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Original scientific paper

Prevalence and the frequency of psychoactive substance consumption of youth in educational institutions – differences with regards to the type of institution and knowledge about psychoactive substances

Neven Ricijaš
Department for Behavioural Disorders
Faculty of Education and Rehabilitation Sciences
University of Zagreb
✉ E-mail: *neven.ricijas@gmail.com*

Valentina Kranželić
Department for Behavioural Disorders
Faculty of Education and Rehabilitation Sciences
University of Zagreb

Lorena Leskovar
Red Cross Krapina
Social mentor

Abstract

Studies confirm that adolescents experiment with the use of psychoactive substances during their growth. The main motivational processes are related to their desire to behave in accordance with social norms, an identity of individuality, to escape from discomfort and self-regulation. Attitudes, beliefs, and knowledge about psychoactive substances have been linked with substance use behaviour, but showed weak to moderate correlation.

The main goal of this study was to gain insight into the frequency of psychoactive substances consumption of young men with behavioural problems placed in educational institutions, while the specific objectives were to explore the differences in the frequency of substance use with regard to the type of institution as well as the level of knowledge about psychoactive substances

A total of N=74 young men placed in the justice system institutions (39,2%) and social welfare institutions (60,8%) participated in the study. The age of the participants ranges from 14 to 21 years of age (Mage=16,90, SDage=1,627). In addition to general socio-demographic data, the instrument measured knowledge about psychoactive substances, as well as the lifetime and past-year prevalence and the frequency of consumption.

The results show a somewhat more frequent psychoactive substances use among young men institutionalized within the justice system, but also among participants with a higher level of knowledge of psychoactive substances. It is important to emphasize that the effects of differences are low to moderate. The results are interpreted in the context of other domestic

and foreign prevalence studies and within the perspective of the importance of knowledge in creating interventions for young people in the area of the prevention of psychoactive substances use.

Keywords: psychoactive substances, drugs, behavioural problems, adolescents, correctional institutions

Introduction

For a number of years studies have proven that adolescents, when maturing, experiment with psychoactive substances. Krnić, Čorak and Modrić (2013) found that between 50 and 60% of high school students come in contact with some type of drugs, mentioning curiosity, fun and peer influence as the most common reason for their use. Recent literature reviews show that the main motivational processes that influence the use of psychoactive substances in adolescence are the ones linked to a desire to act in accordance with social norms, an identity that marks individuality, escape from discomfort and self-regulation (Toumbourou et al., 2007). Some authors mention that experimenting with psychoactive substances in adolescence is an expected behaviour due to neurobiological characteristics of the development of adolescent brain, which refers primarily to underdeveloped functions of the prefrontal cortex and more intensive activity of the limbic system during decision-making process (Bava, Tapert, 2010; Petras, Sloboda, 2014; Spear, 2000; Steinberg, Sheffield Morris, 2001; Steinberg, 2007; Volkow, Koob, McLellan, 2016). Studies unanimously confirm that these are behaviours that can cause significant damage to adolescents' development into healthy, responsible and mature adults (Bava, Tapert, 2010; Chambers, Taylor and Potenza, 2003, Monti et al., 2005). Many drug related studies have been conducted on general population of adolescents (e.g. ESPAD [http://www.espad.org] and HBSC [http://www.hbsc.org]) providing results about lifetime prevalence as follows: alcohol (92,3%), cigarettes (62,1%), inhalants (25,3%), cannabis (21,5%), non-prescription drugs (tranquillizers or sedatives) (4,2%) and ecstasy (2,4%) (The European School Survey Project on Alcohol and Other Drugs [ESPAD], 2016). If this is the situation regarding the usage of psychoactive drugs in general population, question arises about substance use among a specific youth group, those with behavioural problems and those who, due to usage and experimenting with psychoactive substances and criminal offences are placed in justice or social welfare institutions for youth with behavioural problems. This is especially important due to findings of many authors how substance-use represents a culmination of behavioural problems that begin in childhood and early adolescence in the form of low self-regulation and oppositional behaviours (Chassin, Ritter, Trim and King, 2003). Various studies of this population of adolescents (Chassin, 2008; Horgan, 2013; Klatt, 2016; National Institute on Drug Abuse [NIDA], 2016; Putninš, 2009; Sutherland, Sheperd, 2001) underline a higher prevalence of their use, as well as some specific risk factors when compared to general youth population. This fact resulted in a great professional attention from scientists and experts in this field, contributing to the need for targeted preventive and treatment interventions.

Brlas (2010) defines a psychoactive substance as a substance which affects the central nervous system by altering not only mental, but also psychical functioning of a person. Considering the fact that there is no universally accepted definition of psychoactive substances, Table 1 contains some of the most frequently used ones. Their common point is that they are chemical compounds of natural or synthetic origin that change physical and mental processes of the user, and on the other hand they damage the person in question and can also cause addiction.

Table 1 Definitions of psychoactive substances (American Psychiatric Association, 2014 Jukić, 2006; NIDA, 2016; Petz, 2005; Sakoman, 2009; Virno, 1979; World Health Organization [WHO], 2016)

SOURCE	Definition of psychoactive substances
WHO (2016)	• substances that, when used i.e. ingested into the body, affect mental processes such as cognition and uncontrolled emotions • equivalent to the title psychotropic drugs
NIDA (2016)	• chemical compounds that affect the whole body and alter its structure and function and affect brain functioning
Jukić (2006)	• psychoactive substance of natural or synthetic origin taken in order to achieve desired change of mental, i.e. physical state • the goal is to achieve psychological effect, i.e. to eliminate discomfort created by failure to take this substance, and which can cause addiction
Sakoman (2009)	• chemical substances that are either of natural or artificial origin, i.e. those types of toxins with psychoactive effect that can result in addiction if taken on a more permanent basis
Petz (2005)	• psychoactive substances that affect the nervous system and thus alter psychophysical functioning of a person, i.e. one's mental processes such as thinking, stimuli, perception, speech and moods, as well as one's behaviour • pharmacological substances that affect experiencing and behaviour, and can result in health impairment, both physical and mental
Virno (1979)	• any psychotropic i.e. psychoactive substance that is either of natural or artificial origin and can be applied for therapeutic or some other purposes, non-medicinal purposes and that can become, depending on effects that are characteristic to it, manner of ingestion, dosing, frequency of use and the goals of the user, a toxic and harmful factor for the individual or the society, i.e. for the entire mentioned system

There are several categorizations of psychoactive substances (drugs). Some distinguish between substances based on their origin, meaning there are natural or synthetic. Natural psychoactive substances in that context include products of plant, animal or mineral origin, while synthetic ones are the result of a chemical process. Second criterion for distinguishing among psychoactive substances can be their effect on the central nervous system, and here we distinguish between psychostimulants, psychodepressors or depressants, hallucinogens and cannabinoids (Brlas, 2010). No matter the divisions, categorizations and description of the effect of psychoactive substances, it is important to note a key issue and that is a scientific fact that these are substances which affect physical, physiological, psychological and behavioural functioning of people, especially young people whose neurobiological and social – emotional systems are still developing and as such are more susceptible to harmful consequences of use of those substances (Bava, Tapert, 2010; Chambers, Taylor, Potenza, 2003 Monti et al., 2010).

In this paper, we will present the results of some of the most important studies on the prevalence of the psychoactive substance use among general youth population and those with behavioural problems who are, due to their delinquent behaviour, in some form of treatment. The results of selected international and domestic studies are presented in more details in the attachment (Appendix 1 and Appendix 2) where information on the authors of the study, the geographical area or the country where the study was conducted, the sample and the prevalence of substance use is presented. For this purpose, we focused on studies conducted on a more comprehensive or nationally/regionally representative samples.

The results show that the prevalence of the substance use is related to the use of tobacco/cigarettes, alcohol, marijuana and other drugs, as well as legal psychoactive substances. As far as cigarettes are concerned, ESPAD study in 35 European countries (ESPAD, 2016) reports that 46% of young people smoked at least once during their lives, and 33% of them smoked in the last 30 days. High prevalence rates also include African studies that cite 47,5% of lifetime prevalence of

tobacco usage (The South African Medical Research Council [SAMRC], 2013), while one Asian study (WHO, 2003) mentions 32% of lifetime prevalence and 21,6% of past-year prevalence of cigarette use among young people in Thailand. Much lower rates are found in studies in other parts of the world. The Substance Abuse and Mental Health Services Administration [SAMHSA], (2014), on a sample of young people in 50 US countries and Colombia, reports that the past-month prevalence of cigarette use is only 4,9%, similar to Health Canada (2013) data of 4% past-month prevalence and 13% lifetime prevalence of cigarette use. An Australian study (Centre for Behavioural Research, 2012) mentions 16,2% of past-year prevalence and 8.9% of last-month prevalence of cigarette use, while the study from 23 countries of Central and South America report that tobacco/cigarettes was consumed by 10% of young people in the last month (Concise International Chemical Assessment Documents, [CICAD], 2015).

As far as the alcohol use is concerned, presented studies show that alcohol is more consumed psychoactive substance compared to cigarettes. ESPAD study on European data (ESPAD, 2016) shows that 80% of young people have consumed alcohol at least once in their lives, while 48% of them have done so in the last month. In the same study, it was found that young people from Croatia consume it more often, 92% of them during life and 55% of them in the last month. Similar values are seen in Canada where 41% of young people report on alcohol use in the last month (Health Canada, 2013) and in South and Central America where 50% of young people report on its usage (CICAD, 2015). Somewhat lower past-month prevalence rates are found in Australia where the prevalence was 29.1% (Center for Behavioural Research, 2012). The lowest past-month prevalence of 11,5% can be seen in the SAMHSA (2014) study of young people from the United States and Colombia.

Cannabis is the most frequently consumed illegal psychoactive substance, and prevalence studies show 16% of lifetime prevalence in European countries, while in Croatia this rate is higher – 21% (ESPAD, 2016). Similar, even higher, results on the lifetime prevalence of cannabis use were found in Canada – 23,9% (Institute for Mental Health Policy Research, 2015). Other studies report past-year prevalence of cannabis use – for example CICAD (2012) reports 5–20% for youth in South and Central America, Health Canada (2013) 19%, Australian study (Centre for Behavioural Research, 2012) 12%, while African study SAMRC (2013) 13%.

Other psychoactive substances like amphetamine, cocaine, heroin etc. are used significantly less and prevalence rates vary from 1–3% in European youth (ESPAD, 2016; Steketee, Jonkman, Berten and Vettenburg, 2013) to 9,4% for illegal psychoactive substances that also include cannabis in the US and Colombia (SAMHSA, 2014).

Data on "new", so-called legal psychoactive substances are also interesting, (e.g. fake air fresheners / bathing salts, Galaxy etc.). They are included in a smaller number of studies. and in this area, lifetime prevalence of young people consumption from Croatia is 7%, much higher than 4% found in the general population youth in 35 European countries (ESPAD, 2016). These substances are less used in Canada where past-year prevalence rate is 1% (Institute for Mental Health Policy Research, 2015).

In addition to the presented results of international and Croatian studies, it is also interesting to mention Croatian trends from repeated ESPAD studies over time. Thus, ESPAD study from 2015 (ESPAD, 2016) showed positive changes in cigarette and alcohol use compared to ESPAD 2011 study (ESPAD, 2012), both in the area of lifetime and past-month prevalence. As for the use of

other psychoactive substances, an increase in prevalence can be observed when it comes to the use of marijuana or cannabis.

Since this paper presents the results of a study conducted on a specific population of young people, those with behavioural problems placed in educational/correctional institutions, it is worth presenting relevant previous research conducted with this exact population. Appendix 2 contains some relevant studies regarding a population of young people who have committed a criminal offence, i.e. who were in an institution or in some type of probation when studies were being conducted. These are European (the UK, Ireland, Germany etc.) and global studies (Australia, USA, Africa), since there are no Croatian studies regarding drug use with this specific population.

From the overview of the table, significantly more prevalence data for all psychoactive substances - alcohol and cigarettes, and especially for illegal ones such as cannabis, heroin, cocaine, amphetamine and the like are notable with this specific population. We highlight the data from European studies on 96% lifetime and 86% past year prevalence of the use of illegal psychoactive substances (Lader, Singelton and Meltzer, 2003) and 30% of past month prevalence (Klatt, 2016). One Australian study (Putninš, 2001) mentions 81% of past-month prevalence for cannabis, and a range of 10% to 25% for other psychoactive substances (inhalants, stimulants, narcotics, sedatives, hallucinogens), while another Australian study cites 46% of lifetime prevalence for amphetamines and 14% for heroin (Kenny and Nelson, 2008). We could also add a lifetime prevalence for inhalants of 37% and ecstasy 33% in the sample of young Australian offenders (Prichard and Payne, 2005). Similar data are also visible in US studies showing 85% lifetime prevalence for cannabis use and 7% – 25% for psychoactive substances like ecstasy, opiates, inhalants, stimulants, cocaine, sedatives and hallucinogens (Mulvey, Schubert and Chassin, 2010).

Klatt study is also interesting (2016) as it was conducted on a sample of youth in conflict with the law in different types of institutions. Results revealed differences by the type of institution in which adolescents were placed, but it was not possible to conclude which features of institutions affect behaviour associated with the substance use, so further studies in that area were suggested. A study conducted in Ireland with youth in conflict with the law (Horgan, 2013) has shown that they begin using psychoactive substances between the age of 12 and 15 (the median age of initiation of use was 14 years), and the study also states that more than 80 % of substance use (most often alcohol) was associated with committing a criminal offence.

American National Institute for Drug Abuse (NIDA, 2016) study found that out of all imprisoned juveniles, 90% of young men and 80% of girls had disorders associated with the use of psychoactive substances at some point in their lives. Similarly, Sittner Hartshorn, Whitbeck and Prentice (2012) study in the US and Canada has shown that psychoactive substance disorders are very common among adolescents involved in the criminal justice system and state that approximately 70% of them from three US states meet the criteria for mental or psychoactive substance – related disorders. High rates of young people with two or more disorders were also noticed.

When studying this topic, it is important to know about the age of first substance use, since early initiation into risky behaviour and the use of psychoactive substances can also mean more mental health problems, more serious consequences and extremely unfavourable developmental outcomes (Kosterman, Hawkins, Guo, Catalano and Abbott, 2000), especially for young offenders (King and

Chassin, 2007). Longitudinal studies of general population of US adolescents have shown that the first use of psychoactive substances begins in early or middle adolescence, then increases and reaches its peak between ages 18 and 25, then drops down in the twenties, when taking over adult roles (Chen and Kandel, 1995; according to Mauricio et al., 2009). It is also stated that in the case of juvenile offenders, who start with drugs at a very early age, the developmental path of alcohol and cannabis use differs from that of their peers who did not commit criminal offences (Grisso, 2004, Mauricio et al., 2009). With respect to their prosocial peers, young offenders, besides having a five times higher rates of substance use, also have a three times higher rates of psychoactive substance usage-related disorders.

In relation to the aetiology of the substance use and the progression from temporary and occasional use to serious problems and disorders, the studies cite a number of risk and protective factors (Cleveland, Feinberg, Bontempo and Greenberg, 2008; Stone, Becker, Huber and Catalano, 2012). They are essentially classified into key domains of bio-psycho-social functioning of humans and their environment. In this paper, focus will be put on the relationship between knowledge and attitudes/beliefs about psychoactive substances and their use, which is related to the aims of the conducted study.

According to the knowledge-attitudes-behaviour model, Ward et al. (2002) state that behavioural changes include acquiring prior knowledge, changing related attitudes, and ultimately change of behaviour. There have been attempts in studies to correlate attitudes, beliefs and knowledge to behaviours associated with the use of psychoactive substances. Studies conducted in China (Han, Chen and Chen, 2011; Klink, Lin, Elkin, Strigenz and Liu 2011; Lin, Wu, Lai, Shi and Chu, 2010; Wen et al., 2008) have shown only a weak correlation between knowledge and smoking, and behaviour related to smoking, while studies conducted in western countries (Nobile, Anfosso, Pavia and Angelillo, 2000; Rutten, Augustson, Moser, Beckjord and Hesse 2008) have shown that former smokers are two times more aware of smoking hazards than current ones.

International studies state that young people predominantly have positive attitudes about psychoactive substances, especially alcohol, cigarettes and cannabis (Wibberly, 1997; Blue Moon Research and Planning, 2000; Redmond and Devaney, 2010). As far as alcohol is concerned, most young people perceive it as a positive mean of increasing confidence and mood, which helps them forget everyday problems (Redmond and Devaney, 2010). This is also confirmed by a study conducted in Denmark (Miller, 2007) where young people describe alcohol use as a social activity and associate their own use with their social outings and entertainment. In addition, they also talk about the pressure that exists among them, where drinking is closely associated with socialization and popularity, as well as the status in a social group. These trends were confirmed by numerous other studies (Andrews, Tildesley, Hops and Li, 2002; Elek, Miller-Day and Hecht, 2006; Ennett et al., 2016). On the other hand, young people are aware of the consequences of excessive drinking regarding decision-making, judgment and possible aggression and violence. There is a relatively positive attitude towards illegal psychoactive substances, especially when it comes to cannabis, which participants believe should be legalized, a belief which does not apply to other psychoactive substances (Redmond and Devaney, 2010). Cosci, Zaga, Bertoli and Campiotti (2013), in their study with pupils in the general population, found a lack of knowledge about smoking and negative effects of passive smoking on the health. As predictors of early commencement of smoking

they highlight watching teachers and relatives who are smoking, peer influence and the feeling of inferiority. The same authors state that in the general population, non-smokers have a greater knowledge of health risks and passive smoking than smokers, which could indicate that knowledge about cigarettes and the consequences of smoking may contribute to their lesser use, which has not been confirmed in other studies (Ganley and Rosario , 2013, Xu, Liu, Sharma and Zhao, 2015; Santos et al., 2016). More specifically, knowledge about psychoactive substances and their consequences was not correlated with lower usage, but more positive attitudes towards psychoactive substances can be associated with their higher use (Ganley and Rosario, 2013).

Available literature enables us to conclude that young people largely consider substance use to be an individual choice (Redmond and Devaney, 2010). There is also generally positive perception of cannabis and alcohol (Miller, 2007), most young people approve the occasional use of cannabis, believing that it does not have any extremely harmful consequences. As for other psychoactive substances, attitudes vary, but the perception that they are more damaging in relation to cannabis, alcohol and cigarettes is visible (Blue Moon Research and Planning, 2000; Bryan, Moran, Farrell and O'Brien, 2000; Haddad, Shotar, Umlauf and Al-Zyoud, 2010).

It is important to point out that studies confirm how positive attitudes and expectations from psychoactive substances can result in an increased risk of their usage, as well as on transition to problematic use and addiction problems. Especially strong evidence was found for the use of alcohol and cigarettes (Early, 2005; Elliot, Orr, Watson and Jackson, 2005; Kosterman et al., 2001; Tucker, Ellickson and Klein, 2003; based on Stone, Becker, Huber and Catalano, 2012), but also for other, illegal psychoactive substances (Chassin et al., 2003). Elek et al. (2006) cite a series of studies that confirm how norms are important for the substance use, ranging from social ones (what kind of attitudes do parents and peers have on the substance use) to personal (personal attitudes and beliefs about substances), and state that personal favouritism of the substance use is associated with greater usage. Similarly, Barkin, Smith and DuRant (2002) emphasize the link between the intent of using psychoactive substances in the future with their greater usage.

When it comes to the dynamics of the psychoactive substance market, it is considered as an environmental indicator of the situation. The European Monitoring Center for Drugs and Drug Addiction (EMCDDA, 2016) states in its annual report that the European market for psychoactive substances remains resistant, and according to certain indicators, cannabis and stimulant psychoactive substances are experiencing an upward trend. At the same time, high purity and the potency of illegal substances are recorded. The complexity of the market is also discussed recently because with all known illegal psychoactive substances there are more and more new psychoactive substances whose appearance is very difficult to monitor. The aforementioned puts an additional emphasis on the need for systematic studies into the use of psychoactive substances with different populations of children, young adults and adults, in order to offer an adequate preventive and therapeutic response for substance use and their adverse consequences on an individual, family, school and community, but also, no less important, at the wider social level, and above all on the level of legal regulations and social policies.

The aim of this study was to examine the prevalence and frequency of substance use and the knowledge, attitudes and beliefs of young people with behavioural problems in the justice or

social welfare institutions. A literature review reveals a lack of such studies in Croatian, and even wider European context. Therefore, this study has sought to get initial insights with this specific population and focus the attention of scientists and researchers on this important phenomenon.

Study aims

The main aim of this study is to explore the prevalence of substance use, i.e. to gain an insight into the frequency of substance use, among young people with behavioural problems placed in the social welfare and the justice system. Additionally, specific aims are related to the differences in the frequency of substance use with regards to the type of institution, i.e. the system in which young people are placed, as well as their level of knowledge of psychoactive substances.

Methodology

Sample

A total of N=74 young men participated in the study, with n=29 (39,2%) being in the Turopolje Correctional Institution, i.e. the justice system (n = 29; 39,2%), and n=45 (60,8%) in the Community Service Centre Zagreb-Dugave (dislocated Department for placement) and Pahinsko Educational Institution in Ivanac, as two institutions within the social welfare system. The age range of the participants ranges from 14 to 21 years, with the average of M_{age} = 16,90 years (SD_{age} = 1,627)[1].

We checked age differences of the participants with respect to the system within which they are placed and t-test shows significant difference (t = -4,68, p <,001). Young men from the social welfare system (M_{age}=16,12; SD_{age}=1,39) are slightly younger (about 1,5 years), compared to young men placed within the justice system (M_{age}=17,79; SD_{age}=1,42).

The sample is convenient, although the researchers' intent was to include all young men placed in the mentioned institutions, i.e. the population. However, due to the non-systematic factors of objective reasons for the unavailability of young men (e.g. escape from an institution, temporary placement at a different location, etc.), the study was conducted with only young men who were at an institution during the implementation of the questionnaire. It should be noted that all the young men who were available in the institution agreed to participate in the study, but 5 questionnaires were excluded from further data analysis due to the researchers' opinion of inappropriate questionnaire completion.

Instruments

For the purpose of this study, a special questionnaire was constructed in line with some foreign, previously used instruments (e.g. *Questionnaire used in Knowledge, Attitudes and Beliefs Survey* (Bryan et al., 2000), *Vprašalnik za srednjošolce* (Švajger, 2013), *Substance use Questionnare* (Shild, 2016)).

1 Note: Age data exists for N=62 participants, and this data is mostly missing for participants from the Pahinsko (Ivanec) Educational Institution who, by hiding this information, wanted to keep their anonymity when completing the questionnaire.

The questionnaire consisted of the following parts:

1. Data about general socio-demographic data (institution type and age),
2. Questionnaire on the knowledge about psychoactive substances,
3. Questionnaire on lifetime prevalence / frequency of psychoactive substances use,
4. Questionnaire on past-year prevalence / frequency of psychoactive substances use.

General socio-demographic data consists of questions related to the age and type of correctional institution in which young men were placed. Since the study was conducted in small groups, and on a relatively small sample of participants, with the aim of protecting their anonymity and facilitating the sense of security to the participants, socio-demographic variables were not examined in more detail. We also aimed at keeping the questionnaire as short as possible.

Questionnaire on the knowledge about psychoactive substances consists of 20 questions referring to different characteristics of psychoactive substances, effects, consequences of using psychoactive substances and the development of addiction. The participants answered whether a certain statement was correct or incorrect, and they could also note that they did not know the answer to the question. The questionnaire was created on the basis of various brochures and newsletters intended for young people, distributed in Croatian schools, health institutions or other institutions for children and young people. This way the researchers were confident that the questionnaire (knowledge test) contains questions relevant to the population, i.e. information on psychoactive substances that young people should know. Examples of statements are: Tar is a substance in cigarettes that causes addiction; Pot (marijuana) does not create addiction; Alcohol affects everyone equally. Given that one of the aims of this study is testing the differences in the frequency of substance use with regards to their level of knowledge, the respondents were divided into two groups according to the median (Med=9) of the total score in this questionnaire.

Questionnaire on lifetime/past-year prevalence/frequency of psychoactive substances use consists of 17 psychoactive substances that can be categorized into five groups: (1) Nicotine, (2) Alcohol, (3) Illegal psychoactive substances (e.g. speed, cocaine heroin), (4) "Legal" psychoactive substances / new drugs (e.g. fake air fresheners, Galaxy, Atomix), (5) Medicaments and inhalants (e.g. Xanax, Normabel, Apaurin). There were two separate questionnaires containing the same instructions for participants, but with a different time frame to which frequency of use refers to. The first refers to a lifetime, and second to a past-year prevalence/frequency. The question asked was *"Have you ever tried or used a particular substance in the last year (or in a lifetime), and if so, how many times?"* A five-point response scale (never; 1-2 times; 3-4 times; 5-10 times; 10 times and more) was offered.

Process of collecting data

The study was conducted in 2016 with the written consent of the Ministry of Justice and the Ministry of Social Policy and Youth, as well as the Ethics Committee of the Faculty of Education and Rehabilitation Sciences of the University of Zagreb. The *paper-pencil* method was used, participants were formed in very small groups or couples and the average time to complete the questionnaire was 20 minutes. Completion of the questionnaire was fully adapted to each participant in a way

that the questionnaire was read out loud to them if necessary. Prior to the study, all the participants were verbally informed of the purpose, general aim and methods of research, as well as their voluntariness to participate, anonymity and ways of protecting the privacy of data and identity, as well as about possible risks. It was clearly indicated that none of the employees of the institutions in which they are placed will have access to their responses and that they may at any time waive their participation from the study at any time. Participants from the Turopolje Correctional Institution gave written, and participants from the social welfare system gave oral consent to participate. As all young men are over the age of 14, such a method of conducting a study, as well as all other elements, are in line with the Ethics Code of Research Involving Children (2005).

Data analysis

For the purposes of achieving the research aims of this paper, the Mann-Whitney U-test with the effect-size calculation ($r = Z/\sqrt{N}$) was used, together with descriptive statistics (measurements of central values and response frequencies).

Results and discussion

Lifetime prevalence refers to the experience of using psychoactive substances throughout one's life. The results in Table 2 show that almost all participants in this study used cigarettes and alcohol, and the dominant frequency of consumption is 10 times or more throughout life. Due to such a high frequency of lifetime consumption, it is no surprise that there are no differences between young men regarding the type of institution. When it comes to past-year prevalence (Table 3) we can notice a somewhat lower, but still relatively high prevalence of use, however young men in the correctional institution smoked cigarettes more often ($p<,050$; $r=,27$), whereas those in the social welfare system drank beer slightly more often ($p<,010$; $r=,29$), but the effects of differences are quite small.

When it comes to illegal psychoactive substances, lifetime prevalence is the highest with the use of marijuana, with around 70% of the youth in social welfare institutions, and over 90% in the correctional institution (justice system) who used marijuana at least once in their life, with a significant difference in frequency as well ($p<,050$; $r=,25$). Differences have also been found when it comes to the use of cocaine ($p<,050$; $r=,27$), and methadone ($p<,001$; $r=,56$), in a way that the young men from the correctional institution used them more often throughout life, where the effects of difference with methadone are high. Irrespective of the differences and effect sizes, the results of the lifetime prevalence of illegal substances use in this study are quite high, regardless of the institution. The fact that around 33% of young people in the social welfare system, and around 55% of them from the correctional institution tried speed/amphetamines or ecstasy (MDMA) is worrying, and the results are significantly higher than the ones from the general youth population in Croatia. Also, around 20% of young men in this study tried LSD in their lifetime.

Even when it comes to past-year prevalence (Table 3) the use of methadone among young people from the correctional institution is extremely high (over 50%) and it is unclear whether this refers to a medically prescribed methadone or to the abuse of this psychoactive substance. The same should also be noted regarding the questions on the use of tablets. Although the participants

were instructed that the question on the use of tablets referred only to the abuse of medicinal products, i.e. their use without medical prescription and for their psychoactive effects, we cannot be sure that all participants responded in accordance with the instruction. However, the results of lifetime and past-year prevalence indicate that the abuse of medicinal products is more common among young people place within in the justice system than the ones in the social welfare system, where the effects of these differences are moderate. The same goes for the past-year prevalence of fake herbal incense that was used by about 30% of young men in social welfare institutions last year, compared to as many as 80% in the correctional institution, which is, of course, a significant difference with a pretty high effect size ($p<,001$; $r=,46$).

In general, the results show somewhat more frequent use of psychoactive substances among young men in the correctional institution. That could be explained by the fact that this population should have a higher level of criminogenic risk and is slightly older. The gained results regarding the prevalence of the substance use are in line with many of the aforementioned European and global studies (Chassin, 2008; Horgan, 2013; Klatt, 2016; NIDA, 2016; Putninš, 2009; Sittner Hartshorn, Whitbeck, Prentice, 2012; Sutherland, Sheperd, 2001;) that confirm how young people with behavioural problems, who are in some form of community-based treatment or in the criminal justice system, are at a higher risk of using psychoactive substances. Besides, the aforementioned references also point to a greater likelihood of negative transition from experimentation and recreational use towards habitual use, addiction and psychosocial problems associated with the use of drugs in the observed population of young people.

Table 2: Lifetime prevalence of psychoactive substances use and differences in the frequency of use with regard to the placement system (Mann-Whitney U-test)

	Lifetime prevalence of use	Institution	%					MR	MWU	p	r
			Never	1-2X	3-4X	5-10X	10X<				
Nicotine	Cigarettes	SOC.WELFARE	4,8	0,0	4,8	2,4	88,1	34,73	555,0	>,050	
		JUSTICE	0,0	0,0	0,0	3,4	96,6	37,84			
Alcohol	Beer	SOC.WELFARE	4,8	7,1	4,8	2,4	81,0	36,26	556,0	>,050	
		JUSTICE	3,6	10,7	7,1	3,6	75,0	34,36			
	Wine	SOC.WELFARE	4,8	11,9	4,8	2,4	76,2	36,20	600,5	>,050	
		JUSTICE	3,4	6,9	6,9	10,3	72,4	35,71			
	Hard liqueur (e.g. vodka, gin, whisky)	SOC.WELFARE	9,5	4,8	4,8	11,9	69,0	35,56	590,5	>,050	
		JUSTICE	3,4	13,8	3,4	6,9	72,4	36,64			
Illegal psychoactive substances	**Marijuana**	SOC.WELFARE	33,3	7,1	2,4	9,5	47,6	32,19	**449,0**	**<,050**	**,25**
		JUSTICE	**6,9**	**17,2**	**3,4**	**3,4**	**69,0**	**41,52**			
	Hash	SOC.WELFARE	54,8	7,1	2,4	2,4	33,3	32,42,	458,5	>,050	
		JUSTICE	27,6	17,2	0,0	6,9	48,3	41,19			
	Speed/ amphetamines	SOC.WELFARE	66,7	7,1	7,1	0,0	19,0	32,62	467,0	>,050	
		JUSTICE	44,8	10,3	3,4	6,9	34,5	40,90			
	Cocaine	SOC.WELFARE	78,6	9,5	2,4	2,4	7,1	32,17	**448,0**	**<,050**	**,27**
		JUSTICE	**51,7**	**17,2**	**17,2**	**3,5**	**10,3**	**41,55**			
	Ecstasy (MDMA, "molly")	SOC.WELFARE	66,7	9,5	2,4	4,8	16,7	32,79	474,0	>,050	
		JUSTICE	44,8	10,3	3,4	17,2	24,1	40,66			
	LSD	SOC.WELFARE	80,5	4,9	4,9	0,0	9,8	34,83	567,0	>,050	
		JUSTICE	78,6	3,6	3,6	14,3	0,0	35,25			
	Heroin	SOC.WELFARE	95,2	2,4	0,0	0,0	2,4	34,19	533,0	>,050	
		JUSTICE	85,7	10,7	0,0	0,0	3,6	37,46			
	Ketamine	SOC.WELFARE	92,5	0,0	2,5	0,0	5,0	31,11	424,5	>,050	
		JUSTICE	73,1	11,5	7,7	0,0	7,7	37,17			
	ICE (methamphetamine, „meth")	SOC.WELFARE	97,6	0,0	0,0	0,0	2,4	33,87	527,5	>,050	
		JUSTICE	89,3	3,6	0,0	3,6	3,6	36,66			
	Methadone, Subutex, Suboxone	SOC.WELFARE	85,4	7,3	2,4	0,0	4,9	27,13	**251,5**	**<,001**	**,56**
		JUSTICE	**32,1**	**17,9**	**3,6**	**7,1**	**39,3**	**46,52**			
"Legal" / New psychoactive substances	Fake air fresheners (e.g. Galaxy, Atomix)	SOC.WELFARE	52,4	11,9	2,4	7,1	26,2	29,07	318,0	>,050	
		JUSTICE	10,3	10,3	6,9	13,8	58,6	46,03			
Drugs and inhalants	**Pills (anxiety drugs / Sedatives / hypnotic drugs)**	SOC.WELFARE	53,7	4,9	9,8	9,8	22,0	30,35	**383,5**	**<,010**	**,32**
		JUSTICE	**20,7**	**17,2**	**0,0**	**17,2**	**44,8**	**42,78**			
	Inhalants (glue, acetone, paint)	SOC.WELFARE	95,0	0,0	0,0	0,0	5,0	31,85	**454,0**	**<,050**	**,27**
		JUSTICE	**75,0**	**10,7**	**10,7**	**0,0**	**3,6**	**38,29**			

Legend: *Institution = system within which jurisdiction is the institution; Soc, welfare = social welfare system; Just, = justice; MR = mean rank; MWU = Mann-Whitney U-test; p=significance; r = effect size; bold letters mark significant differences*

Table 3: Past-year prevalence of using psychoactive substances and differences in the frequency of use with regard to the placement system (Mann-Whitney U-test)

	Past-year prevalence of use	Institution	%					MR	MWU	p	r
			Never	1-2X	3-4X	5-10X	10X<				
Nicotine	**Cigarettes**	SOC.WELFARE	9,3	2,3	2,3	2,3	83,7	34,14	**522,0**	**<,050**	**,27**
		JUSTICE	**0,0**	**0,0**	**0,0**	**0,0**	**100,0**	**40,00**			
Alcohol	**Beer**	SOC.WELFARE	7,3	7,3	9,8	4,9	70,7	39,94	**412,5**	**<,010**	**,29**
		JUSTICE	**31,0**	**10,3**	**3,4**	**10,3**	**44,8**	**29,22**			
	Wine	SOC.WELFARE	12,2	7,3	9,8	4,9	65,9	37,24	482,0	>,050	
		JUSTICE	25,0	14,3	0,0	7,1	53,6	31,71			
	Hard liqueur (e.g. vodka, gin, whisky)	SOC.WELFARE	16,7	9,5	11,9	7,1	54,8	37,75	535,5	>,050	
		JUSTICE	27,6	13,8	6,9	3,4	48,3	33,47			
Illegal psychoactive substances	Marijuana	SOC.WELFARE	42,9	4,8	9,5	4,8	38,1	33,93	522,0	>,050	
		JUSTICE	27,6	6,9	6,9	13,8	44,8	39,00			
	Hash	SOC.WELFARE	63,4	9,8	0,0	2,4	24,4	34,49	553,0	>,050	
		JUSTICE	63,0	7,4	0,0	7,4	22,2	34,52			
	Speed/ amphetamines	SOC.WELFARE	76,2	2,4	2,4	4,8	14,3	34,23	534,5	>,050	
		JUSTICE	62,1	6,9	10,3	3,4	17,2	38,57			
	Cocaine	SOC.WELFARE	83,3	7,1	0,0	2,4	7,1	34,48	545,0	>,050	
		JUSTICE	72,4	10,3	3,4	6,9	6,9	38,21			
	Ecstasy (MDMA, "molly")	SOC.WELFARE	73,8	7,1	4,8	4,8	9,5	35,02	568,0	>,050	
		JUSTICE	69,0	0,0	13,8	0,0	17,2	37,41			
	LSD	SOC.WELFARE	83,3	11,9	0,0	0,0	4,8	36,33	595,0	>,050	
		JUSTICE	86,2	3,4	6,9	3,4	0,0	35,52			
	Heroin	SOC.WELFARE	97,7	2,3	0,0	0,0	0,0	34,31	529,5	>,050	
		JUSTICE	85,7	10,7	0,0	3,6	0,0	38,59			
	Ketamine	SOC.WELFARE	95,2	0,0	0,0	0,0	4,8	35,24	577,0	>,050	
		JUSTICE	89,7	6,9	0,0	0,0	3,4	37,10			
	ICE (methamphetamine, „meth")	SOC.WELFARE	97,6	0,0	0,0	0,0	2,4	34,86	561,0	>,050	
		JUSTICE	92,9	0,0	0,0	7,1	0,0	36,46			
	Methadone, Subutex, Suboxone	SOC.WELFARE	93,0	2,3	2,3	0,0	2,3	29,88	**339,0**	**<,001**	**,50**
		JUSTICE	**48,3**	**13,8**	**3,4**	**3,4**	**31,0**	**46,31**			
"Legal" / New psychoactive substances	**Fake air fresheners (e.g. Galaxy, Atomix)**	SOC.WELFARE	69,0	9,5	2,4	2,4	16,7	28,67	**301,0**	**<,001**	**,46**
		JUSTICE	**20,7**	**3,4**	**13,8**	**24,1**	**37,9**	**46,62**			
Drugs and inhalants	**Pills (anxiety drugs /sedatives / hypnotic drugs)**	SOC.WELFARE	66,7	9,5	11,9	0,0	11,9	31,43	**417,0**	**<,050**	**,30**
		JUSTICE	**41,4**	**10,3**	**3,4**	**6,9**	**37,9**	**42,62**			
	Inhalants (glue, acetone, paint)	SOC.WELFARE	95,3	2,3	0,0	0,0	2,3	36,69	615,5	>,050	
		JUSTICE	96,6	3,4	0,0	0,0	0,0	36,22			

Legend: *Institution = system within which jurisdiction is the institution; Soc, welfare = social welfare system; Just, = justice; MR = mean rank; MWU = Mann-Whitney U-test; p=significance; r = effect size; bold letters mark significant differences*

As we were interested in the differences of lifetime and past-year prevalence and frequency of substance use among young men with regards to their level of knowledge, we explored whether there were any differences in knowledge between young men in these two systems. T-test results show no differences between them (t=-1,18; p>,050). We also divided all young men into two groups with regards to median (Med=9) of the total knowledge test results; into those with more (n=39) and less knowledge (n=35), and the results of Chi-Square Test also confirm no differences in the level of knowledge between the ones in the justice and the ones in the social welfare system (χ^2=2,45; p>,050). We have checked possible age differences between young men with more and less knowledge, since it was already stated how young men placed in Turopolje Correctional Institution are somewhat older than the ones in the social welfare system. T-test results show no difference in their age (t=0,015; p>,050), and the average age of both groups was M_{age}=16,9 years.

The results in Tables 4 and 5 show some significant differences in individual variables, i.e. specific substances of addiction, in a way that young men with a higher general level of knowledge about psychoactive substances consume them more often. Besides wine and spirits as legal addictive substances, we notice that young men with higher level of knowledge more often consumed hashish (p<,001; r=,35), speed/amphetamines (p<,050; r=,23), cocaine (p<,010; r=,34) and ICE (p<,05;0 r=,26) in their lifetime, i.e. hashish (p<,050; r=,27) and ecstasy (p<,050; r=,27) in the last year. It should be noted that differences in all these variables were moderate and ranged around r=, 30, which is actually very similar to the effects of difference in relation to the type of institution (placement system).

Literature review on psychoactive substances use prevention programs for adolescents point out that information and knowledge on psychoactive substances, as the only and isolated preventive strategies, are not sufficient to prevent the initiation substance use (Hansen, 1992; in Toumbourou et al., 2007). Similarly, Barnea, Teichman and Rahav (1992), in a longitudinal testing of integrative model on the substance use among young people, proved that when it comes to cognitive variables, beliefs play an important role in consumption, while Sheier and Botvin (1997) found something similar results regarding the expected use (probability of future use), but no other study points to the impact of knowledge about psychoactive substances on their use *per se*.

Flay and Petraitis (2003) explain ways in which prevention theories can be the basis of prevention programs, and state that intervention programs aimed at raising the level of knowledge were the first wave of investment in theory-based prevention. This wave took place in the 1960s and it was based on the assumption that if we teach young people about the harmfulness of psychoactive substances and all the risks associated with them, especially long-term ones, it is highly likely that they will refrain from their use. Although this seems logical at first, the authors state that such programs were mostly unsuccessful for several reasons. First, new information on drugs sometimes resulted in higher consumption rates (Goodstadt, 1978; in Flay and Petraitis, 2003). Secondly, long-term consequences are not a tempting "material" for an adolescent brain focused on the short-term, which evaluates events and the world primarily within this short-term context. The third reason is that these programs were focused on only one determinant of the use of psychoactive substances, which is in itself limiting enough, given the complex nature of the aetiology of behavioural problems, and thus the use of psychoactive substances. The fourth reason, given by the same authors, relates to the focus on one-sided display of information that only refers to

the harm and risks of consumption, which is not in line with what they hear from their peers and the media. Add to this the fact that one-sided information about the use does not provide youth reasons why people engage in such behaviour in the first place, and that is often related to what is socially acceptable and expected – for fun, relaxation and socialization with peers. The problem often does not lie in the cause, but in the fact that young people have problems critically processing and differentiating between information "for" and "against", which is also in line with the characteristics of their developmental age. Furthermore, the authors also state that there is a lack of such programs because they are universal, which means that they provide unnecessary information to a large majority of the general population of young people who are not at risk, or are at a very low risk, of using psychoactive substances, whereas those at a higher risk do not receive sufficient targeted interventions (Goodstadt, 1978; in Flay and Petraitis, 2003).

Regarding the knowledge on drugs, Stoelben, Krappweis, Rössler and Kirch (2000) conclude that young people actually gain knowledge through consumption, and not before taking drugs, which is also significant for the interpretation of our results, especially the fact that young people who know more about psychoactive substances also use them more. This could lead to the conclusion that the ones who use drugs more are also more informed about them, they find the topic interesting, because it is the topic and activity that preoccupies them and represents a significant part of their life, and is possibly the backbone of their social life. Consequently, it could be an important element in developing their peer group status, precisely by being informed about different psychoactive substances and their effects. The latter can be particularly important if viewed through the prism of the description of the population with which the study was conducted, i.e. young people with behavioural problems, for whom committing criminal offences and misdemeanours has already become an important part of their peer status. This is also in accordance with the studies of parental, school and peer influences on the use of psychoactive substances and delinquency in adolescence (Garnier and Stein, 2002; Kuntsche and Delgran Jordan, 2006), which shows that similar peer behaviour and socialization with peers who consume psychoactive substances is the strongest predictor of substance use and delinquent behaviour of adolescents.

Table 4: Lifetime prevalence of psychoactive substance use and differences in the frequency of use with regard to the level of knowledge on psychoactive substance effects (Mann-Whitney U-test)

	Lifetime prevalence of use	Institution	%					MR	MWU	p	r
			Never	1-2X	3-4X	5-10X	10X<				
Nicotine	Cigarettes	LESS KNOW.	2,6	0,0	5,3	2,6	89,5	35,26	559,0	>,050	
		MORE KNOW.	3,0	0,0	0,0	3,0	93,9	26,85			
Alcohol	Beer	LESS KNOW.	7,9	10,5	7,9	2,6	71,1	32,68	501,0	>,050	
		MORE KNOW.	0,0	6,3	3,1	3,1	87,5	38,84			
	Wine	LESS KNOW.	7,9	15,8	5,3	7,9	63,2	31,64	**461,5**	**<,050**	**,30**
		MORE KNOW.	**0,0**	**3,0**	**6,1**	**3,0**	**87,9**	**41,02**			
	Hard liqueur (e.g. vodka, gin, whisky)	LESS KNOW.	13,2	13,2	5,3	10,5	57,9	31,01	**437,5**	**<,010**	**,32**
		MORE KNOW.	**0,0**	**3,0**	**3,0**	**9,1**	**84,8**	**41,74**			
Illegal psychoactive substances	Marijuana	LESS KNOW.	26,3	15,8	5,3	7,9	44,7	32,14	480,5	>,050	
		MORE KNOW.	18,2	6,1	0,0	6,1	69,7	40,44			
	Hash	LESS KNOW.	60,5	10,5	2,6	0,0	26,3	29,61	**384,0**	**<,010**	**,35**
		MORE KNOW.	**24,2**	**12,1**	**0,0**	**9,1**	**54,5**	**43,36**			
	Speed/ amphetamines	LESS KNOW.	68,4	5,3	5,3	5,3	15,8	31,95	**473,0**	**<,050**	**,23**
		MORE KNOW.	**45,5**	**12,1**	**6,1**	**0,0**	**36,4**	**40,67**			
	Cocaine	LESS KNOW.	81,6	10,5	5,3	0,0	2,6	30,55	**420,0**	**<,010**	**,34**
		MORE KNOW.	**51,5**	**15,2**	**12,1**	**6,1**	**15,2**	**42,27**			
	Ecstasy (MDMA, "molly")	LESS KNOW.	68,4	5,3	2,6	10,5	13,2	32,21	483,0	>,050	
		MORE KNOW.	45,5	15,2	3,0	9,1	27,3	40,36			
	LSD	LESS KNOW.	86,1	2,8	5,6	0,0	5,6	32,78	514,0	>,050	
		MORE KNOW.	72,7	6,1	3,0	12,1	6,1	37,42			
	Heroin	LESS KNOW.	94,6	2,7	0,0	0,0	2,7	34,42	570,5	>,050	
		MORE KNOW.	87,9	9,1	0,0	0,0	3,0	36,71			
	Ketamine	LESS KNOW.	91,2	2,9	2,9	0,0	2,9	31,38	472,0	>,050	
		MORE KNOW.	78,1	6,3	6,3	0,0	9,4	35,75			
	ICE (methamphetamine, „meth")	LESS KNOW.	100,0	0,0	0,0	0,0	0,0	33,00	**522,0**	**<,050**	**,26**
		MORE KNOW.	**87,9**	**3,0**	**0,0**	**3,0**	**6,1**	**37,18**			
	Methadone, Subutex, Suboxone	LESS KNOW.	73,0	10,8	0,0	0,0	16,2	31,88	476,5	>,050	
		MORE KNOW.	53,1	12,5	6,3	6,3	21,9	38,61			
"Legal" / New psychoactive substances	Fake air fresheners (e.g. Galaxy, Atomix)	LESS KNOW.	50,0	5,3	2,6	10,5	31,6	31,34	450,0	>,050	
		MORE KNOW.	18,2	18,2	6,1	9,1	48,5	41,36			
Drugs and inhalants	Pills (anxiety drugs / sedatives / hypnotic drugs)	LESS KNOW.	48,6	5,4	8,1	13,5	24,3	32,24	490,0	>,050	
		MORE KNOW.	30,0	15,2	3,0	12,1	39,4	39,15			
	Inhalants (glue, acetone, paint)	LESS KNOW.	91,4	5,7	0,0	0,0	2,9	32,83	519,0	>,050	
		MORE KNOW.	81,8	3,0	9,1	0,0	6,1	36,27			

Legend: *Less know, = less knowledge; More know,= more knowledge; MR = mean rank; MWU = Mann-Whitney U-test; p=significance; r = effect size*

Table 5: Past-year prevalence of psychoactive substance use and differences in the frequency of use with regard to the level of knowledge on psychoactive substance effects (Mann-Whitney U-test)

	Past-year prevalence of use	Institution	%					MR	MWU	p	r
			Never	1-2X	3-4X	5-10X	10X<				
Nicotine	Cigarettes	LESS KNOW.	7,9	2,6	2,6	2,6	84,2	34,36	564,5	>,050	
		MORE KNOW.	2,9	0,0	0,0	0,0	97,1	38,90			
Alcohol	Beer	LESS KNOW.	10,8	13,5	10,8	8,1	56,8	35,27	602,0	>,050	
		MORE KNOW.	24,2	3,0	3,0	6,1	63,6	35,76			
	Wine	LESS KNOW.	14,3	8,6	11,4	11,4	54,3	34,00	560,0	>,050	
		MORE KNOW.	20,6	11,8	0,0	0,0	67,6	36,03			
	Hard liqueur (e.g. vodka, gin, whisky)	LESS KNOW.	21,6	13,5	10,8	8,1	45,9	34,27	565,0	>,050	
		MORE KNOW.	20,6	8,8	8,8	2,9	58,8	37,88			
Illegal psychoactive substances	Marijuana	LESS KNOW.	40,5	10,8	10,8	5,4	32,4	32,80	510,5	>,050	
		MORE KNOW.	32,4	0,0	5,9	11,8	50,0	39,49			
	Hash	LESS KNOW.	77,1	5,7	0,0	0,0	17,1	30,00	**420,0**	**<,050**	**,27**
		MORE KNOW.	**48,5**	**12,1**	**0,0**	**9,1**	**30,3**	**39,27**			
	Speed/ amphetamines	LESS KNOW.	78,4	5,4	2,7	2,7	10,8	33,03	519,0	>,050	
		MORE KNOW.	61,8	2,9	8,8	5,9	20,6	39,24			
	Cocaine	LESS KNOW.	86,5	8,1	2,7	0,0	2,7	33,04	519,5	>,050	
		MORE KNOW.	70,6	8,8	0,0	8,8	11,8	39,22			
	Ecstasy (MDMA, "molly")	LESS KNOW.	83,8	2,7	5,4	0,0	8,1	31,76	**472,0**	**<,050**	**,27**
		MORE KNOW.	**58,8**	**5,9**	**11,8**	**5,9**	**17,6**	**40,62**			
	LSD	LESS KNOW.	91,9	5,4	0,0	0,0	2,7	33,36	531,5	>,050	
		MORE KNOW.	76,5	11,8	5,9	2,9	2,9	38,87			
	Heroin	LESS KNOW.	94,6	5,4	0,0	0,0	0,0	35,39	606,5	>,050	
		MORE KNOW.	91,2	5,9	0,0	2,9	0,0	36,66			
	Ketamine	LESS KNOW.	97,3	0,0	0,0	0,0	2,7	34,49	573,0	>,050	
		MORE KNOW.	88,2	5,9	0,0	0,0	5,9	37,65			
	ICE (methamphetamine, „meth")	LESS KNOW.	100,0	0,0	0,0	0,0	0,0	34,00	555,0	>,050	
		MORE KNOW.	90,9	0,0	0,0	6,1	3,0	37,18			
	Methadone, Subutex, Suboxone	LESS KNOW.	78,9	7,9	0,0	0,0	13,2	35,09	592,5	>,050	
		MORE KNOW.	70,6	5,9	5,9	2,9	14,7	38,07			
"Legal" / New psychoactive substances	Fake air fresheners (e.g. Galaxy, Atomix)	LESS KNOWLEDGE	59,5	2,7	8,1	2,7	27,0	33,45	534,5	>,050	
		MORE KNOW.	38,2	11,8	5,9	20,6	23,5	38,78			
Drugs and inhalants	Pills (anxiety drugs / Sedatives / hypnotic drugs)	LESS KNOW.	59,5	10,8	8,1	2,7	18,9	34,53	574,5	>,050	
		MORE KNOW.	52,9	8,8	8,8	2,9	26,5	37,60			
	Inhalants (glue, acetone, paint)	LESS KNOW.	97,4	0,0	0,0	0,0	2,6	35,97	626,0	>,050	
		MORE KNOW.	94,1	5,9	0,0	0,0	0,0	37,09			

***Legend:** Less know, = less knowledge; More know,= more knowledge; MR = mean rank; MWU = Mann-Whitney U-test; p=significance; r = effect size*

Limitations of the study

The majority of research challenges and study limitations are related to all the typical challenges of using the self-report method, which Ručević (2008) well presented and systematized in her paper. This primarily refers to the problems of reliability and validity of the data when using this methodology due to the problems with recalling, understanding the statements, honesty of the participants, their potential fatigue, etc. In order to overcome all these challenges as much as possible, it was important to train the researchers in conducting the study, especially because they were in contact with young men with behavioural problems. They had to know how to provide them with a psychologically safe space, build trust in the anonymity and confidentiality of all the data. Researchers also provided a sufficient number of trained interviewers who were available if some question needed to be clarified or additionally explained, but also in case questionnaire needed to be read due to literacy issues.

One of the study limitations is certainly related to a convenient sample of participants, although the intention of the researchers was to include the population of young men in the given institutions. This challenge is difficult to overcome due to realistic (for example, runaways or justified absences of young men from the institution) and ethical reasons (the right of juveniles to refuse to participate in the study). However, since these are unsystematic factors of participant selection, the gained results cannot be generally applied to all juveniles in the social welfare/justice system. It should also be noted that only young men participated in the research, which means that the results cannot be generalized to young women with behavioural problems. By dividing participants into those with more and less knowledge we got certain indicators of the tested differences. However, the limitations of the study refer to the tendency of grouping the results around mean values. Larger samples (>100 participants) would enable categorization into quartiles, which could provide an insight into potential differences between extremes, i.e. test the differences between the first and fourth quartile with respect to the level of knowledge.

Since this study, from the prevalence aspect, gave detailed data on the use of various psychoactive substances among difficult-to-reach population, i.e. population that is often not included in the studies of the general population of young people, on the basis of the given frequent means, future studies should focus more on correlates in the context of other socio-demographic and psychological variables (for example age and context of first use, motivation, personality traits, family heredity etc.), which would further explain the underlying mechanisms of the behavioural problems development.

Conclusion

Two important findings stem from this study. One refers to the data on high prevalence and frequency of substance use among young men with behavioural problems in social welfare and justice institutions in Croatia, and the other to the finding that more knowledge on psychoactive substances is linked to their increased use. Both messages give valuable implications for planning and implementing an entire spectrum of interventions in the area of psychoactive substances use among young men with behavioural problems.

Preventive interventions in the field of psychoactive substances use, regarding the level of prevention (universal – for general population, selective – population at a higher risk and indicated – population with already developed behaviour of substance use, but not addiction that would require treatment interventions), can have different goals, some of which are (Cuijpers, 2003): (1) increasing the knowledge about psychoactive substances in adolescents; (2) reducing the use of psychoactive substances; (3) delaying the onset of first use; (4) reducing abuse of psychoactive substances, and (5) minimizing the harm caused by the use of psychoactive substances.

The studies on the effectiveness of prevention programs in the field of psychoactive substance use clearly show that information itself is not an adequate component of programs (Toumbourou et al., 2007). It is a well-known fact, scientifically proven in the past 15 – 20 years, that programs solely based on providing information can also have harmful effects, especially the increased use of substances (Werch and Owen, 2002).

Since information is and should be an important integral part of comprehensive interventions, primarily because it enables the development of critical thinking about (un)healthy behaviour and consequences of behavioural choices, it should be incorporated in an appropriate way. This is mostly done in combination with other program components and by encouraging critical thinking (Faggiano et al., 2005). Thus Lemstra et al. (2010) state that alcohol and marijuana use prevention programs aimed at adolescents aged 10 – 15 years, which, along with information, also featured the development of peer resistance skills, self-management skills and social skills training, were the most effective in the long term. Based on this, the authors concluded that, although significantly more demanding in terms of preparation and implementation, comprehensive multi-factor interventions are more likely to have a long-term impact on behaviour change. Some authors state that, in order to get final and practically significant conclusions, it is important to conduct impact evaluation studies on populations with different risk levels. Previous studies show that something that is effective at the universal level (and in the general population), is not necessarily effective with populations at a higher risk, or with those with already existing problems related to substance use (Elliot at al., 2005). The same applies to young people who use psychoactive substances and also have other mental health problems (Salve et al., 2012). One analysis of prevention programs with populations at risk (Roe and Becker, 2005) shows that the most effective were the ones based on the development of social skills (at least as short-term effects) and the intensive multi-component programs in communities. The age between 11 and 13 years proved to be the most appropriate for inclusion in preventive interventions with populations at risk. By reviewing the literature on the effectiveness of universal, selective and indicated prevention programs, Cuijpers (2003) concludes that there is not enough evidence of effectiveness for selective and indicated programs in the school

environment, and refers to further research of the characteristics of the population at a higher risk. The same author states that the majority of studies are focused on the effects of programs on the increase of knowledge and reduction of use, but there is a lack of studies that would find evidence on how the number of new cases of problematic use of psychoactive substances can be reduced. Following a systematic literature review, Faggiano et al. (2005) conclude that the most effective programs in the school environment are the ones based on the skills development, while programs based on knowledge and emotional education still require further research and their effectiveness is yet to be proven.

Based on a comprehensive literature review in the field, Cuijpers (2003) gives some quality criteria for evidence-based substance use prevention programs, which refers to the social influence model (influence of peers, media, parents, etc.) as the best basis for the content of programs according to available knowledge, then focus on norms, commitment to non-use and intent of non-use, the need to add interventions in the community that strengthen the effects of the program and inclusion of social skills development program that can also improve the effects of the program.

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APPENDIX 1:

Table overview of studies on the prevalence of the psychoactive substance use among the general young/adolescent population (Afolabi, Ayilara, Akinemi, Ola- Olarun, 2012; Centre for Behavioural Research, 2012; ESPAD, 2007, 2012, 2016; Health Canada, 2013; Institute for Mental Health Policy Research, 2015; Li et al., 2013; SAMHSA, 2014; SAMRC, 2013; Steketee et al., 2013; WHO, 2002, 2003; The Gallup Organization, 2011)

Authors	Country	Sample	Sample characteristics	Psychoactive substances	Percentage
Gallup Organization, 2011	27 European countries	12,000 young people	A random sample of young people aged 15 to 24	Illegal psychoactive substances, of the cannabis type	12% (lifetime prevalence) 8% (past-year prevalence) 6% (past-month prevalence)
				Legal psychoactive substances	5% (lifetime prevalence)
Steketee et al., 2013	30 European countries	67,000 students	7th and 9th grade students Mage=13.95	Alcohol	60.6% (lifetime prevalence) 27.7% (past-month prevalence)
				Illegal psychoactive substances, of the cannabis type	9.7% (lifetime prevalence) 4% (past-month prevalence)
				Illegal psychoactive substances, of the heroin, cocaine, ecstasy type	2% (lifetime prevalence) 0.8% (past-month prevalence)
ESPAD, 2007	12 European countries	-	Persons under the age of 15	Cigarettes	7-14% (daily use)
				Alcohol	33-36% (Denmark, Estonia, UK, Finland (lifetime prevalence)
				Illegal psychoactive substances, of the cannabis type	0-8%
				Inhalants*	13% UK* (lifetime prevalence)
ESPAD, 2012	36 European countries	103,076 young people	National representative sample of students Mage=15.8	Cigarettes	54% (lifetime prevalence) 28% (past-month prevalence)
				Alcohol	87% (lifetime prevalence) 79% (past-year prevalence) 57% (past-month prevalence)
				Illegal psychoactive substances	18% (lifetime prevalence) *
ESPAD, 2016	35 European countries	96,043	National representative sample of students aged 16	Cigarettes	46% (lifetime prevalence) 21% (past-month prevalence)
				Alcohol	80% (lifetime prevalence) 48% (past-month prevalence) 13% intoxicated in the last month
				Illegal psychoactive substances Cannabis	18% (lifetime prevalence) 16% (lifetime prevalence)
				New psychoactive substances	4% (lifetime prevalence)
SAMHSA, 2014	50 American countries and Colombia	17,046	National representative sample of young people aged 12 to 17*	Cigarettes	4.9% (past-month prevalence) 24.1% (daily users)
				Alcohol	11.5% (past-month prevalence) 6.1% binge drinking (past-month prevalence)
				Illegal psychoactive substances	9.4% (past-month prevalence)

Authors	Country	Sample	Sample characteristics	Psychoactive substances	Percentage
Health Canada, 2013	Canada	47,203	National representative sample of young people from 6th to 12th grade	Cigarettes	13% (lifetime prevalence) 4% (past-month prevalence)
				Alcohol	41% (past-month prevalence) 29% binge drinking (past-year prevalence)
				Marijuana Ecstasy	19% (past-year prevalence) 3% (past-year prevalence)
				Salvia Divinorum*	2% (past-year prevalence)
				New psychoactive substances* (BZP, TFMPP, cathinones)	1% for each of these substances (past-year prevalence)
Institute for Mental Policy Research, 2015	Canada, Ontario	10,426	Stratified cluster sample of young people between the 7th and 12th grade	Cigarettes	19.1% (lifetime prevalence) 8.6% (past-year prevalence)
				Alcohol	67.9% (lifetime prevalence) 45.8% (past-year prevalence) 17.6% binge drinking (past-month prevalence)
				Cannabis	23.9% (lifetime prevalence) 21.3% (past-year prevalence)
				Synthetic cannabinoids Ecstasy Psilocybin or Mescaline Cocaine	1.3% (past-year prevalence) 5.4% (past-year prevalence) 3.2% (past-year prevalence) 2.5% (past-year prevalence)
Centre for Behavioural Research, 2012	Australia	24,854	Random national representative sample of young people aged 12 to 17	Cigarettes	16.2% (past-year prevalence) 8.9% (past-month prevalence) 50,7% (past-year prevalence)
				Alcohol	29.1% (past-month prevalence) 14.8% (lifetime prevalence)
				Cannabis	12.7% (past-year prevalence) 6.8% (past-month prevalence)
CICAD, 2015	South and Central America (23 countries)	N/A	National representative sample of young people aged 10 to 19	Alcohol	50% (past-month prevalence)
				Cigarettes	10% (past-month prevalence)
				Cannabis	5-20% (past-year prevalence)
WHO, 2002	South Africa	4,325	Representative sample of young people between the 8th and 11th grade	Cigarettes	36.2% (lifetime prevalence) 14.8% (past-month prevalence)
SAMRC, 2013	Western Cape Province, Africa	20,227	Representative sample of young people between the 8th and 11th grade	Tobacco	47,4% (lifetime prevalence) 40% (past-year prevalence) 66% (lifetime prevalence)
				Alcohol	59.1% (past-year prevalence) 35.1% (past-month prevalence) 23.6% (lifetime prevalence)
				Cannabis	13% (past-year prevalence)
Afolabi et al., 2012	Nigeria, Africa	800	Representative sample of young people aged 12 to 20 Mage= 13.2	Cigarettes	17.6% (past-month prevalence)
				Alcohol	15.7% (past-month prevalence)
				Cannabis	1.1% (past-month prevalence)
				Cocaine	5.7% (past-month prevalence)
Li et al., 2013	China, Asia	2,668	Random sample of young people from China aged 15 to 23 M age= 17.7	Cigarettes	2% (past three months) 4% (past three months)
				Alcohol	1.4% (past three months)
				Injecting drugs Oral and nasal use	1.2% (past three months)

Authors	Country	Sample	Sample characteristics	Psychoactive substances	Percentage
WHO, 2003	Thailand	617	Representative sample of young people aged 10 to 21 Mage=15.1	Cigarettes	32% (lifetime prevalence) 21.6% (past-year prevalence) 20.7% (past-month prevalence)
				Wine	22.5% (lifetime prevalence) 11.7% (past-year prevalence) 5.4% (past-month prevalence)
				Beer	35.1% (lifetime prevalence) 23 % (past-year prevalence) 15.3% (past-month prevalence)
				Cannabis	9% (lifetime prevalence) 0.9% (past-year prevalence)
				Amphetamines	3.2% (lifetime prevalence) 1.4% (past-year prevalence) 0.9% (past-month prevalence)
ESPAD, 2012	Croatia	3,002	Stratified random sample of students aged 16	Cigarettes	70% (lifetime prevalence) 41% (past-month prevalence)
				Alcohol	93% (lifetime prevalence) 85% (past-month prevalence)
				Illegal psychoactive substances Inhalants	19% (lifetime prevalence)
				Cannabis	18% (lifetime prevalence) 13% (past-month prevalence)
				Ecstasy	2% (lifetime prevalence) 28% (lifetime prevalence)
ESPAD, 2016	Croatia	2,558	Stratified random sample of students aged 16	Cigarettes	62% (lifetime prevalence) 33% (past-month prevalence)
				Alcohol	92% (lifetime prevalence) 55% (past-month prevalence)
				Illegal psychoactive substances	22% (lifetime prevalence)
				Cannabis	21% (lifetime prevalence)
				Ecstasy Amphetamines Methamphetamine Cocaine LSD Heroin GHB Inhalants	2% (lifetime prevalence) 3% (lifetime prevalence) 1% (lifetime prevalence) 2% (lifetime prevalence) 2% (lifetime prevalence) 1% (lifetime prevalence) 1% (lifetime prevalence) 25% (lifetime prevalence)
				Legal new psychoactive substances	7% (lifetime prevalence)

APPENDIX 2:

Table overview of studies on the use of psychoactive substances among the young/adolescent population with behavioural problems (Hammersley, Marslan and Reid, 2003; Horgan, 2013 Kenny and Nelson, 2008; Klatt, 2016; Lebeau-Craven et al. 2003; Mulvey et al., 2010; Ogunwale, 2011; Prichard and Payne, 2005; Putninš, 2001; Youth Justice Board, 2004)

Authors	Country	Sample	Sample characteristics	Psychoactive substances	Percentage
Hammersley et al., 2003	England and Wales	237 young offenders	Representative population sample aged 12 to 18	Alcohol	91% (lifetime prevalence)
				Cigarettes	85% (lifetime prevalence)
				Cannabis	86% (lifetime prevalence)
				Ecstasy	44% (lifetime prevalence)
				Amphetamines	41% (lifetime prevalence)
				Methadone	8% (lifetime prevalence)
				New psychoactive substances	37% (lifetime prevalence)
Lader et al., 2003	England and Wales	169 young offenders	Representative population sample aged 16 to 20	Alcohol	90% (past-year prevalence- before going to prison)
				Cigarettes	19% (current cigarette smokers) 72% (past-month prevalence)
				Illegal psychoactive substances	86% (past-year prevalence) 96% (lifetime prevalence)
				Cannabis	95% (lifetime prevalence) 78% (past-year prevalence)
				Heroin	34% (lifetime prevalence) 24% (past-year prevalence)
				Methadone	20% (lifetime prevalence) 8% (past-year prevalence)
				Amphetamine	62% (lifetime prevalence) 38% (past-year prevalence)
				Cocaine	39% (lifetime prevalence) 26% (past-year prevalence)

Authors	Country	Sample	Sample characteristics	Psychoactive substances	Percentage
Horgan, 2013	Ireland	721 young offenders	Young offenders up to 20 years of age on probation, M and F	Alcohol	39.8% M and 43.6% F (in the past week)
				Cannabis	20.4% M and 14.5% F (in the past week)
				Ecstasy	2.6% M and 1.8% F (in the past week)
				Amphetamines	2.1% M (in the past week)
				Cocaine	1.7% M and 1.8% F (in the past week)
				Methadone	3.6% (in the past week)
Youth Justice Board, 2004	Great Britain	511 juvenile offenders	Young offenders aged 12 to 17	Cannabis	94% (lifetime prevalence) 83% (past-year prevalence)
				Ecstasy	60% (lifetime prevalence)
				Cocaine	45% (lifetime prevalence)
				Heroin	17% (lifetime prevalence)
Klatt, 2016	Germany	865 young offenders	Young offenders from 5 institutions aged 14 to 25	Illegal psychoactive substances	30% (past-month prevalence)
Putninš, 2001	Adelaide, Australia	900 young offenders	Young offenders aged 11 to 20 (M and F)	Alcohol	73% (past-month prevalence)
				Marijuana	81% (past-month prevalence)
				Hallucinogens	25% (past-month prevalence)
				Sedatives	23% (past-month prevalence)
				Narcotics	10% (past-month prevalence)
				Stimulants	22% (past-month prevalence)
				Inhalants	11% (monthly prevalence)
Prichard and Payne, 2005	Australia	371 young offenders	Young offenders aged 11 to 17 in prison M and F Mage= 16	Alcohol	97% (lifetime prevalence)
				Cannabis	94% (lifetime prevalence)
				Amphetamines	50% (lifetime prevalence)
				Inhalants	37% (lifetime prevalence)
				Ecstasy	33% (lifetime prevalence)

Authors	Country	Sample	Sample characteristics	Psychoactive substances	Percentage
Kenny and Nelson, 2008	South Wales, Australia	800 young offenders	Young offenders on probation (M and F) Mage=17	Alcohol	97% (lifetime prevalence)
				Cigarettes	81% (lifetime prevalence)
				Cannabis	89% (lifetime prevalence)
				Amphetamines	46% (lifetime prevalence)
				Cocaine	18% (lifetime prevalence)
				Heroin	14% (lifetime prevalence)
Mulvey et al., 2010	Philadelphia and Phoenix, USA	1,354 young offenders	Young offenders aged 14 to 17	Alcohol	80% (lifetime prevalence)
				Cannabis	85% (lifetime prevalence)
				Hallucinogens	25% (lifetime prevalence)
				Cocaine	23% (lifetime prevalence)
				Sedatives	21% (lifetime prevalence)
				Stimulants	15% (lifetime prevalence)
				Inhalants	13% (lifetime prevalence)
				Opiates	7% (lifetime prevalence)
				Ecstasy	16% (lifetime prevalence)
Lebeau-Craven et al., 2003	USA	186 young offenders	Young offenders aged 13 to 20 in prison M Mage=17	Alcohol	84.9% (past-month prevalence)
				Cannabis	46% (past-month prevalence)
Ogunwale, 2011	Nigeria, Africa	54 young offenders	Young offenders Mage=18.6	Alcohol	66.7% (lifetime prevalence)
				Cannabis	48.1% (lifetime prevalence)

Neven Ricijaš
Odsjek za poremećaje u ponašanju
Edukacijsko-rehabilitacijski fakultet Sveučilišta u Zagrebu
✉ E-mail: *neven.ricijas@gmail.com*

Valentina Kranželić
Odsjek za poremećaje u ponašanju
Edukacijsko-rehabilitacijski fakultet Sveučilišta u Zagrebu

Lorena Leskovar
Socijalna mentorica
Gradsko društvo Crvenog križa Krapina

Prevalencija i učestalost konzumiranja psihoaktivnih tvari mladih u odgojnim ustanovama – razlike s obzirom na vrstu ustanove i znanje o psihoaktivnim tvarima

Sažetak

Istraživanja potvrđuju da adolescenti tijekom odrastanja eksperimentiraju s konzumacijom psihoaktivnih tvari, a glavni motivacijski procesi koji na to utječu vezani su uz želju da se ponašaju u skladu sa socijalnim normama, identitetom koji obilježava individualitet, bijegom od nelagode te samoregulacijom. Stavovi, uvjerenja i znanja o psihoaktivnim tvarima pokušavali su se dovesti u vezu s ponašanjima vezanima uz njihovu uporabu, međutim, rezultati istraživanja pokazuju slabu do umjerenu korelaciju.

Temeljni cilj ovog istraživanja stjecanje je uvida u učestalost konzumacije psihoaktivnih tvari mladih s problemima u ponašanju smještenim u odgojne ustanove, dok su specifični ciljevi istražiti razlike u učestalosti konzumacije s obzirom na vrstu ustanove, kao i s obzirom na razinu znanja o psihoaktivnim tvarima.

U istraživanju su sudjelovala ukupno N=74 mladića smještena u sustavu pravosuđa (39,2%) i socijalne skrbi (60,8%). Dob sudionika kreće se od 14 do 21 godine (Mdob=16,90; SDdob=1,627). Korišteni instrumentarij je, uz osnovne sociodemografske podatke, ispitao znanja o psihoaktivnim tvarima te životnu i godišnju prevalenciju, kao i učestalost konzumiranja.

Rezultati pokazuju nešto učestalije konzumiranje psihoaktivnih tvari mladih smještenih u sustavu pravosuđa, ali i mladih s višom razinom znanja o psihoaktivnim tvarima. Pritom je važno naglasiti da su efekti razlika niski do umjereni. Rezultati su interpretirani u kontekstu drugih domaćih i inozemnih prevalencijskih istraživanja te s obzirom na značaj znanja u kreiranju intervencija prema mladima u području prevencije konzumiranja psihoaktivnih tvari.

Ključne riječi: psihoaktivne tvari, droge, problemi u ponašanju, adolescenti, odgojna ustanova