Original article

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HEALTH SELF-EVALUATION OF COMPLEMENTARY AND ALTERNATIVE MEDICINE USERS IN SERBIA: CROSS-SECTIONAL NATIONAL STUDY

Marina Luketina-Šunjka[1], Nemanja Rančić[2], Nataša Mihailović[3], Svetlana Radević[4], Saša Dragović[5], Mihajlo Jakovljević[6]

The aim of the research was to examine the influence of the respondents' health status on the use of complementary and alternative medicine methods. This was a population-based, cross-sectional study. The sample consisted of 550 interviewed persons, from the third National health survey of the residents of Serbia in 2013, who had used complementary and alternative medicine (CAM) services in the preceding 12 months. Just over 2/3 of CAM users had chronic health disorders ($p < 0.01$), the most commonly diagnosed chronic health disorder among CAM users was hypertension (36.7%). Every seventh and partially every fourth CAM user had been seriously restricted as regards undertaking normal daily activities for the previous 6 months or longer. CAM users were more satisfied with the services they received in private practice ($p < 0.01$). The two out of three users of CAM services rated their health as good and/or average. CAM users were more satisfied with the services they received in private practice, the highest percentage of them rated their health as good. The analysis of the impact of respondents' health status, the analysis of the correlation between the respondents' self-health assessment and the use of alternative medicine methods, analysis of the impact of socio-demographic characteristics on the use of CAM, along with a comparative analysis of the use of health care services – would significantly contribute to better recognition of CAM by the Ministry of Health.

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Key words: *health self-assessment; health status; complementary and alternative medicine; chronic diseases*

[1]European Center for Peace and Development, University for Peace established by the United Nations, Belgrade, Serbia
[2]Centre for Clinical Pharmacology, Military Medical Academy; Faculty of Medicine of the Military Medical Academy, University of Defence, Belgrade, Serbia
[3]Department of Biostatistics and Informatics, Institute of Public Health Kragujevac, Kragujevac, Serbia
[4]Department of Social Medicine, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia
[5]Clinic for General Surgery, Military Medical Academy, Belgrade, Serbia
[6]Department of Global Health Economics and Policy, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia

Contact: Nemanja Rančić
Crnotravska 17, 11000 Belgrade, Serbia
E-mail: nece84@hotmail.com

Introduction

The terms complementary medicine and alternative medicine (CAM), in practice, are often used interchangeably and are considered synonymous, but there are, nevertheless, some differences between them (1, 2). If those methods are used to replace conventional medicine methods, then they are considered to represent alternative medicine, i.e., alternative medicine is completely independent while performing diagnostics and treatments, while complementary medicine means activities that supplement conventional medical treatment and are used jointly with the methods of conventional medicine (1, 2). The following terms may also be found in the literature: non-allopathic, unorthodox (unrecognized), unconventional, traditional, mental and physical medicine, mental and physical medicine and natural medicine (3, 4). Holistic and integrative are very commonly used terms (4). The World Health Organization defines traditional medicine as "health practice, approach, knowledge and beliefs related to herbal, animal or mineral preparations, spiritual therapy, as well as manual techniques and exercises applied individually or in combination for the purpose of diagnosis, treatment and preventing disease, that is, for health reasons" (5).

CAM include a number of different diagnostic and therapeutic procedures (methods), as well as the use of various natural products for the purpose

of healing or healing of patients which do not belong to conventional medicine (allopathic, modern, western medicine, i.e. evidence-based medicine using methods whose safety and efficacy have been demonstrated in well-designed randomized controlled clinical trials) (1–3). There is a growing interest for CAM around the world in both developed and underdeveloped countries (6). The reasons for the increased popularity of CAM are complex and have not yet been fully explored. Some studies indicate that in addition to various motivational factors in the individual sphere, socio-political factors play an important role, as well as the inability of modern medicine to solve all the problems of ill citizens (1).

If we were to compare the prevalence of CAM use across studies, we would soon realize the shortcomings of such processes (7). And the flaws lie in the following:

- there are often differences in how CAM is defined
- what methods and procedures were considered when prevalence was determined (7)
- the implementation procedures are different, not clearly defined
- the surveys were carried out at different time intervals
- consumption is expressed in different currencies and there is no systematization (8).

The analyses of the database of the International Social Survey Programme for the period 2011-2013 (module health and health care), in which data from respondents from 32 countries and regions were available with a final study sample of 52,801 respondents for whom available data on the use of CAM, showed that the average 12-month prevalence of users of CAM practitioner services was on average 26.4% (9). This study found that there were significant differences in prevalence among different countries: 34.7% in Australia, below 10% in Europe in Bulgaria, Poland and Slovenia, up to 35.4% in France, in Asia from 16.7% in Russia, up to over 50% in China, the Philippines, the Republic of Korea and over 20% in the US, Chile and South Africa (9).

Analysis of data from the 2014 European social survey showed that during the last 12 months, 25.9% of the respondents used CAM, and that among users of CAM, 69.4% had used only one kind of CAM modality, whereas 19.9% had used two kinds of CAM modalities (11). About 8% of CAM users have used only CAM without any visits to health care providers in the previous 12 months (alternative use) (7). Alternative use rates were highest for spiritualism (14.9%) and acupressure (12.1%), and they were lowest for osteopathy (4.1%), homeopathy (5.6%) and acupuncture (6.3%) (11).

A systematic review of 89 studies addressing the prevalence of CAM use in the United Kingdom showed that on average, the one-year prevalence of CAM use was 41.1% (range 9.2-100%) (12). The use of herbal medicines was the most popular type of CAM in the 24 included studies, followed by homeopathy in 8 studies and aromatherapy in 6 studies (12).

The prevalence of use of any CAM method in Australia ranged from 68.9% in 2005 (13) to 66% in a study published in 2017 (14).

In Canada, the prevalence of CAM use ranged between 50% in 1997 (15) and 54% in 2006 (16). In 1997, the most commonly used CAM method was prayer/spiritualism (18%) (15), and in 2006 – massage (19%) (16).

A systematic review of the literature published between 1998 and 2009 (148 publications, 152 surveys) showed that the prevalence of current CAM use in cancer patients ranged from 9-88%, with the pooled prevalence of 40% showing significant heterogeneity (17). A significant difference between countries was also noted in this literature review, with the highest pooled prevalence in the USA (50%) and the lowest in Italy and the Netherlands (22%) (17). The systematic review which included 61 research articles published between 2009 and 2018 found that, on average, 51% of cancer patients used CAM, and the range was from 16.5-93.4% (18).

As regards a systematic literature review (42 studies), it has found that the prevalence of CAM use ranged from 8% to 90% (median = 30%) in patients with prostate cancer (19). In a population of patients with colorectal cancer, a systematic review of 4 studies showed that up to 75% of them used at least one CAM method (20). The most commonly used methods of CAM were biologically based therapies: herbal remedies (48.7%), homeopathy (20.5%), vitamins/minerals (17.9%), medicinal teas (15.4%), and body-mind-spirit medicine procedures and techniques (15.4%) and relaxation techniques (12.8%) (20).

According to the results of a systematic literature review that included 27 studies examining the use of CAM in the cardiovascular population, the prevalence of CAM use ranged from 22-68%, herbal medicines used from 2-46%, vitamins, minerals and other dietary supplements were used between 3-54% (most vitamin B/B12 or vitamin B complexes, vitamin C, vitamin E, glucosamine/chondroitin, coenzyme Q10, calcium and magnesium), and mind-body medicine from 2-57% (21).

The prevalence of CAM use in patients with low back pain ranged from 6-76.4% (mean 34.2%) according to the results of a systematic review that included 30 studies, and the most commonly used modalities of CAM were acupuncture (from 6-60.2%, average: 27.4%), chiropractic (from 16.1-74%, average 39.3%), osteopathy (from 4.1-48.4%, average: 17.3%) and massage (7-41.4%, average: 25.9%) (22).

In the Republic of Serbia, the Acupuncture Section was first established within the Serbian Medical Society in 1980, then the Homeopathy Section in 2002 and the Quantum medicine board in 2006 within the Acupuncture section (23). The Section for Traditional Medicine of the Serbian Medical Society was established in 2012 and at its regular monthly meetings lectures are organized

and given by experts, practitioners and theorists of traditional medicine methods (23).

A study conducted in eight Serbian cities among physicians, dentists and pharmacists employed by public and private healthcare institutions, as well as medical, dental and pharmacy students from two state universities found that dental students were better informed about CAM than medical students, pharmacists better than university professors, while healthcare professionals working at the primary health care level were more familiar with CAM than pharmacists in public pharmacies (24). This research shows weaknesses in the attitudes of current and future healthcare professionals in Serbia towards CAM (24, 25).

The aim of the study was to examine the influence of the respondents' health condition on the use of Alternative medicine methods, as well as to examine the correlation between the health self-assessment of the respondents and the use of Alternative medicine methods, and to examine the health self-assessment of CAM users in relation to the possibility of performing daily activities and the presence of long-term health disorder.

Methods

Study design and sampling

This was a population-based, cross-sectional study. The analyzed data were used from the latest National Health Survey of the Republic of Serbia administered during 2013 and sponsored by the Ministry of Health of the Republic of Serbia. It was based on the general population of citizens of the Republic of Serbia aged 15 and over who lived in private households. The survey was conducted in accordance with the methodology and instruments of the European Health Survey - Second Wave (European Health Interview Survey - EHIS wave 2) (26).

The sample included all households listed in all enumeration areas in the census conducted in 2011. A stratified two-stage sample was selected to provide a reliable assessment of a large number of factors which indicate the population health at the national level, as well as at the level of four geographic areas and the level of different settlement types. The units of the first stage of sampling were 670 census enumeration areas defined in the 2011 population Census, while the units of the second stage of sampling were randomly selected households. The study included 6500 randomly selected households with 3909 household from urban and 2591 from other areas, with 19,079 respondents aged 15 and over. The number of persons interviewed who had used alternative medicine services in the previous 12 months was 550.

The survey was approved by the Ethical Board of the National Institute of Public Health of the Republic of Serbia and the Ministry of Health. The principles of ICH Good Clinical Practice were strictly followed and the approval from the Ethics Committee of Republic of Serbia was obtained. Ethical Standards at Healthcare Research are aligned with the International Medical Association Declaration of Helsinki and legislative specific to our country's laws. Aiming to align with General Data Protection Regulation (GDPR) policies to preserve the discretion of gathered respondents' data all steps stipulated by the Law on protection of personal data (Official Gazette of the Republic of Serbia No. 97/08, 104/09), the Official Statistics Law (Official Gazette of the Republic of Serbia No. 104/09) and Directive 95/46/EC of the European Parliament on the protection of individuals with regard to the processing of personal data and on the free movement of such data (27).

Instruments

A standardized face-to-face self-reported questionnaire was used for data collection. The data collection was performed by specially trained teams of interviewers. The participation in the study was voluntary and all participants signed a written consent.

Study variables

The main independent variable was related to whether the respondent personally used Alternative Medicine services in the previous 12 months. Alternative medicine services included the following services: acupuncture, homeopathy, phytotherapy, chiropractic applied in a state health institution and/or with a private individual, which included private practice and folk healers.

The auxiliary dependent variables used in the analysis were the following: health self-assessment, health self-assessment of CAM users in relation to the ability to perform daily activities and the presence of long-term health disorders, health status of respondents, presence of chronic diseases and satisfaction with health care, in the previous 12 months.

Statistical analysis

All the data of interest were presented and analyzed by adequate statistical methods appropriate for the data type. Categorical variables were presented as frequency and percentage; n(%). The Chi-square test was used to compare proportions between groups. All statistical calculations were performed using commercial, standard software package SPSS Inc., version 18.0, Chicago, IL.

Results

Health status of respondents

Just over 2/3 of complementary and alternative medicine users had chronic health disorders ($p < 0.01$).

The most commonly diagnosed chronic health disorders among CAM users were the following: hypertension (36.7%), followed by back problems (28%) followed by hypercholesterolemia (23.1%),

allergy, without asthma (20.9%), and the cervical spine problems (18.9%). One in ten users had kidney problems, i.e., ischemic heart disease, or arthrosis, or depression. Four point four percent of CAM users were diagnosed with malignancy (Table 1).

Table 1. Chronic health disorder of complementary and alternative medicine (CAM) users

Disorder	Yes (n)	%	No (n)	%
Asthma bronchiale	33	6.0	517	94.0
Bronchitis chronica, COPD	41	7.5	507	92.5
Myocardial infarction	23	4.2	526	95.8
Ischemic heart disease	59	10.7	487	89.3
Hypertension	202	36.7	343	63.3
Brain stroke	18	3.3	530	96.7
Arthrosis	59	10.7	489	89.3
Back pain	154	28.0	395	82.0
Neck pain	104	18.9	445	80.1
Diabetes	52	9.5	495	90.5
Allergy with no asthma	115	20.9	433	79.1
Cirrhosis of the liver	5	0.9	543	99.1
Urinary incontinence	32	5.8	516	94.2
Kidney problems	60	10.9	489	89.1
Depression	56	10.2	491	89.8
Malignancy	24	4.4	525	95.6
Hypercholesterolemia	127	23.1	408	76.9

COPD- Chronic obstructive pulmonary disease

Every other user of CAM (54.9%) had a long-term illness/disorder. Every seventh and partially every fourth CAM user had been seriously restricted as regards performing their daily activities for the previous 6 months or longer. There was no statistically significant difference in the use of CAM services in relation to the presence of long-term health disorders ($p > 0.05$).

Health Self-Evaluation

Two out of three users of CAM services rated their health as good and/or average. Respondents who reported very poor health status (in their own estimation) were the least frequent users of complementary and alternative medicine services (Graph 1).

There was a significant difference in the self-assessment of the health of CAM users in relation to the presence of long-term illness ($p < 0.01$) and the ability to perform normal daily activities ($p < 0.01$). Namely, users of CAM who had a long-term illness, as well as those who had difficulty in performing daily activities, had a lower rating of their health compared to users of CAM who did not have it (Graph 2).

In the previous month, 61.8% of CAM users felt physical pain. The pain was usually moderate in intensity. There was a moderate positive association between pain intensity and the ability to perform daily activities of CAM users ($ro = 0.630$, $p < 0.01$).

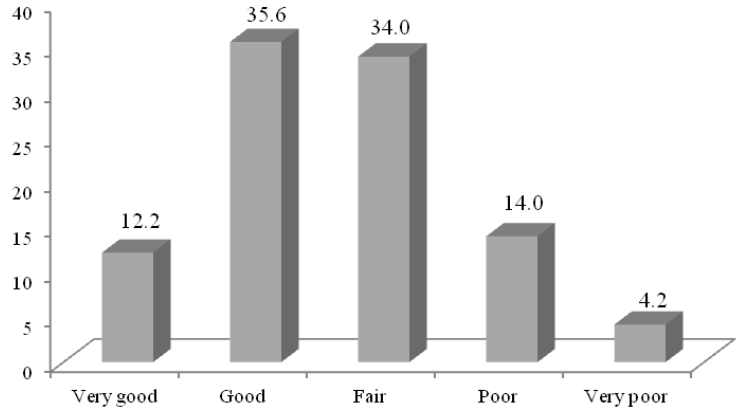
A quarter of Complementary and Alternative medicine service users were already diagnosed with hypertension, and every 10th of those were diagnosed with heart and blood vessel diseases. Almost all CAM users believed that their behavior did not put them at risk for liver cirrhosis, sexually transmitted diseases and/or injuries. At the same time, one in five, or six users of CAM considered themselves to be at risk of becoming obese or developing diabetes (Table 2).

Satisfaction with healthcare and unmet needs for health care

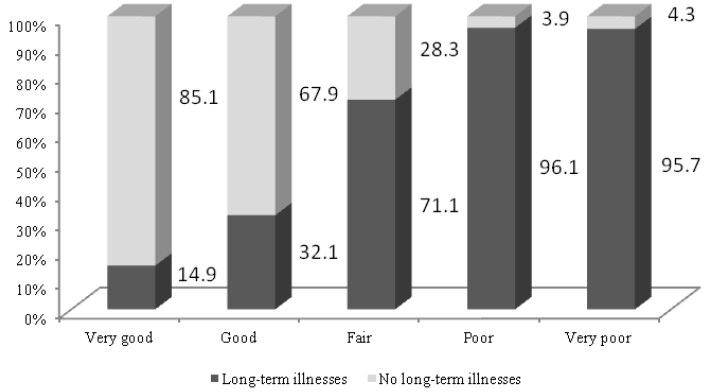
CAM users were more satisfied with the services they received in private practice ($p < 0.01$). Specifically, almost half of the respondents who were dissatisfied with the services provided in government institutions were satisfied with the services provided in the private sector. At the same time, persons who were very dissatisfied with state institutions were either satisfied (41.1%) or neither satisfied nor dissatisfied (23.2%) with private health care institutions. CAM users who were very satisfied with the services provided in the state health services, at the same time in 82.1% of cases were very satisfied with the services provided in private offices (Graph 3).

Waiting lists and financial constraints along were considered to be the main reasons for the lack of the necessary form of healthcare for CAM users (Graph 4). The lack of money for every fifth user of

CAM caused the lack of the necessary form of medical healthcare, and for every sixth – the lack of necessary dental health care, i.e., the inability to purchase the prescribed medications.



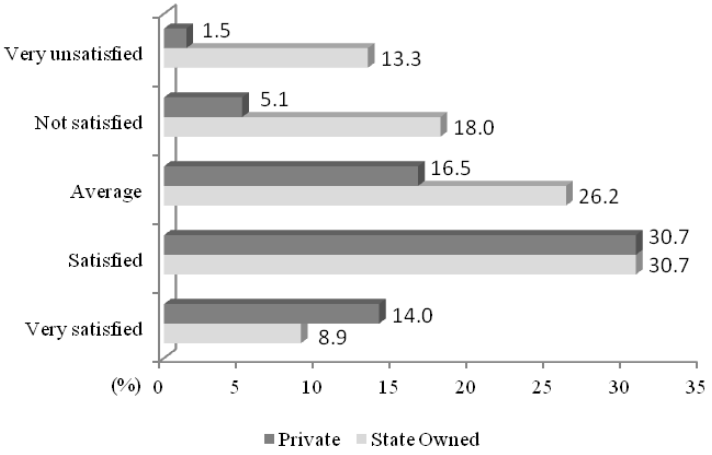
Graph 1. Health Self-Evaluation of complementary and alternative medicine (CAM) users



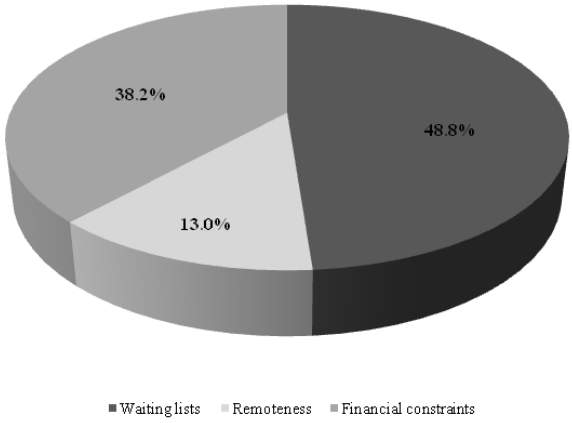
Graph 2. Health Self-Evaluation of complementary and alternative medicine (CAM) users compared to their ability of performing daily activities and the presence of long-term illnesses

Table 2. Risk of illness of complementary and alternative medicine (CAM) users due to risky behavior

Health Disorder; n(%)	Yes	No	Confirmed illness	I don't know
Obesity	126 (22.9)	391 (71.1)	27 (4.9)	6 (1.1)
Hypertension	101 (18.4)	287 (52.2)	148 (26.9)	14 (2.5)
Diabetes	81 (14.7)	414 (75.3)	39 (7.1)	16 (2.9)
Diseases of the heart and blood vessels	145 (26.4)	331 (60.2)	57 (10.4)	17 (3.1)
Pulmonary diseases	68 (12.4)	447 (81.3)	19 (3.5)	16 (2.9)
Malignancy	50 (9.1)	447 (81.3)	21 (3.8)	32 (5.8)
Cirrhosis of the liver	10 (1.8)	527 (95.8)	3 (0.5)	10 (1.9)
Sexually Transmitted Diseases	5 (0.9)	537 (97.6)	/	8 (1.5)
Injuries	37 (6.7)	492 (89.5)	5 (0.9)	16 (2.9)



Graph 3. Healthcare Satisfaction, Private/Government Practice



Graph 4. Reasons for lack of the required form of healthcare

Discussion

Health status and health perceptions are among the significant factors affecting the use of CAM, primarily poor health or inaccurate perceptions of one's own health (9, 11, 28, 29) in patients with chronic illnesses or disabilities (9) and more severe forms of disease (19, 30, 31), longer disease duration and complications present (32), often due to the lack of effects of conventional medical treatments or the unavailability of general practitioners (GPs) (33). Some studies have shown an association between the use of CAM and good health (28).

Additionally, it was observed that CAM use was more prevalent among patients who had already been hospitalized (11), who used multiple drugs, or who had been treated surgically (34).

A systematic review of the literature covering the cancer patient population showed that significant predictors of CAM use were younger age, female gender, higher education, higher income, and previous CAM use, whereas the most common reasons for its use were related to the fact that patients thus wished they could affect not only the cancer but their general health as well, as well as treat existing complications of cancer or therapy (18). In prostate cancer patients, the use of CAM in most studies was significantly higher in patients with higher education/income and in patients with more severe forms of disease (19).

In patients with low back pain, the results based on recent US studies indicate that the use of CAM is significantly associated with younger age, female gender, non-Hispanic background, and at least high school graduation. The most commonly cited reasons for using CAM were the presence of frequent, incapacitating and chronic low back pain, dissatisfaction with the availability of GPs, length of waiting times for GP's appointments, or lack of efficacy of conventional medical treatments (22).

The scientific research conducted in Serbia showed that just over 2/3 of the users of Complementary and Alternative medicine services had chronic health disorders. The most commonly diagnosed chronic health disorders among CAM users were the following: hypertension (36.7%), followed by back

problems (28%), followed by hypercholesterolemia (23.1%), allergy, without asthma (20.9%), and the cervical spine problem (18.9%). Four point four percent of CAM users were diagnosed with malignancy.

The beneficiaries of CAM services cite financial difficulties (28.5%), remoteness (6.8%) and waiting lists (26.8%) – as the main reasons for the lack of the necessary form of healthcare.

The two out of three users of CAM services rated their health as good and/or average. Respondents who reported poor health status (in their own estimation) were the rarest users of complementary and alternative medicine services.

The study conducted at the Institute for Oncology of Vojvodina, by interviewing patients diagnosed with gastroenterological malignancy, showed that 48 (24.9%) patients did not use any of the alternative medicine methods given, while 145 (75.1%) patients used at least one form of alternative therapy (35). Approximately 64% of patients used herbal preparations, most commonly beet juice (about 57%) (34). Special diets were used by 19.2% of patients, mind-body therapies were used by 16.6% of patients, while spiritual therapy was used by 18.1% of patients (35). Patients were most often informed of alternative therapy by other patients, relatives and neighbors (70.5% of patients) (35). As regards the reasons for using alternative medicine, 75.1% of patients indicated that they wanted to increase the chance of healing in combination with standard oncology therapy, whereas 47.7% of patients used alternative medicine for the purpose of improving their immunity, 27.5% believed they could prolong their life in this manner, and 18.6% believed that it would result in achieving a complete cure for malignant diseases (35).

Although worldwide research shows an accelerated upward trend in the use of CAM, in the Republic of Serbia there is only scarce evidence related to the extent of CAM use (25).

Conclusion

The analysis of the impact of respondents' health status, the analysis of the correlation between the respondents' health self-assessment and the use of alternative medicine methods, analysis of the impact of socio-demographic characteristics on the use of CAM, along with a comparative analysis of the use of health care services – would significantly contribute to better recognition of CAM by the Ministry of Health of the Republic of Serbia.

By making such a comparison, one could potentially work on how to further enhance defining patient treatment strategies.

Statement of Ethics

The Serbian National Health Survey 2013 was approved by the Ethical Board of the National Institute of Public Health of Serbia "Dr Milan Jovanović Batut" and the Ministry of Health.

Disclosure Statement

The authors declare that no conflicts of interest exist.

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SAMOPROCENA ZDRAVLJA KORISNIKA KOMPLEMENTARNE I ALTERNATIVNE MEDICINE U SRBIJI: NACIONALNA STUDIJA PRESEKA

Marina Luketina-Šunjka[1], Nemanja Rančić[2], Nataša Mihailović[3], Svetlana Radević[4], Saša Dragović[5], Mihajlo Jakovljević[6]

[1]Evropski centar za mir i razvoj, Univezitet pod pokroviteljstvom Ujedinjenih Nacija, Beograd, Srbija
[2]Univerzitet odbrane, Medicinski fakultet Vojnomedicinske akademije, Centar za kliničku farmakologiju, Vojnomedicinska akademija, Beograd, Srbija
[3]Centar za informatiku i biostatistiku u zdravstvu, Institut za javno zdravlje Kragujevac, Kragujevac, Srbija
[4]Univerzitet u Kragujevcu, Fakultet medicinskih nauka, Katedra za socijalnu medicinu, Kragujevac, Srbija
[5]Klinika za opštu hirurgiju, Vojnomedicinska akademija, Beograd, Srbija
[6]Univerzitet u Kragujevcu, Fakultet medicinskih nauka, Katedra za globalno zdravlje, zdravstvenu ekonomiju i politiku, Kragujevac, Srbija

Kontakt: Nemanja Rančić
Crnotravska 17, 11002 Beograd, Srbija
E-mail: nece84@hotmail.com

Cilj istraživanja bilo je ispitivanje uticaja zdravstvenog stanja ispitanika na upotrebu metoda komplementarne i alternativne medicine (KAM). Ovo je bila populaciona studija preseka. Uzorak je činilo 550 ispitanika, evidentiranih u trećem nacionalnom istraživanju zdravstvenog stanja stanovnika Srbije iz 2013. godine, koji su u predhodnih 12 meseci koristile usluge KAM. Nešto više od 2/3 korisnika usluga KAM ima hronični poremećaj zdravlja ($p < 0,01$). Najčešći dijagnostikovani hronični poremećaj zdravlja bila je hipertenzija (36,7%). Ozbiljno ograničen u obavljanju dnevnih aktivnosti u poslednjih 6 meseci i duže bio je svaki sedmi ispitanik, a delimično svaki četvrti korisnik KAM. Korisnici KAM zadovoljniji su uslugama koje dobijaju u privatnoj praksi ($p < 0,01$). Dvoje od troje korisnika usluga KAM sopstveno zdravlje ocenjuje kao dobro i/ili prosečno. Korisnici KAM zadovoljniji su uslugama koje dobijaju u privatnoj praksi i u najvećem procentu svoje zdravlje ocenili su kao dobro. Analiza uticaja zdravstvenog stanja ispitanika, povezanosti samoprocene zdravlja ispitanika i upotrebe metoda alternativne medicine, analiza uticaja sociodemografskih karakteristika na upotrebu KAM, uz uporednu analizu korišćenja usluga zdravstvene zašite, doprineli bi boljem pre-poznavanju KAM od strane Ministarstva zdravnja Republike Srbije.

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Ključne reči: *samoprocena zdravlja, zdravstveno stanje, komplementarna i alternativna medicina, hronične bolesti*