

CHARACTERISTICS OF THE POPULATION OF PERSONS WITH COMPULSORY DRUG ADDICTION TREATMENT AS A SECURITY MEASURE IN SERBIA – A REGIONAL OVERVIEW*

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In Serbia, there is a paucity of research on characteristics of the population of imprisoned persons with compulsory drug addiction treatment imposed as a security measure. This study was aimed to analyze and report the characteristics of the population of persons with this security measure imposed in different regions of Serbia, and a population of 1,638 offenders (91.5% males, mean age 36.6 years) was included. The most important similarities were in the prison sentence length and recidivism rate. Among differences, those related to gender, marital status, prison or other sentences, previous convictions, and the age of offenders at the time of study and when the sentence began, and the type of criminal offence were confirmed. The identification of the sociodemographic profile of offenders with compulsory drug addiction treatment in different regions of the Republic of Serbia could allow the target population detection, and development and implementation of appropriate preventive measures.

KEY WORDS: drug abuse / addiction treatment in prisons / medical security measures / offenders / prisons in Serbia

INTRODUCTION

Drug addiction is characterised by compulsive drug seeking and using, loss of control in limiting intake, and progressive modification of behaviour, including the

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emergence of a negative emotional state when access to the drug is prevented (Miguel-Arias et al., 2017). Additionally, it is considered a chronically relapsing and a complex neuropsychiatric disorder (Belin-Rauscent et al., 2016; Koob & Volkow, 2016). As presented in the DSM-5, the term drug addiction is included by the term substance use disorders (American Psychiatric Association, 2013).

Due to its illegal production, distribution and use, drug addiction is often associated with offending and/or criminal behaviours, such as robbery, thievery, stealing, assaults, abuse, etc, including criminal recidivism (Werb et al., 2016). The fact is that a substantial proportion of the imprisoned population are drug users (Miguel-Arias et al., 2017). More than 40% of male prisoners and 50% of female ones were estimated in the year before arrest as being drug addicts, while more than 1,000 of them begin treatment each week in England (Muscat, 2010). Furthermore, 60% of the prison population has a problematic use of alcohol and/or drugs in Norway (Muscat, 2010).

Substance abuse has secondary effects, and they include, among others, and criminal behaviour (Radulović, 2013). Although it is difficult to establish a causal relationship between drug use and criminal behaviours, the criminological and social science literature has acknowledged a high number of drug addicts in the population of the convicts. Besides, it is recognised that drug use leads to or sustains criminal behaviour and that imprisoned drug users often identify illegal substance misuse as a cause of their criminal involvement, as well (Chandler et al., 2009; Elison et al., 2016; Riordan, 2017).

According to the results from the national general population survey conducted in 2014 in Serbia, around 8% of the population aged 18–64 years had used an illicit substance during their lifetime (European Monitoring Centre for Drugs and Drug Addiction, 2017). Also, there were 5642 drug-related criminal acts carried out by 5616 persons within 4928 crime reports in Serbia in 2013 (European Monitoring Centre for Drugs and Drug Addiction, 2014).

The association between substance abuse and criminal behaviour further emphasizes the importance of treating drug-involved offenders in prison (Chandler et al., 2009). Even though Protagoras and Plato have come up with ideas on which security measures are theoretically based, their introduction into the criminal justice systems has been a long time coming. Security measures, as criminal sanctions, in the European criminal legislation at the beginning of the XX Century (Drakić, 2015). Namely, the first country to recognize the importance of security measures as a special form of criminal sanctions was Norway (Criminal Code of 1902). Worldwide, justice systems have been developing in response to the increase in the population of drug-related offenders (Somers et al., 2012). In our region, security measures were first introduced into the criminal sanctions system in 1929, with the adoption of the Criminal Code of the Kingdom of Yugoslavia (Drakić, 2015: 97, 112). In a comparative study on the existence and types of law on compulsory commitment to care in 38 European countries, compulsory commitment to care is placed under criminal law in 17 (45%) of the explored countries, including Serbia. According to the main intention, compulsory commitment to care is characterized as civil rehabilitative, a subtype confirmed in eight (21%) European countries (Israelsson, 2011).

In today's criminal legislation of the Republic of Serbia within the general-purpose of criminal sanctions, the purpose of security measures is to eliminate circumstances or conditions that may influence an offender to commit criminal

offences in future.¹ Compulsory Drug Addiction Treatment (Art. 83 Serbian Criminal Code, *hereinafter*: SCC) is one of four types of medical security measures that exist in SCC, in addition to the following security measures: Compulsory Psychiatric Treatment and Confinement in a Medical Institution (Art. 81 SCC), Compulsory Psychiatric Treatment at Liberty (Art. 82 SCC) and Compulsory Alcohol Addiction Treatment (Art. 84 SCC).

The drug treatment system is under the responsibility of the Ministry of Health of Serbia and financed through the national Health Insurance Fund. In general, state healthcare facilities and some private health institutions provide this kind of treatment. Prison health units are included, as well. However, specialised drug treatment is available only in the Special Prison Hospital in Belgrade. Provision of drug treatment is regulated by the Law on Psychoactive Controlled Substances, the Law on Health Protection, the Law on Protection of Persons with Mental Disabilities, the Law on the Rights of Patients and the Law on Drugs and Medical Devices (European Monitoring Centre for Drugs and Drug Addiction, 2017).

The court shall order Compulsory Drug Addiction Treatment to an offender who has committed a criminal offence due to addiction to narcotics and if there is a serious danger that he may continue committing criminal offences due to this addiction (Art. 83, Para. 1 SCC). Since it is an offender who committed the crime in an objective–subjective sense (existence of guilt), this measure shall be carried out in a penitentiary institution or an appropriate medical or other specialised institution and shall last as long as there is a need for treatment, but not more than three years. When the measure referred to in Art. 83, Para. 1 SCC is ordered together with a term of imprisonment, duration thereof may exceed the pronounced sentence but its overall duration shall not exceed three years. The time spent in the institution for medical treatment shall be credited to the prison sentence. If the Compulsory Drug Addiction Treatment is pronounced together with a fine, a suspended sentence, judicial caution or remittance of punishment, it shall be carried out at liberty and may not exceed three years. Also, if an offender without justifiable reasons fails to undertake treatment at liberty or abandons treatment at his own volition, the court shall order coercive enforcement of such measure in an appropriate medical or other specialised institution (Milićević et al., 2019: 164–165).

In Serbia, there is a paucity of research on characteristics of the population of imprisoned persons with compulsory drug addiction treatment imposed as a security measure. Knowing prevailing patterns of characteristics of offenders with compulsory drug addiction treatment could be potentially very useful for policymakers in preparing new protocols or treatment regimens. To our knowledge, the current study will be the first one reporting this kind of data concerning different regions of Serbia. The paper aims to analyze the similarities and the differences of characteristics of the population of persons with compulsory drug addiction treatment as a security measure between different regions of Serbia.

¹ Art. 78 Serbian Criminal Code, *Official Gazette of the Republic of Serbia*, No. 85/2005, 88/2005-corr., 107/2005-corr., 72/2009, 111/2009, 121/2012, 104/2013, 108/2014 i 94/2016 and 35/2019.

1. METHOD

1.1. Design and procedure

Within the project “Assessment of the Application of Medical Security Measures in the Criminal Justice System of the Republic of Serbia” conducted by the Organization for Security and Co-operation in Europe (OSCE Serbia) and the Institute of Criminological and Sociological Research, all relevant data on realized medical security measures were collected (Međedović et al., 2019). The following medical security measures were included in the research project: compulsory psychiatric treatment and confinement in a medical institution, compulsory psychiatric treatment at liberty, compulsory drug addiction treatment, and compulsory alcohol addiction treatment. The survey was conducted in 2018 in the following institutions: the Special Prison Hospital in Belgrade, Special Hospital for Psychiatric Diseases „Dr Slavoljub Bakalović“ in Vršac, Special Hospital for Psychiatric Diseases „Sveti Vračevi“ in Novi Kneževac and Special Hospital for Psychiatric Diseases in Gornja Toponica. The data collected in the research project related to the measures imposed on a total of 3,745 persons between 2013 and 2017 in Serbia. There were 1,652 (44.1%) compulsory drug addiction treatment, 1,431 (38.2%) compulsory alcohol addiction treatment and 662 (17.7%) compulsory psychiatric treatment and confinement in a medical institution imposed as medical security measures. For the purposes of this study, only data on compulsory drug addiction treatment were selected.

1.2. Variables

From the databases available in the four aforementioned institutions, the following data on persons with imposed compulsory drug addiction treatment as medical security measures were selected for analysis purposes:

- type of security measures imposed in the period from 2013 to 2017;
- basic sociodemographic data: gender, age (years), year of birth, municipality of residence, citizenship, marital status;
- data on recidivism and previous convictions;
- information on the offence for which the security measure was imposed: criminal offence, the presence of elements of violence in crime, prison sentence length (years), other sanctions;
- data on the current measure: starting date of the application of security measures.

Based on the municipality of residence data, the region was determined. Age at time of sentence was calculated based on year of birth data.

1.3. Statistical analyses

This study is a comprehensive secondary analysis of data partially published elsewhere (Međedović et al., 2019). Analyses were performed using the SPSS for Windows software program, version 23, using a 0.05 level of significance. Descriptive statistics were used to characterize the sample and the outcomes. Continuous variables

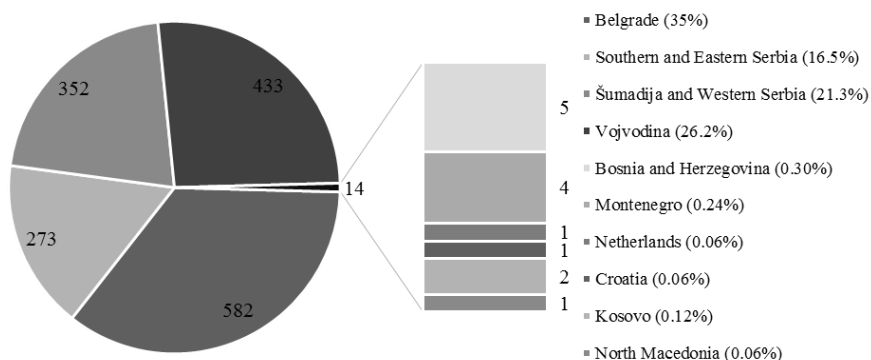
were compared by one-way ANOVA (with the Tukey HSD test for post-hoc comparisons) and the Kruskal-Wallis test as a non-parametric alternative, while categorical responses were compared by χ^2 test. The effect size was reported as Cramer's V or η^2 .

1.4. The sample

The study included a population of 1,652 offenders with compulsory drug addiction treatment imposed, of whom 14 (0.8%) were foreign nationals. To analyze the specificity of the population of offenders with compulsory drug addiction treatment in certain regions of the Republic of Serbia, only citizens of the Republic of Serbia have been singled out. Therefore, the final sample included 1,638 persons (Figure 1).

In percentages, the majority of offenders with compulsory drug addiction treatment had permanent residence in the Belgrade region (35%, $n = 580$). A total of 26% of offenders resided on the territory of the Vojvodina region ($n = 273$), while 22% came from the territory of Šumadija and Western Serbia ($n = 352$). Offenders from the region of South and East Serbia were represented in the smallest percentage in the final research sample (17%, $n = 433$).

Figure 1. Population of offenders with compulsory drug addiction treatment imposed in Serbia ($n = 1,652$)



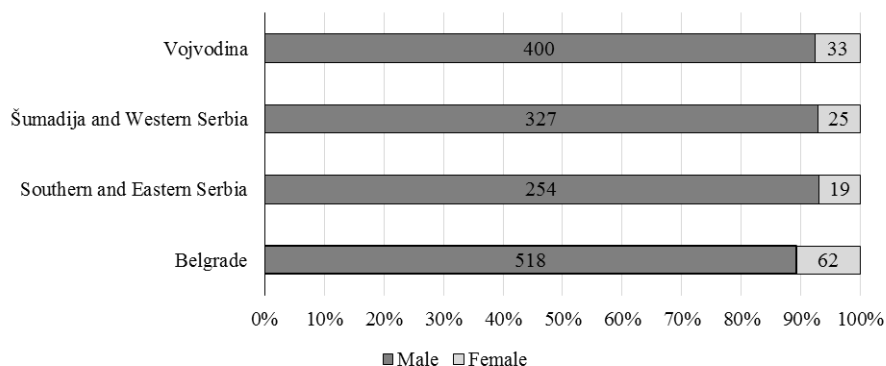
2. RESULTS AND DISCUSSION

2.1. Gender distribution

Concerning gender, there were 1499 (91.5%) male and 139 (8.5%) female offenders with compulsory drug addiction treatment, giving a male/female ratio of 10.8:1. The Southern and Eastern Serbia region and the Sumadija and Western Serbia region have the highest male/female ratio, 13.4:1 and 13.1:1, respectively. In other words, there are more than 13 male offenders with compulsory drug addiction treatment for each female. However, in the Belgrade region, a male/female ratio was the lowest with more than eight male offenders for each female offender (8.4:1). Finally, a male/female ratio in the Vojvodina region was 12.1:1.

It is noteworthy that no statistically significant difference was found in the distribution of male and female offenders among different regions of Serbia [$\chi^2(3) = 5.73, p = 0.125, V = 0.06$]. The majority of offenders with compulsory drug addiction treatment are male, and their percentage ranges from 89.3% in the Belgrade region to 93.0% in the Southern and Eastern Serbia region. Also, there were 92.9% of male offenders in the Šumadija and Western Serbia region, similar to 92.4% in the Vojvodina region (Figure 2).

Figure 2. Gender distribution of offenders with compulsory drug addiction treatment imposed in Serbia



Overall, 4244 medical security measures were imposed in Serbia in the period from 2013 to 2017 (Statistical Office of the Republic of Serbia, 2013, 2014, 2015, 2016, 2017). The largest number of all four medical security measures were imposed on male persons, 4012 (94.5%), whereas 232 (5.5%) were imposed on female ones.

When it comes to the compulsory drug addiction treatment in the period from 2013 to 2017, it was imposed on 1560 person, of whom 1420 (91.0%) were male and 140 (9.0%) were female. It is noteworthy that more than half of the female persons have been referred to compulsory drug addiction treatment, that is 140 (60.3%) persons. The described distribution is comparable to the data presented here.

Moreover, a similar distribution was found in an imprisoned population of 63403 individuals in Galicia (Spain) throughout the 2001–2010 study period, of whom 5041 (8%) were women (Miguel-Arias et al., 2017). A possible explanation is that male drug users are more likely to have been previously been in inpatient treatment at some time and that they serve longer sentences in comparison to females, as found in prospective, Norwegian research (Ravndal & Amundsen, 2010). In Hungary throughout the 2002–2006 period, 89% of those in treatment as an alternative to criminal proceedings were males (Muscat, 2010).

Regarding gender representation in the institutions specialized in inpatient treatment of drug users in Belgrade, the male gender was more prevalent than female in 3:1 ratio, which may be explained by the fact that female drug addicts are more likely to go to treatment (Kovačević, 2013). Gender differences are noted in both drug use and outpatient drug treatment attending, ranging from 9:1 in Cyprus to 1.6:1 in Hungary, with high ratios in Italy (6.5:1) and Spain (5.3:1). Regardless of the country variations in

the gender ratio in the European Union, male drug users outnumber female drug users in drug treatment services (European Monitoring Centre for Drugs and Drug Addiction, 2005)

However, the situation is different in prisons. It is estimated that around 90% of men enter treatment in prison, in contrast to 80% in community settings (European Monitoring Centre for Drugs and Drug Addiction, 2012). In a national study on the influence of legal coercion on dropout from substance abuse treatment, around 70% of clients in short-term residential treatment and outpatient treatment were male, in contrast to 44% in long-term residential treatment (Perron & Bright, 2008). According to some estimations, 5% of the general population in prisons in Europe are women (European Monitoring Centre for Drugs and Drug Addiction, 2012).

2.2. Age-related comparisons

The average age of offenders with compulsory drug addiction treatment is 36 years and six months ($SD = 6.54$ years), ranging from 16 to 66 years (Table 1). Among the regions of Serbia, the youngest offenders were those coming from the Šumadija and Western Serbia region ($M = 35.72$ years, $SD = 6.25$), while the oldest ones came from the Belgrade region ($M = 37.21$ years, $SD = 6.67$).

According to the results of the one-way ANOVA, there was a statistically significant difference at the $p < 0.01$ level in the age of offenders with permanent residence in different regions of Serbia [$F(3, 1634) = 5.519, p = 0.001$]. Despite reaching statistical significance, the actual difference in mean age at the time of study between regions was quite small. The effect size, calculated using eta squared, was $\eta^2 = 0.01$.

Table 1. Age of offenders with compulsory drug addiction treatment: descriptive statistics

Age of offenders (years)	at the time of study				at the time the sentence began			
	<i>M</i>	<i>SD</i>	Min	Max	<i>M</i>	<i>SD</i>	Min	Max
Region								
Belgrade	37.21	6.67	21	66	33.62	6.63	19	61
Southern and Eastern Serbia	37.09	6.45	24	61	33.65	6.48	21	60
Šumadija and Western Serbia	35.72	6.25	21	64	32.18	6.26	19	61
Vojvodina	36.02	6.53	16	62	32.19	6.47	15	58
Total	36.55	6.54	16	66	32.94	6.50	15	61

Post-hoc comparisons using the Tukey HSD test indicated that the mean age of the offenders at the time of study for the Šumadija and Western Serbia region ($M = 35.72$) was significantly lower compared to offenders from both the Belgrade region ($M = 37.21, p < 0.01$) and the Southern and Eastern Serbia region ($M = 37.09, p < 0.05$), yet with no significant difference in relation to the Vojvodina region ($M = 36.02, p = 0.918$). In other words, those offenders with compulsory drug addiction treatment who came from the Šumadija and Western Serbia region were on average younger from those coming from the Belgrade and the Southern and Eastern Serbia regions for 1.5 and 1.4 years, respectively.

The difference in the age of offenders with compulsory drug addiction treatment at the time the sentence began was explored next. In all four regions, the majority of offenders were between 26 and 35 years old, with a notable proportion of those aged 35–

45. There were no offenders with compulsory drug addiction treatment over 65 years of age (Table 2).

Table 2. Distribution of offenders with compulsory drug addiction treatment in Serbia by age

Region	Age at the time the sentence began (years), n (%)					
	< 18	18–25	26–35	36–45	46–55	56–65
Belgrade	0 (0.0)	61 (10.5)	322 (55.5)	176 (30.3)	17 (2.9)	4 (0.7)
Southern and Eastern Serbia	0 (0.0)	23 (8.4)	156 (57.1)	81 (29.7)	11 (4.0)	2 (0.7)
Šumadija and Western Serbia	0 (0.0)	40 (11.4)	224 (63.6)	79 (22.4)	5 (1.4)	4 (1.1)
Vojvodina	2 (0.5)	55 (12.7)	264 (61.0)	97 (22.4)	13 (3.0)	2 (0.5)
Total	2 (0.1)	179 (10.9)	966 (59.0)	433 (26.4)	46 (2.8)	12 (0.7)

The average age of offenders with compulsory drug addiction treatment at the time the sentence began was approximately 33 years ($SD = 6.50$ years), ranging from 15 to 61 years (Table 1). Among the regions of Serbia, the youngest offenders at the time the sentence began were those coming from the Šumadija and Western Serbia region ($M = 32.18$ years, $SD = 6.26$) and the Vojvodina region ($M = 32.19$ years, $SD = 6.47$), while the oldest ones came from the Southern and Eastern Serbia region ($M = 33.65$ years, $SD = 6.48$) and the Belgrade region ($M = 33.62$ years, $SD = 6.63$). The sample of the surveyed population also contains two older juveniles, according to whom a security measure was applied following Art. 23 of the Law on Juvenile Criminal Offenders and Criminal Protection Law².

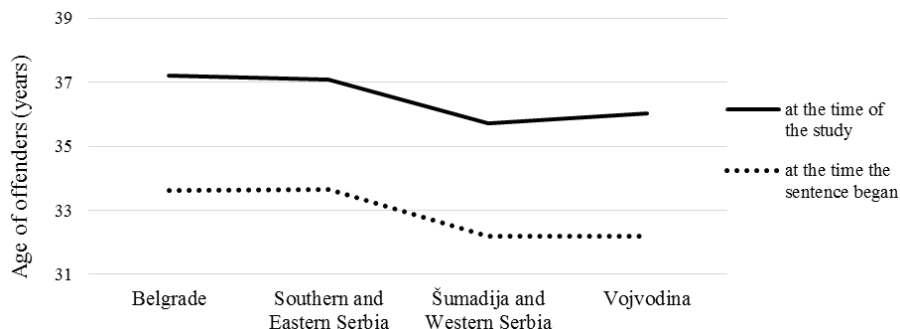
According to the results of the one-way ANOVA, there was a statistically significant difference at the $p < 0.001$ level in the age of offenders at the time the sentence began among different regions of Serbia [$F(3, 1634) = 6.760$, $p < 0.001$]. Despite reaching statistical significance, the actual difference in their mean age at the time the sentence began between these four groups was small ($\eta^2 = 0.01$).

Post-hoc comparisons using the Tukey HSD test indicated that the mean age of the offenders at the time the sentence began was significantly higher in the Southern and Eastern Serbia and the Belgrade regions, on one hand than in the Šumadija and Western Serbia and the Vojvodina regions, on the other hand, at the $p < 0.01$ and $p < 0.05$ levels. In other words, those offenders with compulsory drug addiction treatment who came from the Vojvodina and the Šumadija and Western Serbia regions were on average younger at the time the sentence began from those coming from the Belgrade and the Southern and Eastern Serbia regions for approximately 1.4 years.

Figure 3 shows the given age-related comparisons, one related to the age of offenders with compulsory drug addiction treatment in Serbia at the time of data collection and the other related to the age of offenders at the time the sentence began.

² Law on Juvenile Criminal Offenders and Criminal Protection Law, Official Gazette of the Republic of Serbia, no. 85/05.

Figure 3. Comparative overview of the age of offenders with compulsory drug addiction treatment from different regions of Serbia



The official data on the general population, as given in the 2011 Census of population, households and dwellings, the average age in both the Belgrade and the Vojvodina region is 41.8 years. The average age of the general population in the Šumadija and Western Serbia and the Southern and Eastern Serbia regions is higher, 42.3 and 43.3 years, respectively (Statistical Office of the Republic of Serbia, 2018). It can be noted that the population of offenders with compulsory drug addiction treatment is descriptively younger than the general population in all four regions of Serbia. This should be highlighted because the age was confirmed as an influential factor when it comes to the perception of treatment-related coercion, especially in youth with substance misuse issues, with a further effect on motivation and readiness to change (Bath et al., 2019). Moreover, the early onset of criminal behaviour in drug addicts is a strong indication of future intravenous drug use and more serious criminal activities (Gjeruldsen et al., 2004).

For comparison, the average age of opiate addicts, treated at the Specialized hospital for substance abuse in Belgrade, is 23 years (Kovačević, 2013). In most European countries, the age of drug addicts on treatment ranges from 25 to 29 years (Muscat, 2010). According to the data from 2010 from eight EU countries, the average age of men entering treatment in prisons is 29 years, whereas the average age of those entering treatment in community settings is 30 years (European Monitoring Centre for Drugs and Drug Addiction, 2012). One study conducted in the United States of America has reported that the average age of male patients entering drug abuse treatment programs was 37 years, whereas the average age of females was 34 years, with comparable proportions of those aged 26–35 and 36–45 years (Hser et al., 2003). Other have reported that drug-addicted patients judicially mandated to treatment in California are on average 42 years old (Kelly et al., 2005). In research that included samples from several countries (Australia, England, South Africa and the United States of America), the 21–25 age group was the largest one, except in the United States where 36 years of age or older was the largest group (Taylor et al., 2003). Furthermore, when characteristics of criminal justice and noncriminal justice clients receiving treatment for substance abuse were compared, it was found that those in the mandated treatment group were the youngest, on average (Marshall & Hser, 2002). The data obtained

require some verification in further studies, with one of the possible indicators being the duration of court proceedings.

2.3. Marital status of offenders

Concerning marital status, the majority of offenders with compulsory drug addiction treatment from all four regions were married or cohabiting, as their percentage ranges from 67.8% noted for the Southern and Eastern Serbia region to 77.0% found for the Vojvodina region. Therefore, no statistically significant difference was found in the marital status of offenders with permanent residence in different regions of Serbia [$\chi^2(3) = 6.83, p = 0.077, V = 0.07$].

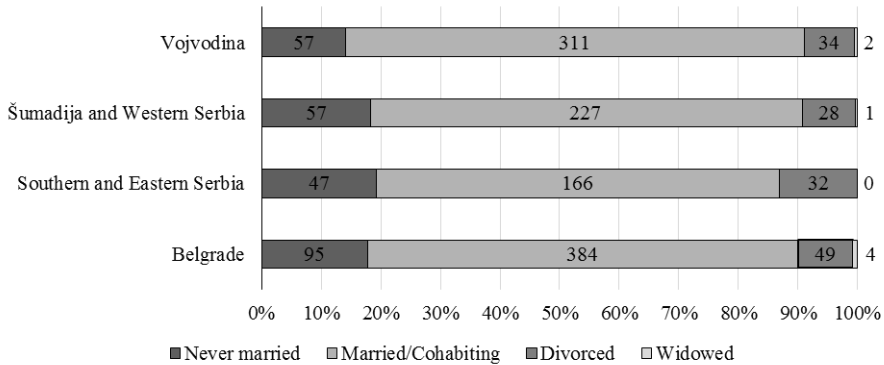
Table 3. Distribution of offenders with compulsory drug addiction treatment in Serbia by their marital status

Region	Marital status, n (%)		Total
	Single	Married/Cohabiting	
Belgrade	148 (27.8)	384 (72.2)	532
Southern and Eastern Serbia	79 (32.2)	166 (67.8)	245
Šumadija and Western Serbia	86 (27.5)	227 (72.5)	313
Vojvodina	93 (23.0)	311 (77.0)	404
Total	406 (27.2)	1088 (72.8)	1494

Note: The category *Single* includes *Never married* ($n = 256$), *Divorced* ($n = 143$) and *Widowed* ($n = 7$) categories. Missing data, $n (%) = 144 (8.8)$.

Different demographic characteristics regarding marital status were found in a sample of outpatients at community clinics in the United States of America, one-third of whom were users with criminal justice referral (DeFulio et al., 2013; Petry et al., 2005), as well as in the research on substance use disorder patients who are mandated to treatment (Kelly et al., 2005). The demographic composition of four country samples (Australia, England, South Africa and the United States) revealed that the small proportion of arrestees were married or living as married (Taylor et al., 2003). Similar was found in a study on prison-based therapeutic community treatment that included 8,550 inmates (Messina et al., 2006).

Figure 4. Marital status of offenders with compulsory drug addiction treatment from different regions of Serbia

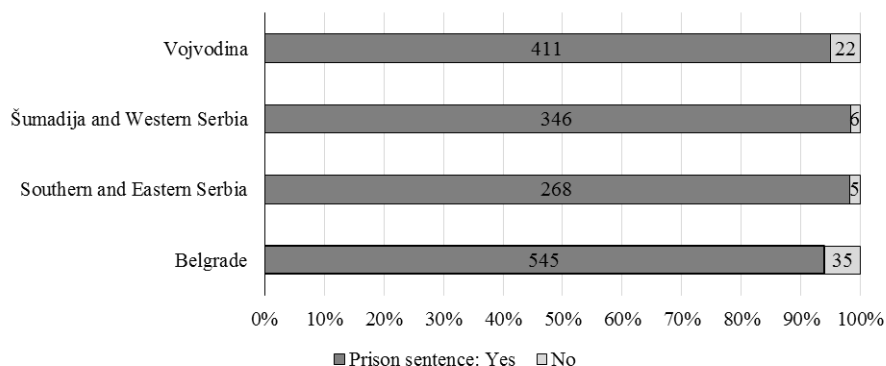


In our sample, more participants were married or cohabiting (66.4%, $n = 1088$) than being never married (15.6%, $n = 256$), divorced (8.7%, $n = 143$) or widowed (0.4%, $n = 7$), as presented in Figure 4. This result is in line with the official data from the 2011 Census (Statistical Office of the Republic of Serbia, 2018). As stated in that report, more than half of the population aged 15 and over was married, with the percentages ranging from 52% in the Belgrade region to 58% in the Šumadija and Western Serbia region. In a study of the prevalence of substance use in prisons, Khalooei and colleagues have cited similar results in terms of marital status, whereby married and widowed people had the highest and the lowest frequency, respectively (Khalooei et al., 2016). These data are important because there are indications that families and marital status play an important role in both the aetiology of addiction and its recovery (Baharudin et al., 2014; Gruber & Taylor, 2006). In relapse prevention, success in setting a social support network raises the chances of long-term treatment success (Baharudin et al., 2014; Ghani et al., 2008).

2.4. Criminological and penological characteristics of offenders

Next, there was a statistically significant difference between offenders with compulsory drug addiction treatment residing in different regions related to whether or not they were sentenced to prison [$\chi^2(3) = 15.10, p = 0.002, V = 0.10$]. In the regions of Belgrade and Vojvodina, 94.0% and 94.9% of offenders were sentenced to prison, in addition to the compulsory drug addiction treatment imposed. On the other hand, there were 98.2% and 98.3% of offenders sentenced to prison in the regions of South and East Serbia and Šumadija and Western Serbia, respectively (Figure 5).

Figure 5. Distribution of offenders with compulsory drug addiction treatment in Serbia in relation to the prison sentence



The length of a prison sentence in the subsample of offenders sentenced to prison, with the imposed compulsory drug addiction treatment, is analyzed next (95.8%, $n = 1570$).

Table 4. Length of a prison sentence in a subsample of offenders with compulsory drug addiction treatment sentenced to prison: descriptive statistics

Prison sentence length (years)		n (%)	M	SD	Min	Max
Region	Belgrade	545 (34.7)	2.37	2.12	0.16	20
	Southern and Eastern Serbia	268 (17.1)	2.72	2.66	0.16	18
	Šumadija and Western Serbia	346 (22.0)	2.36	2.47	0.08	30
	Vojvodina	411 (26.2)	2.78	2.66	0.16	20
Total		1570 (100.0)	2.54	2.45	0.08	30

Note: Only offenders with prison sentence were selected for this analysis.

Due to a skewed distribution, the Kruskal-Wallis test was used to examine differences between the length of the prison sentence of offenders with compulsory drug addiction treatment from all four regions. As presented in Table 4, the length of the prison sentence ranged from 2.36 years (Šumadija and Western Serbia) to 2.78 years (Vojvodina). According to the results, no statistically significant difference was found in the length of the prison sentence of those offenders with permanent residence in different regions of Serbia [$\chi^2(3) = 4.56, p = 0.207$].

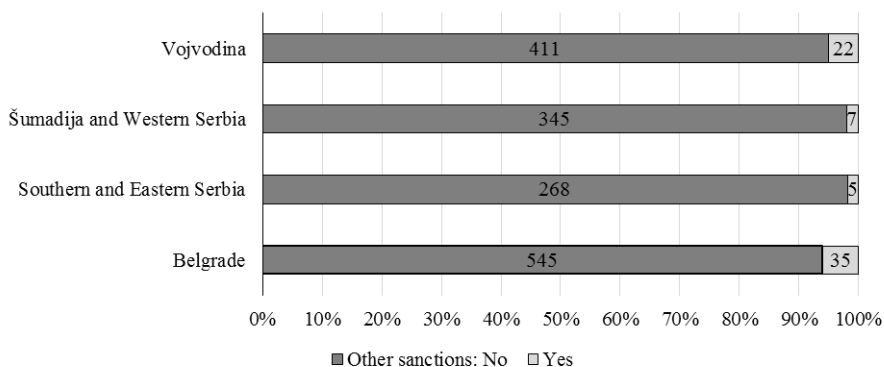
This outcome is expected. Namely, determination of sentence depends on several factors, as defined by the Criminal Code of the Republic of Serbia³ (Art. 54). These are the following: degree of culpability, the motives for committing the offence, the degree of endangering or damaging protected goods, the circumstances under which the offence was committed, the past life of the offender, his personal situation, his behaviour after the commission of the criminal offence and particularly his attitude towards the victim of the criminal offence, and other circumstances related to the personality of the offender.

³ Criminal Code of the Republic of Serbia, *Official Gazette of the Republic of Serbia*, No. 85/2005, 88/2005-corr., 107/2005-corr., 72/2009, 12/2012, 104/2013, 108/2014, 94/2016 and 35/2019.

The following questions were raised: were there any differences related to other sanctions imposed in addition to the aforementioned, and were there any differences related to previous convictions and recidivism?

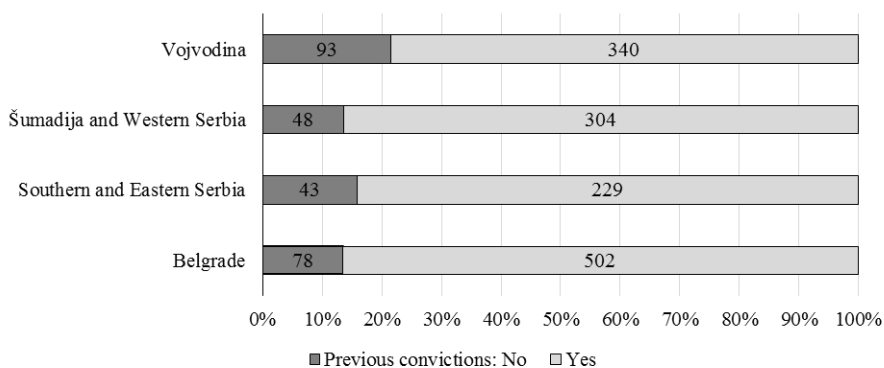
When it comes to other sanctions, the majority of offenders with compulsory drug addiction treatment from all four regions had none, as their percentage ranges from 94.0% noted for the Belgrade region to 98.2% found in the Southern and Eastern Serbia region (Figure 6). However, statistically significant difference at the $p < 0.01$ level was confirmed among the offenders with permanent residence in different regions of Serbia in relation to other sanctions [$\chi^2(3) = 13.73, p = 0.003, V = 0.10$].

Figure 6. Distribution of offenders with compulsory drug addiction treatment in Serbia in relation to other sanctions imposed



The majority of offenders with compulsory drug addiction treatment from all four regions had previous convictions, as their percentage ranges from 78.5% noted for the Vojvodina region to 86.6% found for the Belgrade region (Figure 7). Thus, a statistically significant difference at the $p < 0.01$ level was confirmed among the offenders with permanent residence in different regions of Serbia in relation to previous convictions [$\chi^2(3) = 13.95, p = 0.003, V = 0.10$].

Figure 7. Distribution of offenders with compulsory drug addiction treatment in Serbia in relation to previous convictions



Consequently, the recidivism is examined in the subsample of those offenders with the imposed compulsory drug addiction treatment who had previous convictions. This subsample included 1252 participants (76.4%), due to missing data (7.2%, $n = 118$).

Table 5. Recidivism in a subsample of offenders with compulsory drug addiction treatment who had previous convictions: descriptive statistics

Recidivism	n (%)	M	SD	Min	Max
Region					
Belgrade	459	4.23	2.91	1	17
Southern and Eastern Serbia	211	4.23	3.26	1	15
Šumadija and Western Serbia	284	5.00	3.96	1	26
Vojvodina	298	3.94	2.83	1	17
Total	1252	4.35	3.24	1	26

Note: Only offenders with previous convictions were selected for this analysis ($n = 1252$). Missing data, n (%) = 118 (7.2).

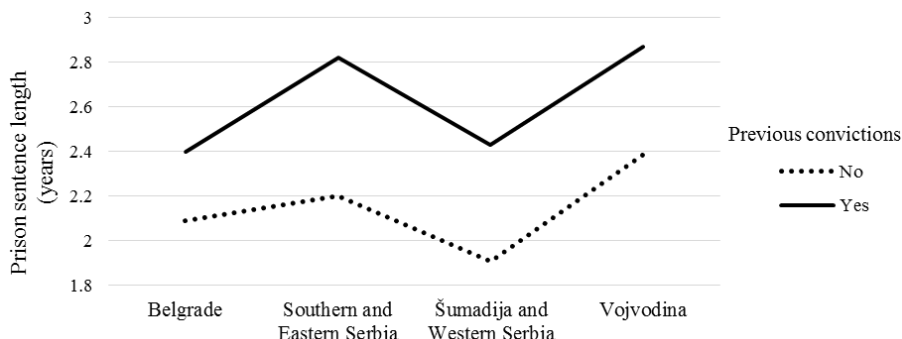
Because a data distribution was skewed, the Kruskal-Wallis test was used to examine differences between the recidivism of offenders with compulsory drug addiction treatment from all four regions (Table 5). The highest frequency of recidivism was noted in the Šumadija and Western Serbia region ($M = 5.00$), while the lowest one was found in the Vojvodina region ($M = 3.94$). According to the outcome of the comparison [$\chi^2(3) = 7.60, p = 0.05$], the difference can be described as marginally significant.

One-quarter of recidivism within three years is caused by substance abuse or positive testing for drug use (Chandler et al., 2009). A total number of arrests and number of times incarcerated are confirmed as higher in male than in female patients entering drug abuse treatment programs (Hser et al., 2003). The reduced post-release recidivism rate was noted after the treatment in the in-prison therapeutic community, especially when followed by the residential phase of community-based aftercare (Hiller et al., 1999). Moreover, legal coercion significantly reduces the risk of dropout in substance abuse treatment, with the greatest effect observed among persons in short-term residential treatment, and the smallest effect in outpatient treatment (Perron & Bright, 2008).

Differences in the frequency of recidivism concerning the offender's region of permanent residence found in our research may have different explanations. First, the improvement of public safety is considered as one of the primary goals of treatment of drug-related offenders (Somers et al., 2012). On the other hand, it should be noted that there is limited evidence on the effectiveness of compulsory drug addiction treatment in the reduction of drug use and criminal recidivism (Werb et al., 2016). Therefore, one possible explanation is the lack of continuity in high-quality programs and services after leaving prison (from the institution to the community) (Hiller et al., 1999).

The sample was divided into two subgroups according to whether the offenders with compulsory drug addiction treatment had previous convictions or not (Figure 8). In the subgroup of those offenders without previous convictions, the length of the prison sentence ranged from 1.91 years (Šumadija and Western Serbia) to 2.39 (Vojvodina). In the subgroup of those offenders who had previous convictions, the lowest length of the prison sentence was 2.40 years (Belgrade), while the highest was 2.87 (Vojvodina). However, no statistically significant difference was found in the length of the prison sentence of offenders with permanent residence in different regions of Serbia, whether they had previous convictions [$\chi^2(3) = 5.02, p = 0.170$] or not [$\chi^2(3) = 1.13, p = 0.769$].

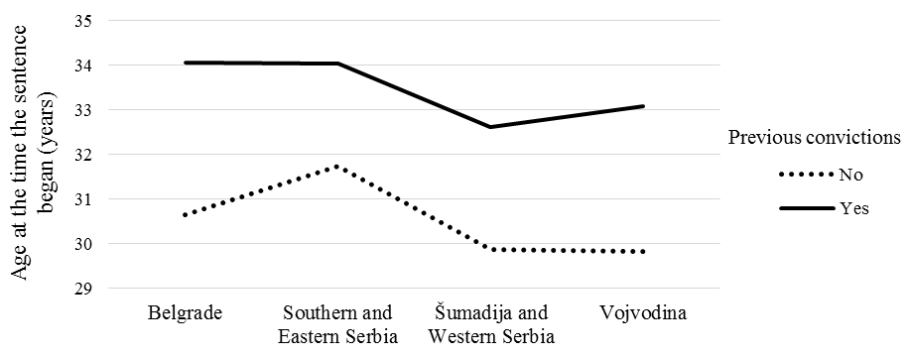
Figure 8. Comparative overview of the length of a prison sentence imposed on offenders with compulsory drug addiction treatment from different regions of Serbia in relation to previous convictions



This result was expected if the provisions of the SCC concerning the manner of sentencing were considered. Besides, the fact that the previous convictions can be taken into account as an aggravating circumstance, following the provisions of Art. 55 of the SCC (for the period before the last changes of the SCC in 2019). Taking into account the recent changes in the SCC (Art. 55 and Art. 55a SCC), it can be expected that this trend will continue in the future.

Next, the age of offenders with compulsory drug addiction treatment at the time the sentence began was compared between the regions in both subgroups, in those who had previous convictions and in those who had not (Figure 9). First, in the subgroup of those offenders without previous convictions, their age at the time the sentence began ranged from 29.83 years (Vojvodina) to 31.74 (Southern and Eastern Serbia), yet with no significant difference [$\chi^2(3) = 3.14, p = 0.371$]. Secondly, in the subgroup of those offenders who had previous convictions, their age at the time the sentence began ranged from 32.62 years (Šumadija and Western Serbia) to 34.07 (Belgrade). Here, a statistically significant difference was confirmed at the 0.01 level [$\chi^2(3) = 17.46, p = 0.001$].

Figure 9. Comparative overview of the age of offenders at the time the sentence began from different regions of Serbia in relation to previous convictions



When it comes to the type of crime, the highest percentage of offenders with compulsory drug addiction treatment was noted in the category of crimes against property (48.3%), followed by the offences against human health (41.7%). It is

noteworthy that no sexual offences were found in this sample (Table 6). Analysis of the distribution of type of crime by region of permanent residence showed that more than a half of offenders from the Belgrade and the Šumadija and Western Serbia regions was committed for the property crimes (52.5% and 52.4%, respectively). On the other hand, the highest percentage of offenders from the Southern and Eastern Serbia region was committed for offences against human health (47.1%). Thus, statistically significant difference at the $p < 0.001$ level was confirmed among the offenders with permanent residence in different regions of Serbia in relation to the type of crime [$\chi^2(12) = 38.95$, $p < 0.001$, $V = 0.10$].

Table 6. Distribution of offenders with compulsory drug addiction treatment in Serbia by the type of criminal offence

Type of criminal offence	Region									
	Belgrade ^a		Southern and Eastern Serbia		Šumadija and Western Serbia ^a		Vojvodina		Total	
	n	%	n	%	n	%	n	%	n	%
Crimes against life and body	2	0.3	7	2.6	10	2.8	6	1.4	25	1.5
Property crimes	304	52.5	103	37.9	184	52.4	198	45.7	789	48.3
Sexual offences	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Offences against human health	232	40.1	128	47.1	130	37.0	192	44.3	682	41.7
Domestic crimes	21	3.6	26	9.6	17	4.8	23	5.3	87	5.3
Other crimes	20	3.5	8	2.9	10	2.8	14	3.2	52	3.2
Total	579	100.0	272	100.0	351	100.0	433	100.0	1635	100.0

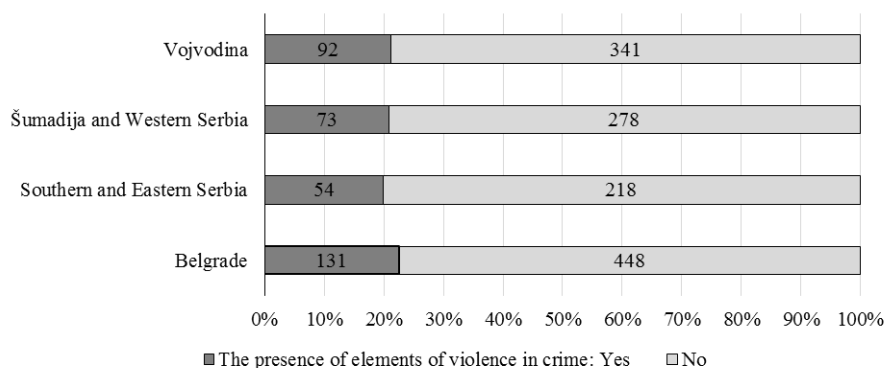
^a Missing data: $n = 1$.

Except for the Southern and Eastern Serbia region, profit-related crimes dominate, but there were also high numbers of offences against human health. The perpetrators of crimes against property (38.8%) and public health (27.6%), which are considered related to the drug use, accounted for a significant percentage of the imprisoned population in Galicia (Spain) in the period from 2001 to 2010 (Miguel-Arias et al., 2017). In a follow-up 25-year study conducted in Norway on criminality in drug addicts, the most frequent were drug offence (medicines act) and theft, robbery, or burglary, followed by fraud, forgery, or receiving stolen good (Gjeruldsen et al., 2004).

When the use of illicit drugs was analyzed in four countries (Australia, England, South Africa and the United States), property offences and offences involving damage to property, alcohol offences, and public disorder offences were the most common. However, an exception was noted in the United States of America because drug-related offences (drug supply, possession, production, importation, exportation and cultivation) were the most frequent (Taylor et al., 2003).

When it comes to the presence of elements of violence in crime, the majority of offenders from all four regions were convicted of offences without elements of violence, with the percentage ranging from 77.4% in the Belgrade region to 80.1% in the Southern and Eastern Serbia region. Therefore, no statistically significant difference was confirmed among the offenders with permanent residence in different regions of Serbia in relation the presence of elements of violence in crime [$\chi^2(3) = 0.99$, $p = 0.805$, $V = 0.03$].

Figure 10. Distribution of offenders with compulsory drug addiction treatment in Serbia in relation to the presence of elements of violence in crime



Higher rates of criminal behaviour that included violent crimes were previously found in criminal records of drug users (Gjeruldsen et al., 2004). Some findings suggest that nearly 50% of violent offences and property offences are committed after drugs or alcohol have been consumed (Haque & Cumming, 2003). This could be explained by the disinhibitory effect of substances that makes the otherwise elevated aggressive and poorly controlled psychopaths more violent and dangerous, mostly among poly-drug users (Radulović, 2013).

2.5. Strengths, limitations and recommendations for future research

The current study is notable for several strengths. First, this study is one of few to address characteristics of offenders with compulsory drug addiction treatment, and the first one which assesses the similarities and the differences between these characteristics between different regions of Serbia. Second, the large sample based on population is rare in research, and potentially increases generalization of the current study's findings. Lastly, excluding data on marital status and recidivism, there are almost no missing data.

Despite these strengths, the current study also possesses several limitations. Differences in the socio-economic, health and demographic factors, cultural characteristics of our society and the structure of personality are not considered in this study. Different demographic and contextual variables related to engagement in criminal behaviours, as well as to engagement in illegal substance misuse are not included. Future studies should also include wide-ranging needs concerning substance use, mental health, attitudes to criminality, motivations for treatment of offenders and territorial jurisdiction of the courts, as well.

CONCLUSION

Information on the characteristics of persons with compulsory drug addiction treatment is insufficient, both in the scientific literature and from conventional data. This study was aimed to analyze and report the characteristics of the population of

persons with this security measure imposed in different regions of Serbia. The obtained results have confirmed that there are similarities and differences between the characteristics of the population of persons with compulsory drug addiction treatment with permanent residence in different regions of Serbia.

The most important similarities are in the prison sentence length and recidivism rate. Similarities were also found in comparisons of the prison sentence length and the age of offenders at the time the sentence began concerning whether they had previous convictions or not.

The differences were confirmed in the gender and marital status distributions, concerning whether offenders were sentenced to prison in addition to the compulsory drug addiction treatment imposed and whether they had other sentences or previous convictions. Also, there were differences in the age of offenders at the time of study and at the time the sentence began.

Regarding the type of criminal offence, more than a half of offenders from the regions of Belgrade and Šumadija and Western Serbia was committed for the property crimes, whereas the highest percentage of offenders from the Southern and Eastern Serbia region was committed for offences against human health.

The identification of the sociodemographic profile of offenders with compulsory drug addiction treatment in different regions of the Republic of Serbia could allow the detection of the target population, as well as the development and implementation of appropriate preventive measures intended for this risk population. Prevention in the field of substance abuse is a set of psychological, social, legal and health activities aimed at preventing damage to health and the occurrence of diseases that cause risky behaviours or use of psychoactive substances. At the same time, prevention campaigns in different regions of the Republic of Serbia need to target the population at risk, intending to eliminate or/and reduce risk factors that increase the likelihood of drugs re-consuming, while strengthening protective factors and promoting healthy lifestyles.

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KARAKTERISTIKE POPULACIJE LICA KOJIMA JE IZREČENA MERA BEZBEDNOSTI OBAVEZNOG LEČENJA NARKOMANA U SRBIJI – REGIONALNI PRIKAZ

U Srbiji, postoji mali broj istraživanja o karakteristikama populacije lica kojima je izrečena mera bezbednosti obaveznog lečenja narkomana. Ovo istraživanje je imalo za cilj da analizira i prikaže karakteristike populacije lica kojima je izrečena ova mera bezbednosti medicinskog karaktera u odnosu na različite regione Srbije, a obuhvaćena je populacija od 1.638 osuđenih lica (91,5% muškog pola, prosečne starosti 36,6 godina). Najvažnije sličnosti su uočene u dužini trajanja kazne zatvora i u stopi recidivizma. Od razlika, potvrđene su one koje su se odnosile na pol, bračni status, izrečenost kazni zatvora ili drugih kazni pored mere, u odnosu na prethodne presude i starost osuđenika u vreme sprovođenja istraživanja i u vreme početka kazne, kao i u odnosu na tip krivičnog dela. Utvrđivanje sociodemografskog profila lica kojima je izrečena mera bezbednosti obaveznog lečenja narkomana u različitim regionima Republike Srbije bi moglo da omogući detektovanje ciljane populacije, kao i razvoj i implementaciju odgovarajućih preventivnih mera.

KLJUČNE REČI: zloupotreba droga / lečenje zavisnosti u zatvorima / mere bezbednosti medicinskog karaktera / osuđena lica / zatvori u Srbiji