey results were published in the aggregated form, thus providing the complete secrecy of individual data.

In this Research, a total of 6,500 households and 15,999 participants were interviewed.

Out of 10,098 contacted households, 6,500 of them accepted to participate in the survey, so that the response rate is 64.4%. Out of 16,474 registered household members aged 15 and over, 14,623 of them accepted or were able to be interviewed, creating a response rate of 88.9%. Out of this number of persons who accepted to be interviewed, 13,756 of them accepted to complete the self-administered questionnaire (response rate 94.1%). All measurements were conducted on 13,908 participants aged 15 and over (response rate 95.1%), while partial measurements were conducted on additional 534 participants. The final sample included another 1,376 participants aged 7–14, out of a total of 1,488 persons of that age who were registered as household members, so the response rate for this age group was 92.5%. Out of the total number of interviewees aged 7–14 who participated in the survey, 1354 of them accepted to have their height and weight measured (response rate 98.4%), while partial measurements were conducted on another 12 participants.

1.7. Presentation of Results

The presentation of representative and significant results of the 2013 Serbian National Health Survey represents a wide spectrum of health indicators, categorised into five main parts:

- **Health Status**
  In this part, a series of indicators was used for obtaining a complete picture of the population's health status, as well as the prevalence of specific diseases and conditions, and presence and level of functional limitations.

- **Health Determinants**
  A positive impact of certain habits and behaviours on health status has so far been well documented. This includes the habits referring to healthy diet and regular physical activity, but also those habits that were proven as negative influence on health, such as alcohol abuse, tobacco and drug use. The patterns of such behaviours within Serbian population are given in this part.

- **Use of Health Care and Health Spending**
  Apart from the use of primary health care and hospital care, analysis of non-realized health needs of the population, preventive activities (such as screening for early detection of cancer or risk factors for chronic non-communicable diseases of greatest public health significance) and use of medicines, health care costs were also described.

- **Health of Children and the Elderly**
  These chapters deal with a number of health status indicators, health determinants and use of health care by observed population group. Among elderly population, social support matters were particularly considered.

This publication contains results of the survey presented against the gender and age of interviewed citizens, according to the socio-economic characteristics – education, household income and wellbeing index. The interviewees were divided, from the lowest to the highest household wellbeing index value, into 5 categories (quintiles), so that the first quintile comprises the poorest and the fifth the most affluent citizens. The results were presented by region too, and type of settlement where the interviewed citizens live. Also, the results of this Survey were compared to, where it was methodologically possible, the results of the 2006 national health survey.

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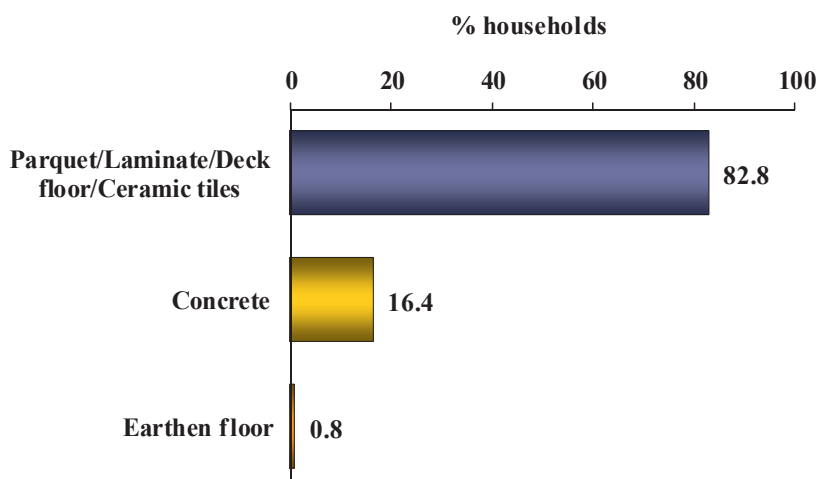# II

Description of the Population

The health of the population is determined by individual characteristics of individuals (gender, age, etc.) and external factors – social, economic, environmental and cultural – as well as by their mutual influence. Thus, adverse housing conditions or poverty have been recognized as factors that have negative effects on health, while education is recognized as a factor that has significant role in development of skills and knowledge necessary for positive changes in lifestyles. Health surveys allow for spotting the differences in health and health needs of a population that are connected with socio-demographic characteristics, identifying the most vulnerable categories of the population. So, when studying the effects of social factors on health, great attention is given to these demographic and socio-economic health determinants. This helps us identify the most vulnerable categories of the population and the disparities in health and health needs as a basis for decision-making in health care at all levels of the state and society.

2.1. Description of Households

In the 2013 Serbian National Health Survey, a total of 6,500 households were interviewed, 1,830 of which in Vojvodina, 1,476 in Belgrade, 1,787 in Šumadija and Western Serbia, and 1,407 in Southern and Eastern Serbia. 3,909 of these households were in urban areas and 2,591 in other areas.

In 2013, an average household in Serbia comprised three members (2.9); this is the same as the average number of household members back in 2006.

Graph 1. Households according to the type of floor in a house or apartment, Serbia, 2013

% households

| Type of floor	%
Parquet/Laminate/Deck floor/Ceramic tiles	82.8
Concrete	16.4
Earthen floor	0.8

The average number of bedrooms was 2.2, and the number of persons per bedroom was 1.4, just like in 2006.

In Serbia in 2013, there was a minor increase in the use of better-quality construction materials for building residential household objects – there was the rise in percentage of households with walls built of cement blocks (14.2%) (Graph 1) compared to 2006 when there was only 10.9% of these, as well as the rise in percentage of households with floors made of parquet/laminate/deck floor or ceramic tiles – from 63.9% in 2006 to 82.8% in 2013, while the percentage of households with cement floors was halved – from 32.6% in 2006 to 16.4% in 2013.

The most households in Serbia in 2013 used wood as fuel for heating (56.3%), just like in 2006. One fifth of households had remote, central heating (19.9%), and 11.6% used electric energy (Graph 2).

Graph 2. Households according to the commonest energy source used for heating, Serbia, 2013
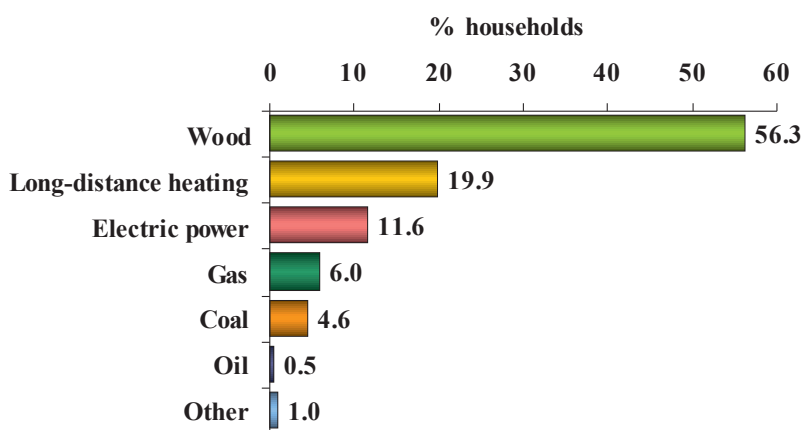
In Serbia in 2013, 96.9 % of the population had access to improved drinking-water sources, that is, 96.9% of the population used public water supply system and other improved water sources (Graph 3), which is significantly more compared to 2006 (92.6%). Also, there were more households that were connected to the urban water supply system – 73.5% in 2014 (Graph 4), compared to 62.7% in 2006.

A significantly lower percentage of population using drinking water from the public water supply system and other improved water sources was recorded in Vojvodina (94.1%). Compared to the type of settlement and financial status, no significant differences were noted in the percentage of the population that had access to the improved drinking-water sources.

Graph 3. The percentage of the population living in households using public water supply system and other improved water sources per region, Serbia, 2013

%population

Serbia	96.9
Vojvodina	94.1
Belgrade	98.3
Sumadija and Western Serbia	99.0
Southern and Eastern Serbia	96.4
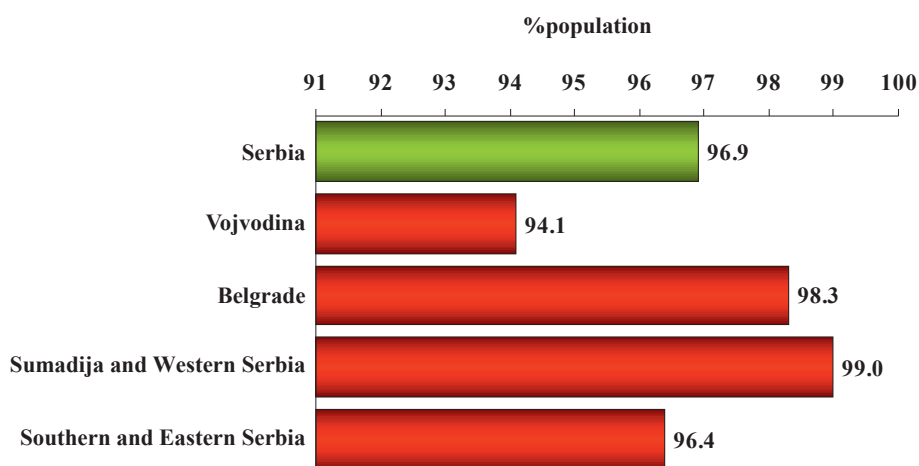
Graph 4. Households by the main source of drinking water, Serbia, 2013
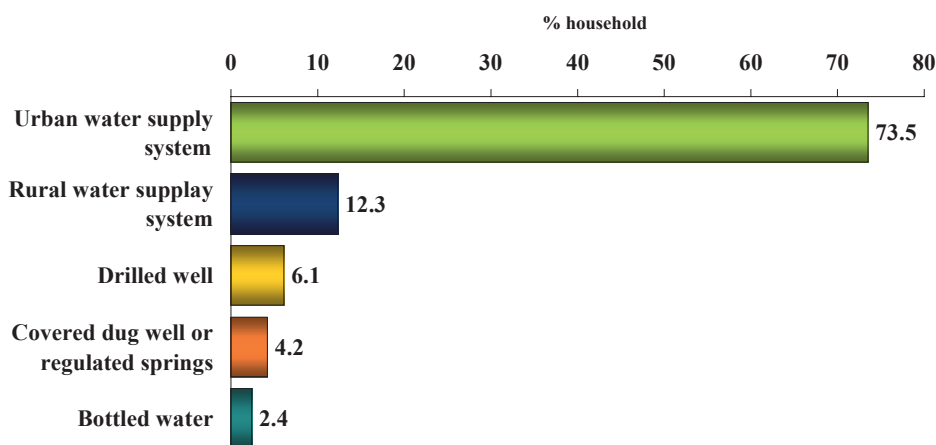
% household

Urban water supply system	73.5
Rural water supplay system	12.3
Drilled well	6.1
Covered dug well or regulated springs	4.2
Bottled water	2.4

The percentage of the population that had access and used improved sanitations in Serbia in 2013 was 97.1%, which is somewhat lower compared to 2006 (98%). Southern and Eastern Serbia stood out as a region in which population more rarely used improved sanitations – 92.7% (Graph 5), in non-urban settlements, and households in which the poorest people live. There was a rise in the percentage of the population that lives in households with toilet connected to the sewage system – 62.2% in 2013, compared to 2006, when it was 56%.

Graph 5. The percentage of the population that lives in the households that have access to and use improved sanitations by region, Serbia, 2013

% population

Region	Value
Serbia	97.1
Vojvodina	98.7
Belgrade	99.6
Sumadija and Western Serbia	96.8
Southern and Eastern Serbia	92.7
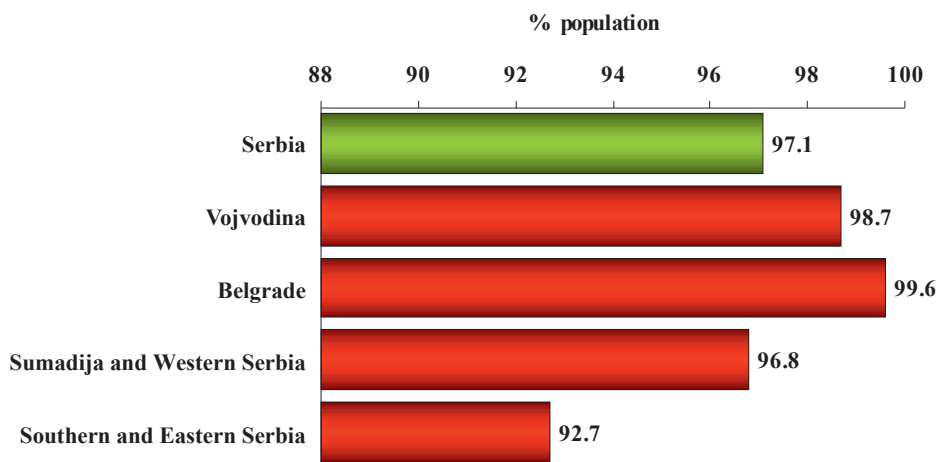
Graph 6. Population in percentages, by their household financial income source, Serbia, 2013

% population

Source	Value
Income from work	64.4
Pension	51.3
Income from agriculture	11.0
Family/child allowance	6.4
Unemployment benefits	2.0
Compensation for home care aid	1.3
Remittances from abroad	0.8
Income/revenue from real estate	0.7
Other	7.2
No income	1.3
Refusal	1.4
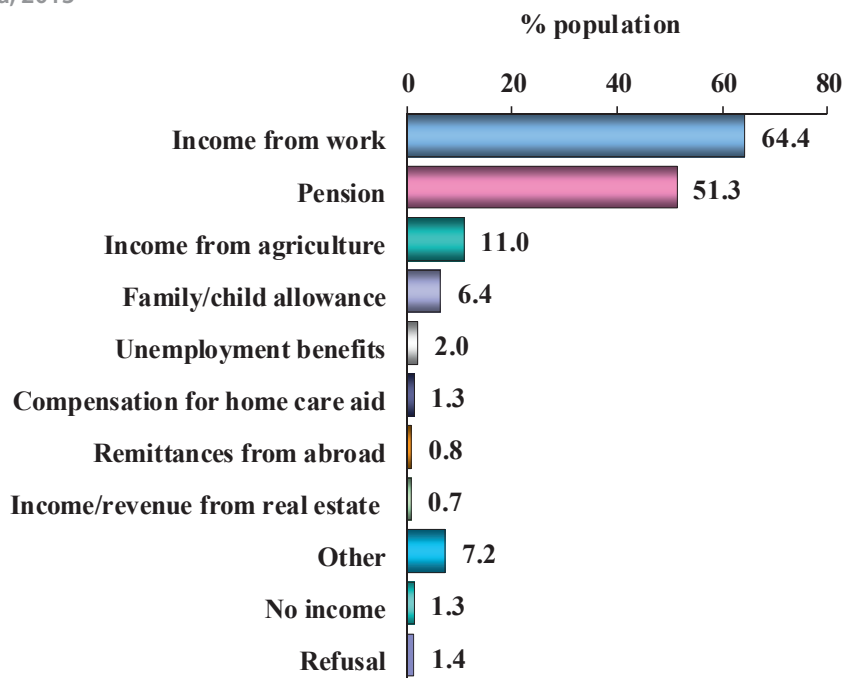
In 2013 in Serbia, most of the interviewees, 64.4%, stated that one of the income sources in their household was income from work, and then pensions – 51% (Graph 6).

2.2. Description of the Interviewed Population Members aged 15 and over

In Serbia, a total of 14,623 persons aged 15 and over was interviewed, out of which 3,926 in Vojvodina, 3,386 in Belgrade, 4,113 in Šumadija and Western Serbia and 3,198 in Southern and Eastern Serbia. In urban settlements, 8,669 persons were interviewed, and in other settlements 5,954.

- A total of 7,570 female persons participated in the survey (51.8%), and 7,053 male persons (48.2%)

- The participation of persons in the survey, by age group, is given in Graph 7.

- The largest percentage of the population in Serbia lives in households with 5 and more household members (28%), while the smallest percentage lives in one-member households (8.5%) (Graph 8).

- In Serbia, 33.7% of the population aged 15 and over work for wages or profit, 26.7% have a pensioner status, while 23.5% are unemployed (Graph 9).

- In Serbia the major part of the population aged 15 and over has secondary education (53.9%), somewhat less than a third has primary school and education lower than primary (29.8%), while 16.4% adult population has higher and high-level education.

Graph 7. Percentage of the population by age group, Serbia, 2013
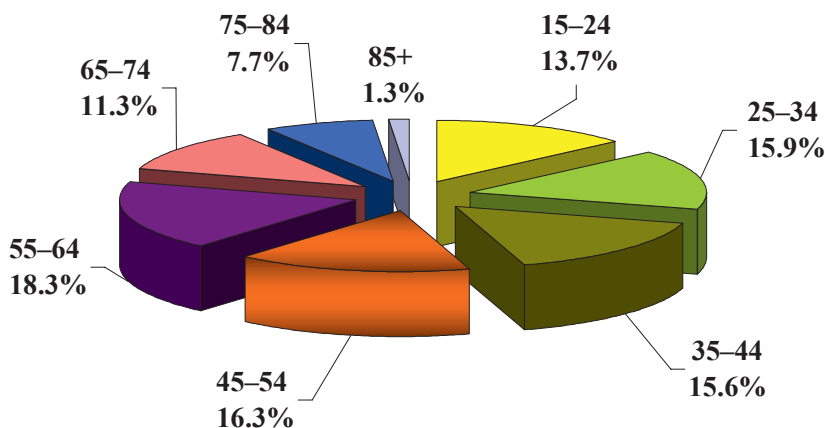
Graph 8. The percentage of the population by the number of household members, Serbia, 2013
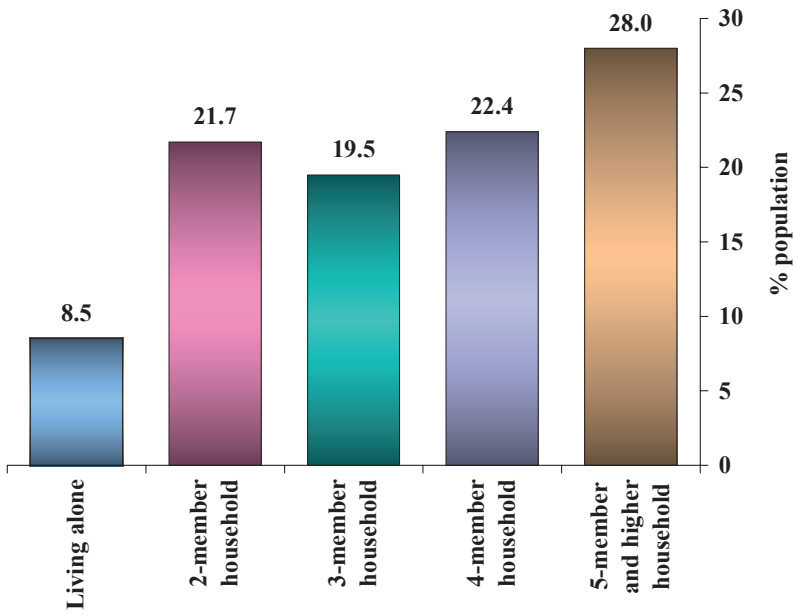
Graph 9. The percentage of the population by the work status, Serbia, 2013

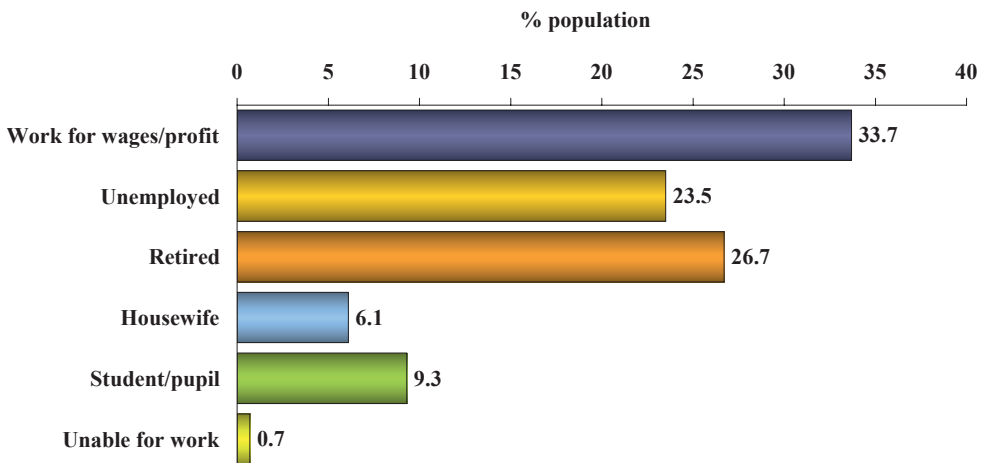## 2.3. Description of Interviewed Children aged 7 to 14

In Serbia, a total of 1,376 persons from the children category of 7 to 14 years of age was interviewed, 373 of which in Vojvodina, 296 in Belgrade, 407 in Šumadija and Western Serbia and 301 in Southern and Eastern Serbia. In urban settlements 815 children were interviewed, and in other settlements, 561. 669 girls and 707 boys took part in the survey. The largest percentage of children in Serbia lives in households where the average income per household member is up to 9,000 din.

Table 3. The percentage of children aged 7–14 against the demographic characteristics

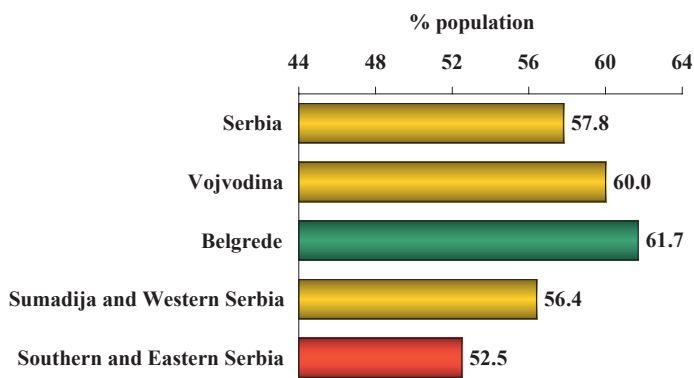| Demographic characteristics	Variables	Percentage of the population (%)
Region	Vojvodina	27,1
	Belgrade	21,5
	Šumadija and Western Serbia	29,5
	Southern and Eastern Serbia	21,9
Type of settlement	Urban	59,3
	Non-urban	40,7
Gender	Female	48,6
	Male	51,4
Age groups	7–10	50,7
	11–14	49,8
Household income per member	Up to 9,000 RSD	34,2
	From 9,001 to 14,000 RSD	22,4
	From 14,001 to 20,000 RSD	16,8
	From 20,001 до 29,000 RSD	7,7
	Above 29,000 RSD	2,4
	Refusal to answer	16,5
Household economic standing by quintiles of the wealth index	First (poorest)	15,8
	Second	19,0
	Third	21,2
	Fourth	22,7
	Fifth (richest)	21,4

III

Health
Status

3.1. Health Self-assessment

Subjective measurement, or, health self-assessment, is an indicator that contributes to the evaluation of health-related problems, burden of disease and health needs on the national level. Health self-assessment is not a substitute for more objective indicators the source of which is routine health statistics, it is rather their complement. The perception of health includes individual evaluation of different dimensions of health – physical, emotional and social functionality, and not just assessment of momentary health status in a narrow sense of the word. Also, it has been established that health self-assessment represents one of the significant predictors of mortality (1), morbidity, functional restrictions and use of health care by the population (2).

Compared to the measurements done in 2006, when 49.8% of the interviewees assessed their own health as good, in 2013 a significant improvement of this indicator was noted. As a matter of fact, in 2013 in Serbia, more than one half of the population (57.8%) considered their health as good (significantly more in Belgrade – 61.7%) (Graph 10), 26.6% considered it as average, while 15.6% of the population assessed their health as poor (considerably more in Southern and Eastern Serbia – 18.3%). Men had a more positive image of their own health than women: while 64.4% of men assessed their health as good, only 51.5% of women were of the same opinion. The same occurrence was registered when we analysed the health self-assessment as "good" in residents of urban (61.3%) and other settlements (52.2%), as well as in citizens from the category of most affluent ones (73%), and those in the poorest category (43.6%). In accordance with expectations, health self-assessment is connected with the individual's age: the older the persons, the more they were prone to assess their health as poor or very poor.

Compared to European Union countries, where in 2012, on the average, 68.9% of the population assessed their health as good (3), in our country this indicator still has a significantly lower value.

Graph 10. The percentage of the population that assesses their health as good (good and very good) across regions, Serbia, 2013

% population

Region	Value
Serbia	57.8
Vojvodina	60.0
Belgrede	61.7
Sumadija and Western Serbia	56.4
Southern and Eastern Serbia	52.5

40% of the population of Serbia reported on existence of some disease (or health problem) that lasted or was expected to last 6 months or longer. The differences that referred to socio-demographic characteristics of the interviewees were identical as in general health self-assessment: a significantly higher percentage of persons with a long-term disease was in the group of those who live in non-urban settlements (42.8%), in Southern and Eastern Serbia (43.6%), and well as in women (45.1%), persons with the lowest education (53.5%) and those who are of the poorest financial status (50.5%) (Graph 11).

Graph 11. The percentage of the population who reported to have some long-term disease – by the wellbeing index, Serbia, 2013
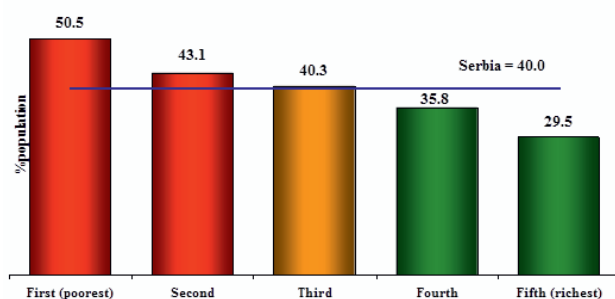
Graph 12. The percentage of the population limited by health-related problems in the past 6 months in performance of their daily activities, Serbia[11] and the selected countries, 2012
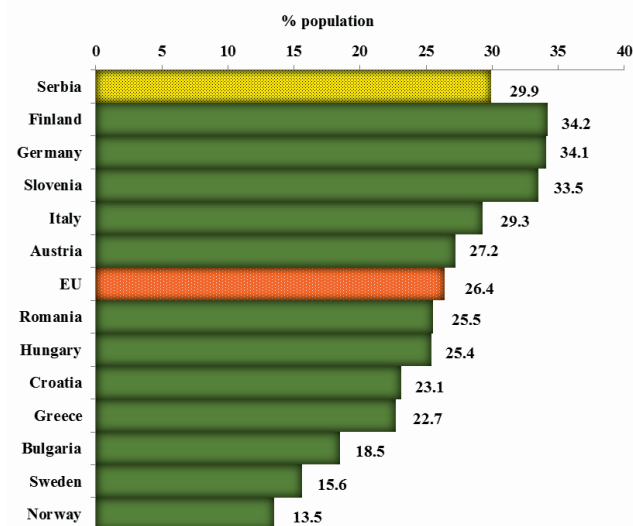
1   For Serbia, data is shown for 2013
     Data source: database "Health for All", WHO, http://data.euro.who.int/hfadb

Available data show that, when comparing citizens of the European Union countries, only citizens of Finland (46.8%) and Estonia (43.6%) have reported a higher percentage of some long-term disease or health condition (3).

Potential consequences of long-term diseases or health conditions on functional capabilitites of individuals may be very grave (for instance, if a person is bed-ridden due to a disease) or relatively moderate (for instance, if a person cannot perform all daily activities independently) (4). In Serbia, 29.9% of the population stated that in the previous 6 months or longer, due to health-related problems, they were restricted in performance of daily activities (Graph 12), which is more than in the European Union countries on the average (3). This indicator is widely used as the indicator of general health status, burden of disease and health needs on the population level.

3.2. Mental Health

Mental health problems represent an ever-growing public health problem; identification of population groups at risk is important for creation of preventive programmes. European WHO region, within their policy "21 Goals for 21st Century", defines, as a special target, improvement of mental health, emphasizing, inter alia, that prevalence of mental health problems should be considerably reduced, and that people should have an increased capability to fight the everyday stress (5). According to the WHO data, depression is the fourth most common cause of "disability-adjusted life years", and it is estimated that by 2020, it will be second.

In the Serbian National Health Survey, for categorization of population with depression symptoms (from mild, to the symptoms of severe depression) the Patient Health Questionnaire-PHQ8 was used – a self-administered questionnaire comprised of 8 questions and it was established that 4.1% of the population had depression symptoms (Table 4). A slightly higher percentage of persons suffering

**Table 4.**Categorisation of the population according to the depression symptoms, Serbia, 2013

Depression category	Population (%)
Without depression (PHQ-8 score 0 – 9)	95,9
With depression (PHQ-8 score 10 – 24)	4,1
• Symptoms of mild depression	2,4
• Symptoms of moderate depression	1,1
• Symptoms severe depression	0,6

from depression was obtained on the basis of the self-assessment, or, personal statement of the interviewees (6.3%). The World Health Organisation estimates (6) that in the European countries each 15th citizen shows depression symptoms (6.7%).

Symptoms of depression were present in a significantly higher percentage in women (5.3%) than men (2.9%), as well as in the population of the elderly and poorest citizens (Graph 13). The information that as many as 21.1% of the population aged 85 and over had depression symptoms (4.5% had severe depression symptoms) was worrying, but they failed to recognize them as such (only 8.6% stated that in the past 12 months they were depressed).

Graph 13. The percentage of the population with symptoms of severe depression by age group and wellbeing index, Serbia, 2013
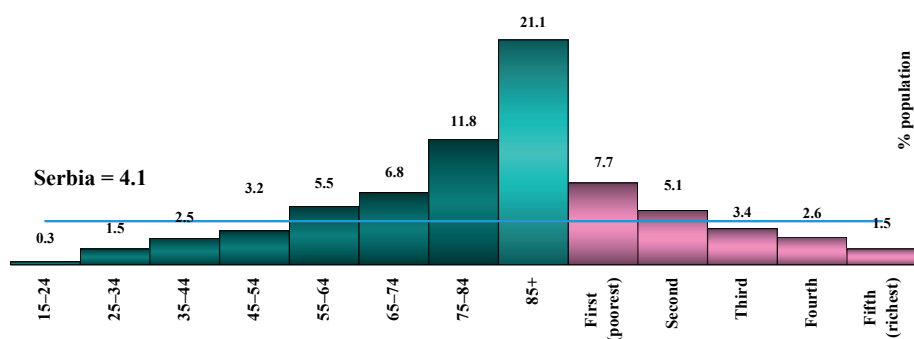
Exposure to stress was reported by every other interviewee (56.6%), which is significantly more than in 2006 (43.1%). Categories most exposed to stress were women (61.5%), persons aged 35–64, and citizens of Southern and Eastern Serbia (62.9%).

3.3. Pain

The sensation of pain is a subjective feeling with huge influence on the wellbeing of a person. It represents one of the commonest reasons for visiting health care centres and for absenteeism, which makes it a very significant problem for the society as a whole.

In four weeks prior to the Survey in Serbia, 45.5% of the population had sensation of physical pain, every eighth citizen (12.9%) had severe pain, while in 10% of the population, the existence of pain had strong effect on usual daily activities and responsibilities in and outside the house. The pain was significantly more present

in citizens of Southern and Eastern Serbia, in the population of women and persons over 55 years of age. Also, a more frequent presence of pain is noted in citizens of lower educational status and the poorest citizens, which can partially be explained by the type of work that members of these population groups do and which is most often connected with the physical effort.

3.4. Oral Health

n the past ten years, there have been more and more scientific proofs that poor oral health is connected with development of numerous health problems, including cardiovascular diseases, premature birth and respiratory diseases (4). Although questionnaires on health cannot provide direct indicators of oral health, they can still serve the purpose of its general assessment at the level of the population.

In Serbia, 45.6% of the population assessed the condition of their teeth and oral cavity as good, even 14% more than in 2006, which could be a sign of improvement of oral health of the population of Serbia.

The increase in the number of citizens aged 25 and over who have all their natural teeth (from 5.6% in 2006 to 8.3% in 2013) can be attributed to the improved oral hygiene habits. As a matter of fact, in 2013, 51.7% citizens stated that they brushed their teeth more than once a day, which is significantly more than in 2006, when 47.1% had done that. The fact that the highest percentage of those persons who regularly brush their teeth is among the young aged 15–24 gives raise to the hope that this trend will be kept up.

Although there has been an increase in the number of toothless persons (from 10.2% in 2006 to 12.4% in 2013), the fact that the use of dentures in this population group has gone up (from 79% in 2006 to 82.3% in 2013), is encouraging. This particularly refers to women who have lost all their natural teeth, and who are more frequent users of dentures (85.7%) than men (75.2%).

One can still notice a significant influence of socio-economic characteristics in connection with all indicators of oral health. In the group of citizens with lower educational status and poor material situation, the percentage of those who assess their oral health as poor, who have lost all their natural teeth and use full dentures, while, at the same time, do not brush their teeth regularly, is considerably higher.

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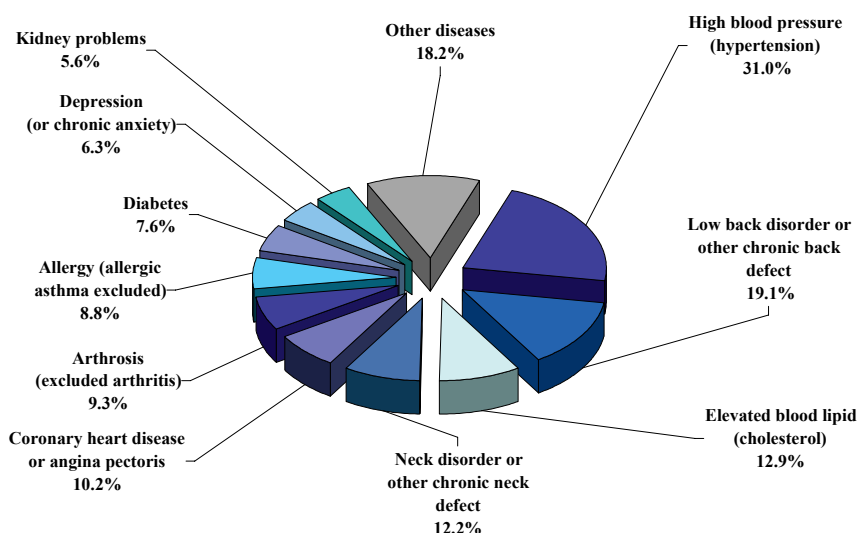
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3.5. Chronic Diseases

Burden of non-communicable diseases in a society is a huge public healthcare challenge throughout the world (1). Although significantly preventable, non-communicable diseases today are the leading causes of falling ill, absenteeism, disability and premature dying in all countries in Europe (2). In health surveys, self-assessment of diseases provides information on the prevalence of non-communicable diseases in the population that includes persons who rarely or never use health care (3).

According to their own statements, more than one half (53.5%) of the population of Serbia older than 15 years of age had, in 2013, at least one of 17 chronic diseases listed in the Survey, women significantly more so than men (58.7% against 47.9%), persons older than 45 years of age (59.6–90.3%), citizens with basic or lower level of education (64.5%) and persons who, according to the

Graph 14. Prevalence of the most common diseases or conditions in the population, Serbia, 2013

Kidney problems
5.6%

Depression
(or chronic anxiety)
6.3%

Diabetes
7.6%

Allergy (allergic
asthma excluded)
8.8%

Arthrosis
(excluded arthritis)
9.3%

Coronary heart disease
or angina pectoris
10.2%

Neck disorder or
other chronic neck
defect
12.2%

Other diseases
18.2%

High blood pressure
(hypertension)
31.0%

Low back disorder or
other chronic back
defect
19.1%

Elevated blood lipid
(cholesterol)
12.9%

wellbeing index, are in the poorest category (62%). In citizens of Šumadija and Western Serbia, a significantly lower value of this indicator was noted (50.6%).

In the year that preceded the Survey, the largest percentage of the population stated that they had high blood pressure (31%), then, deformity of the lower spine or another chronic back problem (19.1%), elevated blood fats (12.9%), neck deformity or another chronic problem with cervical spine (12.2%), coronary heart disease or angina pectoris (10.2%), degenerative joint disease – arthrosis (9.3%), allergy (8.8%), diabetes (7.6%), depression (6.3%) and kidney problems (5.6%) (Graph 14).

The most frequent health problems that members of both sexes aged 15 and over were facing in 2013, were the high blood pressure (35.2% for women and 26.6% for men), lower spine deformity or some other chronic back problem (22.9% for women and 15% for men), neck deformity or another chronic problem with the cervical spine (16.4% for women and 7.6% for men), elevated blood fats (15.2% for women and 10.5% for men), arthrosis (12.8% for women and 5.4% for men), coronary heart disease or angina pectoris (12.2% for women and 8.1% for men) and allergies, asthma not included (11.2% for women and 6.3% for men). Although a higher prevalence of chronic diseases and conditions has been noted in women, it is important to say that it is not significant for getting diabetes, asthma, stroke and urinary incontinence. The only disease with greater prevalence in men is myocardial infarction (Graph 15).

Graph 15. The prevalence of diseases or conditions by gender, Serbia, 2013
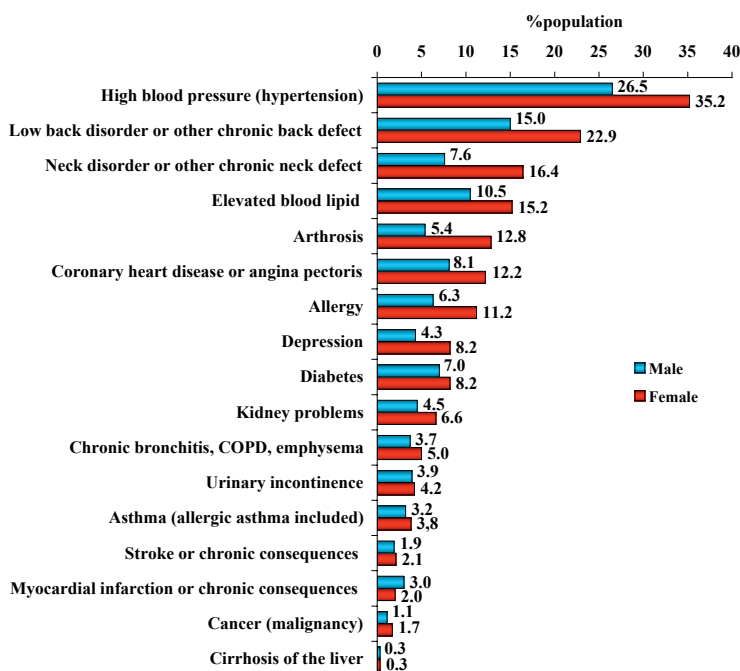
The results of the Survey showed that the prevalence of all diseases grew with age and that, approximately, every other person in Serbia had some kind of chronic disease, while every third citizen had high blood pressure, every fifth some chronic back problem, every eighth citizen had elevated blood fats or a chronic problem with cervical spine, every tenth coronary heart disease or angina pectoris and degenerative joint condition.

In order to make a comparative presentation of prevalence of certain diseases and conditions in the 2000–2013 period, prevalence of diseases among the population aged 20 and over was separately analysed (adult population). It is important to emphasize that, when analyzing the differences in prevalence of diseases one should have in mind the change of methodology in the 2013 Survey, in line with recommendations of the European Health Interview Survey. As a matter of fact, the information from 2013 is an answer to the question *Did you have, in the previous 12 months, some of the listed diseases or conditions*?, while the information from 2006 speaks about the number of citizens who were diagnosed by doctors with some of the listed diseases.

Table 5: Prevalence of diseases or conditions among the population aged 20 and over, Serbia, 2000, 2006 and 2013

Diseases and chronic conditions	2000	2006	2013
	%	%	%
High blood pressure (hypertension)	19.7	23.1	33.2
Low back disorder or other chronic back defect	18.0	–	20.3
Neck disorder or other chronic neck defect	4.6	8.0	13.9
Elevated blood lipid (cholesterol)	5.7	8.0	13.0
Arthrosis (excluded arthritis)	5.0		11.0
Coronary heart disease or angina pectoris	–	–	9.9
Allergy (allergic asthma excluded)	–	5.3	8.9
Diabetes	–	5.3	8.1
Depression (or chronic anxiety)	4.6	6.0	6.7
Kidney problems	–	–	5.9
Chronic bronchitis, chronic obstructive pulmonary disease, emphysema	–	4.3	4.5
Urinary incontinence, problems in controlling the bladder	3.6		4.4
Asthma (allergic asthma included)	2.2	3.3	4.1
Stroke (cerebral haemorrhage, cerebral thrombosis) or chronic consequences of stroke	2.0	2.7	3.6
Myocardial infarction (heart attack) or chronic consequences of myocardial infarction	–	3.3	2.6
Cancer (malignancy)	1.1	1.5	1.5
Cirrhosis of the liver	–	–	0.3

Compared to 2006, one can notice the increased prevalence of the most of diseases and conditions in the adult population, particularly hypertension, depression, diabetes, elevated blood fats and allergies (Table 5). One of the reasons for the increase of the prevalence of the above diseases must be the ageing of the population, but it is also influenced by a better coverage through preventive examinations (see chapter VII), for the purpose of their timely detection.

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3.6. Injuries

Around the world, every eighth disability-adjusted life year (DALY) and every tenth death are consequences of of injuries (1). Injuries are the leading cause of mortality in the age of up to 29 and the third leading cause of premature dying and disability in Serbia. Unintentional injuries, where injuries inflicted in traffic-accidents are dominant, cause one half of death outcomes caused by these health damages (2).

Graph 16. Prevalence of sustained injuries according to geographical regions, age groups and level of education, Serbia, 2013
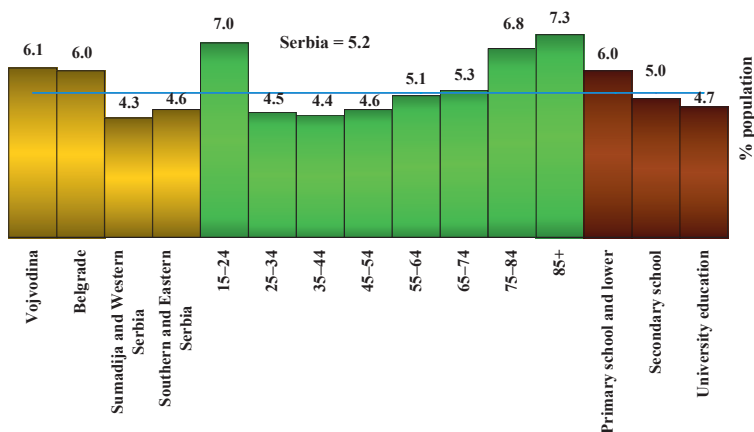
In Serbia in 2013, 5.2% of citizens sustained an injury (in traffic, at home or while engaging in leisure activities), considerably more so in Vojvodina (6.1%) and Belgrade (6%), less in Šumadija and Western Serbia (4.3%). Persons aged 15–24 were sustaining injuries considerably more than the average (7%), as well as elder citizens aged 75–84 (6.8%) and persons with the lowest education level (6%) (Graph 16).

According to the declarations of interviewees, 2.4% of them sustained injuries at home, 2.1% while engaging in leisure activities and 0.9% in the traffic.

Women more often sustained injuries at home (2.8%), while men sustained injuries while engaging in leisure activities (2.8%) and in traffic (1.2%).

The percentage of persons injured at home grew with age, so these injuries were considerably less present in persons under 45 years of age and considerably more frequent after 65 years of age. In road traffic, there were considerably more injured persons under 35 years of age. The youngest citizens aged 15–24 were considerably more frequently injured during engaging in leisure activities (Graph 17).

Graph 17. Prevalence of sustained injuries according to the place of where injuries occurred and age groups, Serbia, 2013
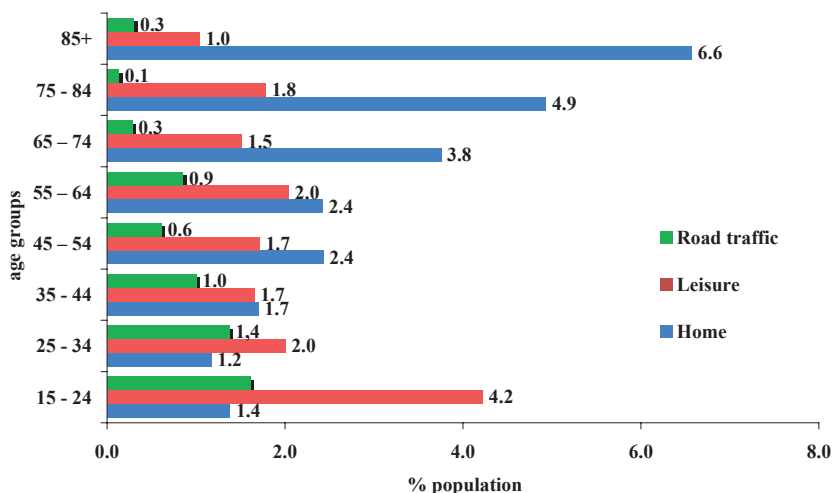
Medical aid was provided in 66.7% of the injured persons.

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3.7. Health-related Absenteeism

In Serbia, in the year preceding the Survey, almost every seventh (14.6%) citizen was absent from work due to health-related problems (Graph 18). Women were considerably more often absent from work (16.6%) compared to men (13.2%), while the percentage of health-related absenteeism of employed persons aged up to 24 years of age was significantly smaller (6.7%).

Graph 18. Percentage of the population absent from work due to health-related problems by gender and age group, Serbia, 2013.
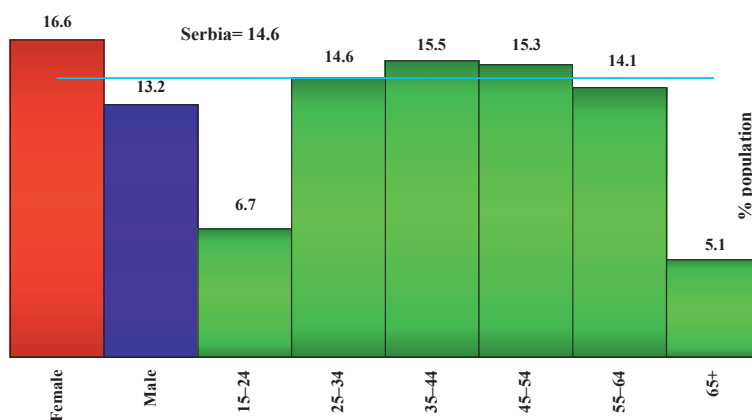
Average health-related absenteeism from work was 34.5 days, which is significantly less compared to the 2006 Survey (51.3%). In 2013, persons with high education were least absent from work (28 days).

3.8. Hypertension as Adult Population Risk Factor

The diet, well-nourished body and diabetes have a great influence on the values of blood pressure, which has been established as a risk-factor for inidence of cardiovascular and cerebrovascular diseases, kidney and eye blood vessel complications. In persons suffering from diabetes, arterial hypertension and cardiovascular diseases are the commonest complications and the leading cause of premature death. Blood pressure measurement and analysis of the situation are the basis for elaboration of population strategies directed towards health life-styles and creation of a health-supportive social environment, as well as strategies directed towards risk-reduction through preventive measures at the individual level.

In Serbia in 2013, 47.5% of the adult population (aged 20 and over) had hypertension or potential hypertension – systolic blood pressure was measured at ≥140 mmHg or diastolic at ≥90 mmHg, or they took medicines for lowering the blood pressure. Compared to results of the 2006 Survey (46.5%), no significant change was registered, meaning that the prevalence of high blood pressure in the adult population stayed the same.

Elevated blood pressure had higher prevalence rate among men (48.5%), citizens over 45 years of age, persons who do not live in urban settlements (51.7%), in the region of Vojvodina (49.0%), then, in citizens with lower educational level (66.5%), the poorest citizens (58.5%) and poor citizens (50.1%) (Graph 19).

Graph 19. The percentage of adult population with hypertension and potential hypertension according to the wellbeing index, Serbia, 2013
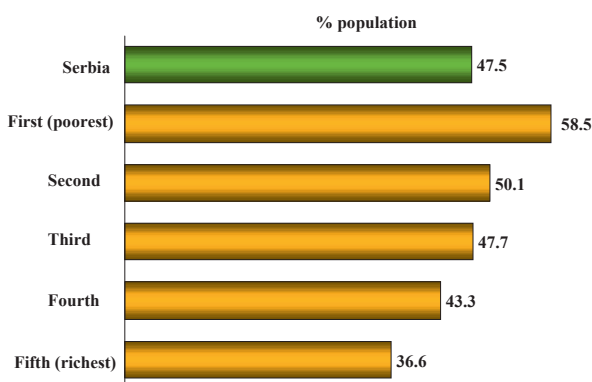
30.7% of adult population had elevated blood pressure measurements – significantly less than in 2006 (34.2%), and the same goes for the elevated values of diastolic blood pressure (19.9% against 26.5%). Almost every seventh adult citizen (15.5%) had elevated values of both systolic and diastolic blood pressure, which is also sifnificantly less than back in 2006 (20.8%).

The average value of measured systolic blood pressure of adult citizens of Serbia was 134.7mmHg, and diastolic 83.2 mmHg. In the female population, significantly lower average value of both systolic and diastolic blood pressure was measured (Graph 20).

Average values of measured systolic and diastolic blood pressure in the adult population health survey years are presented in Table 7.

Every third adult citizen of Serbia (33.9%) stated that they were diagnosed with hypertension by a doctor, which is by 5.4% more than in 2006 (28.5%) (Graph 3).

Graph 20. The average values of measured systolic and diastolic blood pressure in adult population by gender, Serbia, 2013

■ Systolic ■ Diastolic
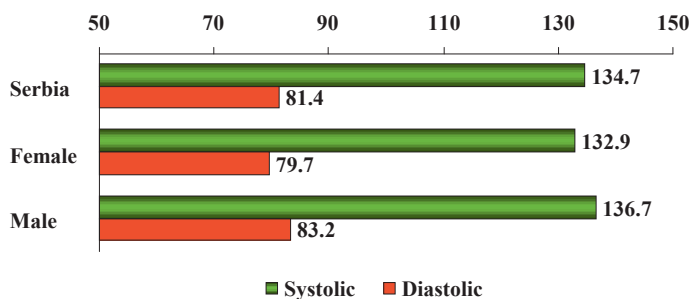
Table 7. The average values of the measured systolic and diastolic blood pressure of the adult population, Serbia, 2000, 2006 and 2013

Blood pressure	2000.	2006.	2013.
	mmHg	mmHg	mmHg
Systolic	133.7	134.2	134.7
Diastolic	82.7	82.0	81.4

Compared to 2006, the percentage of adult population diagnosed with hypertension but who have never received treatment (have not taken medicines nor had a special diet) was significantly reduced (from 11.9% in 2006 to 9.4% in 2013), while the percentage of those who took antihypertensive medicines stayed approximately the same (88.8%).

In the part of the population that took antihypertensive medicines, 89.9% did it regularly in the month preceding the Survey (Graph 21).

The percentage of the population who regularly took the medicines for lowering blood pressure during the four weeks preceding the Survey and who had normal blood pressure values was 37.4%, which was significantly more than in 2006 (20.9%).

Graph 21. Prevalence and treatment of hypertension in adult population, Serbia, 2006 and 2013
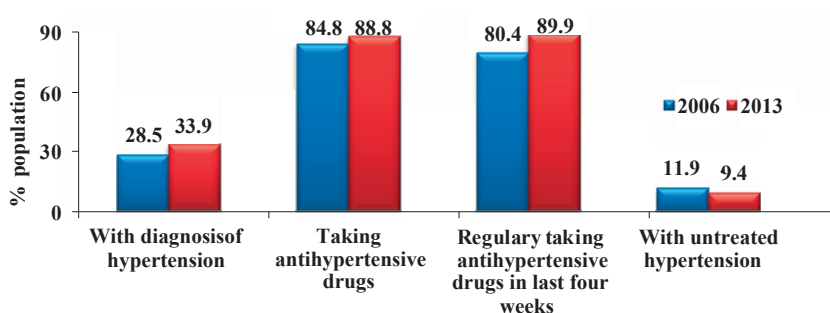
IV

Health

Determinants

4.1. Physical Activity

Physical activity is one of criteria for health assessment, while physical inactivity has been identified as the fourth leading risk-factor for general mortality that globally causes up to 3.2 million deaths per year (1). Regular physical activity is the key determinant of energy consumption and it is of fundamental importance for the energy balance and body mass control. Also, it reduces the risk of getting cardio and cerebrovascular diseases, diabetes, breast cancer, colon cancer, depression. For this reason, the World Health Organisation recommends 30 minutes of daily physical activity of moderate intensity.

Within the Health Survey, frequency and duration of the physical activity during work, daily walking and free time were examined. The results showed that women in Serbia are more prone to sedentary lifestyle than men, who, on the other hand, spend more free time engaging in physical activities (Graph 22).

In 2013, 43.6% of the citizens in Serbia were standing or sitting during their work (this includes paid and unpaid work, work at home or around the house, care for the family, studying or learning), considerably more so in Belgrade (61.2%) compared to Šumadija and Western Serbia (36.4%), or Southern and Eastern Serbia (37.2%). The women, more often than men, spent their time at work sitting or standing (48.3% against 38.7%).

Citizens of Serbia sit for 5 hours per day on the average, mostly so the inhabitants of Belgrade (5.8 hours), of urban settlements (5.3 hours), persons aged 15–24 (5.5 hours), as well as those with college and university education (5.8 hours).

In Serbia in 2013, 72.9% of the population walked for at least 10 minutes in continuation per day. Every other citizen of Serbia (50.2%) usually takes at least 30 minutes going to and from somewhere. The considerably higher percentage of men respected the recommended 30-minute daily walk (54.9%) compared to women (45.8%).

According to the results of the Survey, everyday bicycle ride of at least 10 minutes was practised by 10.4% citizens, considerably more so in Vojvodina (24.4%) compared to persons from other geographical areas, where this percentage ranged from 2.2% in Belgrade to 8.5% in Southern and Eastern Serbia.

8.8% of the Serbian citizens engage in fitness, sport or recreation at least three times per week, while every ninth citizen of Serbia (11.3%) spent at least 90 minutes per week engaging in such activities during their free time. The habit of going in for sports and recreation is more present in male population (12.1% of them engage in some sort of recreational activity, while 15.9% spend at least 90 minutes in recreational activities per week) than in the female population (5.7% engages in recreational activites three times a week, and 5.3% for at least 90 minutes per week).

In 2013, 4.7% of the population in Serbia engaged in intensive physical activities intended for strengthening of muscle mass, at least three times a week.

Graph 22. Physical activity during work, daily walking and free time by gender, Serbia, 2013
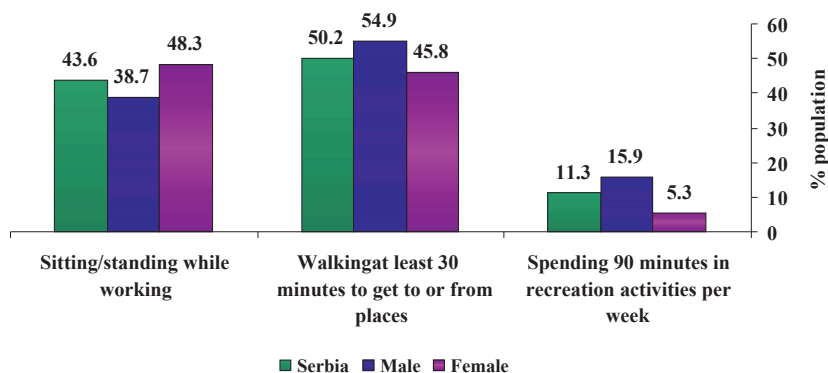
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4.2. Eating Habits

The choice of food that we eat, frequency of meals and their regular intake during the day, as well as ways of preparing food – eating habits – depend on different factors, such as culture and habits, influence of the family and social environment, availability and accessibility of food. Eating habits significantly add to the risk of obesity, and, besides, data on eating habits are very important for estimates of nutritive risk factors that lead to different health conditions.

Within the Health Survey, eating habits were examined, such as daily intake of fruits and vegetables, milk and/or dairy products, bread, type of fats used in food/ for preparation of food, regular breakfast, fish intake, the habit of adding extra salt to the food.

In Serbia in 2013, 78.1% of people had the habit of eating regular breakfast. The inhabitants of non-urban settlements took their breakfasts much more often (80.5%) compared to urban settlements (76.5%), and so did old persons (more than 86%) and citizens from Šumadija and Western Serbia (85.3%). Regular daily breakfast was least present in citizens of Vojvodina (69.3%).

At least one cup of milk and/or dairy products was consumed on a daily basis by 51.7% of citizens, which is a significant increase compared to 2006, when that was done by 43.5% persons. This was most rarely done by the poorest citizens, persons with basic and lower than basic education, as well as persons of 45–55 years of age.

The white bread is predominantly used (60.1%), most commonly in Šumadija and Western Serbia (70.5%), by persons of male gender and population with basic

and lower than basic educational level. Unlike 2006, when 14.3% of the adult population of Serbia consumed integral types of bread, in 2013 this was done by only 8.2% of the population. This was more commonly done by the women, interviewees from urban settlements and those with higher and high educational level, as well as the inhabitants of Belgrade.

Use of animal fats for preparation of meals was reduced in 2013 (25.9%) compared to 2006 (33.6%). According to the results of the Research, animal fats are most used for food preparation in Vojvodina (30.9%) and least in Belgrade (14.1%); they are used significantly more often in other settlements (40.8%) compared to urban settlements (15.6%). The presence of this habit went down with the raise in the level of education and wellbeing index of the population, so that it was most present among the persons with lower education (33.2%) and poor population (42%).

In Serbia in 2013 every eleventh citizen confirmed adding additional salt to the food before tasting it (9.1%), and this habit did not change much (compared to the data from 2006 Survey).

12.5% population of Serbia had fish on their menu at least twice a week. This was done by larger percentage of people in urban settlements, with higher and high education, while the use of fish grew as the wellbeing index got higher. 5.4% of the population stated that they never ate fish.

Food rich in fruit and vegetables, as part of a healthy diet, may lead to lowering the risk for many chronic non-communicable diseases, such as cardiovascular diseases, diabetes and certain types of cancer. Fruit and vegetables provide nutrients that are vital for health. The World Health Organization recommends the daily intake of fruit and vegetables of at least 400gr (1).

Every other citizen of Serbia either does not consume fruit or consumes it rarely (54.4%).

Fruit (fresh, frozen, canned, dried or freshly squeezed juices) were consumed on a daily basis by 45.6% citizens of Serbia. This percentage was the smallest in Vojvodina (43%), contrary to the population of Šumadija and Western Serbia (48.2%). Also, women consumed fruit more often (50.7%) as well as interviewees aged 65–74 (53%) (Graph 23).

Vegetables (fresh, frozen, canned, soups or squeezed juices) were consumed on a daily basis in 2013 by 57.1% citizens of Serbia. More commonly so by the inhabitants of Šumadija and Western Serbia (61.7%), as well as by inhabitants of the Southern and Eastern Serbia (61.3%) compared to the inhabitants of Belgrade (54.6%) and Vojvodina (51%). In this case, women showed healthier habits, because they consumed vegetables on a daily basis more often (60.2%) than men (53.8%) (Graph 23). Also, it is noted that the use of vegetables and fruit more present in population of higher educational level (Graph 24) and better financial status.

According to the data from the 2008 European Health Interview Survey (EHIS), 62.2% of the European Union population consumed fruit on a daily basis, while 63% of them consumed vegetables daily (2). In both cases, the percentage is higher than in Serbia in 2013, particularly the percentage of fruit consumption.

Every fifth citizen of Serbia (19.7%) does not consider his own health when deciding on the food intake. Only a smaller percentage of Vojvodina residents consider this connection of food and health (23.8%), and the same goes for residents of non-urban settlements (22.8%), men (26.3%), persons with lower education (23.6%) and the poorest population (25.7%).

It is encouraging that almost one half of the Serbian population (49.1%) had changed at least something in the eating habits due to health-related reasons in the year preceding the Survey. Thus, every fifth citizen (21.1%) reduced the fat intake, 14.1% changed the type of fats they were using; 15.7 reduced the salt intake, 15.1% reduced sugar intake, and 8.2% reduced the body weight by going on a special diet.

Graph 23. The percentage of the population that consumes fruit and vegetables on a daily basis by gender, Serbia 2013
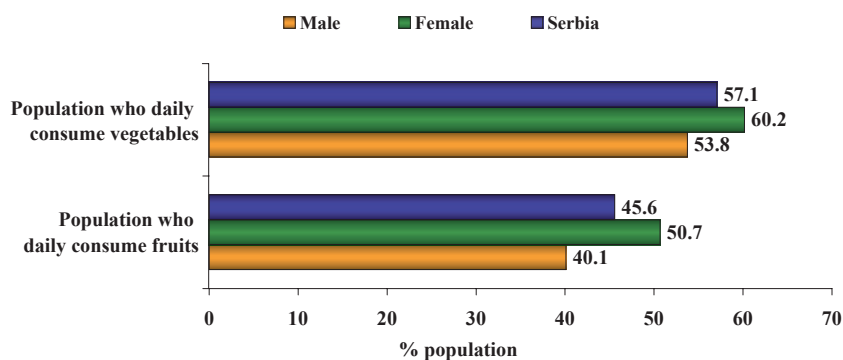
Graph 24. The percentage of the population that consumes fruit and vegetables on a daily basis by education level, Serbia, 2013
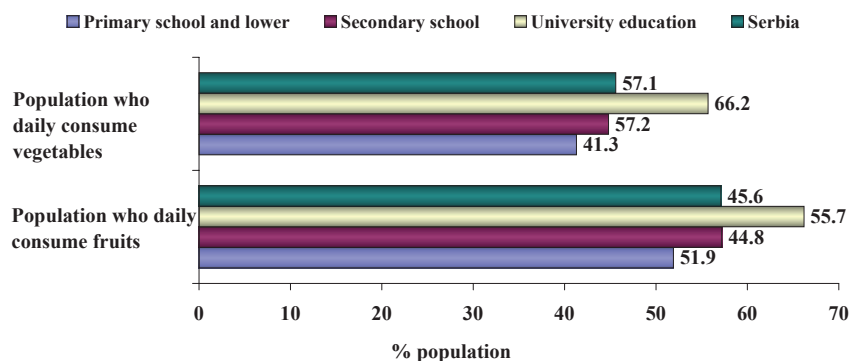
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4.3. Nourishment Level

The Body Mass Index (BMI) is a widely-used index for estimate of the nourishment level; it is a measure of relative weight based on an individual's mass and height. BMI represents a means for early detection (screening) of persons who are either undernourished or obese, but it is not a diagnostic tool for undernourishment or obesity, because to diagnose these conditions, additional measurements and examinations are necessary (1). According to the World Health Organization's classification, normal nourishment level falls within BMI scope of 18.5–24.9 kg/m2; all values above 25 are considered overweight (over 30 – obesity), while all index values below 18.5 represent insufficient nourishment level, or, undernourishment (2).

In Serbia in 2013, according to measured BMI values, there 40.4% of persons with the normal nourishment level, while more than one half (56.3%) were overweight, or pre-obese (35.1%) and obese (21.2%) (Graph 25).

Graph25. Population aged 15 and over by nourishment category, Serbia, 2013

- Underweight (BMI <18.5)
- Optimum (BMI 18.5–24.9)
- Pre-obese (BMI 25–29.9)
- Obese (BMI >=30)
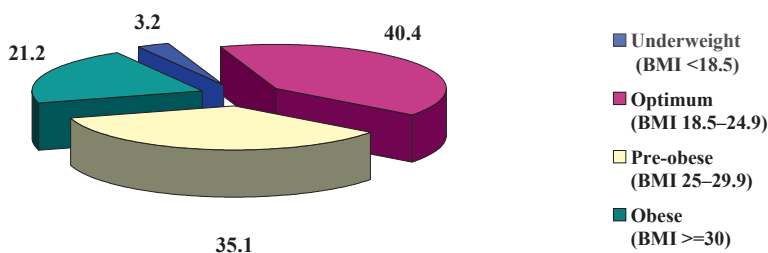
A considerably higher percentage of overweight persons was recorded in all age groups, from 45 to 84 (Graph 26), as well as among the poor, least educated population and those who live in non-urban settlements. Contrary to the overweight category that includes about the same percentage of men and women (20.1% and 22.2% respectively), the pre-obese category was more often found among men (41.4%) than among women (29.1%).

Between the two surveys, in 2006 and 2013, there was a significant increase of the percentage of obese population (from 17.3% to 21.2%).

Although the measurement results showed that every fifth citizen was obese, during the self-assessment of the nourishment level, only 16.9% perceived

themselves as obese. The registered percentage of pre-obese persons at the measurement was close to the percentage of those persons who were of the opinion that they belonged to that category (34.0%).

Graph 26. Pre-obese and obese population by age group, Serbia, 2013
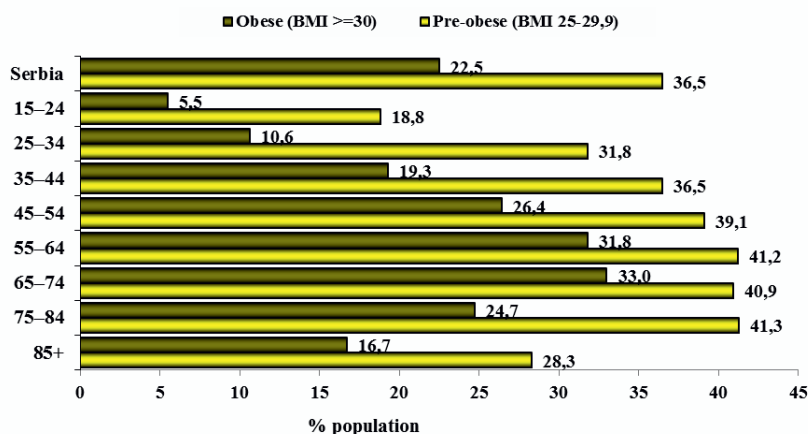
As alternative anthropometric index for estimate of abdominal obesity and estimate of connected health risks, waist circumference (WT) is used. With growing values of waist circumference, for men over 94cm and for women over 80cm, the health risk of cardiovascular diseases and diabetes type II grows (2). On the basis of measured values of waist circumference, in 67.9% of women and 56.6% of men, abdominal obesity was registered.

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4.4. Tobacco Use

The harmfulness of tobacco and tobacco products is well-documented through researches that have been implemented since mid 20th century as increased risk of heart attack, disease of peripheral blood vessels and elevated blood pressure, stroke, cancer of lungs, larynx and mouth. Apart from that, tobacco use is a risk

factor for respiratory system diseases, such as chronic obstructive lung disease, while smoking in pregnancy may lead to small birth-weight and increased disease prevalence in newborn babies. In the World Health Organisation of the European region countries, 16% of all death outcomes in adult population over 30 years of age were caused by tobacco use (1).

Tobacco use and use of tobacco products have their specific features, and factors that affect prevalence and patterns of use of these products are numerous. The data on prevalence of smoking (2) in the population (percentage of persons who smoke occasionally or daily) is necessary for analysis of health and economic consequences of smoking in a society, as well as for decision-makers, so that they could undertake relevant measures for suppression of tobacco use.

In Serbia, tobacco use has, for a number of years, been one of the risk factors with the highest prevalence, which is confirmed by the results of the 2013 Sruvey, according to which more than one half of the population smoked in some part of their lives (51.8%). The majority of smokers who used to smoke did so on a daily basis (81.7%).

The survey showed that smoking prevalence in the population aged 15 and over was 34.7%. There were 29.2% daily smokers, 17.4% of them with strong tobacco addiction (smoking more than 20 cigarettes per day). Same as before, a higher percentage of smokers were recorded in men (Table 8). Regarding the geographic prevalence, Šumadija and Western Serbia region stand out for a significantly lower percentage of both daily smokers (27.1%) and those who smoke in the 15–19 age group (13.4%).

Table 8. Smoking prevalence (daily and occasional smoking) and smoking status of the population by gender, Serbia, 2013

	Smoking prevalence 15+	Smoking prevalence 15–19	Smoking prevalence 20+	Smoking prevalence 18–64	Daily smokers 15+	Daily smokers who smoked more than 20 cigarettes a day
	%					
Female	31.6	19.5	32.4	38.8	25.9	12.3
Male	37.9	19.0	39.4	43.6	32.6	22.8
Serbia	34.7	19.2	35.8	41.2	29.2	17.4

The percentage of smokers was larger among the 18–64 age group (41.2%) compared against the whole population. The largest percentage of the smokers was in the 35–44 age group (47%), and the smallest in 75–84 age group (9.1%) as well as among the eldest population of 85+ (4%) (Graph 27).

The percentage of smokers in the cities is statistically significantly higher in comparison with persons who live in other settlements (36.4% against 32.2%).

Graph 27. Smoking prevalence (daily and occasional smoking) by age group, Serbia, 2013
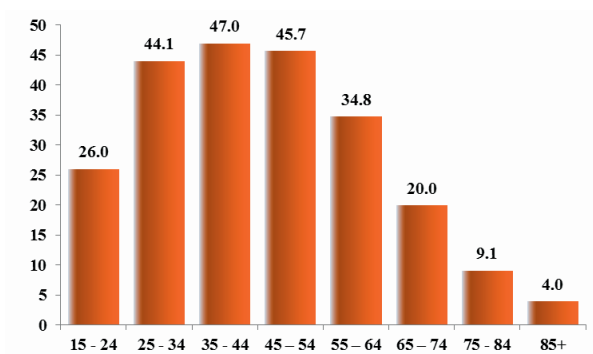
Also, that percentage is higher (38.2%) in the population with the lowest income (below 9,000 dinars per month per household member).

Although the percentage of daily smokers is lower in 2013 than in 2000, a considerable increase was noted in comparison with 2006. The change in the number of daily women smokers is particularly significant when compared to 2006 (Table 9).

Table 9. The prevalence of daily smoking by gender, Serbia, 2000–2013 [1]

	2000	2006	2013[1]
		%	
Female	26.1	22.6	26.0
Male	40.6	30.7	32.6
Serbia	**33.0**	**26.2**	**29.2**
EU	**29.1**	**24.8**	**23.9**

Starting from the fact that the exposure to tobacco smoke is equally harmful as smoking itself, the Law on Protection of Population from Exposure to Tobacco Smoke (3) was passed in the Republic of Serbia in 2010, determining the measures of restricted use of tobacco products for protection of the population from exposure to tobacco smoke, smoking prohibition control and supervision of the enforcement of this Law.

The results of the 2013 Survey point to the need to improve enforcement of the existing legal regulations, as well as to the need to introduce the ban of smoking in all catering facilities into our legislation. This, inter alia, ensues from the findings that more than one half of the population (54.4%) older than 15 years

1   For EU data for 2009 are shown
     Data source: "Health for All" database, WHO, http://data.euro.who.int/hfadb/

was exposed to tobacco smoke in enclosed premises, and almost the same percentage (47.1%) of non-smokers was concerned due to harmful consequences of tobacco smoke on their own health.

In the year preceding the Survey, every third smoker 33% tried to quit smoking, while every other smoker (58%) was concerned for his health due to consequences of exposure to tobacco smoke.

One of the measures for suppression of smoking is counseling of the population by health care workers. Data showing that only 35% of smokers were advised to stop smoking in Serbia in 2013 points to the need to intensify education and motivation of health care workers towards provision of advice on harmfulness/quitting smoking, particularly among the youth.

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4.5. Use of Alcohol

Use of alcohol is a generally known characteristic of societies in European countries that, apart from tobacco use and high blood pressure, ranks among the leading risk factors for incidence of numerous diseases and conditions. High alcohol intake is particularly connected with the increased risk for diseases of heart and blood vessels, stroke and liver cirrhosis, as well as certain types of malign diseases (1). Harmful use (abuse) of alcohol without addiction signs is a significant health as well as economic and social problem, because of its consequences such as accidents, traffic accidents, violence and family problems, also long-term treatment, absenteeism from work, unemployment, reduced productivity and criminal.

Patterns of alcohol consumption are different in different countries worldwide and in Europe. To analyse prevalence patterns of alcohol use in a population, it is necessary to know professional terminology.

The expression "alcohol use" refers to any alcohol intake (in the body). Alcohol abuse is a general term for any type of socially unacceptable drinking, from the risky and harmful drinking to alcohol dependency. Harmful use of alcohol is defined as drinking pattern that led to physical or mental health defect, without alcohol dependency. Risky use of alcohol is a drinking pattern that does not

include consequences or alcohol dependence, but it includes a big probability that in the future there will be problems in connection with alcohol – any drinking beyond limits of low-risk drinking is risky drinking. Any drinking of alcohol among persons under 18 years of age is alcohol abuse. The alcohol dependency syndrome (alcoholism) is a disease characterised by a group of symptoms, with clearly defined criteria for setting this diagnosis; because of thiseason this Survey cannot provide the number of persons addicted to alcohol.

Drinking of alcoholic beverages in Serbia is socially acceptable behaviour; the current situation in this field is characterized by a high prevalence of alcohol use, particularly among the young, which is, inter alia, a consequence of considering alcohol use as part of tradition, customs and culture.

Results of the Survey showed that in 2013 in Serbia 46.1% of the population did not consume alcohol (did never try or did not consume alcohol in the previous 12 months). In the population of young people of 15–19 years, 47% did not consume alcohol – considerably more girls (54%) than boys (41.1%) did not consume it.

4.7% of the population drank on a daily basis, which is an increase compared to 2006 (3.4%). Inhabitants of Vojvodina consume alcohol on a daily basis considerably more (5.7%) than inhabitants of Šumadija and Western Serbia, where this percentage is the lowest (3.6%). Information that a large percentage of men in Serbia traditionally drink on a daily basis, even six times more than women (Table 10) does not come as a surprise. Also, the habit of daily drinking has the highest prevalence among the poorest population (6.9%).

Table 10. Use of alcohol in the population by age group and gender, Serbia, 2013

Demographic characteristics	Population who do not drink alcohol	Population who daily drink alcohol
	%	%
Age groups		
15–24	39.0	0.6
25–34	34.0	1.9
35–44	39.0	3.6
45–54	41.8	5.3
55–64	51.3	7.4
65–74	59.6	8.2
75–84	69.5	7.6
85+	78.0	3.5
Gender		
Male	28.6	8.3
Female	62.3	1.3
Serbia	**46.1**	**4.7**

Apart from alcohol consumption prevalence, the quantity of drank alcohol also influences the development of long-term diseases and conditions. In this connection, defined criteria for medium risk for development of diseases depending on daily quantity of drank alcohol is 20gr of ethanol; for men, it is 40gr.

As in the most European countries, the pattern of increased alcohol use during weekends was noted in our country, too (Friday to Sunday), when, according to the results of the Survey, 1.4% of women and 6.2% of men were exposed. The largest percentage of women with medium risk was in the 15–24 age group (4.6%), and men in 25–34 age group (8.9%).

A special risk is excessive drinking, or, drinking large quantities of alcohol (more than 6 alcoholic drinks) per occasion (binge drinking), which is recorded in Serbia both among the general population and among the adolescents. Such habit, at least once a week, was practiced by 4.3% of the population of Serbia (7.8% of men and 1% of women), with the largest prevalence in the 25–34 age group (5.4%). At least once a month, 27% of men and 6% of women engaged in excessive drinking, or 16% of the population, which is, according to the available WHO data a larger percentage than in the most countries in the region (Graph 28).

Graph 28. The percentage of the population that in the past 12 months at least once per month consumed 6 or more drinks during one occasion, Serbia[1] and selected countries, 2010
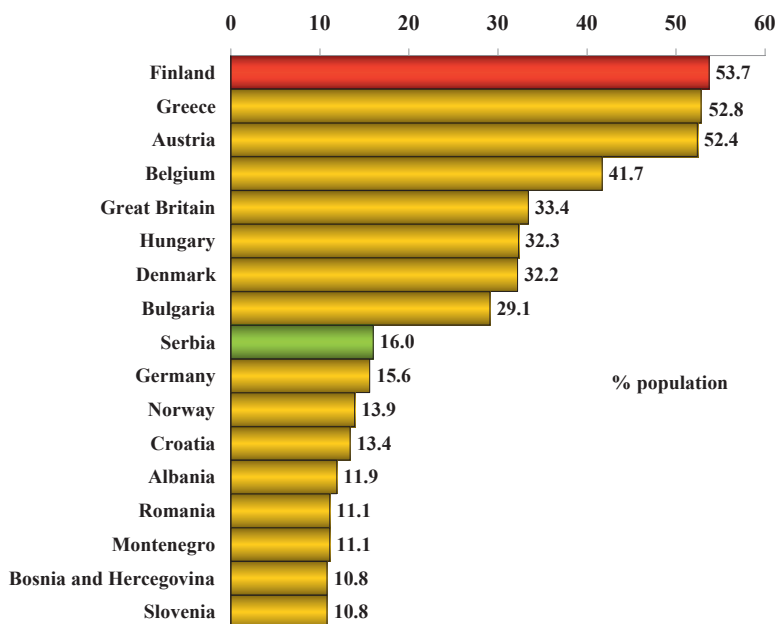
1   1For Serbia, data for 2013 were shown
     Data source: WHO, Global Health Observatory Data Repository http://apps.who.int/gho/data/node.main.
     A1047?lang=en&showonly=GISAH

Information that almost every fifth (17%) adolescent aged 15–19 consumed at least once a month more than 6 alcoholic drinks at one occasion is particularly worrying (22.7% boys and 10.6% girls).

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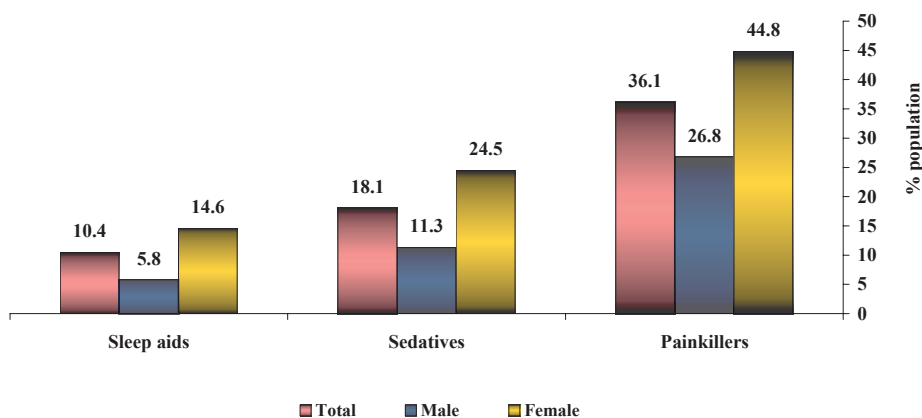
4.6. Use of Psychoactive Substances

According to a definition, a psychoactive substance is any substance that, once consumed, may modify one or more body functions. Those can be substances or combinations of substances that affect the central nervous system (CNS) causing changes in the perception and behaviour (1). Use of psychoactive substances (drugs) is defined as unhealthy behaviour and special individual socio-pathological phenomenon that causes addiction diseases. Addiction diseases are at the same time behavioural pathologies and part of social pathology with particularly harmful consequences on health.

The Survey collected data on use of different types of psychoactive substances in the past 12 months.

A large percentage of the population stated that they used painkillers in the past 12 months (36.1%). Tranquilizers were used by 18.1% of the population, and sleep aids by 10.4%. Women used either of these significantly more often (Graph 29).

Graph 29. Use of certain psychoactive substances in the past 12 months by gender, Serbia, 2013

Also, use of sedatives, sleep aids and painkillers was more frequent among the population of 55 years and over (Table 11).

Table 11. **The percentage of the population using certain psychoactive substances in the previous 12 months by age group, Serbia, 2013**

Age group	15–24	25–34	35–44	45–54	55–64
	%	%	%	%	%
Sleep aid	2,3	3,0	5,6	8,1	13,9
Sedatives	2,5	8,0	13,1	18,8	25,4
Painkillers	21,8	36,6	37,5	37,2	38,8

According to results of the Survey, illicit drugs were used, in the given period, by less than 1% of the population of Serbia. The most frequently used illicit drug was cannabis and it was used by 0.4% of the population in the previous 12 months. Use of other illicit drugs is below 0.1%. Use of cannabis is significantly higher among urban population, compared to the population from other areas (0.6% against 0.1%), among population with higher and high education (0.9%), as well as among those who belong to the most affluent category of the population (1%). Unlike the use of medicines, a larger percentage of persons under 35 are users of illicit drugs.

When analysing the prevalence of illicit drug use, one should take into consideration certain limitations of national health surveys, because drug abuse, as socially unaccepted behaviour is a challenge to sincerity of the interviewees when answering the questions on drug use. Also, one should take into consideration that it is very difficult to satisfactorily include this category into the representative sample due to their specific lifestyle.

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4.7. Sexual Behaviour

Risky sexual behaviour includes, first of all, early engagement in sexual activity, a larger number of sexual partners, non-use of reliable contraception methods and non-use of condoms as efficient protection from sexually transmitted infections. As a result of the lack of knowledge, incomplete or incorrect information, or simply of not realizing how significant preservation of

reproductive health is, there are consequences such as unwanted pregnancy that most often ends in abortion, or sexually transmitted infections that may, on the other hand, have long-term and serious consequences on not just physical, but sometimes, mental health, too.

Knowledge on sexuality, physiology of reproduction, contraception, consequences of induced abortion and infections that are transmitted by unprotected sexual intercourse, but also acquiring new relevant skills and behavioural patterns prior to the beginning of sexual activities are important for shaping correct attitude towards family planning and undertaking responsibility for protection of health in connection with engagement in sexual activities. Also, gynaecological health control at least once a year, promotion of safer sexual behaviour, accessibility of good-quality condoms for acceptable price, as well as accessibility of departments for voluntary and confidential counselling and HIV-testing as well as testing for other sexually transmitted infections and inclusion of the wider social community in prevention, are necessary for preservation of reproductive health of both individuals and the society as a whole.

According to the 2013 Survey, 33.1% of the young people in Serbia aged 15–19 engaged in sexual activities, significantly more boys than girls (39.9% against 25.7%). Compared to 2006, there was an increase of 4.1% of young people aged 15–19 who engaged in sexual activities.

The median value of engaging in the first sexual intercourse amoung young people aged 15–24 has not changed compared to 2006, and it is 17 years. Girls start their sexual activity somewhat later than boys (18 against 17 years). Nevertheless, if considered separately, age groups 15–19 and 20–24, it can be noted that the limit for engaging in the first sexual intercourse is going down (from 18 to 16). According to the results of 2013 survey, still some 2% of young people starts their sexual activity before they turn 15.

Out of the total number of young people aged 15–19, who, in the year preceding the Survey, engaged in sexual activities with occasional partner, 73.8% used condom during the last intercourse. Boys engage in sexual intercourse with occasional partners significantly more than girls (19.7% against 3.4%), but they also use condom much more often (76.4% against 58%).

In the adult population aged 20 and over, 14.6% had sexual intercourse with occasional partners, which is by 7% more than in 2006. More men than women had sexual intercourse with occasional partners (21.5% against 8%) as well as young persons aged 20–24 (29.2%). Use of condom with occasional partners is reduced with age and it is sifnificantly less practiced in women with lower educational status. Compared to 2006, the reduced use of condom during the last sexual intercourse with occasional partners is noted (43.3% against 51.6%).

The analysis of the indicator measuring improvement in the area of HIV exposure prevention among persons with multiple sexual partners (1) showed that among

persons aged 15–49, who had sexual intercourse with multiple partners in the year preceding the Survey (13.3%), only slightly more than one half (59.7%) used condom during the last intercourse. Significantly higher use of condom was registered in young persons aged 20–24 (70.3%), while condom was significantly less used by the persons with the lowest income per household member (46.3%) (Graph 30).

Graph 30. Use of condom during the last intercourse (persons aged 15–49 who had more than one sexual partner in the past 12 months) by age group and income per household member (in dinars), Serbia, 2013
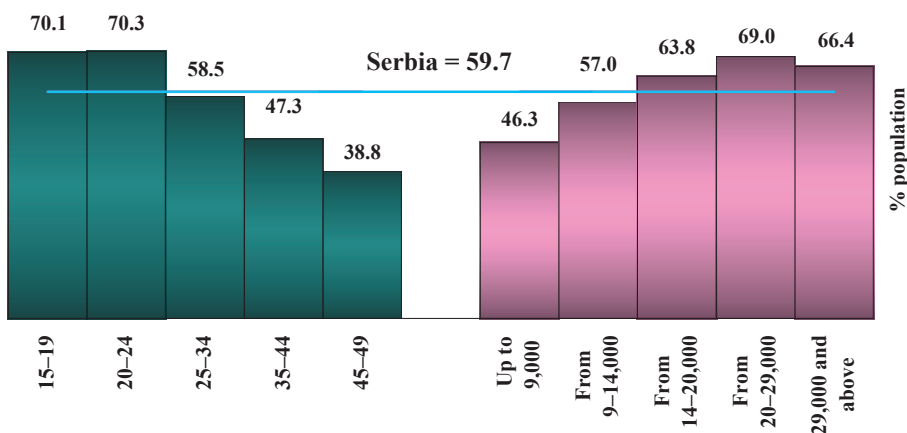
Only every fifth woman aged 15–49 (21.5%), who was sexually active in the period of observation, used some of contraceptive methods (pills, intrauterine spiral, hormone injection, hormone implant, diaphragm, foam or gel, female or male condom, female or male sterilization). Significantly less contraceptives were used by women with lower education level and women from the poorest households (10.1% and 12.2% respectively). In the same age group, among married women or those living in cohabitation, the percentage of those who used contraceptives was smaller (18.3%).

Regarding the use of some of unreliable contraception methods (safe period, coitus interruptus, the "day after" pill), it was present in 13.3% of women aged 15–49. Unreliable contraception methods were significantly more used by younger women aged 15–24 (7.2%)

Out of the total number of women aged 15–49, 1.5% stated that they had induced termination of pregnancy in the year preceding the 2013 Survey (1% of girls aged 15–19). Induced abortion was significantly more present in women from non-urban settlements (2.3%) and in women with lower education level (2.7%).

4.8. HIV/AIDS

Acquired Immune Defficiency Syndrome (AIDS) is a difficult, potentially lethal condition with clinical manifestations. It is the last stage of an infection caused by the Human Immunideficiency Virus (HIV) that, unless timely diagnosed and treated by highly efficient combination of antiretroviral medicines, most commonly leads to a progressive damage of the immune system and other organs, including the central nervous system.

Primary prevention, which is essential for control of HIV epidemics, has to be based on reliable and recent data on incidence and mortality, epidemiologic characteristics of patients, incidence in key populations with increased risk of contracting HIV, as well as on attitudes, behaviour and knowledge on contracting HIV and AIDS, provided by routine comprehensive epidemiological supervision and periodic biologic-behavioural surveys among key populations with increased risk for contracting HIV and national health surveys.

In Serbia in 2013, 90.7% of population aged 15 and over knew about HIV or AIDS (90.8% in 2006), significantly more in urban settlements and population under 55 years of age. Knowledge of HIV/AIDS-related information was largest in Belgrade (94.9%). Citizens from Southern and Eastern Serbia were significantly less informed (86.2%), as well as persons with lower education (76%) and those living in the poorest households (78.4%).

28% of the population of young people aged 15–24 years had enough acquired knowledge on HIV/AIDS so that they could properly identify the ways to prevent sexual transmission of it, and, at the same time, recognize misconceptions in connection with HIV/AIDS transmission.

Young people aged 15–19 had sigficantly less knowledge on HIV/AIDS, as well as young people from Šumadija and Western Serbia and those with lower educational level (Graph 31).

Graph 31. Knowledge of the young people aged 15–24 године on HIV/AIDS by region, age group and educational level, Serbia, 2013
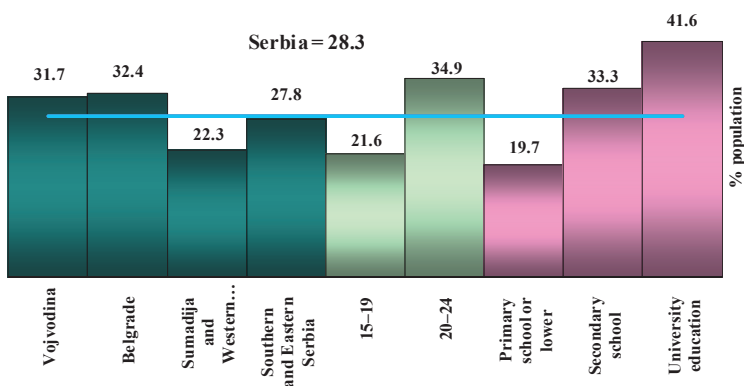
Every other citizen of Serbia aged 15 and over (50.2%) properly identifies ways to prevent sexual transmission of HIV, but only every sixth (16.1%) does not have misconceptions regarding HIV transmission and knows how it cannot be transmitted. Significantly lower percentage of people who regularly identify ways to prevent sexual transmission of HIV, or do not have misconceptions regarding HIV transmission, are registered in Šumadija and Western Serbia, in the age group of 50 and over, in non-urban settlements, and in the group of persons with lower education and poor financial status.

Only 7.7% of the population in Serbia aged 15–49, who knew about HIV/AIDS, did not have discriminatory attitude towards HIV-infected persons. Persons in Šumadija and Western Serbia had a significantly lower level of tolerance towards HIV-infected persons (5.4%), as well as those who live in other settlements (5.6%), persons aged 15–19 (3.1%), those with lower education (3.4%) and persons from the poorest social strata (4.8%).

In 2013, one half of citizens in Serbia aged 20 and over (50.1%) knew where they could get HIV-related counselling and be tested for HIV, while 6.9% of them were tested. Both indicators show a significant increase compared to 2006 (37.9% were informed, and 4.2% tested). Both the number of informed and tested persons are significantly lower in the population that does not live in urban settlements, in persons over 50 years, and in persons with lower education and persons from poor social strata. A significantly lower percentage of informed persons (about counselling and testing) were registered in Vojvodina (46%), and number of tested in Šumadija and Western Serbia was 4.2%.

Out of the total number of citizens in Serbia aged 15–49, 2.5% were tested for HIV during 12 months prior to the 2013 Survey, and on that occasion, they were informed about the test results. This percentage is significantly lower among the population from Šumadija and Western Serbia (1.6%), persons who live in other settlements (1.4%), young population aged 15–19 (0.7%), persons with lower education (0.7%) and poorest persons (1.1%).

Analysis of different indicators shows that knowledge on HIV/AIDS and attitudes towards HIV-infected persons are closely connected with the level of education. Persons with higher or high education have better knowledge on ways of transmitting HIV infection and protecting from it; they also have more positive attitude towards persons infected with HIV. Also, persons with higher education level are more often tested for HIV.

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V

Utilization of Health Care

5.1. Utilization of Health Care in Health Care Institutions and Private Practice

Reducing disparities in health and health care is an important condition of further development of the system of health care and its institutions. An important factor in the organization and functioning of the health care is the level of the system integrity (connection between primary, secondary and tertiary level), but also its territorial-administrative decentralization (network and financing), as well as synchronized functioning of the state and private sector.

Indicators showing use of health care are necessary for analyzing the needs of users and at the same time, they are a reflection of provision and development of the health care sector and quality of health care.

Use of hospital health care

Hospital health care is one of the most important and at the same time the most expensive part of the health care system. For this reason, increase in efficacy and improvement of the work of hospitals is among the priorities of health care development in Serbia.

In 2013 Health Survey, 7.8% of the population over 15 years of age stated that they were treated in hospital, which is significantly more than in 2006 (6.5%). Significantly more hospitalized persons were in older age groups (16.4% in the 75–84 age group), among the population with the lowest educational level (basic and lower – 10.8%), and the poorest (Graph 32).

Graph 32. The percentage of the population that was treated in hospitals by age group and wellbeing index, Serbia, 2013
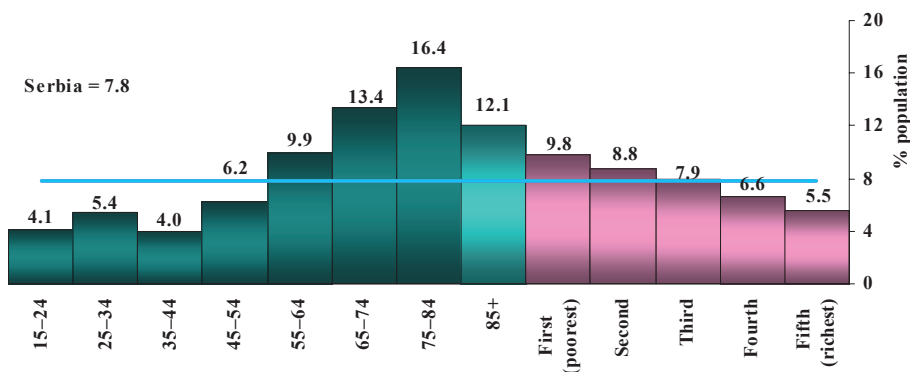
In the year preceding the Survey, every tenth citizen of Serbia was treated in day hospitals (10.4%) with 5 stays on the average. A significantly higher percentage was registered among women (12%), inhabitants of Vojvodina (13.4%) (Graph 33), older population, particularly in the 75–84 age group (15.8%) and residents with the lower educational level (12.3%)

Graph 33. The percentage of the population treated in day hospitals by region, Serbia, 2013
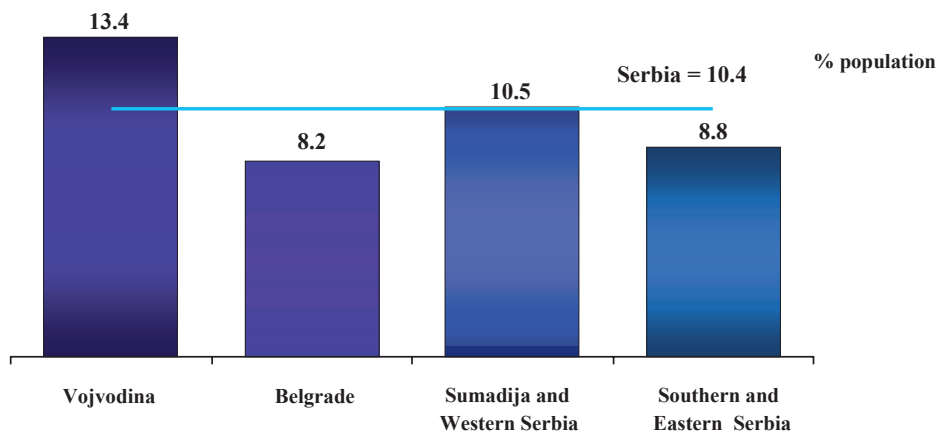

Use of primary health care

Citizens use primary health care in a primary health care centre through their chosen doctor. A General Practitioner or Paediatrician is, most commonly, the first health care worker to meet the patients in need of health care.

91.7% of the population over 15 years of age had their general practitioner or paediatrician. In the population of persons over 20 years of age, 91.6% had their own general practitioner which is a significant increase compared to 2006, when 50.6% of the population had their own GP. The largest number of citizens had their chosen doctor or paediatrician in a state-owned institution (91%). Larger percentage of female persons had their general practitioner or paediatrician (93.8%) than males (89.5%). 2.5% of the population had their chosen GP or paediatrician in private practice, mostly in Belgrade, cities (3.1% both categories), in the group of persons with higher or high education (5.3%) and in the most affluent group (5%).

Two thirds of Serbian population (65.5%) visited their general practitioner or paediatrician in the year preceding the Survey, significantly more women (71.6%) than men (59%), most of them in Southern and Eastern Serbia, and least in Vojvodina (Graph 34).

Graph 34. The percentage of the population that visited their general practitioner or paediatrician in the past year, by region and gender, Serbia, 2013
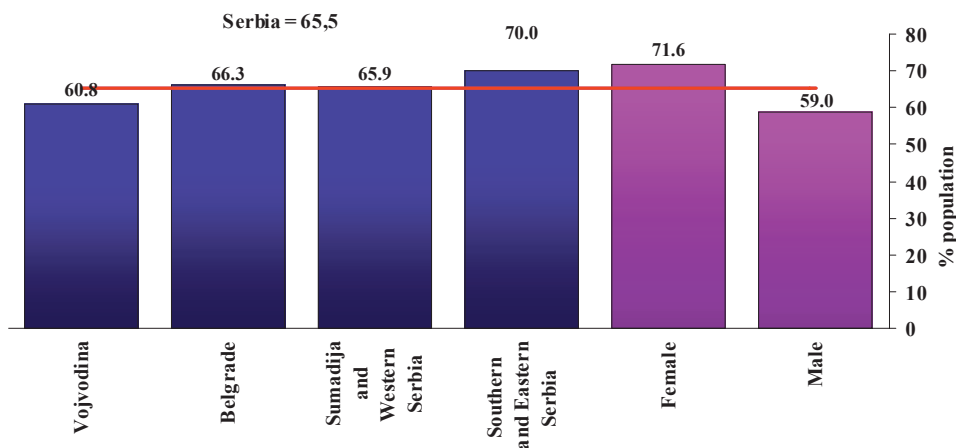
The average number of visits to the general practitioner or paediatarician in the period of four weeks preceding the Survey was 1.5 (in state health care institutions 1.0, and in private practice 0.5). The largest number of visits was recorded in Southern and Eastern Serbia (2.0), in the group aged 15–24 (2.3) and in the group of people with basic and lower than basic education (1.8).

60.9% of women had their own gynaecologist (54.9% in the state-owned institutions, and 10.5% in private practice), mostly in Belgrade (74.3%), in 25–34 age group (87.3%), in the group with higher and high education (83.8%) and in the most affluent group (78.8%).

One third of women older than 15 years of age (34.9%) visited their gynaecologists in the year preceding the Survey, significantly more in Belgrade, cities, and in the most affluent group. This percentage is somewhat higher than in 2006 (33.8%), but that difference is not statistically significant. Almost one half (47.5%) of women in fertile age (15–49) visited their gynaecologists in the year preceding the Survey, which is slightly more than in 2006 (46.2%). In 2013 women were significantly younger when going to their first gynaecological visit (20.5 years) compared to 2006 (22.0 years).

Use of dental health care

Dental health care has its specific place in the health care system. The right to dental health care, which is financed from the mandatory health insurance funds, is defined by the Health Insurance Law. In the past decade, there were significant

changes in legal regulations, which influenced a lot the provision and use of dental health care.

Slightly over one half of the population of 15+ years of age (54.2%) had their own dentist – 26.9% in a state-owned institution and 31% in private practice. The largest number of citizens had the chosen dentist in Belgrade (72.3%), cities (61.9%), in the group of the most educated (76.4%) and the most affluent group (77.6%) (Graph 35).

Graph 35. The percentage of the population that had their own dentist by region and wellbeing index, Serbia, 2013
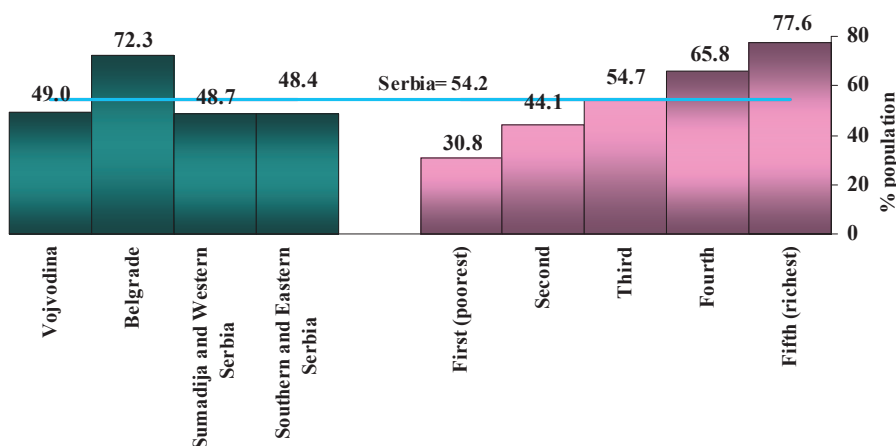
In the period of six months preceding the Survey, every fifth citizen (20.5%) visited their dentist, more women (22.5%) than men, residents of cities (23.4%) and members of the most affluent group (27.9%).

Two fifths of the population of Serbia visited a specialist doctor in the period of 12 months preceding the Survey (40.1%). The specialist doctors were more often visited by women (46.3%), residents of Belgrade (46.6%), older population groups, the most educated persons (46.8%) and the most affluent ones (42.4%). In this period, the specialists of physical medicine and rehabilitation were visited by 8.5% of the population, while psychologists, psychotherapists and psychiatrists were visited by 4.4% of the population. The average number of visits to specialist doctors per citizen in the period of four weeks prior to the Survey was 0.8, out of which 0.7 in state-owned institutions and 0.1 in private practice.

In 2013, 1.4% of the population in Serbia stated that they used the services of home care and assistance. These services were mostly used, as expected, by the

eldest citizens (11.4% of people over 85), the least educated ones (2.5%) and the poorest (1.9%).

The emergency care services were used by 6% of the population of Serbia, which is significantly more compared to use of emergency care in 2006 (5%). These services were more used by elderly citizens (13.4% in the 75–84 group and 13.8% in the group of 85 and over), citizens of the lowest educational level (8.5%) and women (6.8%).

Use of private practice

Since 1990s, the private practice has been, according to the Health Care Law, on equal footing with the state-owned health care in Serbia. Nevertheless, the private practice has still not been integrated into the health care system, nor in the process of mandatory-statistical reporting. That is the reason why only through population surveys one can obtain data significant for analysing use of private practice.

In 2013, private practice services were used by 15.1% of the population of Serbia. Private practice was more used by the citizens with the highest educational level (27.9%), the most affluent ones (24.8%), residents of Belgrade and cities (Graph 36).

Graph 36. The percentage of the population that used private practice services in the past year by region and type of settlement, Serbia, 2013
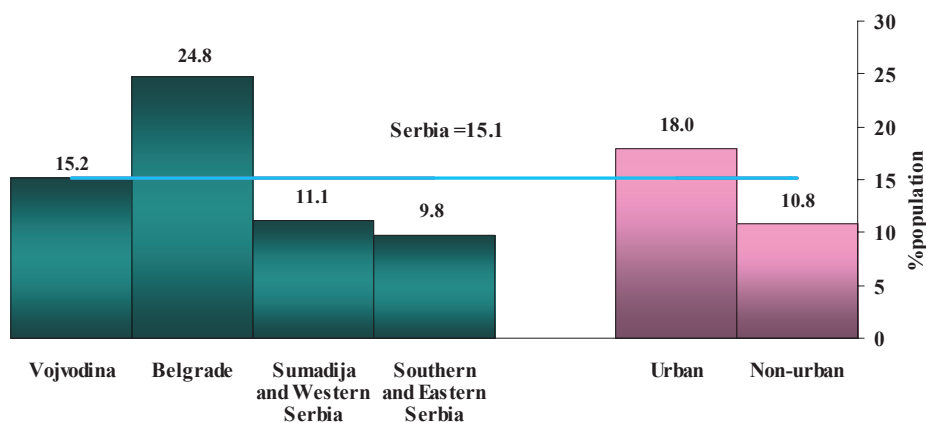
In the population older than 19 years of age, there has been a significant decrease in the use of private practice compared to 2006 (15.8% against 19.4%).

In the year preceding the Survey, services of traditional medicine such as acupuncture, homeopathy and chiropractic treatment were used by 3.8% of the population of Serbia. These services were more used by women (4.7%), most educated persons (7.3%) and the most affluent population group (7.2%).

5.2. Unrealized Health Care Needs

Accessibility of health care needs depends on multiple factors that refer to both the health care system and the patient himself. Health system factors that may affect accessibility are health insurance coverage, adequate staff, premises, equipment and financial resources, referral system, appointment system, the way of treating individuals within a system (continuity of health care) and quality of provided services. Characteristics of patients, such as old age, socio-economic status, previous experience with health care, their perception of the quality of health care and the level of health literacy may also influence their decision to seek health care (1).

The concept of unrealized needs refers to the difference between health care services that are considered necessary for the treatment of certain health-related problems, and services that were actually obtained. A person who had recognized a health service need, but did not get this service, has unrealized health care needs (2).

Every third citizen of Serbia (30.7%) did not realize his health care needs in the year preceding the Survey due to long waiting, distance or financial reasons. The largest percentage of the population with unrealized health care needs was registered in Vojvodina (39.5%), and the smallest in Šumadija and Western Serbia (20.3%). The level of education, financial status and gender also influenced the realization of health care needs. As a matter of fact, a significantly higher percentage of women (33.1%), citizens with the lowest education (35.9%) and the poorest ones (40.1%) failed to realize their health care needs.

The greatest obstacle for realization of healh care needs is financial. Every fourth citizen of Serbia (24.8%) stated that the lack of financial means was the reason for non-use of health care. It was most difficult to obtain dental health care (19.3%) and medical health care (18%); this is followed by prescription medicines (14.2%) and mental health care (4.8%).

The inability to realize medical health care needs due to financial reasons is more prominent in Serbia (Graph 37) than in the European Union countries (3).

Graph 37. The percentage of the population that did not realize their medical health care needs due to financial reasons, Serbia1[1] and selected countries, 2012
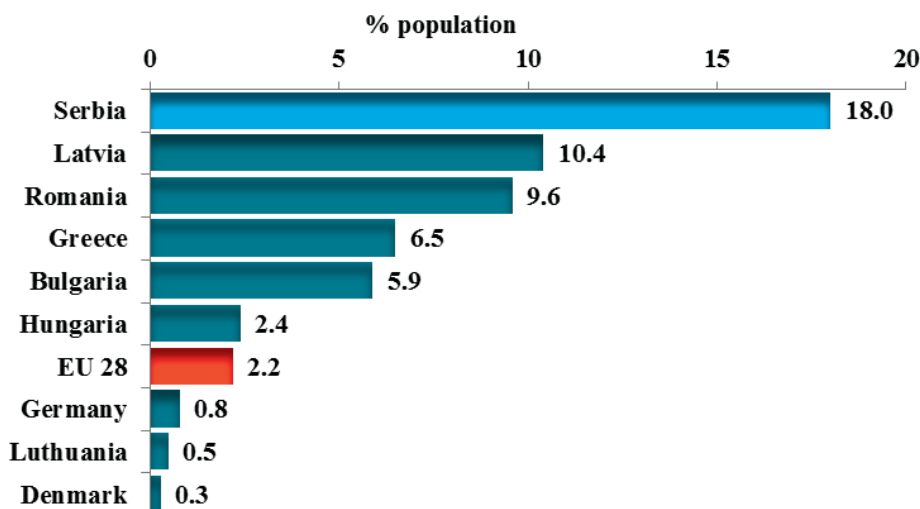
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5.3. Satisfaction with Health Care Services

Satisfaction of users is one of key aspects of permanent quality improvement. It has an immense effect not just in evaluation, but also in planning and organization of health care.

More than one half of citizens of Serbia (53.8%) stated that they were satisfied (satisfied and very satisfied) by state health care services (Table 12), while slightly less than two thirds were satisfied by private health care services (64.6%).

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1   Data for Serbia are for 2013.

Table 12. Satisfaction by health care services, Serbia, 2013

Satisfaction with health services	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Beoma Very dissatisfied
	%	%	%	%	%
Public	9.3	44.5	27.2	12.0	7.0
Private	14.8	49.8	26.8	5.8	2.8

Residents of Šumadija and Western Serbia (58.7%) were most satisfied by the state health care services; they are followed by the least educated persons (61.5%) and the poorest ones (58.7%), as well as the residents of non-urban settlements (56.3%). The least satisfied by the state health care services were the residents of Vojvodina (49.5%), the most educated and affluent ones who belong to the fith quintile of wellbeing index (47.5% each) and residents of cities (52%).

When referring to the satisfaction of private health care, the most satisfied were residents of Belgrade (68.6%), and the least satisfied were residents of Vojvodina (60.1%). Compared to the financial situation, the most satisfied were the richest residents of Serbia (70%), and the least satisfied were the poorest (57%). Women were considerably more satisfied compared to men (68.2% against 60.4%), and more educated persons were more satisfied compared to the persons with basic or lower eduction (68.4% against 62.2%). A large percentage of the youngest population (15–24 years) was satisfied with the private health care (69.9%), and, opposed to that, the eldest (85+) were the least satisfied (49.4%).

5.4. Health Care Costs

During the health survey, direct health care costs were analysed, or, the so-called out-of-pocket spending of the population. This type of spending is one of the ways to finance health care and it is most commonly used for payment of services or part of services that are not covered by health insurance. Health care costs are analysed against all household members, from 0+ years.

In the 12 months that preceded the Serbia Survey, more than one half of the population (51.6%) had health care costs, significantly more than in 2006 (44.1%). The largest percentage of the population that paid out of their own pocket was recorded in the Southern and Eastern Serbia, and the smallest in Belgrade (Graph 38).

Graph 38. The percentage of the population that paid out-of-pocket for health care by region, Serbia, 2013

%population

	51.6 (Serbia)
Vojvodina	49.5
Belgrade	48.4
Sumadija and Western Serbia	50.4
Southern and Eastern Serbia	58.8
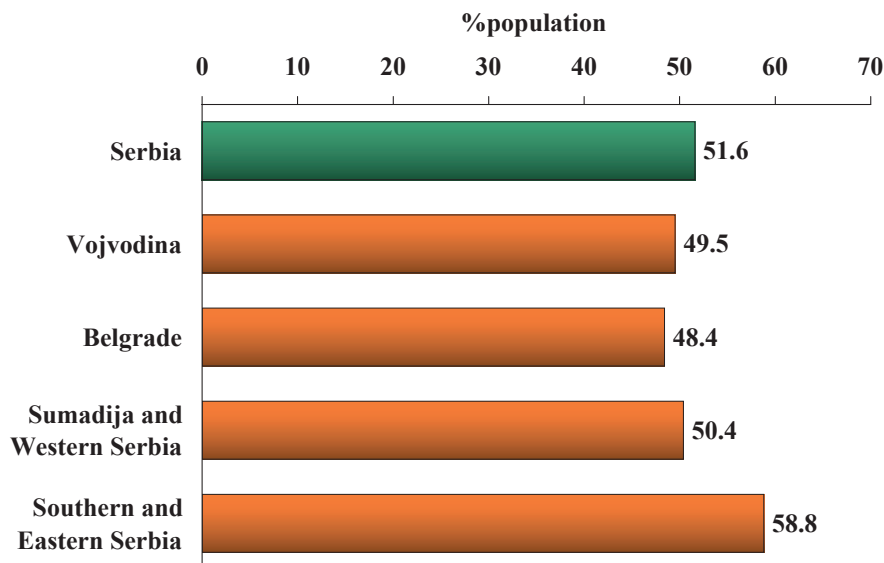
The average annual amount of the total out-of-pocket payments for health care per person was 31,255 dinars. The largest payments were registered among residents of Belgrade and Vojvodina (38,617 and 38,526 dinars respectively), and the smallest was registered in Southern and Eastern Serbia (22,598 dinars).

Costs of the outpatient treatment

Survey results showed that the percentage of the population that had out-of-pocket costs for health care services in state institutions is significantly smaller than in 2006, while the percentage of the population that had costs for medicines and diagnostic procedures grew (laboratory tests, roentgen, ultrasound, scanner, MRI) in private health care institutions.

Costs for out-of-hospital treatment – visit to doctor's office in state-owned institution in the four weeks preceding the Survey – were incurred by 2.4% of the population of Serbia, which is significantly less when compared to 7.4% of the population with this kind of costs back in 2006. There is a significant difference regarding the geographical areas, where the highest percentage of the population with costs was in Belgrade (4.1%), and the lowest in Southern and Eastern Serbia (1.8%).

Regarding the outpatient treatment – visit to doctor's office in private practice – that was 1.3%, which is significantly lower than in 2006 (2.3%). As in the previous case, the largest percentage of the population with incurred costs was registered in Belgrade, and the smallest in Southern and Eastern Serbia (1.9% against 0.8%).

Costs for diagnostic services in state-owned health care institutions were incurred by 2% of the population, significantly more so in Vojvodina (2.7%) and cities (2.2%). The percentage of the population that had costs for diagnostic services in state-owned health care institutions in 2013 was significantly lower than back in 2006, when it was 3.6%.

As opposed to state-owned health care institutions, the percentage of the population that incurred costs in 2013 for diagnostic services in private practice (3.8%) is significantly higher than in 2006 (2.3%). Big differences were noted in relation to geographic areas and financial status of the population (Graph 39).

Graph 39. The percentage of the population that had costs for diagnostic services in private practice by region and wellbeing index, Serbia, 2013
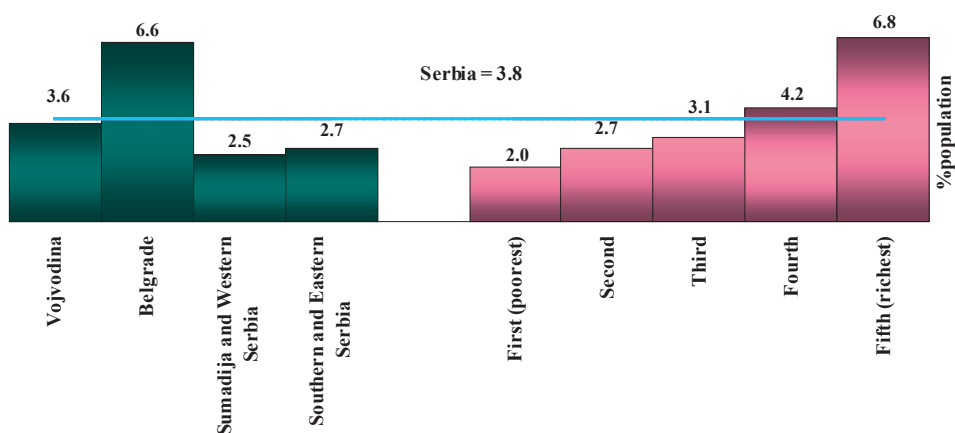
Costs for visits to dentists in state health care institution in the four weeks preceding the Survey were incurred by 1.1% of the population of Serbia, which is significantly less than in 2006 (1.7%).

As opposed to the "state dentist", costs for visits to private practice dentists were incurred by 3.6% of the population in Serbia, which is slightly more than in 2006 (3.2%). There are considerable differences in relation to the geographic areas, type of settlement and financial status of the population. The biggest costs were

incurred by the residents of Belgrade (5.2%), cities (4.2%) and 5th quintile of the wellbeing index – the richest (6.9%), while the smallest costs were incurred, which is logical, by the poorest residents (1.3%), residents of Southern and Eastern Serbia (3.1%) and residents of other settlements (2.7%).

More than two thirds (41.6%) of the population of Serbia incurred costs for medicines during the four weeks preceding the Survey, which is significantly more than in 2006 (32.9%). Significantly higher costs for medicines were incurred by residents of Southern and Eastern Serbia (50.2%) and the poorest residents (49.7%), compared to the residents of Belgrade (33.8%) and the most affluent residents (30.7%).

Costs for hospital treatment

Cost for hospital treatment in state health care institutions were incurred during the 12 months preceding the Survey by 1.2% of the population of Serbia (significantly less compared to 2.6% in 2006), and costs for hospital treatment in private practice 0.6%, which is more than back in 2006 (0.4%). Cost for hospital treatment in state health care institutions are more often found in the poorest population group (1.5%) and in non-urban settlements (1.4%), while in private practice they are more present in Belgrade (1.1%) and among the richest citizens (1%).

0.6% of the population of Serbia had costs for rehabilitation, which is less than in 2006 (0.7%), and 4.6% of the population had costs for medical aids, which is more compared to 2006 Survey results (3.7%). Only 0.1% of the population of Serbia had costs for treatment abroad.

## *Costs for direct payment to health care staff*

In 12 months preceding the Survey, the health care was directly paid, upon their own request for services by 0.1% of the population of Serbia, who incurred costs for health care, while 0,7% of the population paid the health care staff on their own initiative.

Having in mind that only a small number of citizens answered the questions about the issue of direct payment to health care staff for health care services, data on average annual direct payment to health care staff against the whole population is not relevant. Thus, it was calculated against the number of persons who stated that they had paid monay directly to health care staff for health care services. Only 19 interviewees stated that they were required to pay for a health care service by health care staff, and the average paid amount was 44,732 dinars. 147 interviewees paid directly to health care staff, on their own free will, the average amount of 8,436 dinars.

There is a very interesting information, that more than one third (34.5%) of the population of Serbia refused to pay for a health care service upon request of the health care staff, with larger percentage of such persons in Southern and Eastern Serbia (50.9%) compared to Vojvodina and Belgrade (25.5% and 25.1% respectively).

Medicines-related costs comprised more than half of the total costs for health care, which is considerably higher than in 2006 (42.4%). This is followed by costs for private dental and private diagnostic services (Graph 40).

Graph 40. Percentage of individual costs in total health care costs, Serbia, 2006 and 2013
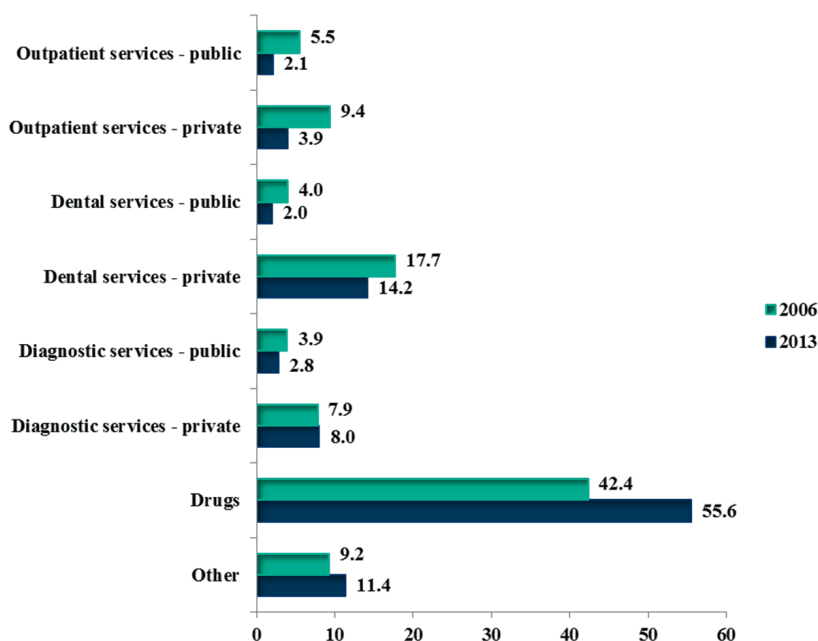
5.5. Preventive Examinations

Serbia National Health Survey provided measurement of the coverage of preventive examinations for early detection of risk factors responsible for cardiovascular diseases and diabetes (measurement of blood pressure, cholesterol and blood sugar), for early detection of malign diseases (breast cancer, cervical cancer and colorectal cancer), as well as successful enforcement of relevant national programmes for prevention of the above diseases.

The information on the percentage of the population that had undergone the above examinations performed by health care staff in the period of up to five

previous years speaks about how much the significance of preventive examinations (measurement of blood pressure, cholesterol and blood sugar) was recognized by the population.

In 2013, in the adult population, the percentage of those who had not undergone the preventive examinations in the past five years had considerably gone down in comparison with 2006, by about 10% (Graph 41).

Graph 41. The percentage of the population aged 20 and over who have not undergone preventive examinations in the past five years, Serbia, 2006 and 2013
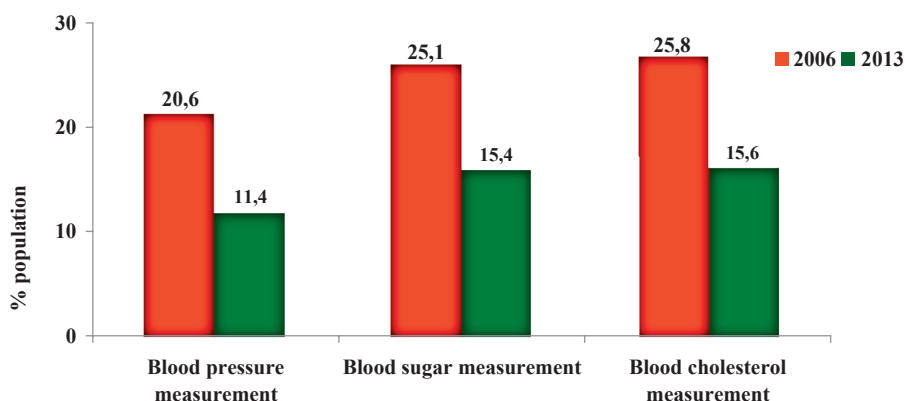
Preventive examinations of women for early detection of breast cancer

According to 2013 Survey results, slightly over one fourth of women in Serbia (26.5%) stated that they underwent the mammography screening of breasts.

Graph 42. The percentage of women aged 50–69 who did the mammography screening of breasts in the past three years, by region, Serbia, 2013
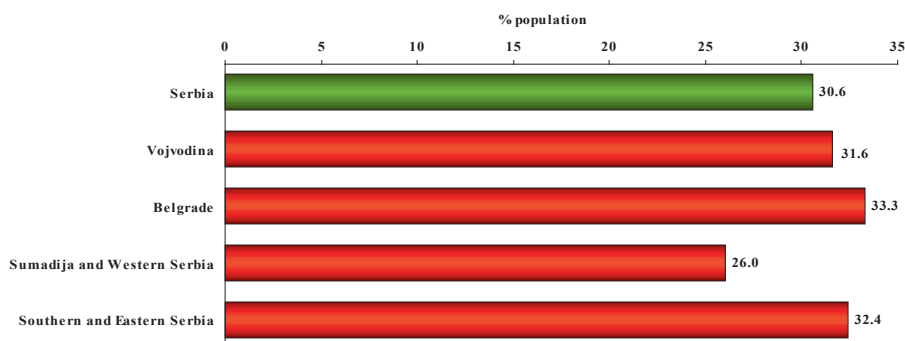
In the target population for early detection of breast cancer, 30.6% of women aged 50–69 did mammography screening of breasts in the period of three years preceding the Survey, which is three times more common than back in 2006, when this was done by every tenth woman only (10%). The largest percentage of women did the mammography screening of breasts upon doctor's suggestion (47.7%), then, 40.9% did it on their own initiative, and upon doctor's invitation within an organized screening (11.4%).

In this population of women, the largest percentage of those who did the mammography screening of breasts (40.7%) was among the most educated ones and those who live in households with the highest income (41.7%), while a significantly lower percentage of women was registered among the least educated ones (22.9%), women in households with the lowest income (19.8%), as well as the residents of Šumadija and Western Serbia (26%) (Graph 42).

Preventive examinations of women for early detection of cervical cancer

Preventive examination for early detection of cervical cancer (Papanicolau test) during the three years preceding the Survey was done by 57.1% of women aged 25–69 (the target population for early detection of cervical cancer). The largest percentage of women who had done the Papanicolau test was registered in Belgrade (72.5%), in cities (62.3%), among women aged 25–34 (70.2%) (Graph 43), as well as among residents of the most affluent social strata (75.9%) and among highly educated women (74%), while it was lowest among the residents of Šumadija and Western Serbia (48.9%). The largest percentage of women stated that they did the Papanicolau test upon doctor's advice (50.6%), and 2.6% of them did it upon doctor's invitation within an organized screening.

Graph 43. The percentage of women aged 25–69 who did the Papanicolau test in the past three years, by age group, Serbia, 2013

% population

Age group	%
Serbia	57.1
25–34	70.2
35–44	67.7
45–54	61.3
55–64	42.9
65–69	29.8
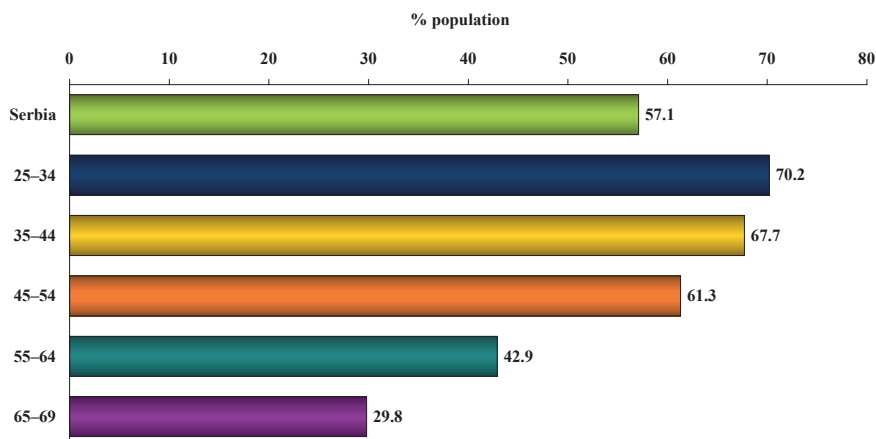
The percentage of women who did the Papanicolau test in the period of three years preceding the Survey was increased from 38.5% in 2006 to 57.1% in 2013.

Preventive examinations for early detection of colorectal cancer

In 2013, 7.6% of the Serbian population aged 50–74 performed the occult blood testing in the previous three years. A significantly higher percentage of tested residents were in Vojvodina (9.6%), among the population with the highest education (10.2%), as well as among those who live in households with the highest income (11.6%).

In the same age group, colonoscopy was in the past 10 years done by 7.4% residents, significantly less in Southern and Eastern Serbia (5.4%) and residents who live in non-urban settlements (6.2%).

Preventive examinations for early detection of colorectal cancer (including testing for occult blood and colonoscopy) were equally distributed among both sexes. Colonoscopies were done in a larger percentage in residents from the 65–74 age group (8.8%).

5.6. Use of Medicines

A medicine is a product which is sold as a product of certain strength, shape and package. Although it contributes towards improvement of the health status and quality of the population's life, it has its negative aspects, such as secondary side-effects (these can be particularly provoked by unprofessional application), as well as a huge financial burden for both individual residents and the country as a whole. Rational use of medicines is crucial for the health of the population (1). Information on the level of use are significant for pharmaceutical health care, or, health care of the population, which includes identification of the population that uses medicines, as well as those groups that have problems in connection with their use.

According to the 2013 Survey results in Serbia, 43.4% of the population used medicines prescribed by a doctor during the previous two weeks (before the Survey).

Women used prescription medicines in a larger percentage (50.3%) compared to men (36%). Regarding geographic areas, the highest use of prescription medicines was recorded in Southern and Eastern Serbia (47.8%), as well as in those with the lower educational level (55.8%), then those from the poorest group (51%) and persons living in non-urban settlements (45.2%).

Self-medication is the use of medicines and other medical supplies and aids without doctor's advice. The 2013 Health Survey contributed towards analyzing

of the scope of this phenomenon, indicating its relations towards gender, age and education structure of the population; it also helped establish the main reasons behind it. The commonest reasons for self-medication are availability of medicines and medical supplies without prescription in all pharmacies, as well as long queues in front of the chosen doctors' offices (2).

In Serbia in 2013, 27.1% of the population stated that in the period of two weeks preceding the interviews they used medicines, herbal medications and vitamins that were not prescribed by a doctor. The habit of taking medicines that have not been prescribed by a doctor is the most common among the population of Belgrade, Southern and Eastern Serbia, among women, highly educated and more affluent population. Most commonly, without doctor's prescription, painkillers, vitamins and minerals and herbal medications were used. Although the habit of self-medication by taking antibiotics, sedatives and sleeping pills was less present than before, this practice is still worrying, particularly because these categories of medicines fall under the category of medicines for which doctor's prescription is mandatory (Graph 44).

Graph 44. The most commonly used medicines and medical products without doctor's recommendation within the population that most commonly used prescription medicines without doctor's prescription, Serbia, 2013

% population
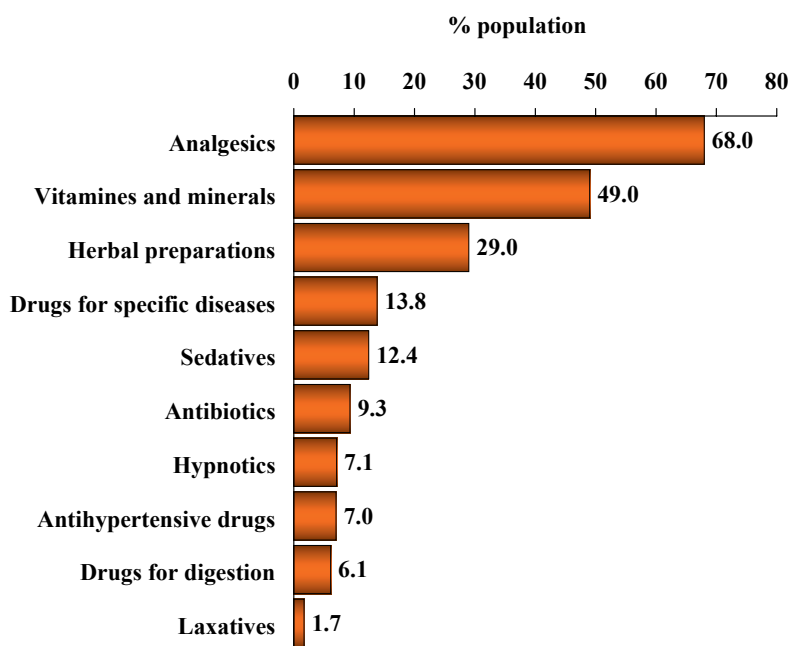
Data on self-medication by using antibiotics are particularly significant due to the increase in the antimicrobial resistence (3). Patients with infections caused by resistant microorganisms do not react to standard treatment, which leads to

prolongation of the disease, higher risk of fatal outcome and increase of the total health care costs.

When analysed against the total population – antibiotics that were not prescribed by a doctor were used by 2.5% of the population. Non-prescribed sedatives and/or sleeping pills were used by 4% of the Serbian population.

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VI

Children's Health

Within the Serbia National Health Survey, which includes only the population of 15 years of age and over, the National Health Survey of Children aged 7–14, the schoolchildren category, was also conducted. This period is characterized by the growth process and psycho-physical maturing, socialization, upbringing and education. The health status and quality of life in this period are conditioned by the factors of family background, immediate environment and important factors in connection with the educational process. Sanitary-hygienic status of the school premises, conditions for physical activity and recreation, accessibility of school premises, microclimatic conditions and adequate school furniture are important factors for the schoolchildren's health (1).

In the Republic of Serbia in 2013 schoolchildren (7–14) were represented by 7.9% in the total population (562,626) (2).

6.1. Health Status

Assessment of one's own health and prevalence of certain diseases

The majority of children (96.8%) assessed their health in 2013 as good (very good and good) (Graph 45), which corresponds to the result obtained in the 2006 Survey (95.2%).

Graph 45. Self-assessment of the health of children aged 7–14 years, Serbia, 2013

% population

Category	Value
Very good	71.6
Good	25.2
Average	2.6
Bad	0.6
Very bad	0.1
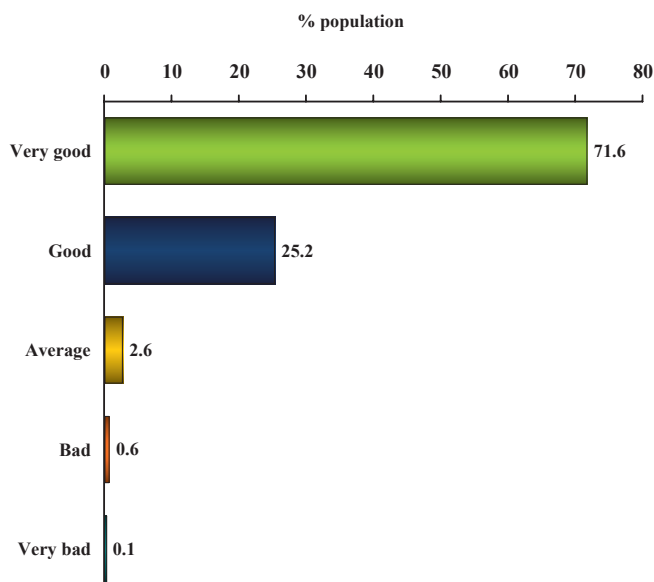
Regarding the prevalence of certain diseases and conditions, the largest percentage of children stated that they had a problem with flat feet (9.8%), then, with allergies (8%), spine deformity (4%), asthma (3%) and chronic respiratory disease (2.1) (Graph 46).

Children in Belgrade suffered much more from flat feet (13.3%) and those living in rich households (about 13%). The only sifnificant difference in connection with socio-demographic characteristics referred to the chronic respiratory diseases from which more boys suffered than girls (3.3%). It is important to stress that there were no significant differences in prevalence of other observed diseases and conditions among the children by gender, age, geographic area in which they live, type of settlement and other characteristics of interviewees.

Graph 46. Prevalence of certain diseases and conditions in children aged 7–14 years, Serbia, 2013
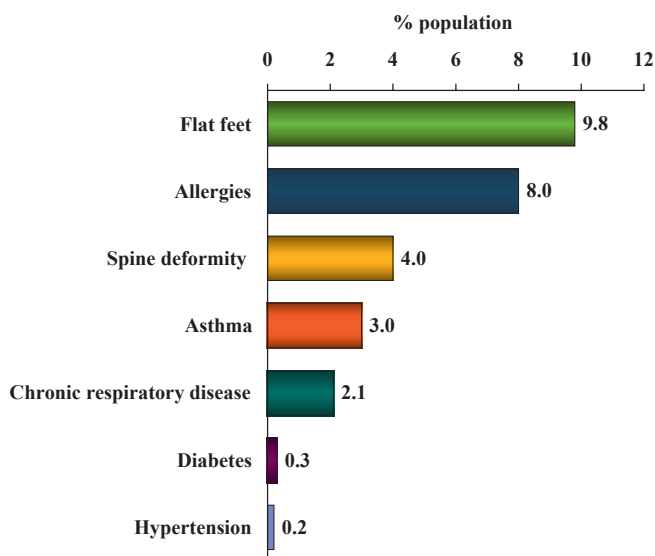
Every ninth child (11.5%) stated that they had vision problems, while glasses or contact lenses were worn by 6.6% of children. 2.5% of children had hearing problems, while hearing aid was worn by 0.2% of children aged 7–14. Children from Vojvodina significantly more had vision problems (15.6%) and hearing problems (6.4%). Children aged 7–10 years significantly more often had problems with hearing (3.4%) compared to children aged 11–14 years (1.7%).

According to the results of the Research, in the year preceding the Survey, children most often sustained injuries in the house and/or during engaging in leisure activities (6.5%) and in school (4.5%), while less than 1% of children were injured in traffic (Graph 47). Out of the total number of injured children, almost three quarters of them (73.4%) got medical assistance for consequences of injuries.

Graph 47. The percentage of injuries by the place where injuries happened, Serbia, 2013
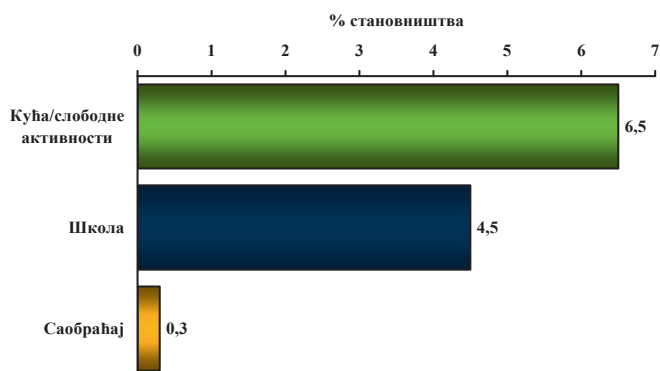
Due to health-releated problems, in the six months preceding the Survey, every fourth child (27.5%) was absent from school, for 7 days on the average. Children from the Vojvodina region were cosiderably more often absent due to health-related problems (33.4% – every third child), and much less children from Šumadija and Western Serbia   (22.3%)

Nourishment level

According to the measurement results, the average weight of children aged 7–14 years was 42.4kg, and the height was 147.5cm. In the poorest households, the average weight of children (40kg) and height (145.2) were significantly lower. According to the nourishment level categories, in 2013, an increase of the percentage of overweight children was registered (4.9% in 2013 against 2.6% in

Graph 48. Nourshment level of children and youth aged 7–14, Serbia, 2006 and 2013
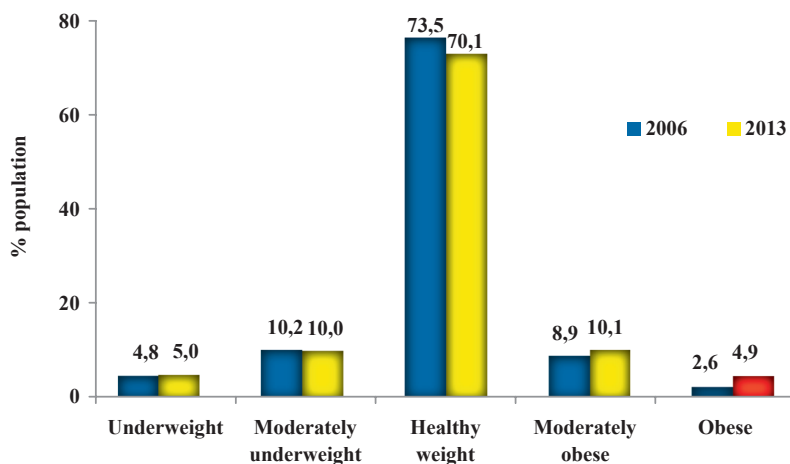
2006) (Graph 48). It is important to know that significantly larger percentage of moderately obese (13.2%) and obese children (7.5%) was registered among the children aged 11–14, and underweight (8.6%) and moderately underweight (15.7%) among the children aged 7–10.

6.2. Use of Health Care

Health care of schoolchildren at the primary level is provided by departments for health care of schoolchildren in primary health care centres, while dental care, apart from the primary health care centres, is provided in dental offices in schools. Almost all children in Serbia have their chosen paediatricians (97%), which is a significantly higher percentage than in 2006, when only one half of the children aged 7–14 had their paediatricians (49.2%). Comparing the four regions, a higher percentage of children who had their paediatricians were recorded in Šumadija and Western Serbia (99%) and Belgrade (97.8%) than in Southern and Eastern Serbia (93.4%). In the past six months almost two thirds of children visited their paediatricians (63.7%), significantly more so in Belgrade (70.8%) compared to the children in Vojvodina (59.7%) and Šumadija and Western Serbia (60.4%).

The same number of children (63.1%) visited the dentist in the past six months. Girls visited their dentists more often (66.8%) than boys (60.5%); in children aged 7–10 compared to children aged 11–14, it was 66.8% against 59.4%, and children from urban areas against children from non-urban areas – 65.6% against 59.4%.

In connection with health counselling, counselling office for the youth or school counselling office was visited only by every eighth child aged 7–14 (13.1%). The counselling office was significantly more often visited by children from Belgrade (19.5%) and children from the most affluent households (20.8%), unlike children who live in non-urban settlements, where only 9.1% of them visited the counselling office.

Emergency services were in the past 12 months used by 1.1% of the children aged 7–14, while 4.3% of them used hospital treatment, which is unchanged when compared to 2006 (4%).

6.3. Lifestyles

According to health indicators, schoolchildren may be considered as the healthies of all age categories. Nevertheless, due to numerous specific features marking this period of life (sexual and psychosocial development) and risk factors for occurrence of risky behaviours that might jeopardize health, it is necessary to undertake adequate health interventions during school education in order to promote healthy behaviour and lifestyles (3).

Hygienic habits

Hygienic habits of children in Serbia considerably changed compared to 2006. A negative result is represented by the data that in 2013 61.8% of children regularly washed their hands, significantly less than back in 2006, when it was done by 72.6%. Girls washed their hands in a larger percentage (70.8%) than boys (53.3%). A positive change was registered in connection with tooth-brushing and showering on a regular basis. More than once a day, teeth were brushed by 58.4% children, which is significantly more than back in 2006 (50.9%). A larger percentage of girls (65.8%) wash their teeth compared to boys (51.4%). The habit of regular brushing of teeth is least present in children from Southern and Eastern Serbia (48.7%) and those from the poorest households (46.8%). Two thirds of children took showers more than three times a week (66.2%), which is also significantly more than in 2006 (54%). The habit of regular showering was more present in children from Vojvodina (87.6%), urban settlements (72%) and from affluent households (85.5%).

Food intake

In 2013, just like in 2006, the majority of children had the habit of eating breakfast on a daily basis (93.8%). Three quarters of children (74.2%) consumed at least one glass of milk or dairy products on a daily basis, which is significantly more than back in 2006 (60.4%). This food was less available to children from the poorest households – 58.4%. The percentage of children who consumed integral types of bread was lower than in 2006 (3.5% against 6.1%), and it was more often consumed by children in cities (4.4%) and those from affluent households (6.4%).

Every other child consumed fruit on a daily basis (51%) and vegetables (56.6%). The only noted differences regarding socio-demographic characteristics were that a larger percentage of children from Šumadija and Western Serbia consumed fruit on a daily basis (58.7%), while the children from Vojvodina had the lowest percentage for eating fruit (48.4%). 3.6% of children had the habit of adding additional salt before even trying the food, significantly more children did that in Vojvodina (6.2%).

Physical activity and sport

A high percentage of children (82.3%) stated that they engaged in physical activities at least one to two times a week in their free time (so that they get flushed, breathing fast), significantly more boys (86.7%) than girls (77.8%), children from Šumadija and Western Serbia (90.9%), as well as children from the most affluent households (87.9%). Almost all children were regular in their physical education classes (97.6%). Regarding physical activity of children, no significant differences were noted compared to the 2006 Survey.

Behaviour in traffic

During a ride in a car or another vehicle, one half of the children (50.3%) stated that they always used the safety belt, which is significantly less compared to 2006 (56.4%). The safety belt was more used by the children aged 11–14 (60.8%) compared to the children aged 7–10 (39.9%). Every other child (52.5%) stated that they crossed the street away from zebra crossings, which also points out to a significantly higher percentage of children exhibiting risky behaviour in traffic, than back in 2006 (41.9%). In places where the traffic is dense, children rarely cross the street away from zebra crossings (in Belgrade 38.3% and cities 47.7%). The percentage of children with helmets and/or protective pads when on rollers was 15%, when riding a bicycle it is 6.1%, and skateboard (15.4%).

Providing assistance and social support

Almost every fifth child in Serbia (18.1%) at least once a week helped people who are old or have health problems. Children from Vojvodina most rarely provided help to old people or people with health problems (Graph 49). The largest percentage of children was helping the members of their families (84.3%).

According to the 2013 Survey results, all children stated that they had a close person on whom they could count if they had serious problems, as opposed to 2006, when 96% of all children said so.

Graph 49. The percentage of children aged 7–14 who provided care or assistance to old people or people with health problems, by region, Serbia, 2013
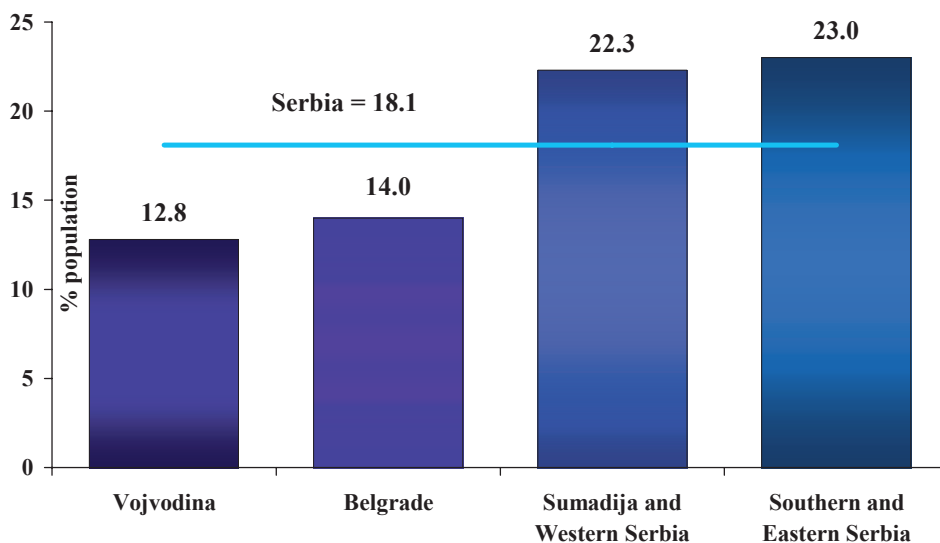
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VII

The Health of
the Elderly Population

One of the greatest successes of the mankind, but also one of the biggest challenges in 21ˢᵗ century, is the prolongation of life. The percentage of persons aged 60 is on the rise in the world population, and that trend is expanding, on the one side due to the falling of natality rate, and on the other, due to the prolongation of human life (1).

It is estimated that in the world, the number of persons older than 65 shall overcome the number of children under the age of 5 in the next 5 years, and by 2050, it will overcome the number of children under 14.

According to the last Census in Serbia, the old population makes up 16.8% of the total population. The Republic of Serbia, with the average age of its citizens of 41.6%, is one of the oldest countries, not just in Europe, but globally. The percentage of persons over 65 years of age will be at least 22% by 2030, which is every fifth citizen (2).

The majority of old people lose the capacity to live independently due to limited mobility, psychological weakness or other physical problems. Many of them need some form of longterm care, including care in a home for elderly citizens, caregivers' assistance, home assistance, local community care and longterm hospitalization. It is especially important that health and social sector services are well integrated and coordinated (1).

7.1. Health Status

Health self-assessment

Assessment of one's own health is one of very significant indicators of the health status and quality of life, which is not a perfect reflection of the clinically measured health status, but it most often conforms to the clinical findings. This indicator has been used in health surveys since 1950s, and has so far proven itself as a very reliable and valid health status indicator, or, as a good predictor of mortality and disease incidence (3, 4, 5).

The standard question "How would you assess your own health, in general?" has been recommended by the WHO and the EU Commission as a global indicator of the population's health status (6, 7).

In Serbia, one fifth of the old population (22.4%) assessed their own health as very good and good (significantly more men – 30%, age group 65–74 – 25%, from Vojvodina – 28.6%, from Belgrade – 26.8%, cities – 26.7%), slightly over one third of the population (37.3%) as average, and as many as 40.2% as bad and very bad. Among the population that had assessed their own health as very bad, there are significantly more women – 11.6% and persons over 75 – 27.9%. Significantly higher percentages of the population of Šumadija and Western Serbia (34.3%), and the population of the non-urban settlements (36.4%) assessed their health as bad.

The data of the European Union Statistical Office (EUROSTAT) say that just over one third of the population (28 countries of the European Union) aged 65 and over – 36.1% – assessed their own health as very good and good in 2012 (which is by 12.6% higher than in the Serbian population), and almost one fourth of them – 23.5% – as very bad and bad (which is almost twice less than in the Serbian population) (8). Also, comparative data for 34 countries of the Organisation for Economic Cooperation and Development (OECD) showed that the scope of the good health indicator values in this population was from 12.4% in Hungary to 84.1% in New Zealand (9).

Inhabitants with the lowest educational level, as well as those in the poorest category, saw their health much more often as very bad and bad, while a significantly higher percentage of those with the highest income per household member and the most affluent ones assessed their health as good and very good (Graph 50).

Graph 50. General health self-assessment of the elderly population by wellbeing index, Serbia, 2013
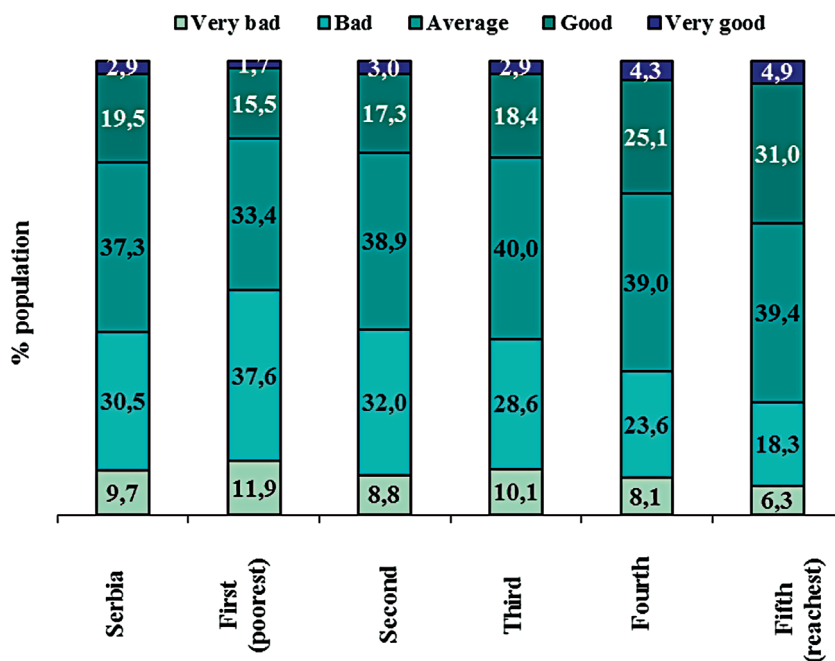

Chronic diseases

Non-communicable chronic diseases are one of the main reasons for using health care, particularly by elderly persons group, where these diseases have a higher incidence than in the other population groups.

The most common disease among the elderly population of Serbia in the year preceding the Survey (according to statements) was the elevated blood pressure (65.6%), followed by elevated blood fats (22%), diabetes (17.8%), depression (10.8%), chronic respiratory disease (8.4%) and asthma (6.8%). According to the demographic and socio-economic characteristics, it was noted that the prevalence of:

- diabetes is significantly lower in persons over 85 years (6.4%),
- depression is significantly higher in women (13.8%), and lower in persons with higher and high education (6.5%),
- asthma, as well as chronic disesase of the lungs is significantly higher among the population aged 75–84 (8.8%, or, 11.1%) compared with the younger age categories,
- elevated blood fats are significantly higher in women (26%), among the population of Belgrade (26%) and population aged 65–74 година (25%) compared to older age categories, while it is significantly lower in persons who belong to the poorest category (17.8%),
- elevated blood pressure is significantly higher in women (72.7%) than in men.

The incidence is not different from the incidence in other European countries. As a matter of fact, the disease with the highest incidence in Serbia was elevated blood pressure in all three age groups (Graph 51). The value of this parameter went from 71.0% in Slovakia, to 31.5% in France in the 65–74 age group; from 72.6% in Slovakia, to 32.3% in France in the 75–84 age group; from 73.8% in Slovakia to 28.1% in France in the 85+ age group.

Graph 51. The percentage of the elderly population that had some of the listed diseases by age group, Serbia, 2013
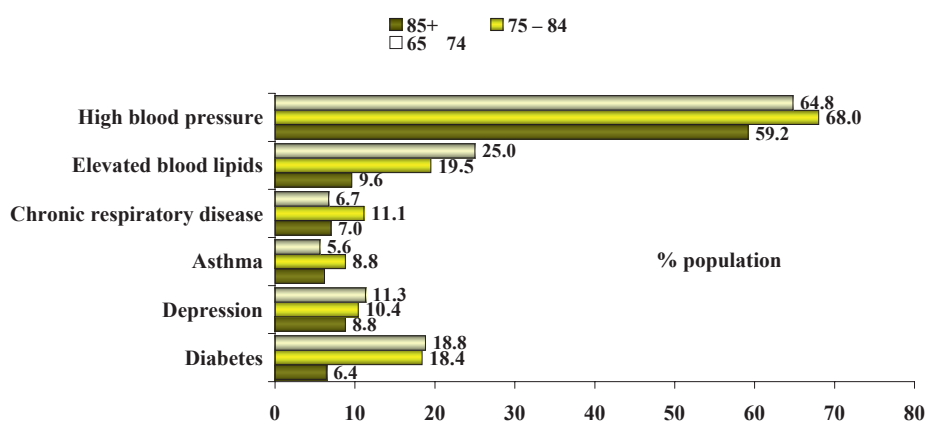
Physical and sensory functional impairment and the capacity for peforming daily activities

There are limitations in locomotion, transfer and capacity for self-care, as well as for mobility and other sensory limitations that reduce the capacity for performing daily activities and tasks, which is particularly significant for the elderly population.

Three quarters of the elderly citizens of Serbia (75.8%) stated that they had a long-term illness or health problem, women more often (80%) than men.

Every third citizen (37.1%) stated that in 2013 they had difficulties walking, every ninth (10.7%) had vision problems, and almost every fourth (23.6%) – hearing difficulties. In connection with demographic and socio-economic characteristics, women were more often suffering from these problems –walking difficulties (44.2%) and vision problems (12.3%), persons over 75 – had walking difficulties, as well as vision and hearing problems (Graph 52), while residents of the poorest non-urban settlements had walking difficulties (45.9%), vision (14.3%) and hearing problems (27.8%).

Graph 52. The percentage of the elderly population with physical and sensory impairment by age group, Serbia, 2013
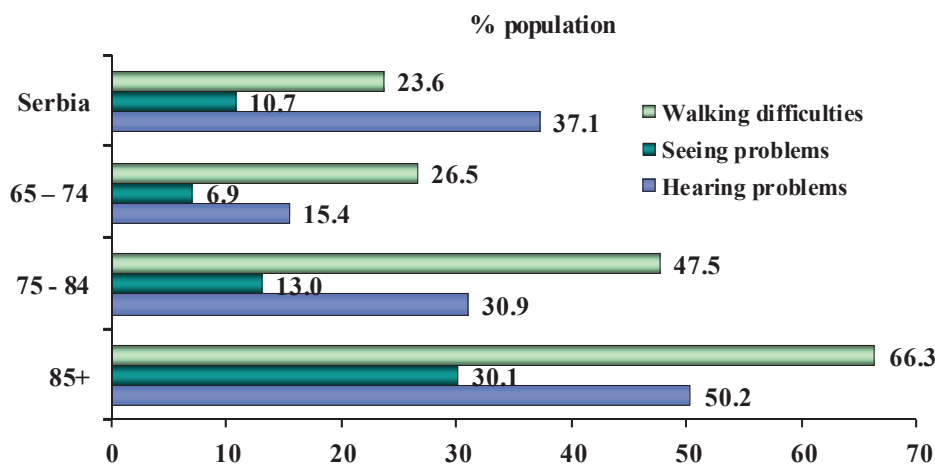
Just over one third of the elderly in Serbia (37.6%) stated that they had serious difficulties in performing everyday activities (preparation of food, easier and more difficult household chores, purchases, etc.), and almost every ninth resident (11.1%) had difficulties in performing activities of daily personal care (dressing,

undressing, using toilet, having a bath, having a shower, etc.). Outstanding demographic and socio-economic differences in connection with these activities are the same as those referring to physical and sensory functional impairments. As a matter of fact, women were considerably more often limited in performing daily household chores and activities of personal care, as well as persons over 75 years old, residents of non-urban settlements, residents with the lowest education, and the poorest ones. The percentage of persons who cannot perform the daily household activities and activities of personal care grows with age. The elderly residents of Šumadija and Western Serbia significantly more often had difficulties in performing their personal care activities.

According to the indicator showing percentage of the elderly population with difficulties in performing daily household chores, Serbia has almost identical percentage of such people as Romania (64–75 age group), Greece (74–84 age group) and Spain (85+ age group). When comparing data against the indicator showing the percentage of the population with difficulties in independent performance of the personal care activities, Serbia is among the European Union countries with the lowest percentage in all age groups (8).

In 2013, every third citizen of Serbia, aged 65+, used someone's help in performance of daily household activities (33%) and every seventh in performance of activities of personal care (14.9%). Women used assistance in performance of household activities more often (39.4%), just like the residents of Southern and Eastern Serbia (38.7%), residents of non-urban settlements (37.7%) and the poorest residents (36.5%). Every fifth resident had the unrealized needs for assistance in performing daily household activities (20.8%), as well as every seventh elderly resident of Serbia (13.4%) in performing the activities of personal care.

Injuries

Injuries are a significant public health problem, particularly for the elderly population. According to the WHO estimates, more than 5 million deaths per year globally, or, 9% of all causes of death are injury-related. It was estimated that against every injury-related death, there are 30 admittances into hospitals and 300 visits to emergency wards. A great number of survivors are facing temporary or permanent disability (10).

In Serbia, 6% of the elderly population sustained some kind of injury during 2013. According to the place of injury, just like in surveys from the previous years, the commonest place of injury was home (4.4%), without any significant changes compared to 2000 (5.7%) and 2006 (4.8%).

Out of the total number of injured people, two thirds of them (67.3%) received medical assistance.

7.2. Use of Health Care

The elderly citizens realize their right to primary health care in primary health care centres and the chosen doctor, who is a medical doctor or a medical doctor Specialist in General Medicine (General Practitioner), or, a medical doctor Specialist in Occupational Medicine, medical doctor Specialist of Gynaecology, and Stomatologist. Also, citizens can use the specialist-consultative services that are not connected with hospital treatment.

According to the Survey results, in 2013, 95.1% of the elderly population had their own chosen General Practitioner. In the year preceding the Survey, as many as four fifths of the elderly paid visit to their chosen General Practitioner (82.7%); this visit was significantly more often paid by the urban, more educated and richer population (Chart 53). During the same period, 56.7% of the elderly citizens visited specialist doctors. Every citizen visited either their chosen General Practitioner of specialist doctor once a month, on the average.

Graph 53. The percentage of the elderly population who visited their General Practitioner by type of settlement, level of education and wellbeing index, Serbia, 2013
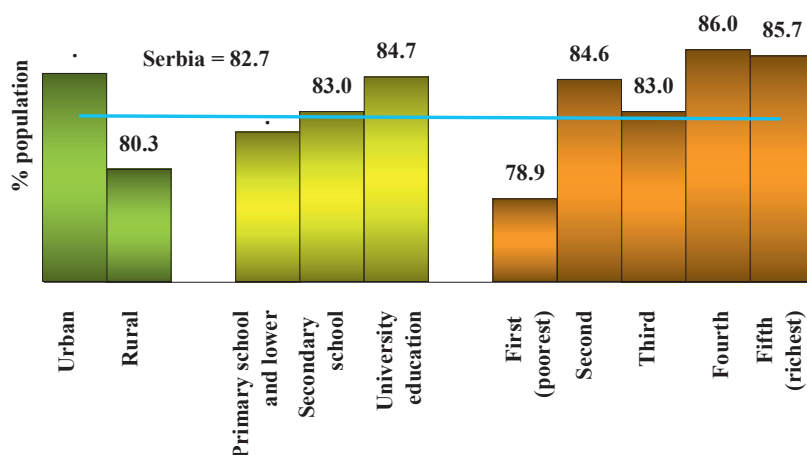
A significant indicator of the quality improvement on the primary health care level is the percentage of the elderly who were inoculated against the seasonal flu.

According the the Survey data, only 8.7% of the elderly population stated that they were inoculated against the seasonal flu in the year preceding the Survey. That percentage is significantly smaller in Southern and Eastern Serbia (5.5%), and significantly bigger in the population aged 74–85% (11.6%), as well as in those with higher and high education (16.3%).

The scope of the value of this indicator, according to the EUROSTAT data in 2012, went from 75.55% in Great Britain, to 0.9% in Estonia (8). Also, comparative data for 34 OECD member countries (Organization for Economic Cooperation and Development) have shown that the average rate of inoculated elderly persons was over 50% (9).

Almost every third elderly resident (31.5%) stated that they had their dentist. The residents aged 65–74 (36.7%), who live in urban settlements (41.3%), Belgrade (51.7%), with secondary education (38.7%), with higher and highest education (61.4%), with the highest income per household member (51.2%), those who belong to the rich (44.8%) and the richest population group (61.2%) significantly more often had their own dentist. In the past six months, 8.9% of the elderly visited their dentists.

Only every fourth woman (25.5%) had her chosen gynaecologist. Women aged 65–74 significantly more often had their chosen gynaecologist (35.5%), as well as those living in urban settlements (32.1%), in Belgrade (42.2%), those with higher and high education (46.6%), and those belonging to the affluent group (36%), particularly the most affluent ones (50.3%). During the past year, every tenth elderly woman (10.3%) visited her gynaecologist.

In the past 12 months, private practice services were used by every seventh elderly citizen (15.5%). Urban population (20.2%), Belgrade population (25.4%), population with higher and high education (29.9%), population with the highest income per household member (27.3%), or, the most affluent population (28.1%) significantly more often used private practice services. In 2013, 2.7% of the elderly had their General Practitioner in private practice, while every eighth (13.4%) had their private dentist, and only 1.7% of women had their private gynaecologist.

In Serbia, during the year preceding the Survey, 7.8% of the population was hospitalized. In line with the expectations, the prevalence of hospitalization grew with age: while it was 4.1% among the population aged 15–24, that percentage was significantly higher in the elderly population: for persons aged 65–74 it was 13.4%; for persons aged 75–84 it was 16.4% and for persons aged 85+ it was 12.1%. About 15% of the elderly population used services of day hospitals.

Services of home care and assistance, provided by health care staff or staff employed by social service departments were used by 4.6% of the elderly, which is three times less than the percentage of the elderly who stated that they needed assistance to perform personal care. These services were significantly more often used by the persons aged 75–84 (6.3%) and persons aged 85+ (11.4%).

Services of traditional medicine (acupuncture, homeopathy, phytotherapy) were used by 3.3% of the elderly population.

Regarding the percentage of the elderly who were generally satisfied by the health services, the percentage of those satisfied with private health services was almost identical to the percentage of those satisfied with the health services in public institutions (65.9% and 66.7% respectively).

7.3. Use of Medicines

The medicines of adequate quality must be accessible at the lowest possible price for both the patients and the society. This is especially important due to a special regime of use of medicines among the elderly population, because they most often belong to the low income population category.

More than 80% of the elderly in Serbia used, in the previous two weeks, medicines prescribed by their doctor, women significantly more so.

According to EUROSTAT (8) data, Serbia is among European Union countries in which the highest percentage of use of medicines by the elderly population was registered (Table 13).

Table 13. The percentage of the elderly population that used prescription medicines in the previous two weeks, by age group, Serbia, 2013

Age group	Range of indicator values		Serbia
	Minimum	Maximum	
	%	%	%
65–74 years	55,8 Турска	87,1 Словачка	81,6
75–84 years	52,7 Турска	94,0 Белгија	86,6
85+	52,1 Турска	95,0 Белгија	80,9

In the two weeks preceding the Survey, almost every fourth elderly resident of Serbia (24%) took medicines, herbal medications or vitamins that had not been prescribed by their doctor. Sedatives and sleeping pills were taken without prescription by 5.6%, and antibiotics by 2.3% of the population. The following categories most often took medicines, herbal medications and vitamins that had not been prescribed by doctors: women (26.9%), residents of Belgrade (28.3%), persons with higher and high education (30.9%) and those with the highest income per household member (32.4%). The population of Southern and Eastern Serbia significantly more used sedatives and/or sleeping pills as well as antibiotics than the population of other regions. Regarding the elderly population, women also more used sedatives/sleeping pills than men (6.8% aand 3.8% respectively).

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VIII

Conclusions

Households

In Serbia in 2013, 96.9% of the population had access to improved drinking water sources, which is significantly more compared to 2006 (92.6%). The smallest percentage of the population that obtained water from the public water supplies or drilled well was recorded in Vojvodina (94.1%). The percentage of the population that had access and used improved sanitations in Serbia in 2013 was 97.1%. The Sourthern and Eastern Serbia stood out as a region where population more rarely used improved sanitations – 92.7%, just like the non-urban settlements and non-urban households belonging to the poorest population category.

Health Status of the Population

The percentage of the population that assesses their health status as good grew compared to 2006 (57.8% against 49.8%), but it still deviates from the average value of this indicator in EU countries (68.9%).

4.1% of the population had symptoms of depression – most of them in the population of people aged 85+. Compared to 2006, the number of residents who were exposed to stress significantly grew (56.6% against 43.1%).

Compared to 2006, one can notice the increase in incidence of majority of diseases and conditions in the adult population, particularly hypertension, depression, diabetes, elevated blood fats and allergies. One of the reasons for the increase of the mentioned diseases must surely be growing old of the population; on the other hand, this is also affected by the increasingly better preventive examinations coverage for early detection of diseases and conditions.

5.2% o the population in Serbia sustained an injury (in traffic, at home, or during engaging in leisure activities). Medical aid was provided to 66.7% of the injured persons.

In the previous 12 months in Serbia, almost every seventh resident was absent from work due to health problems, 34.5 days on the average, which is significantly less than in 2006 (51.3%).

Almost every other person (47.5%) in Serbia had hypertension or potential hypertension. Every third adult (33.9%) in Serbia stated that their hypertension was diagnosed by a doctor.

45.6% of the population assessed the state of their teeth and mouth cavity as good, which is for 14% more than back in 2006. The increase of the number of residents aged 25+ who have all their teeth can be connected with the improvement of the orgal hygiene-related habits.

Health Determinants

In Serbia, 44.6% of the population sits or stands while at work. Women are more prone to sedentary lifestyle than men who spend more time by engaging into physical activities. 8.8% of the population engages in fitness, sport or recreation at least three times a week.

Every other resident of Serbia insufficiently or never consumes fruit (54.4%). While every fifth resident of Serbia (19.7%) does not think about health when choosing a lifestyle, almost one half of the residents of Serbia (49.1%) changed something in the way they eat during the year preceding the Survey.

More than one half of the population of Serbia (56.3%) was over-weight (pre-obese and obese). Betwteen the two Surveys, a significant increase of obese population was registered (from 17.3% to 21.2%).

The prevalence of smoking among the population in Serbia was above the European average. More than one half of the population aged 15+ was exposed to tobacco smoke.

Compared to 2006, the percentage of the population who drink on a daily basis has gone up, while the habit of daily alcohol consumption was most present among the poorest population. Almost every fifth adolescent aged 15–19 got drunk at least once a month.

Almost every third resident of Serbia used painkiller during the previous year, every fifth used sedatives and every tenth used sleeping pills.

Compared to 2006, twice as many residents of Serbia aged 20+ were registered who had sexual intercourse with occasional partners in the previous 12 months (14.6% against 7.6%), and at the same time, the use of condom during the last intercourse with occasional partners went down (43.3% against 51.6%).

Only every fifth woman aged 15–49, who was sexually active in the previous 12 months, stated that she used some form of contraceptives or methods of contraception; the women with lower education and women from the poorest households used contraception significantly less.

Only slightly above one fourth of the young aged 15–24 had enough acquired knowledge on HIV and AIDS. Compared to 2006, the percentage of the population who know the place where they can get advice and be tested for HIV is significantly higher than in 2006, just like the percentage of the population tested for HIV (50.1% against 37.9% in the category of the well-informed, and 6.9% against 4.2% of the tested).

Utilization of Health Care

Nine out of ten residents of Serbia aged 20+ had their chosen General Practitioner, which is a significant increase compared to 2006, when only one half of the residents had their chosen GPs. Also, the percentage of the population that did preventive examinations in the past five years (blood pressure measurement, level of blood fats and cholesterol) went up by 10%. 7.6% of the target population (50–74) were tested for occult blood in the past three years. Within the same age group, 7.4% of the population did colonoscopy in the past 10 years.

Three fifths of women aged 15+ had their chosen gynaecologist, while one third of them visited a gynaecologist during the year preceding the Survey. 57.1% of women aged 25–69 did the preventive examination for early detection of cervical cancer during the three years preceding the Survey, which is a significant increase compared to 2006 (38.5%). In the target population of women for early detection of breast cancer (50–69 years), 30.6% did the mammography examination during the period of three years preceding the Survey, which is as much as three times more than back in 2006.

More than one half of the population had their chosen stomatologist, almost third of them in private practice, and one fourth in public health care institutions. During the period of six months preceding the Survey, every fifth resident of Serbia visited their stomatologist.

In 2013, 15.8% of the 20+ population in Serbia used private practice services, which is a significant decrease compared to 19.4% in 2006.

In Serbia, in the period of two weeks preceding the Survey, 43.4% of the population used medicines that had been prescribed by a doctor, while 27.1% of them used medicines, herbal medications or vitamins that had not been prescribed by a doctor. Women used more medicines than men, both prescribed (50.3%) and non-prescribed (33.3%). The use of non-prescribed medicines was most typical for the richest residents, as well as those with high education. The non-prescribed antibiotics were used by 2.5% of the population, and sedatives and/or sleeping pills by 4%.

One third of the population of Serbia did not realize their health care needs due to the long waiting, distance or financial reasons. The lack of financial means was the reason for unrealized health care needs of every fourth resident of Serbia.

Slightly more than one half of the population of Serbia had personal costs for health care, which is significantly more than back in 2006. The average annual amount of the total "out-of-pocket" expenses for health care per resident was 31,255 dinars. Against the health care cost structure, costs for medicines were

more than one half of the total costs, followed by private dental service costs and private diagnostic service costs. The percentage of the population that had "out-of-pocket" expenses for health care in public health care institutions was significantly smaller than back in 2006, while the percentage of those who had expenses in private health care institutions went up.

Every third resident of Serbia refused to pay for a health care service upon request of the health care staff.

In 2013, more than one half of Serbian residents were satisfied by the state health care services. At the same time, slightly under two thirds of the population was satisfied by the private health care services.

Children's Health

Every ninth child (11.5%) stated that they had vision problems, problems with flat feet (9,8%), allergies (8%), spine deformity (4%), asthma (3%), hearing (2.5%) and chronic respiratory disease (2.1%). Due to health problems, every fourth child (27.5%) was absent from school, 7 days on the average.

The increase of obese children was registered; compared to 2006, it was 4.9% against 2.6%.

Almost all children in Serbia have their chosen paediatricians (97%), which is a significant increase compared to 2006 (49.2%). In the past six months, almost two thirds of all children visited their paediatricians (63.7%) and their stomatologists (63.1%).

The 2013 Survey registered the improvement of hygienic habits regarding the regular brushing of teeth and showering compared to 2006 (58.4% against 50.9% and 66.2% against 54%), which cannot be said for the habit of regular washing of hands (61.8% against 72.6%).

Three quarters of children (74.2%) consumed at least one glass of milk or a dairy product per day, which is significantly more than back in 2006 (60.4%). Every other child consumed fruit on a daily basis (51%) and vegetables (56.6%).

Four fifths of children (82.3%) engaged in physical activities in their free time. Almost all chidren attended physical education classes on a regular basis (97.6%).

One half of the children (50.3%) stated that they always used safety belt while riding in car, which is significantly less compared to 2006 (56.4%). Every other child (52.5%) stated that they crossed the street away from zebra crossings, which indicates an incrase in risky behaviour of children compared to 2006 (41.9%).

Old Persons' Health

Only one fifth of the elderly population assessed their own health as very good and good, which is below the average of the European Union countries.

The disease incidence among the elderly population of Serbia is no different than that in other European countries. Three quarters stated that they had a long-term disease or health problem. The elderly population in Serba, predominantly women, most often suffered from elevated blood pressure.

Every third resident of Serbia stated that they had difficulty walking, every ninth – vision problems, and almost every fourth – hearing problems. Slightly over one third of the elderly people in Serbia stated that they had serious difficulties in performing daily household chores, and almost every ninth resident had difficulties in performing activities of personal care. The rate of the need for home care and home treatment services was three times higher than the rate of provision of these services.

The elderly population of Serbia mainly follows the established patterns of primary health care use. A significant indicator for quality improvement at the level of primary health care is the percentage of the elderly who were vaccinated against the seasonal flu. On the basis of this indicator, Serbia is among the European Union countries with the lowest percentage of the elderly who were vaccinated against the seasonal flu. Also, the level of use of dental care is extremely low. Only every fourth elderly woman has her gynaecologist.

Taking of medicines goes hand-in-hand with growing old of a population, and this is reflected in the increased use of medicines against the chronic diseases within the 65+ population. On the basis of this indicator, Serbia is among European Union countries with the highest registered percentage of used medicines among the elderly population.

Private practice services (mainly dental care) were used by every seventh elderly resident, predominantly those from the urban settings, who live in Belgrade, those with the highest level of education and those from the most affluent population group. Two thirds of the elderly stated that they were satisfied by the health care services in general, both public and private.

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