Assessment of health status and quality of life of homeless persons in Belgrade, Serbia

Procena zdravstvenog stanja i kvaliteta života beskućnika u Beogradu

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Abstract

Background/Aim. Homelessness is a problem with social, medical, economic, political and other implications. Despite a large number of studies, reports about health-related quality of life (HRQoL) of homeless persons remain sparse. There is a summary of consistent evidence that homeless people have higher prevalence of chronic disease (mental and somatic) than general population. The aim of this study was to assess HRQoL and depression in homeless persons in Belgrade, to describe their sociodemographic factors and health status (the presence of chronic mental and somatic diseases and addiction disorders) and analyse impact of sociodemographic factors and health status to HRQoL and depression of homeless persons. **Methods.** The study was conducted in the Shelter for Adult and Elderly Persons in Belgrade, from January 1 to January 31, 2012. A set of questionnaires used in survey included Serbian translation of SF-36 questionnaire, Serbian translation of Beck Depression Inventory-II (BDI-II) and sociodemographic questionnaire. Statistical analysis was performed by descriptive and analytic methods. **Results.** Our study sample consisted of 104 adult participants. The majority of them were male (74%) and the mean age in the sample was 48.2 ± 13.0 years. We have found that 35.6% participants had lifetime diagnosis of psychiatric disorder, most frequently depression (lifetime prevalence of 15.4% in the study group). The history of suicide attempts was registered in 28 (26.9%) participants. Lifetime illicit drugs use was reported by

12.5%, daily smoking by 82.7% and daily alcohol consumption by 8.7% of the participants. Most common somatic chronic diseases were cardiovascular while chronic lung diseases were the second most frequent. Single chronic disaese was present in 33 (31.7%) of the participants and comorbidity of 2 chronic diseases was present in 20 of them. A statistically significant difference between participants` HRQoL SF-36 domain scores and norms of general population was found only for role physical domain (lower in homeless, $p < 0.001$). ANOVA showed no statistically significant difference in SF-36 HRQoL domain and composite scores between different age groups, nor did marital status, education level, length of homelessness, alcohol use or smoking significantly affect the HRQoL. The mean BDI-II score in the studied population was 19.1 ± 11.6. Severe depression was registered in 20.2% of the participants, moderate in 23.1%, mild in 19.2% and minimal in 37.5%. A highly significant negative correlation was verified between BDI-II and all domains and composite scores of SF-36 ($p < 0.001$). **Conclusion.** Measures for prevention of homelessness should include: foundation of national registry of homeless persons, development of systemic multisectorial cooperation and special psychosocial intervention strategies. In homeless population, health care measures should be focused on prevention and treatment of mental health disorders and chronic somatic diseases.

Key words:
homeless perons; health status; quality of life; serbia.

Apstrakt

Uvod/Cilj. Beskućništvo predstavlja problem sa širokim društvenim, zdravstvenim i ostalim implikacijama. Postoje brojni dokazi da beskućnici imaju višu prevalenciju hroničnih (mentalnih i somatskih) oboljenja u odnosu na opštu populaciju. Cilj rada je bio utvrđivanje kvaliteta života (KŽ)

i depresivnosti kod beskućnika, socijalnodemografskog i zdravstvenog statusa u ovoj populaciji, te analiza faktora koji utiču na KŽ i depresivnost beskućnika. **Metode.** Istraživanje je sprovedeno u Centru za smeštaj odraslih i starih lica u Beogradu tokom januara 2012. godine. Korišćen je komplet upitnika: SF-36 za ispitivanje KŽ, Bekova skala depresije II (BDI-II) i sociodemografski upitnik. Analiza je

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obavljena metodama deskriptivne i analitičke statistike. **Rezultati.** Studija je obuhvatila 104 ispitanika. Većinu su činili muškarci (74%), a prosečna starost je iznosila 48,2 ± 13,0 godina. Kod 35,6% ispitanika utvrđena je dijagnoza psihijatrijske bolesti (najčešće depresije). Samoubistvo je pokušalo 28 (26,9%) ispitanika. U uzorku je bilo 82,7% pušača, a najčešće hronične somatske bolesti su bile kardiovaskularne bolesti. Komorbiditet više somatskih bolesti je bio prisutan kod trećine ispitanika. Fizička uloga je jedini domen KŽ koji je bio niži nego u opštoj populaciji ($p < 0,001$). Depresija teškog stepena utvrđena je kod 20,2% ispitanika. Negativna korelacija postojala je između skorova BDI-II i svih skorova KŽ ($p < 0,001$). **Zaključak.** Mere za prevenciju beskućništva bi trebalo da uključe formiranje nacionalnog registra beskućnika, razvoj sistemske međusektorske saradnje i primenu specijalnih psihosocijalnih interventnih strategija. Kod beskućnika zdravstveni sistem treba da bude fokusiran na prevenciju i lečenje mentalnih poremećaja i hroničnih somatskih oboljenja.

Ključne reči:
beskućnici; zdravstveno stanje; kvalitet života; srbija.

Introduction

Homelessness is a multidimensional problem of contemporary society with social, medical, economic, political and other implications. Thus, there is no single definition of homelessness. In 2009, at the United Nations Economic Commission for Europe Conference of European Statisticians (CES), the Group of Experts on Population and Housing Censuses approached homelessness by defining two types of this phenomenon: (a) Primary homelessness (or rooflessness) that includes persons living in the streets without a shelter that would fall within the scope of living quarters, and (b) Secondary homelessness attributed to persons with no place of usual residence who move frequently between various types of accommodations (including dwellings, shelters and institutions for the homeless or other living quarters)[1]. The United States Department of Housing and Urban Development issued a document that explains homelessness as condition of people without regular dwelling (lack of regular, safe, and adequate housing or fixed, regular, and adequate night-time residence)[2].

The approach by European experts underlines evidences that homelessness is more likely to be a temporary than a prolonged state. Today, researchers in different fields analyse homelessness as complex problem emerging through collision of individual and structural factors[3]. Epidemiological data from different parts of developed world give further perspective on homelessness: estimated 700,000 homeless living in USA[4], 84,900 households classified as homeless in England[5], in 2010 some 248,000 people were homeless in Germany[6] while only 5,000 were registered in the Republic of Korea in 2011[7].

Despite a large number of studies published mainly by social scientists and medical researchers, reports about health-related quality of life (HRQoL) of homeless persons remain sparse. On the other hand, multitude of investigations address mental health issues in this population, either by simply describing prevalence of psychiatric disorders or by trying to establish causal relation between lack of regular home and mental disturbances or *vice versa*[4, 8–10].

There is a summary of consistent evidence that homeless people have a higher prevalence of chronic disease than the population as a whole, including both mental and somatic disease[11]. In 1999, Barrow et al.[12], the Columbia University Center for Homelessness Prevention Studies, found a 4 times higher age-adjusted death rates of homeless persons when compared to those of general US population and 2 to 3 times in comparison to New York City population. Currently, high morbidity and mortality in this marginal social group is attributed to numerous health risks explainable by homelessness: increased risk of suffering from violence or abuse, reduced access to health care, low hygiene, difficulties in obtaining and storing food, as well as privacy needed for sleep[13]. Mental illnesses (including addiction) are often recognized as important etiological factor for homelessness, along with other causative factors such as physical disability, substance abuse and social exclusion[14, 15].

The problem of homelessness in Serbia is mostly neglected by public and scientific community. This is in contrast to current Serbian social context which provides ground for spread of homelessness (poverty, high unemployment rate, transition, high number of refugees, proliferation of non-hygienic dwellings, insufficient homelessness prevention strategy). There are no official data nor relevant estimates on the number of homeless persons in Serbia. Our research is motivated by the lack of investigations, especially health-related, in this marginal population. We hypothesized that homeless persons have significant health issues, both mental and physical, that could be addressed through health-related quality of life investigations.

The aims of this study were to assess HRQoL and depression in homeless persons in Belgrade, to describe their sociodemographic factors and health status (the presence of chronic mental and somatic diseases and addiction disorders) and analyse impact of sociodemographic factors and health status to HRQoL and depression of homeless persons.

Methods

The study was conducted in the Shelter for Adult and Elderly Persons in Belgrade within January 2012. The Shelter for Adult and Elderly Persons is governed by the City of Belgrade and is defined as an institution of urgent social care with task to provide shelter and protection to persons with urgent social need. Capacities include 105 regular beds with the possibility of acquiring additional beds during winter time (up to 20%). It is the only institution of its kind on the City of Belgrade teritory, for 1.6 milion inhabitants in the metropolitan area.

A set of questionnaires used in the survey included the Serbian translation of SF-36 questionnaire, Serbian translation of Beck Depression Inventory – II (BDI-II) and sociodemographic questionnaire. SF-36 is a well-known and widely used generic HRQoL instrument that measures eight domains of HRQoL: physical functioning (PF), role functioning physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role functioning emotional (RE), and mental health (MH). Calculation of SF-36 composite scores is performed by standardized formula that results in physical health composite score (PCS), mental health composite score, and SF-36 total composite score (TCS). The SF-36 domains are scored by a 0 to 100 scale with zero representing the lowest possible score, highest defined with 100. In general population, used as a norm-based reference group, 50 represents the mean score. Higher values mean better HRQoL domains in the tested subjects. Scoring of SF-36 scales and further were performed according to Ware's survey manual recommendations. Depression was measured with the Serbian translation of Beck Depression Inventory – II (BDI-II) [16]. Depression was designated as minimal if the BDI-II score range was within 0–13, as mild if 14–19, as moderate if 20–28 and severe depression if scores ranged above 28 [16]. The sociodemographic and health status questionnaire was designed specifically for this study and it included 27 questions. The questions in this part of the survey instrument covered social, demographic and health status that the authors considered important on the basis of previous studies on homelessness-related medical issues [17–19]. Health status was investigated through the questions on current and lifetime alcohol, tobacco and illicit drugs use and current or lifetime presence of chronic disease (including mental disorders). Somatic chronic diseases that were included in the questions of the survey instrument were: epilepsy, asthma, chronic obstructive pulmonary disease, ischemic heart disease, chronic heart failure, heart arrhythmia, arterial hypertension, chronic liver disease, chronic renal insufficiency, rheumatic diseases, cancer, diabetes mellitus, cerebrovascular diseases, AIDS and tuberculosis (diagnoses based on ICD-10).

All the three questionnaires were designed to be self-administered and only completely filled data were used in further analysis. The set of questionnaires was offered to all homeless persons staying in the Shelter for Adult and Elderly Persons in Belgrade during a study period and the response rate was 84.7%. The individuals were considered as eligible for the study if they were able to communicate with the investigators and self-administer the test. Additional data on participants' health were retrieved from individual dossiers attributed to each person in the Shelter and containing thorough medical and social history.

Descriptive statistics, such as mean ± standard deviation (SD) on the collected data were calculated. Assessing the difference of SF-36 scores and BDI-II score between different homeless subgroups (based on sex, marital status, educational level, length of homelessness and morbidity) was performed by the t-test or ANOVA. Pearson correlation coefficients were used to examine the relation between the SF-36 scores and the scores of BDI-II. We used t-test to compare SF-36 domain, composite and total scores of the studied group to general population standard. The chi-square test was used to determine if severity of depression (groups designated as minimal, mild, moderate and severe) was related to gender, age group, educational level, marital status, length of homelessness, suicide attempt and the presence of chronic disease.

The statistical significance level was set at $p < 0.05$.

Results

Our study sample consisted of 104 adult participants. The majority of them were male (74%). The average age in the whole sample was 48.2 ± 13.0 years (range from 19 to 74), with 31.7% participants in the age group between 51 and 60 years. We registered that only 4 (3.8%) participants were living in marital community, while others were single (never married, divorced or widowed). The majority of participants had finished high school (54.8%), 11.5% had higher education, while others had lesser than high school. Homelessness longer than 5 years was reported by 36 (34.6%) participants and this was the largest subgroup, while second largest portion of the participants (33.6%) were homeless for less than one year. The majority of the participants had no income (salary or social welfare) what soever. Detailed demographic data of the participants are represented in Table 1.

Table 1
Social and demographic characteristics

Variable	Homeless persons, n (%)
Age (years)	
18–30	9 (8.7)
31–40	17 (16.3)
41–50	23 (22.1)
51–60	33 (31.7)
> 60	22 (21.2)
Marital status	
married	4 (3.8)
divorced	39 (37.5)
widowed	12 (11.5)
never married	49 (47.2)
Education	
no completed school	8 (7.7)
elementary school	27 (26)
high school	57 (54.8)
higher education	12 (11.5)
Length of homelessness	
less than 1 year	35 (33.6)
1–2 years	14 (13.5)
2–3 years	10 (9.6)
3–4 years	3 (2.9)
4–5 years	5 (4.8)
more than 5 years	36 (34.6)
Income status	
salary	19 (18.3)
social welfare	12 (11.5)
no income	73 (70.2)

Regarding mental illness in the studied population, we found that 35.6% of the participants had been diagnosed with psychiatric disorder, most frequently with depression (life-

time prevalence of 15.4% of the whole study group) and schizophrenia (10.6%). The history of suicide attempts was registered in 28 (26.9%) participants, and currently present insomnia in 6.7%. During 6 months prior to the study, 33.7% participants were prescribed with psychiatric drugs (mostly benzodiazepines and antidepressants). Lifetime illicit drugs use was reported by 13 (12.5%) of the studied homeless persons (8 with heroin addiction). Use of illicit drugs within 12 months prior to the study was reported by 4 (3.8%) subjects. Daily smoking was present in 82.7% of the participants while 8.7% had daily alcohol consumption. More detailed data on mental and addiction disorders in our sample are represented in Table 2.

Table 2
Mental and addiction disorders

| Variable	Homeless persons, n (%)
Lifetime prevalence of mental disorders	
depression	16 (15.4)
schizophrenia	11 (10.6)
neurotic disorders	10 (9.6)
Lifetime prevalence of illicit drug use	
marijuana	4 (3.8)
cocaine	4 (3.8)
heroin	8 (7.7)
morphine	2 (1.9)
synthetic drugs	6 (5.7)
Alcohol use	
daily	9 (8.7)
weekly	15 (14.4)
monthly	8 (7.7)
less frequent than monthly	11 (10.6)
do not drink	61 (58.7)
Smoking	N (%)
>20 cigarettes/day	29 (27.9)
10-20 cigarettes/day	34 (32.7)
<10 cigarettes/day	23 (22.1)
do not smoke	18 (17.3)
Use of psychiatric medicaments during past 6 months	
benzodiazepines	21 (20.2)
antidepressants	7 (6.7)
antipsychotics	7 (6.7)
disulfiram	1 (0.9)
methadone	1 (0.9)
Lifetime suicide attempts prevalence	
suicide attempted	28 (26.9)
BDI-II score depression severity	
minimal depression	39 (37.5)
mild depression	20 (19.2)
moderate depression	24 (23.1)
severe depression	21 (20.2)

BDI-II – Beer Depression Inventary

The most common somatic chronic diseases in the studied population of homeless were cardiovascular: 21 of the participants had the diagnosis of arterial hypertension and 16 chronic heart failure. Chronic lung disease were second most frequent chronic health issues of homeless in our group since 13 participants had the diagnosis of chronic obstructive pulmonary disease (COPD) and 11 were diagnosed with asthma. The absence of chronic somatic disease was noted in 37 (35.6%) participants, while single chronic disease was

present in 33 (31.7%) participants. Comorbidity of 2 chronic diseases was present in 20 (19.2%) homeless persons, and 5 or more somatic chronic diseases were simultaneously present in 3.9% participants. Complete data on chronic somatic disease status in sample are depicted in Table 3.

Table 3
Prevalence of chronic somatic disease and comorbidity

Variable	Homeless persons, n (%)
Lifetime presence of chronic somatic diseases	
yes	66 (63.5)
Lifetime prevalence of cardiovascular diseases	
arterial hypertension	21 (20.2)
heart failure	16 (15.4)
cardiac arrhythmia	7 (6.7)
myocardial infarction	6 (5.8)
Lifetime prevalence of chronic lung diseases	
chronic obstructive pulmonary disease	13 (12.5)
asthma	11 (10.6)
Lifetime prevalence of neurologic diseases	
epilepsy	8 (7.7)
cerebrovascular disease	5 (4.8)
Lifetime prevalence of other diseases	
chronic liver diseases	9 (8.7)
diabetes mellitus type 2	8 (7.7)
degenerative rheumatism	7 (6.7)
chronic renal failure	6 (5.8)
Comorbidity of chronic somatic diseases	
2 diseases	20 (19.2)
3 diseases	8 (7.7)
4 diseases	2 (1.9)
> 4 disease	4 (3.9)

The results of health-related quality of life in 104 homeless participants are shown in Figure 1. A statistical
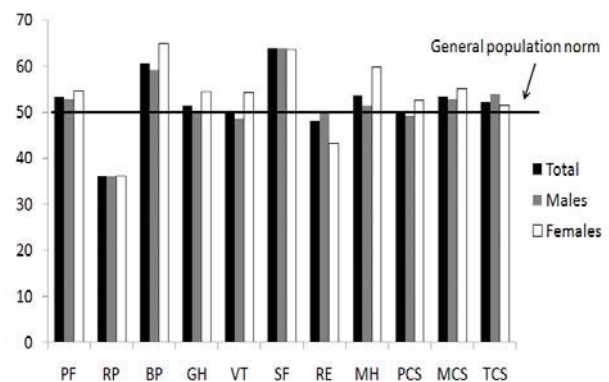
Fig. 1 – Health related quality of life
PF – physical functioning; RP – role physical; BP – bodily pain; GH – general health; VT – vitality; SF – social functioning; RE – role functioning emotional; MH – mental health; MCS – mental composite score; PCS – physical composite score; TCS – total composite SF-36 score.

significance between participants` HRQoL SF-36 domain scores and norms of general population was found for role physical domain (RP – lower in homeless, $p < 0.001$) and bodily pain and social functioning (BP, SF – higher values in participants than in general population, $p < 0.001$). When

comparison of SF-36 scores was done between sexes, no statistical significance was found; we remark that all domains of HRQoL were slightly higher in female homeless persons with the exception of role emotional domain scoring higher (without statistically significant difference) in males.

The ANOVA showed no statistically significant difference in SF-36 HRQoL domain and composite scores between different age groups, nor did marital status, education level, length of homelessness, alcohol use or smoking significantly affect the HRQoL. The presence of insomnia had statistically highly significant negative impact on mental health (MH) SF-36 domain (t-test, $p < 0.007$), and broader negative effect was noted in the participants with the history of suicide attempt who had significantly lower scores for PF, RP, VT, PCS and TCS. The diagnosis of depression or schizophrenia did not significantly affect HRQoL. Use of illicit drugs during 6 months prior to the study was related to significantly lower PF, RP, BP, RE, PCS scores. In participants with chronic lung disease (chronic obstructive pulmonary disease or asthma) VT and SF domains were found to have significantly lower values than in other participants, while diabetes mellitus was associated with significantly lower PF, RP and PCS scores. We found a strong negative correlation between comorbidity of somatic chronic diseases and all domains and composite scores of SF-36 and BDI-II score (Pearson corelation, $p < 0.001$).

The mean BDI-II score in the studied population was 19.1 ± 11.6, while median value was 19. Severe depression (BDI-II score above 28) was registered in 21 (20.2%) of the participants, moderate in 24 (23.1%), mild in 20 (19.2%) and minimal in 39 (37.5%). A statistically highly significant negative correlation was verified between BDI-II on one side and all domains and composite scores of SF-36 on the other (Pearson correlation, $p < 0.0001$). The χ^2 test showed that depression severity was not influenced by the age, gender, marital status, educational level, length of homelessness, alcohol use, smoking or a previously diagnosed chronic psychiatric condition (including depression). On the other hand, the χ^2 revealed a significantly higher presence of suicide attempts among the participants with the current moderate and severe depression tested by BDI-II ($p < 0.05$). Also, lifetime illicit drug abuse was founded in a significantly higher presence within moderate and severe depression subgroups of the participants, while the use of drugs during the recent 6 months was not significantly different between the depression subgroups. In the participants with severe and moderate depression a significantly higher number had chronic somatic disease, and comorbidity of 3 or more chronic diseases was associated with severe depression (χ^2, $p < 0.003$).

Discussion

The majority of the participants in the study were male, which is in accordance to previous studies on homeless populations [7, 14, 20]. Observation that more than 50% of the participants were older than 50 years of age is higher than expected. On the other hand, the trend of homeless population becoming significantly older over the last two decades has already been noted [21]. Similar studies revealed that apart from changes in age, there is a higher prevalence of chronic homelessness, schizophrenia, chronic somatic disease and restriction of social support among contemporary homeless persons [22]. In Serbian context, a higher risk of elderly persons for homelessness could be attributed to inadequate housing, chronic health issues, poverty, loneliness and family violence [23].

Over a third of the surveyed participants have the diagnosis of mental illness. This is in accordance to previous studies from different countries that show higher prevalence of mental disorders among homeless (ranging from 30% to 50%) when compared with general population [8, 9, 11, 24]. In our group depression is the most prevalent chronic mental illness (43.2% of all mental illnesses in the group), followed by schizophrenia; data from literature confirm that psychotic and affective disorders are the most fruequent mental illnesses in homeless population [8, 9]. In recent publication on sociodemographic aspects of homelessness in Serbia, similar data were retrieved for the prevalence of mental disorders [23]. Since mental disorders are usually seen both as risk factor and consequence of homelessness, the findings of this study correspond to the high presence of this type of morbidity in homeless population. Explanation for depression as leading mental illness in Serbian homeless could be also attributed to their health status (HRQoL and the prevalence of chronic disease) as well as to other well-known factors: low self-esteem, losing of life chances, family dissolution, poverty, unemployement.

Twenty eight (26.9%) of the participants have the history of suicide attempt. Our instrument, however, did not include questions which could identify homeless persons with current suicidal ideation regardless of past suicide attempts. According to studies with the focus on suicide phenomena in homeless population, a high prevalence of suicidal attempts could have been expected, with the possibility of substantialy present suicidal ideation [25, 26]. For example, study by Desai et al. [25] showed lifetime prevalence of suicidal ideation (66%) and attempts (51%) in a large sample of homeless in eastern USA. The results of Canadian study at the beginning of the last decade are more similar to our findings with 28% of homeless men and 57% of women reporting suicide attempt during lifetime [26]. Among the participants, there was no significant difference in this matter between genders, with slightly higher prevalence in women (less than 1% difference in prevalence). Previous studies on relation between homelessness and suicide indicated that the history of childhood homelessness, current homelessness longer than 6 months and the presence of mental illness were most important risk factors for suicide in homeless [26]. A contribution of our study could be found in the result that homeless persons with the history of suicide attempt had significantly lower scores of several HRQoL scores (PF, RP, VT, PCS and TCS) and a significantly higher prevalence of moderate and severe depression. The presence of lifetime history of suicide indicated prolonged and serious symptomatology of depression in large portion of subjects. We assume that a higher level of current depression and lower HRQoL in participants with suicide attempt history reveals a pattern of depression con-

tinuation that should be more thoroughly addressed in this subset of homeless.

In our study group, lifetime illicit drugs use was reported by 12.5% of the participants (most with heroin addiction), while more than two thirds of the participants reported the absence of regular alcohol use. In comparison to published data from Western hemisphere [4, 8], we report a lower prevalence of drugs and alcohol use. Large meta-analysis that included 29 studies on mental disorders among homeless reported addiction disorders as leading mental problem in this population (the prevalence of 37.9% for alcoholism and 24.4% for illicit drugs) [4]. There is also a report on 6–7 fold higher risk for alcohol and substance abuse among homeless than in general population, but the same study reveals a current trend towards predominance of illicit drugs use (especially synthetic drugs) over alcoholism [27]. In Serbia, there is a lack of studies describing epidemiology of drug use. Since more than 70% of the studied group is older than 40 years of age, a low prevalence of illicit drug use (especially synthetic) could be attributed to the structure of sample.

Smoking was present in 82.7% participants which is in accordance to the multitude of previous studies [28, 29]. We did not find any significant difference regarding gender among homeless smokers in contrast to recent Czech study [30]. A higher prevalence of smoking in homeless when compared to general population of Serbia [31] could be attributed to stressful living conditions of homeless persons.

Data contracted from the questions that tried to capture epidemiology of chronic somatic illnesses in the studied population are mostly coherent with previous investigations abroad [32, 33]. In our study group, almost two thirds of homeless had at least one chronic somatic disorder which is comparable to findings by Schanzer et al. [34] and significantly higher than the prevalence reported by Plumb [33]. Cardiovascular diseases (mainly arterial hypertension and chronic heart failure) were recognized as the most prevalent chronic somatic disorders among homeless by other researchers and these results are similar to ours [35]. High prevalence of cardiovascular disorders among homeless has already been linked to higher presence of smoking, diabetes and stress when compared to general population [29, 36, 37]. We identified chronic respiratory diseases as the second most prevalent group of somatic chronic diseases in our participants. Similar observations were made with reports of 15% prevalence of obstructive lung disease in homeless persons which is significantly higher than in general population [38]. Also, a high prevalence of comorbidity that we found has been previously elucidated, especially a combined presence of physical, mental and substance abuse disorders [7, 39].

The results of SF-36 HRQoL instrument applied in the sample showed a significantly lower score only for the role physical domain. This stands in contrast to findings that mental scores are usually lower in homeless than in general population [40, 41]. However, there are reports that underline lower physical QoL domains in homeless which is even more pronounced in mentally ill homeless persons [41, 42]. In this study, lower HRQoL domain scores were found in subgroups of homeless with insomnia, lifetime suicide attempt

and illicit drugs use during 6 months prior to study. As expected, the presence of specific chronic somatic diseases (COPD, diabetes) was linked to lower physical health scores. Also, comorbidity of chronic diseases was significantly negatively correlated with all domains of HRQoL, occurrence previously elaborated by Wright and Tompkins [43]. These authors suggest a spectrum of possible health promoting interventions that includes primary prevention measures (vaccination and hygiene promotion) and management of addiction disorders. In the study group, however, chronic infections do not pose a significant part of morbidity. Interventions based on our research should be directed primarily towards early identification and better treatment options for chronic cardiovascular and pulmonary disorders.

All the domains of HRQoL were significantly negatively correlated to depression of the participants measured by BDI-II. A strong correlation of the results generated by SF-36 questionnaire and BDI-II have been documented in populations other than homeless, showing that depression level and HRQoL have a strong mutual interrelation in different settings [44].

The mean BDI-II score found in the group was similar to that of other homeless populations [45]. High rates of depression on the basis of Beck Depression Inventory scales were previously described in homeless, with severe depression prevalence ranging as high as 41% [46]. Finding that the participants` current BDI-II scores are significantly lower in those with previous suicide attempts, suggests that suicidal ideation is one of the strongest indicators of severe depression. A similar effect on depression severity was found for lifetime illicit drug users, but not for the participants with alcohol abuse or smokers. Comorbidity of 3 or more chronic disease was associated with severe depression which is expected in the context of abundant evidence provided by other researchers [47–49]. Since we established no significant difference in BDI-II scores between the participants with history of treated depression and other participants, we can speculate that depression is underdiagnosed in this marginal population. Insufficient access of sheltered homeless persons to psychiatric evaluation and care could be the main cause of lately diagnosed or unrecognized depression in homeless.

Conclusion

A high prevalence of severe and moderate depression in our study group is in accordance to international studies and provides an insight for strategic planning of eventual psychosocial interventiolns in homeless persons. A significant presence of chronic mental and somatic illnesses in homeless persons and its impact on the quality of life implies that this part of population should not be of interest only for social wellfare system but also for health institutions. To our best knowledge, this is the first study on HRQoL and depression in Serbian homeless persons, so we believe that further studies are needed to elucidate in more details numerous issues described in our investigation. In Serbia, there is no clear health and social policy toward homelessness. Homelessness in Serbia is not properly sta-

tistically evaluated, it is not in focus of media or public attention and there is no official and updated definition of this phenomenon. Prevention measures could include: foundation of national registry of homeless persons, development of systemic multisectorial cooperation (social welfare, health system, employment service) and special psy-

chosocial intervention strategy such as psychological strengthening, professional training programs, alleviation of social stigma and family counseling. In homeless population, health care measures should be focused on prevention and treatment of mental health disorders and chronic somatic diseases.

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