

ORIGINAL ARTICLE / ОРИГИНАЛНИ РАД

Sociodemographic and socioeconomic predictors of unmet healthcare needs of adolescents and young adults in Serbia – a part of the national research

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Introduction/Objective Recognizing the reasons for the unmet health needs of adolescents and young adults is important for identifying the barriers in solving certain health problems, as well as for monitoring the availability, level of use and implementation of healthcare. The aim of this study was to establish the socio-demographic and socio-economic parameters associated with unmet healthcare needs of adolescents and young adults in Serbia.

Methods This cross-sectional study is a part of the 2019 Population Health Survey of Serbia, carried out by Statistical Office of the Republic of Serbia in cooperation with the Dr. Milan Jovanović Batut Institute of Public Health of Serbia and the Ministry of Health of the Republic of Serbia, on a stratified two-stage sample. The survey included 1519 respondents, aged 15–24 years. The instruments and methodology of the European Health Survey – third wave (EHIS-wave 3) were used. Factors associated to unmet healthcare needs were examined using logistic regression and the χ^2 test.

Results Unfulfilled health needs were present in 4.1% of respondents, and the dominant reasons were finances (44.4%) and long waiting times (34.9%), distance from health institutions was recorded in 1.6% of respondents, while 19.5% of respondents stated several reasons. Multivariate analysis revealed that significant parameters of unmet healthcare needs include age, region, marital, and employment status.

Conclusion The results of this research can give a new direction in creating strategies and defining preventive programs to reduce inequality in the health of adolescents and young adults improve the health of future young generations.

Keywords: healthcare; health services' needs; adolescents; young adults; health surveys; Serbia

INTRODUCTION

A society's systematic, all-encompassing efforts to maintain and enhance its members' health are known as healthcare. The healthcare system consists of institutions, laws, and other regulations in the field of health, as well as organizations responsible for health insurance. Its main goals are the prevention of diseases and health disorders, the improvement and restoration of health and it is responsible for implementation of programs and services for individuals, families, and society. This system is society's response to unforeseen events that threaten health, and its availability depends on both individual and systemic factors [1, 2, 3]. The extent to which health services will be used depends on the number of services offered, the speed of development of health technologies, and on their accessibility and affordability [3, 4]. The unfulfilled need for medical care is one of the most important indicators of disparities in healthcare access, implementation, and utilization. An unmet need for healthcare is present in an individual who has recognized the need for specific medical care, but does not obtain it. Research has shown that unmet needs for medical treatment have an impact on one's health and life quality [5]. They can

also raise one's chance of dying or being linked to a wide range of psychological and psychosomatic disorders [3]. Certain socio-demographic and socio-economic factors, such as age, gender, education level, inadequate financial status, unemployment, and the distance of settlements from urban centers, are all associated with unmet healthcare needs [3, 6, 7]. Research of EU Statistics on Income and Living Conditions conducted in 2022 shows that 4.1% of individuals 16 years of age and older in the EU reported having an unfulfilled need for healthcare and that the two most typical causes of unfulfilled medical needs were poor financial situation and long waiting [6]. The most precious part of any society are children and adolescents; therefore, their health is a priority task of every society. The United Nations Global Strategy for Women's, Children's and Adolescent Health (2016–2030) supports the goal of providing adolescent health more attention [8]. Since its founding in 1948, the World Health Organization (WHO) has considered that having good health was a basic right, irrespective of ethnicity, faith, financial or social standing, opinions on politics, and has repeatedly confirmed its commitment to enhance the health of vulnerable categories of the population and recognized the reasons for unmet

Received • Примљено:

May 17, 2024

Revised • Ревизија:

September 1, 2024

Accepted • Прихваћено:

September 2, 2024

Online first: September 4, 2024**Correspondence to:**Dalibor STAJIĆ
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healthcare needs and reduced them to a minimum [9]. Many countries are making efforts to reduce the prevalence of unfulfilled medical needs through a system of universal health coverage for every individual, which is the goal of modern global health policy. Research and improvements in understanding the unfulfilled health needs of adolescents are important above all from the aspect of health preservation and prevention of chronic diseases, because they can lead to the formation of healthy generations in the future, and therefore to a more favorable economic aspect for the society [10, 11].

The aim of this research is to identify the relationship between socio-demographic and socio-economic determinants of health and unmet healthcare needs of adolescents and young adults in Serbia. This research is the first study on the unmet healthcare needs of adolescents in this country, carried out on a nationwide representative sample.

METHODS

This study was done as an analytical, cross-sectional, nationwide research on a sample that was representative of the population of the Republic of Serbia and the population from the territory of the Autonomous Province of Kosovo and Metohija was excluded. The research was a part of the 2019 Serbian National Health Survey carried out by the Statistical Office of the Republic of Serbia in cooperation with the Dr. Milan Jovanović Batut Institute of Public Health of Serbia and the Ministry of Health of the Republic of Serbia, from October to December of 2019. The instruments and methodology of the European Health Survey – third wave (EHIS-wave 3) were used in this study [12]. EHIS-wave 3 recommendations are also used to compute sample size (<https://ec.europa.eu/eurostat/documents/3859598/8762193/KS-02-18-240-EN-N.pdf/5fa53ed4-4367-41c4-b3f5-260ced9ff2f6>).

The sample of this study included 1519 adolescents (15–19 years old) and young adults (20–24 years old). The study used a two-stage random stratified sampling. The sample was selected in order to get ratings that were statistically credible for Serbia overall and for each of the regions separately: Belgrade, Vojvodina, Šumadija and West Serbia, and South Serbia and East Serbia. The research was conducted through interviewing in person and self-completed questionnaires [13].

In this study, the dependent variable was the unmet need for healthcare. The socio-economic status factors (household wealth, employment status, and educational attainment) and demographic factors (gender, age, marital status, and region of living) were the independent variables.

IBM SPSS Statistics, Version 20.0 (IBM Corp., Armonk, NY, USA) was used to conduct the statistical analysis. Using the χ^2 test, the differences between the groups, with categorical variables, were compared. Univariate and multivariate logistic regression were used to evaluate the risk (OR (odds ratio)) with a 95% confidence interval. A statistically significant outcome was defined as one with a probability of less than 5% ($p < 0.05$).

Ethical standards have been harmonized with the international Declaration of Helsinki, as well as the legislation of the Republic of Serbia. In order to respect the privacy of the research subjects and the confidentiality of the information collected about them, all necessary steps were taken in accordance with the General Data Protection Regulation. Research participants were provided with a document outlining the subject matter and objectives of the study [13].

RESULTS

In this research, data from 1519 respondents aged 15–24 years (52.2% male and 47.8% female) were analyzed. The average age of the respondents was 19.6 ± 2.8 years. The largest percentage of respondents completed secondary education (59.6%), 33.2% completed elementary school, while the least number of them had higher education (7.2%). In relation to work status, the largest percentage were students/inactive (61.4%), the unemployed accounted for 22.7%, while the percentage of employed was 15.9%. Regarding financial status, most of the respondents belonged to the poorest class (25.2%), and the lowest percentage to the wealthiest class (14.8%). The average number of household members was $4.7 (\pm 1.9)$, the lowest percentage consisted of a single-person households (0.7%), followed by couples without children (1.4%), households with one parent under 25 years of age (7.6%), households with couples with at least one child under the age of 25 (39.5%), and other households made up almost one-half of the surveyed households. The largest percentage of respondents (92%) had never been married or cohabiting, 7.6% were married or cohabiting, and 0.4% were divorced or had ended a cohabiting relationship. The majority of responders were from the region of Šumadija and West Serbia (34.3%), followed by Belgrade (23.8%), Vojvodina (21.7%), and the lowest number of respondents were from the regions of South and East Serbia (20.1%).

Unmet healthcare needs were present among 4.1% of respondents, and the dominant reasons were finances (44.4%) and long waiting time (34.9%). The problem of the distance from the healthcare facility was the reason for unmet healthcare needs among 1.6% of the respondents, while 19.5% of the respondents mentioned several reasons.

The χ^2 test's findings indicated that the highest percentage of unfulfilled needs (39.7%) was among respondents from the Belgrade region, and the lowest from Šumadija and West Serbia (7.9%). There was a statistically significant difference in distribution of unmet health needs between the regions, showing the greatest risk in Belgrade (Pearson χ^2 square = 22.540, $df = 3$, $p = 0.000$). Distribution of unmet health needs was significantly different in relation to marital status, showing greater risk among married and cohabiting (continuity correction = 5.295, $df = 1$, $p = 0.021$). Unfulfilled needs were recorded in a higher percentage among men (60.3%), in the younger age group (57.1%), with a completed secondary level of education (61.9%), the poorest (52.4%), and among inactive respondents/students

Table 1. The correlation of sociodemographic and socioeconomic parameters with unmet healthcare needs (χ^2 test)

Sociodemographic and socioeconomic parameters	Total respondents (%)	Unmet healthcare (%)		Pearson χ^2 (continuity correction) / df / p
		Yes	No	
Gender				
Female	47.8	39.7	51.9	1.411/1/0.235
Male	52.2	60.3	48.1	
Age group				
15–19	49.5	57.1	49.2	1.231/1/0.267
20–24	50.5	42.9	50.8	
Region				
Belgrade	23.8	39.7	23.1	22.540/3/0.000*
Vojvodina	21.7	30.2	21.4	
Šumadija and West Serbia	34.3	7.9	35.4	
South and East Serbia	20.1	22.2	20.1	
Educational level				
Higher	7.2	4.8	7.3	0.618/2/0.734
Secondary	59.6	61.9	59.5	
Primary	33.2	33.3	33.2	
Marital status				
In marriage / cohabiting	7.6	15.9	7.2	5.295/1/0.021*
Unmarried	92.4	84.1	92.8	
Economic status				
Wealthy class	32.3	30.2	32.3	0.460/2/0.794
Middle class	19.5	17.5	19.6	
Poor class	48.3	52.4	48.1	
Employment status				
Employed	15.9	22.2	15.6	5.347/2/0.069
Unemployed	22.7	30.2	22.3	
Inactive/student	61.5	47.6	62.1	

*Statistically significant ($p < 0.05$)

(47.6%). However, no statistically significant difference was observed in the distribution of unmet health needs in relation to these socio-demographic and socio-economic parameters (Table 1).

When looking at the individual impact of socio-demographic and socio-economic indicators (univariate approach), region and marital status contribute significantly to the explanation of unmet healthcare needs. Those living in Šumadija and West Serbia had an 87% lower chance of having unmet needs compared to those living in the Belgrade region (OR = 0.13; 95% CI = 0.05–0.35; $p = 0.00$). Singles were 59% less likely to have unfulfilled healthcare needs than cohabiting individuals (OR = 0.41; 95% CI = 0.21–0.84; $p = 0.01$). When looking at the joint influence of socio-demographic and socio-economic indicators (multivariate approach), age, region, marital status, and employment status contributed significantly to the explanation of unmet healthcare needs. Those aged 20–24 years were 59% less likely to have unmet needs than those aged 15–19 years (OR = 0.41; 95% CI = 0.21–0.79; $p = 0.01$). Those living in Šumadija and West Serbia had a 90% lower chance of having unmet needs in comparison to those who resided in the Belgrade region (OR = 0.10; 95% CI = 0.04–0.28; $p = 0.00$). Those living in South and East Serbia had a 56% lower chance of having unmet needs compared to those who lived in the Belgrade

region (OR = 0.44; 95% CI = 0.22–0.92; $p = 0.03$). Singles were 62% less likely to have unmet needs than cohabiting individuals (OR = 0.38; 95% CI = 0.17–0.86; $p = 0.02$). Inactive students were 54% less likely to have unmet needs in comparison with employed population (OR = 0.46; 95% CI = 0.21–0.99; $p = 0.05$) (Table 2).

DISCUSSION

According to this study, waiting, finances, and distance are the primary barriers preventing adolescents and young adults from receiving the necessary medical care. The results show a statistically significant relationship between unmet healthcare needs and region, marital status, age, and employment status.

A major public health problem is represented by socio-demographic and socio-economic inequalities in the accessibility of medical care because they are reflected in the health status of the population. They have not been given enough attention in public health policies and have not been studied enough in countries in transition, including Serbia. According to the WHO, every person should have access to the best medical care, despite their ethnicity, religion, political affiliation, or socio-economic background. In this regard, the WHO has developed Sustainable Development Goal 3 for equal access to healthcare [14].

In the last 20 years, unfulfilled health needs have doubled in many European Union (EU) countries [3]. In the EU in 2022, the proportion of unmet healthcare needs varied from 0.2% in Cyprus to 13.1% in Greece [6]. In Russia in 2018, failure to receive healthcare was recorded in 34.7% of cases [14]. In the Republic of Serbia, there were several studies on unmet health needs, nevertheless, not enough research has been done on the unfulfilled needs for healthcare in adolescents and young adults.

In this research the following were the main barriers to receiving the necessary healthcare: lack of funds (44.4%), long waiting time for appointments or medical exams (34.9%), the distance to a healthcare facility (1.6%), or issues with transportation. In neighboring countries such as Montenegro, Macedonia, Croatia, and Slovenia, similar obstacles to access to healthcare are cited as in Serbia [3]. The national research from 2013 showed results which indicate that the main factor for not meeting health needs is of a financial nature, and this is stated by every fourth citizen of Serbia (24.8%), followed by waiting lists and the distance from health institutions [15]. Also, data from the study from 2014 showed that the most frequent cause of unfulfilled healthcare requirements was financial (36.6%) [16].

Regarding reasons linked to the organization and operating of health services (finances, distance or waiting lists), the share varied from 0.1% in Cyprus to 9.1% in Estonia. Waiting lists as a reason for unfulfilled healthcare needs were

Table 2. Influence of sociodemographic and socioeconomic indicators on unmet healthcare needs (logistic regression)

Sociodemographic and socioeconomic parameters	Univariate model		Multivariate model	
	OR (95% CI)	p	OR (95% CI)	p
Gender				
Female	1		1	
Male	1.411 (0.843–2.362)	0.190	1.477 (0.860–2.539)	0.158
Age group				
15–19	1		1	
20–24	0.726 (0.436–1.208)	0.217	0.410 (0.213–0.790)	0.008*
Region				
Belgrade	1		1	
Vojvodina	0.824 (0.445–1.525)	0.537	0.657 (0.345–1.251)	0.201
Šumadija and West Serbia	0.131 (0.050–0.345)	0.000*	0.104 (0.039–0.279)	0.000*
South and East Serbia	0.646 (0.330–1.267)	0.204	0.444 (0.216–0.916)	0.028*
Educational level				
Higher	1		1	
Secondary	1.606 (0.488–5.287)	0.436	0.982 (0.284–3.401)	0.977
Primary	1.551 (0.454–5.293)	0.484	0.796 (0.202–3.131)	0.744
Marital status				
In marriage / cohabiting	1		1	
Unmarried	0.414 (0.205–0.837)	0.014*	0.377 (0.165–0.862)	0.021*
Economic status				
Wealthy class	1		1	
Middle class	0.957 (0.449–2.040)	0.909	1.079 (0.496–2.352)	0.847
Poor class	1.169 (0.657–2.080)	0.596	1.422 (0.751–2.694)	0.280
Employment status				
Employed	1		1	
Unemployed	0.948 (0.466–1.930)	0.883	0.893 (0.415–1.922)	0.773
Inactive	0.539 (0.281–1.033)	0.062	0.458 (0.212–0.990)	0.047*

*Statistically significant ($p < 0.05$)

expressed in most European countries, including Serbia [6]. The proportion of individuals who faced financial obstacles to receiving healthcare in 38 selected European countries in 2018 ranged from 0.1% in Austria to 13.7% in Albania, while in Korea 2.5% of people included a financial barrier [17]. Similar results were obtained in a study in Italy, where the primary cause for unfulfilled needs was economic reasons, followed by the distance and waiting. Another important result of this study was the evidence of an increase in the gradient from north to south for all considered barriers [18]. In Serbia, respondents from the Šumadija and West Serbia regions have significantly less unfulfilled health needs compared to the Belgrade region. Contrary to this, in research by Popović et al. [16], which included the elderly population, it was observed that the smallest percentage of unfulfilled health requirements occurred in the Belgrade region; however Vojvodina was listed as the region with the most of unmet health needs. In a previous study the most unrealized healthcare needs were detected in the northern region – Vojvodina (39.5%), and the least in the central region – Šumadija and West Serbia (20.3%) [16].

Regarding the marital status, those who are not married or cohabiting had less unfulfilled needs than those who were married or cohabiting, while the study by Popović et al. [16] point out that divorced people have more unmet health needs than married. The research conducted in South Korea also revealed that younger people had more

unfulfilled healthcare needs than older respondents [19], while in the study by Mitrašević et al. [3], there were more unfulfilled needs in the category of citizens aged 60–69 years. A previous study carried out in Serbia showed that it was more common for women to have unfulfilled needs compared to males, and that the lowest degrees of education, employment, and economic standing had a significant influence on whether or not healthcare demands were met, which was not the case in our research [3]. In many member states of the EU, age played an important role in the existence of unfulfilled needs for healthcare. In the EU, notably in Greece and Romania, younger people reported fewer unmet needs in 2022 compared to older people. In Denmark, France, Sweden, Germany, Luxembourg, Norway, Switzerland, and Belgium, opposite results were obtained [6]. In South Korea, in 2017, 9.5% of respondents had unmet healthcare needs [19].

In 2022, the share of unmet health needs was higher among people with lower education. This was indeed noticeable in Greece and Romania. In Spain, Lithuania, and the Netherlands, the group of individuals with the greatest percentage of unmet needs comprised those with a secondary education level, while in Estonia the opposite results were obtained [6]. A study conducted in Iran showed that unemployed people were 1.7 times more probable to have unmet needs, which is the opposite of our results [7].

Bismarck's "classical" model (1883) is in force in Serbia, which represents mandatory health insurance, or the so-called "social health insurance." The healthcare system in Serbia is financed from contributions for statutory health coverage, within which 97% of inhabitants are covered by it in the area of healthcare interventions, including preventative ones, but only around 3% of people have insurance for emergency medical care [3, 20, 21]. Given that the healthcare system of Serbia has undergone reform in the last ten years, it is essential to observe the unfulfilled healthcare needs at the national level [20]. The theory says that access to health services is free in most countries, but practice does not confirm this. Health inequalities arise because of variations in opportunities, situations, and living conditions between geographic regions and demographic groups. Generally speaking, possibilities and resources to do actions that promote health increase with one's socio-economic status [22].

A persistent concern for health policy is the disparity in socio-economic status [23]. This was also shown in our study, which confirmed that individuals with better financial situation have greater access to healthcare and use the

services of private practice more, unlike those who belong to the poorest population. Adolescent health is influenced by many factors that are associated with determinants of health that include socio-economic status [24].

Public health and healthcare are the responsibility of EU member states. Chapter 28 of the EU membership negotiations, which Serbia has not yet opened, addresses this area, containing EU legislative and strategic acts. In 2019, a report on Serbia's progress in the EU accession process concluded that the country had achieved moderate preparedness in the areas of consumer protection and health. However, more active participation from Serbian institutions is needed to create the conditions for further progress [25].

CONCLUSION

The results of this research show that the main obstacles that cause unmet health needs among adolescent and

young adults are finances, waiting time, and distance. Our study revealed the significant association between region, marital status, age and employment status with unmet healthcare needs. Policies aimed at addressing unfulfilled healthcare requirements ought to take a multifaceted strategy, concentrating on removing obstacles that restrict access to healthcare for the general and vulnerable populations.

ACKNOWLEDGEMENT

We express our gratitude to the Dr. Milan Jovanovic Batut Institute of Public Health of Serbia and the Ministry of Health of the Republic of Serbia for granting us permission to use and analyze data and the Ministry of Education of the Republic of Serbia (NIO financing contract number: 451-03-65/2024-03/200111).

Conflict of interest: None declared.

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Социодемографски и социоекономски предиктори неостварених здравствених потреба адолесцената и младих одраслих у Србији – део националног истраживања

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САЖЕТАК

Увод/Циљ Препознавање разлога неостварених здравствених потреба адолесцената и младих одраслих важно је како би се сагледале препреке које стоје на путу решавања одређених здравствених проблема, као и како би се пратили доступност, степен коришћења и спровођења здравствене заштите.

Циљ истраживања је био утврђивање социодемографских и социоекономских фактора који су повезани са неоствареним здравственим потребама адолесцената и младих одраслих у Србији.

Метод Ова студија пресека је део Националног истраживања здравља становништва Србије 2019. године, које је спровео Републички завод за статистику, у сарадњи са Институтом за јавно здравље Србије „Др Милан Јовановић Батут“ и Министарством здравља Републике Србије, на стратификованом двостепеном узорку. Истраживањем је обухваћено 1519 испитаника, узраста 15–24 године. У студији су коришћени инструменти и методологија трећег таласа

Европског здравственог истраживања. Одређени фактори повезани са неоствареним потребама здравствене заштите испитани су коришћењем логистичке регресије и χ^2 теста.

Резултати Неостварене здравствене потребе биле су присутне код 4,1% испитаника, а доминантни разлози били су финансије (44,4%) и дуго чекање (34,9%). Удаљеност од здравствених установа забележена је код 1,6% испитаника, док је 19,5% испитаника навело више разлога. Мултиваријантна анализа показује да су значајни индикатори неостварених потреба за здравственом заштитом: животна доб, регион, брачни статус и радни статус.

Закључак Резултати овог истраживања могу дати нови правац у креирању стратегија и дефинисању превентивних програма за смањење неједнакости у здрављу адолесцената и младих одраслих и унапређење здравља будућих младих генерација.

Кључне речи: здравствена заштита; потребе за здравственим услугама; адолесценти; млади одрасли; истраживања здравља; Србија