The Unmet Healthcare Needs: Evidence from Serbia

Milos MITRASEVIC [1], Snezana RADOVANOVIC [2], *Svetlana RADEVIC [2], Milena MAR-ICIC [3], Ivana Zivanović MACUZIC [4], Tatjana KANJEVAC [5]

1. Department for Organization, Planning, Evaluation and Medical Informatics, Clinical Center Kragujevac, Kragujevac, Serbia
2. Department of Social Medicine, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia
3. High Medical College of Professional Health Studies, Belgrade, Serbia
4. Department of Anatomy, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia
5. Department of Dentistry, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia

*Corresponding Author: Email: cecaradevic@yahoo.com

Abstract

Background: We aimed to determine the socio-economic factors associated with unmet healthcare needs of the population aged 20 and over in Serbia.

Methods: We used data from the 2013 National Health Survey (NHS) of the population of Serbia. We focused only on the data concerning the population aged 20 and over. The final sample thus included 13,765 participants. The logistic regression was used to examine the socio-economic factors associated with unmet health care needs.

Results: According to the data obtained in this study, 26.2% of the population aged 20 and over reported unmet health care needs during the previous 12 months. The multivariate analysis shows that significant indicators of unmet healthcare needs include: gender, age, marital status, level of education, financial and employment status.

Conclusion: Females, the elderly and those with the lowest levels of education and household income, as well as those who are divorced and unemployed are at highest risk of unmet healthcare needs. Different policies and approaches should be taken into consideration when it comes to vulnerable population groups in order to reduce the currently existing gaps to a minimum and provide more equal opportunities for health care to all citizens.

Keywords: Unmet healthcare needs; Socioeconomic inequalities; National health survey; Serbia

Introduction

Health care is an organized and comprehensive activity of a society which aims at preserving and improving the health of its citizens. Being created by the society itself in response to the unpredictable and unplanned events that may threaten public health, it is based on measures that seek to provide the highest attainable level of health and health security in case of illness. Access to health care depends on many factors related to the

health care system and a particular patient as well. Health system factors that may affect the availability of health care are: health insurance coverage, the sufficiency of staff, premises, equipment and financial resources, referral system, scheduling system, the continuity of health care and the quality of provided services. Patient characteristics, such as age, socioeconomic status, his/her previous experience with health services, the per-

ception of health care quality and the level of health literacy, may also affect the decision to seek health care (1). Unequal access to health care is one of the fundamental social and economic determinants of health (2). The unmet need for health care is one of the key indicators of inequality in access to health care, its usage and implementation (3).

The concept of unfulfilled demands refers to the difference between the health services which are necessary to treat certain health problems and the ones that are actually provided. A person who has recognized the need to get certain medical care but does not receive this service has an unmet need for health care (4). Unfulfilled needs for health care affect the health status and quality of life, may increase the risk of mortality or be associated with a wide variety of symptoms of mental and psychosomatic nature (5, 6, 7). The factors associated with an unmet need for health care are: age, gender, lack of security, level of education, low income, unemployment and poor health status. This indicates that unequal access to health care is caused by socio-economic status (8, 9, 10, 11, 12).

Unfulfilled health needs of the population present a significant challenge for the health care system. Thus, the detection of all the factors associated with them is important in creating a proper health policy. Such policy should strive to reduce inequalities in access, use and realization of the healthcare needs.

The study aims at identifying demographic and socioeconomic factors associated with the unmet needs for health care in adult population of Serbia.

Materials and Methods

The 2013 National Health Survey (NHS) of the population of Serbia was the source of the data used in this study. This was the third national population health survey conducted by the Ministry of Health of the Republic of Serbia. The national survey used the complete population registers that included sampling units defined within the target population – The 2011 Census of Population, Households and Dwellings in the Republic of Serbia. In accordance with the recommendations for the implementation of population health research EUROSTAT, the European Health Research – Second Wave – Methodological guide (EHIS wave 2, Methodological manual) (13), the national survey used the two-stage stratified sample with a known probability of selection of sample units at every sampling stage to ensure that the sample was representative of the Serbian population. The sample was selected in this manner in order to provide a statistically reliable estimation of a greater number of indicators of population health at the national level. The survey kept the division between geographic areas (statistical regions) of Belgrade, Vojvodina, Sumadija, Western, Southern and Eastern Serbia along with urban and other settlements/areas.

The Health Survey of the Serbian population was carried out through interviews, anthropometric measurements and blood pressure measurements. Three types of questionnaires were used in the survey: the Household Questionnaire – collecting information on all household members, the characteristics of the household and household residence.

Ethical Standards in Health Survey were harmonized with the World Medical Association Declaration of Helsinki. This study was approved by the competent territorial ethics committees of the four major regions of Serbia (the ethics committees of the Institute of Public Health of the Republic of Serbia *Dr Milan Jovanovic Batut* in Belgrade, Institute for Public Health Novi Sad, Institute for Public Health Kragujevac and Institute for Public Health Nis). In order to protect the privacy of the research participants and confidentiality of the collected data, all necessary steps were taken in accordance with the Law on Personal Data Protection (Official Gazette of the RS, No. 97/08, 104/09) (14).

This study used the data from the National Survey focusing only on the population aged 20 and over and their households. The sample of this study included 13,765 participants.

The independent variables included demographic characteristics (gender, age, marital status, type of settlement, region) and socioeconomic status variables (level of education, employment, and well-being index). In addition, differences in the place of residence (the regions of Belgrade, Vojvodina, Sumadija, Western, Southern and Eastern Serbia) were taken into consideration in this particular study complete with stating the distinctions between urban and rural settlements. The variables reflecting the socioeconomic conditions were the following: level of education (higher, secondary and elementary) and employment status (employed and unemployed). The socioeconomic indicators had to include household types based on the Wealth Index. The National Survey classified households into five equally sized groups, known as quintiles: 1) the poorest (Q1), 2) poorer (Q2), 3) middle (Q3), 4) richer (Q4) and 5) the richest (Q5). This study classified the subjects into three socio-economic categories based on the Wealth Index: poor class, middle class and rich class. Unmet healthcare need was the dependent variable in this study.

All the data of interest were presented and analyzed with adequate statistical methods appropriate for the data type. Chi-square test was applied to test the difference in the frequency of categorical variables. Bivariate and multivariate regression analyses were used to evaluate the degree to which unmet healthcare needs were related to the demographic and socioeconomic characteristics. The minimum level of significance was determined at $P<0.05$. The links between the demographic and socioeconomic indicators of health as independent variables and unmet healthcare need as the dependent variable were examined by using bivariate and multivariate logistic regression analysis. Statistical analysis was performed with a commercial, standard software package SPSS, version 19.0. (The Statistical Package for Social Sciences software version 19.0 (SPSS Inc., Chicago, IL).

Results

In total, 26.2% of the population aged 20 and over reported that they had at least one unmet health care need during the previous 12 months. The biggest obstacles for meeting the healthcare needs were as the follows: financial reasons, long waiting time for a scheduled visit or medical examination and the distance of a healthcare provider or transport difficulties. The study showed that the dentist care and medical care were the hardest to reach and were followed by the acquisition of the prescribed drugs and mental health care. The unmet needs were most commonly associated with women, citizens aged 60 – 69 and with lowest levels of education (Table 1). Additionally, this study revealed that employment and financial status had a powerful impact on the fulfillment of healthcare needs. Namely, the results showed that there was a significantly higher percentage of respondents with unmet medical needs among those who did not have any formal employment, who worked within the household and those who belonged to the poorest population (Table 1).

The multivariable analysis showed that significant predictors of unmet healthcare needs included the following: gender, age, marital status, type of settlement, level of education, financial and employment status. Women were 39% more likely to have their medical needs unfulfilled than men (O=1.39). The number of individuals with unmet healthcare needs increased with age. This study showed that respondents aged 60 – 69 were 2.5 times more likely to fail in meeting their medical needs in comparison to those aged 20 – 29 (OR=2.477). The same inability was 32% more common in individuals living in rural areas as compared to those living in urban settlements. Additionally, we confirmed that the proportion of respondents with unmet healthcare needs was inversely proportional to their degree of education. According to our results, the citizens with the lowest level of education were 37% more likely to face unmet medical needs compared to those with higher level of education (OR=1.370). The same pattern was found in well-being index, i.e. respondents belonging to the poor class were one and a half times more likely not to have their medical needs met with respect to those belonging to the rich class

(OR=1.479). Finally, this study showed that unemployed individuals were 27.8% more likely not to have their healthcare needs met than those who were employed (OR=1.278) (Table 2).

Table 1: Unmet healthcare needs in relation to the socio-demographic characteristics of population age 20 and over were in Serbia

Variables	Study population (%)	Reported unmet need (%)	P*
Sex			
Female	54.0	22.2	< 0.001
Male	46.0	29.7	
Age (yr)			
20-29	13.3	13.0	< 0.001
30-39	15.4	20.8	
40-49	15.8	25.5	
50-59	18.8	29.9	
60-69	18.8	32.3	
70-79	13.0	32.0	
80+	5.0	28.7	
Type of settlement			
Urban	56.4	26.1	0.622
Other (rural)	43.6	26.4	
Marital status			
Unmarried	15.3	16.7	< 0.001
Married	65.4	26.5	
Widowed	14.4	32.8	
Divorced	4.9	33.1	
Educational level			
Primary	29.1	34.1	< 0.001
Secondary	54.2	23.5	
Higher	16.7	21.5	
Employment status			
Employed	32.8	20.4	< 0.001
Unemployed	23.1	27.1	
Student	3.3	9.9	
Inactive	33.4	31.2	
Housewife	7.3	34.5	
Household wealth			
Poor class	44.0	30.9	< 0.001
Middle class	20.0	23.2	
Rich class	36.0	22.2	

* Reference values for reported unmet healthcare needs

Table 2: Odds Ratio (OR) and 95% confidence intervals (CI) of unmet healthcare needs with respect to demographic and socioeconomic characteristics of population age 20 and over were in Serbia

Variable	Univariate model Or (95%ci)	P	Multivariate model Or (95%ci)	P
Gender				
Males	1		1	
Females	1.484 (1.373-1.603)	< 0.001	1.390 (1.276-1.513)	< 0.001
Age (yr)				
20-29	1		1	
30-39	1.483 (1.483-2.092)	< 0.001	1.654 (1.366-2.003)	< 0.001
40-49	1.944 (1.944-2.715)	< 0.001	2.085 (1.719-2.529)	< 0.001
50-59	2.437 (2.437-3.359)	< 0.001	2.409 (1.990-2.918)	< 0.001
60-69	2.721 (2.721-3.743)	< 0.001	2.477 (1.995-3.075)	< 0.001
70-79	2.671 (2.671-3.744)	< 0.001	2.232 (1.762-2.829)	< 0.001
80+	2.174 (2.174-3.335)	< 0.001	1.810 (1.373-2.386)	< 0.001
Marital status				
Married/common-law marriage	1		1	
Never married	0.555 (0.491-0,629)	< 0.001	0.972 (0.836-1.129)	< 0.001
Widowed	1.356 (1.122-1.506)	< 0.001	1.004 (0.886-1.137)	0.953
Separated/divorced	1.372 (1.161-1.621)	< 0.001	1.281 (1.080-1.520)	0.004
Place of residence				
Urban	1		1	
Rural	0.980 (0.908-1.058)	0.608	1.320 (1.202-1.449)	< 0.001
Education				
High school/college or higher	1		1	
Elementary school or lower	1.890 (1.678-2.129)	< 0.001	1.370 (1.189-1.579)	< 0.001
Middle school	1.121 (1.002-1.256)	0.047	1.088 (0.963-1.224)	0.179
Well-being index				
Rich class	1		1	
Poor class	1.573 (1.443-1.715)	< 0.001	1.479 (1.324-1.653)	< 0.001
Middle class	1.063 (0.951-1.188)	0.283	1.013 (0.901-1.138)	1.013

Discussion

Socio-economic inequalities in healthcare availability are a significant public health problem since they reflect on the health status of the population. Efficient healthcare systems and policies can prolong life and improve the prognosis for patients with serious diseases. The improvement of socio-economic conditions that lead to diseases and the reduction of social inequalities in access to medical services are crucial in the battles for the better health of the population. Unequal access to basic health services is one of the fundamental socio-

economic determinants of health. Consequently, it is crucial for the health of the population to face these inequalities and take measures in reducing the gap currently existing between different population groups. The documents of the WHO mention that the highest standards in health should be available to everyone regardless of race, religion, political beliefs, economic and social conditions. In accordance with these principles, equity in health means creating equal opportunities for health and reducing differences within a population to a minimum (15).

In Serbia, as well as in many countries in transition, demographic and socio-economic

inequalities in health have not been sufficiently studied, nor have they received the adequate attention in public health policies. The decrease of disparities in health care access and health in general represents a vital prerequisite for further development of the health care system and its institutions (1).

The unmet need for health care is one of the key indicators of inequality in accessibility, usage and implementation of healthcare services. The analyses of unfulfilled health needs at the national level are important, especially since Serbian healthcare system has undergone reforms during the last ten years. The previous reforms have covered the financing, expenses, organization and management of health services. The Republic of Serbia has a tradition of a publicly funded health sector based on a system of obligatory social health insurance, salary contributions paid by employees that is operated by the Health Insurance Fund (HIF). The budget transfers to the HIF guarantee that health insurance coverage is also provided to unemployed individuals, internally displaced people and refugees, as well as to the citizens who belong to the vulnerable categories. Obligatory health insurance covers 97% of the population. About 3% of the population is not insured, except in case of emergency medical services. Due to the absence of the private healthcare insurance, private healthcare funding is more or less completely based on direct out-of-pocket payments. Citizens with sufficient financial resources can access a thriving, but largely unregulated, private sector which is primarily focused on outpatient and ambulatory care and private pharmacies. Although the public health care system is generally well documented, the opposite holds true for the private health care providers (16, 17, 18).

The most common reasons for the unmet health needs were: the lack of financial resources, a long waiting time for a scheduled visit/medical examination and the distance, i.e. problems with the transport to the institution of health care provision. The obstacles to accessing health care in Serbia are similar to those in neighboring countries, where the incidence of unfulfilled health needs is as follows: Montenegro 12.7%, Macedonia 10.8%, Croatia 7.5% and Slovenia 0.4% (9). In many EU countries the unmet healthcare needs have doubled from 5.26% to 9.9% during the last decade, and some countries even record the 15% increase in unfulfilled medical needs (19). The studies of socio-demographic factors associated with the obstacles to healthcare accessibility, availability and acceptability have revealed that gender, age and level of education are relevant factors in unmet health needs.

Female sex is a significant predictor of unfulfilled need for health care (20), due to the dual role of women, i.e. their responsibilities in workplace and household.

Also, older age is more often associated with unfulfilled medical needs, primarily because of their perceptions about health care, insufficient knowledge of young people about the health resources and risks and the different self-assessment of health and disease (4, 21, 22).

Our study showed that lower levels of education increased the likelihood of unfulfilled needs for health care, which was in accordance with other studies conducted in this field. People with lower and middle levels of education were more likely to face barriers as regards the accessibility and availability of health services compared to those with a university education level (23). Also, people with a higher level of education had a higher social status, more stable and higher income, and were thus able to pay for private health services out of pocket to fulfill their medical needs and meet their higher expectations (24). On the contrary, people with lower levels of education could not afford the services of the private sector and therefore, relied on public health services. The recorded inequalities in meeting health care needs related to low income could be associated with financial costs of health services which had to be paid out of pocket (25). The studies in this field have examined the links between unfulfilled health needs and employment status and have shown that the rates of unfulfilled health needs of temporary workers are

mainly higher than those of permanent employees and lower than those rates found in economically inactive population (the unemployed, pension users). The results of our study did not confirm these conclusions. Our results showed that the probability of experiencing unfulfilled medical needs was much higher for the unemployed and this could be explained with the fact that unemployment status had adverse effects on the health of individuals and their families (23, 26, 27).

The probability of unmet health needs was the greatest in the divorced population (25, 28). Our results were consistent with previous findings. However, divorced people had more contact with health services because of their social and emotional problems (23, 15).

The impact of the geographical distribution on the fulfillment of medical needs was recorded in Italy (4.6% in the northeast and 10.6% in the south). The main reasons for this gap were accessibility problems related to costs or transportation (45.5%), affordability (26.4%) and excessive waiting lists (21.4%). The economic reasons were more frequent in the southern regions while excessive work and family responsibilities were more dominant in the northern regions (5). The analysis of the impact of socio-demographic variables on the unfulfilled medical needs among the Swedish population showed that the percentage of citizens who abstained from doctor visits was substantial (24%). Women, those of a non-Swedish origin and with a low level of education, refrained from going to the physician to a higher extent than men, inborn citizens and those with higher education. The most commonly cited reasons for unfulfilled medical needs were the lack of trust and the lack of financial resources (29).

In the US and Canada there is a growing trend in the percentage of people who report unfulfilled medical needs. The rates of unfulfilled health needs in the United States are higher (between 5% and 20%) comparing to those in Canada (between 4% and 12%), which indicates that the unfulfilled needs of health care are strongly influenced by the health insurance coverage. In addition, some vulnerable population groups (women, the sick people, low-income individuals, immigrants) have difficulties in meeting their health needs more often (30, 31). Due to the large number of uninsured persons among the poor and their inability to provide the money for health care, it is more likely that they will face economic barriers to health services.

Although most countries have free access to health care services, this approach is not fair in practice. This was confirmed in our study which showed that health care was still more accessible to people with better household financial status. Those who belonged to the poorest population often failed to fulfill their needs for health care.

Conclusion

Females, the elderly and those with lowest educational level and household income, as well as those who were divorced and unemployed were at highest risk of unmet healthcare needs. Our findings suggested that different policies and approaches should be considered for vulnerable population groups in order to reduce the gaps that currently exist to a minimum and provide more equal opportunities for health care to all citizens.

Ethical Considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

Acknowledgements

Conflict of interests

All authors declare no support from any organization for the submitted work; no financial relationships with any organizations that might have an interest in the submitted work; no other relationships or activities that could appear to have influenced the submitted work. The authors declare that they have no conflict of interest.

References

1. Janković J, Simić S (2012). The Association of Demographic and Socioeconomic Determinants and Self-Perceived Health. *Srp Arh Celok Lek,* 140(1-2): 77-83.
2. Allin S, Masseria C (2009). Unmet need as an indicator of health care access. *Eurohealth,* 15(3):7-10.
3. Levesque JF, Pineault R, Robert L, et al. Unmet health care needs: a reflection of the accessibility of primary care services? Montreal: Health and Social Services Agency of Montreal, National Public Health Institute of Quebec; 2007.
4. Pappa E, Kontodimopoulos N, Papadopoulos A, et al (2013). Investigating unmet health needs in primary health care services in a representative sample of the Greek population. *Int J Environ Res Public Health,* 10(5): 2017-27.
5. Cavalieri M (2013). Geographical variation of unmet medical needs in Italy: a multivariate logistic regression analysis. *Int J Health Geogr,*12: 27.
6. Karanikolos M, Kentikelenis A (2016). Health inequalities after austerity in Greece. *Int J Equity Health,* 15: 83.
7. Kertesz SG, McNeil W, Cash JJ, et al (2014). Unmet need for medical care and safety net accessibility among Birmingham's homeless. *J Urban Health,* 91(1): 33-45.
8. Jain AK, Obare F, RamaRao S, Askew I (2013). Reducing unmet need by supporting women with met need. *Int Perspect Sex Reprod Health,* 39(3):133-41.
9. National Health Care for the Homeless Council (2012). HCH quality leaders: a case study. Nashville, TN: National Health Care for the Homeless Council.
10. Ji Hye Lim (2017). Regional Disparity and Factors Influencing Unmet Medical Needs: A Study Based on the Sixth Korea National Health and Nutrition Examination Survey (2015). *Osong Public Health Res Perspect,* 8(5): 295–301.
11. Detollenaere J, Hanssens L, Vyncke V, et al (2017). Do We Reap What We Sow? Exploring the Association between the Strength of European Primary Healthcare Systems and Inequity in Unmet Need. *PLoS One,* 12(1):e0169274.
12. Lu L, Zeng J, Zeng Z (2017). What limits the utilization of health services among china labor force? analysis of inequalities in demographic, socio-economic and health status. *Int J Equity Health,* 16:30.
13. Eurostat. Health Care Database. https://ec.europa.eu/eurostat/web/health/data/database
14. Republic of Serbia Ministry of Health (2015). Law on Personal Data Protection Off. https://www.refworld.org/pdfid/4b5718f52.pdf
15. Li J, Shi L, Liang H, et al (2018). Urban-rural disparities in health care utilization among Chinese adults from 1993 to 2011. *BMC Health Serv Res,* 18(1):102.
16. Global Health Expenditure Database, 2016. https://apps.who.int/nha/database/ViewData/Indicators/en
17. Law on Health Insurance. Official Gazette. Republic of Serbia no 107/2005, 109/2005, 57/2011, 110/2012, 119/2012, 99/2014, 123/2014, 126/2014, 106/2015 i 10/2016, Belgrade; 2015; Serbian. https://www.kg.ac.rs/eng/health_care.php
18. Healthcare law. Official Gazette. Republic of Serbia no 57/2011, 107/2012. Belgrade; 2012; Serbian. https://www.paragraf.rs/propisi/zakon_o_zdravstvenoj_zastiti.html
19. Levesque JF, Pineault R, Hamel M, et al (2012). Emerging organisational models of primary healthcare and unmet needs for care: insights from a population-based survey in Quebec province. *BMC Fam Pract,* 13:66.
20. Lim JH (2017). Regional Disparity and Factors Influencing Unmet Medical Needs: A Study Based on the Sixth Korea National Health

and Nutrition Examination Survey (2015). *Osong Public Health Res Perspect,* 8(5):295-301.

21. Pineault R, Borgès Da Silva R, Provost S, et al (2017). Do Gender-Predominant Primary Health Care Organizations Have an Impact on Patient Experience of Care, Use of Services, and Unmet Needs? *Inquiry,* 54:46958017709688.

22. Kim YS, Lee J, Moon Y, et al (2018). Unmet healthcare needs of elderly people in Korea. *BMC Geriatr*, 18:98.

23. Kim J, Kim TH, Park EC, Cho WH (2015). Factors influencing unmet need for health care services in Korea. *Asia Pac J Public Health*, 27(2):NP2555-69.

24. Papanikolaou V, Zygiaris S (2014). Service quality perceptions in primary health care centres in Greece. *Health Expect,* 17(2):197-207.

25. Kolasa K, Rybnik T (2012). Socio-demographic determinants of inequity of access to health care in Poland in 2011. based on social diagnosis. *Przegl Epidemiol,* 66(4):681-8.

26. Lee SY, Kim CW, Kang JH, Seo NK (2015). Unmet healthcare needs depending on employment status. *Health Policy,* 119(7):899-906.

27. Han KT, Park EC, Kim SJ (2016). Unmet healthcare needs and community health center utilization among the low-income population based on a nationwide community health survey. *Health Policy,* 120(6):630-7.

28. Hwang J (2018). Understanding reasons for unmet health care needs in Korea: what are health policy implications? *BMC Health Serv Res,* 18:557.

29. Westin M, Ahs A, Bränd Persson K, et al (2004). A large proportion of Swedish citizens refrain from seeking medical care-lack of confidence in the medical services a plausible explanation? *Health Policy,* 68:333–344.

30. Tumin D, Menegay M, Shrider EA, et al (2018). Local Income Inequality, Individual Socioeconomic Status, and Unmet Healthcare Needs in Ohio, USA. *Health Equity,* 2(1):37-44.

31. Hurley J, Jamal T, Grignon M, Allin S (2011). The relationship between self-reported unmet need for health care and health care utilization. Hamilton, Ontario, Canada: McMaster Research Data Centre Research Paper.