

## ANALYSIS OF ADOLESCENTS' ATTITUDES IN RESEARCH ON THE ABUSE OF PSYCHOACTIVE SUBSTANCES FROM 2013 AND 2023

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**Abstract.** Society and the community are playing the biggest role in the prevention of risky behavior among adolescents. The availability of psychoactive substances has been constantly increasing since the beginning of the 21st century, which affects the model of adolescent growing up and the formation of the final personality and prosperity of a future responsible citizen. The aim of this paper is to analyze the data from the research conducted in 2013, which was carried out for the purpose of creating a master's thesis at the Faculty of Medicine of the University of Belgrade in the Department of Public Health, and by analyzing the research data from 2023 to determine whether in the ten-year gap something has changed in the attitudes of adolescents related to the abuse of psychoactive substances (PAS) with reference to the consumption of nicotine and alcohol. Both surveys are cross-sectional studies conducted during April and May, which included secondary schools PI Gymnasium "Sveti Sava" Prijedor, PI High School Center Prijedor in the field of health and PI Mechanical High School Prijedor. The research instrument is a standard questionnaire designed by European School Survey Project on Alcohol and Other Drugs, adapted to the areas where the research was conducted. The analyzed questions were related to the availability of nicotine, alcohol and marijuana, their use by respondents as well as knowledge of the health risks of using these PAS. The results showed that in 2013, about 15% of respondents consumed nicotine, while in 2023, 26.6% consumed them. More than 70% of respondents from 2013 drank alcoholic beverages, and in 2023, 85.9% of respondents consumed alcohol. Approximately 12.5% of respondents from 2013 consumed marijuana, while in 2023 there was a slight drop in the percentage, which amounted to 9.1%. The largest number of students from the research in 2013 who consume nicotine, alcohol or marijuana came from the Gymnasium, while from 2023 they were students coming from the Mechanical High School. This analysis of the results from 2013 and 2023 shows that nicotine, alcoholic beverages and marijuana are still very easily accessible substances for the adolescent population, who use alcohol in a very significant percentage, although a large percentage recognize the health risks of consuming these PAS.

**Key words:** adolescents, attitudes, risks, nicotine and alcohol consumption

## Introduction

Psychoactive drugs are substances that, when used, affect mental processes, such as perception, awareness, cognitive abilities, or mood, including emotions. Psychoactive drugs belong to the broader category of psychoactive substances that also includes alcohol and nicotine [1] and are listed among the top 20 risk factors for ill health identified by the World Health Organization (WHO).[2] The most sensitive group to the use of psychoactive substances is the young population. Substance use during adolescence is particularly dangerous because psychoactive substances, including nicotine, cannabis, and alcohol, can interfere with healthy brain development. According to data from the World Health Organization from 2021, the prevalence of cannabis use in the 15- to 16-year-old sample was 5.34%, compared to the adult population, which was 4.3%. In certain regions, young people are largely affected by addiction disorders, such as Africa where 70% of the population under the age of 35 is treated for addiction.[3,4] The need to address mental health issues in the prevention and treatment of drug use is increasingly becoming a priority.[5] Children and young people growing up in the 21st century are exposed to risks, which include low economic and financial status, damaged relationships and poor health as a result of smoking, drug and alcohol abuse, as well as engaging in unprotected sexual relations. Young people who are at greater risk and potentially more vulnerable are those who are exposed to abuse, neglect, youth living with guardians or serving time in correctional institutions or prisons.[6] Monitoring, information sharing, early warning and risk awareness are essential to respond to this situation.[7] The availability of information, data, risk factors or diseases that arise with the long-term use of psychoactive substances provides the current generation of students with the opportunity to be informed about the problem, as well as to participate in volunteer work in the fight against the abuse of psychoactive substances. According to the US National Institute on Drug Abuse's (NIDA) annual survey in 2022, 1 in 3 high school seniors, 1 in 5 high school sophomores, and 1 in 10 eighth graders reported using an illicit substance.[8] Monitoring, information sharing, early warning and risk awareness are essential to respond to this situation.[9] By analyzing the data of our research from 2013 and 2023, it should be determined whether the opinions regarding the abuse of psychoactive substances among young people in high schools in Prijedor have changed during the period of the past ten years.

## Materials and Methods

Both surveys (2013 and 2023) are cross-sectional surveys conducted in April and May, which included "Sveti Sava" High School in Prijedor (2013/423; 2023/191 respondents), Prijedor High School Center - medical majors (2013/353; 2023/200 respondents) and Prijedor High School of Mechanical Engineering (2013/299; 2023/309 respondents). The reasons for choosing the mentioned schools are found in the fact that the selected schools have completely different educational programs that do not provide equal opportunities for health education and knowledge about the dangers of using PAS. According to data obtained from the Pedagogical Institute of the Republika Srpska PJ Prijedor, the teaching program in the high school provides a

broad general education, and through the subject of biology in the third grade, studying the systems of the human body and their diseases, points to the dangers of using or abusing psychoactive substances. The Faculty of Medicine, with its curriculum, to a large extent, enables students to acquire knowledge about the harm of psychoactive substances as well as to recognize the conditions that arise from the abuse of PAS, especially through the subjects: Biology, Hygiene with health education, Health care, Internal medicine, Mental hygiene and Occupational medicine. On the other hand, the High School of Mechanical Engineering does not provide students with even a minimum of knowledge about the harmful use or abuse of psychoactive substances with its curriculum, because the subject of Biology, as well as other subjects with these contents, is not studied within this school. All classes of I, II, III and IV grades of selected high schools participated in this research. The research instrument is a standard questionnaire designed by ESPAD (European School Survey Project on Alcohol and Other Drugs), adapted to the areas where the research was conducted. The analyzed questions related to the availability of cigarettes, alcohol and marijuana, their use by respondents, knowledge of the health risks of using these psychoactive substances. The questionnaire is anonymous and contains 50 questions. Respondents who were excluded from the study are persons who did not want to participate in the study, then respondents who did not adequately fill out the questionnaire and respondents who were not present at regular classes in their educational institution on the day of the research. The author requested the consent for student participation in the research for the purposes of the work from 2013 in writing from the director of each selected school, which was obtained in writing based on the consent of the parents' council, and the consent for the purposes of the research from 2023 was requested by the author of the work and received from the Ministry of Education and Culture. The software package Statistical Package for the Social Science, SPSS 20, was used in the statistical processing.

## **Results**

In 2013, about 15% of respondents consumed cigarettes, while in 2023, 27% consumed them. When the results of this research are classified according to gender, then in 2013, 10% of females consumed cigarettes, while males consumed them in a twice smaller percentage. In 2023, approximately the same number, relatively 13% of females and 14% of males, consumed cigarettes. When asked if you smoke daily, 85% of respondents (52% female and 33% male) answered "no" in 2013, and in 2023, 73% answered "no" (41% female and 32% male) which is shown in Figure 1.

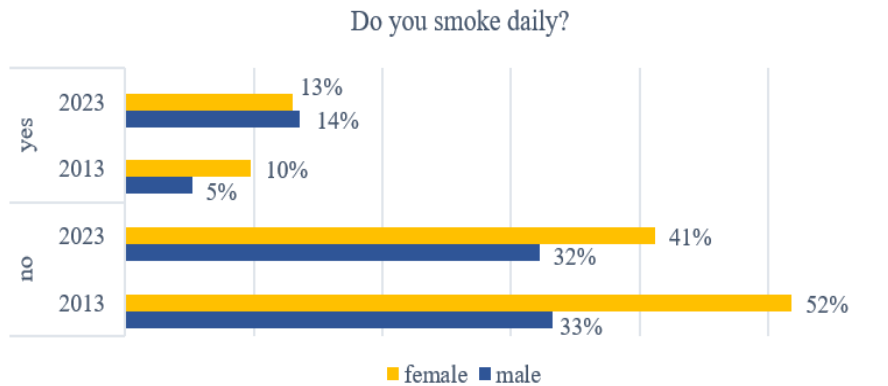


Figure 1. Ratio of respondents by gender from 2013 and 2023 regarding the use of cigarettes

When it comes to the availability of cigarettes in 2013 as well as in 2023, the answer "very easy" was most often chosen, and male respondents in both 2013 and 2023 declared for the above answer in about 21% of cases, while female respondents in 2013 in almost 35% of cases, and in 2023 in around 32% of cases (Figure 2).

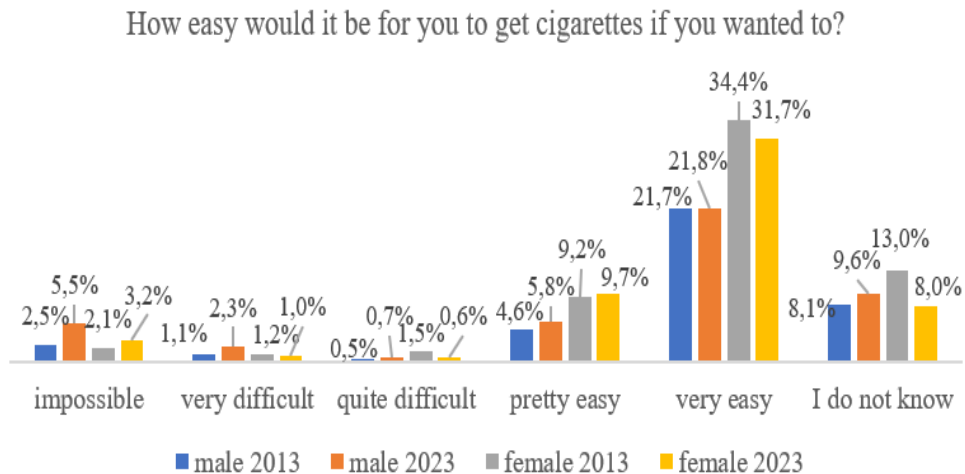


Figure 2. Ratio of respondents from 2013 and 2023 in relation to gender and availability of cigarettes

When it comes to the availability of strong alcoholic beverages (Figure 3) in the mentioned years of research, the most frequently chosen answer was "very easy". In 2013, 53.1% of respondents gave that answer, of which 31.9% were female respondents and 21.2% were male respondents. In the 2023 survey, 55.6% of respondents answered "very easily", compared to 34.0% of women and 21.6% of men.

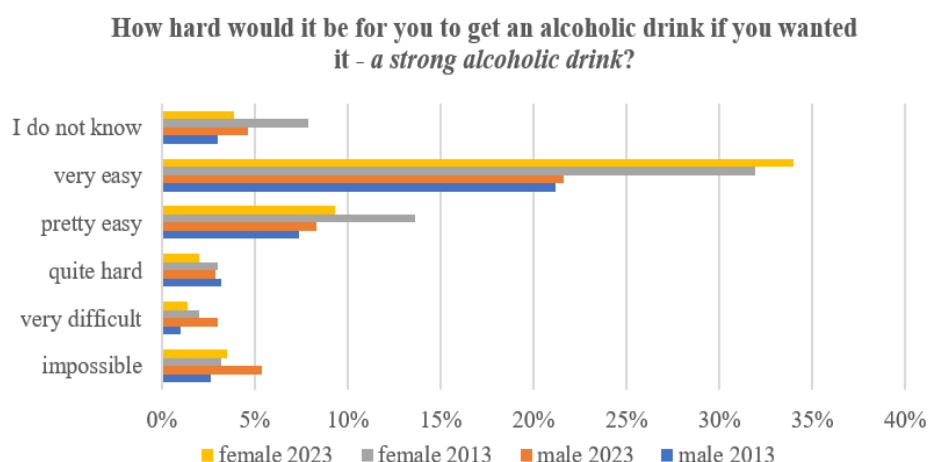


Figure 3. Ratio of respondents from 2013 and 2023 in relation to gender and availability of hard alcohol

When asked about the knowledge of the risks of drinking four or five drinks a day (Table 1), respondents who did not consume alcohol in the last 12 months in 2013 (59.3%) as well as in 2023 (51%) chose the answer "big risk". Respondents who declared that they had consumed alcohol in the last 12 months also chose the answer "high risk" in the largest number in 2013 (48%) and 2023 (45.4%). It is also important to note that the option "no risk" was chosen by 4.3% of respondents in 2013 and by 7.2% of respondents in 2023 among those who consumed alcohol in the last 12 months.

Table 1. The relationship between knowledge of the risks of using alcoholic beverages and alcohol consumption

What do you think is the risk of people harming themselves (physically or otherwise) if they drink four or five drinks almost every day?	Have you consumed alcohol in the last 12 months?			
	no		yes	
	2013	2023	2013	2023
<b>No risk</b>	10 (3.7%)	7 (7.6%)	33 (4.3%)	42 (7.2%)
<b>Little risk</b>	23 (8.4%)	8 (8.7%)	100 (13%)	82 (14%)
<b>Moderate risk</b>	50 (18.3%)	18 (19.6%)	230 (30%)	170 (29%)
<b>A big risk</b>	<b>162 (59.3%)</b>	<b>47 (51%)</b>	<b>367 (48%)</b>	<b>266 (45.4%)</b>
<b>I do not know</b>	28 (10.3%)	12 (13%)	36 (4.7%)	26 (4.4%)
<b>Total</b>	273 (100%)	92 (100%)	766 (100%)	586 (100%)

In 2013, when asked about the influence of alcohol causing them to not remember anything, 58% of respondents said that it had never happened to them, and

in 2023, 59.1% of respondents chose that answer. The other 42% of respondents found themselves in such a situation from 1-2 times to 40 or more times (Figure 4).



Figure 4. Relationship between respondents from 2013 and 2023 regarding the influence of alcohol on their memory

In 2013, 12% of respondents consumed marijuana, while in 2023, there was a slight drop in the percentage, which amounted to 9%. When the data is classified according to secondary schools, as shown in Figure 5, it can be noticed that there are differences in schools between the two investigated periods. The biggest difference is observed among respondents from the School of Mechanical Engineering, who in 2013 declared that 26% of them do not consume marijuana, and in 2023, that number rose to as much as 40%. When it comes to negative feedback, the School of Medicine had similar results from the two mentioned research periods, while the Gymnasium had differences, but to a lesser extent, compared to the School of Mechanical Engineering. When looking at the affirmative answer about the use of marijuana, the Gymnasium dominates the survey from 2013 with 7%, followed by the School of Medicine and then the School of Mechanical Engineering. In 2023, the Mechanical School is in first place when it comes to the use of marijuana, followed by the Gymnasium, and then the Medical School.

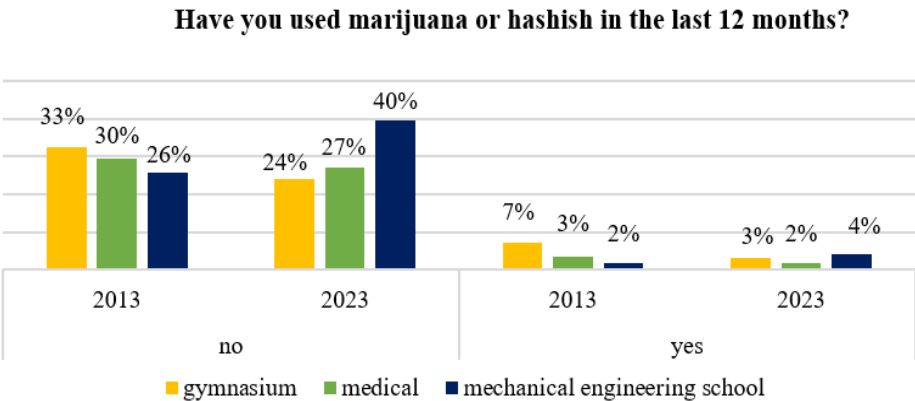


Figure 5. Presentation of respondents in the use of marijuana in relation to schools

When asked how difficult it would be for you to get marijuana if you wanted to in 2013, the most common response of male respondents was "pretty easy" (13%) and "very difficult" (14%) of female respondents. In 2023, male respondents most often (19.2%) declared that it would be "impossible" for them, while female respondents chose the same option as the most common in 13.7% of cases (Figure 6).

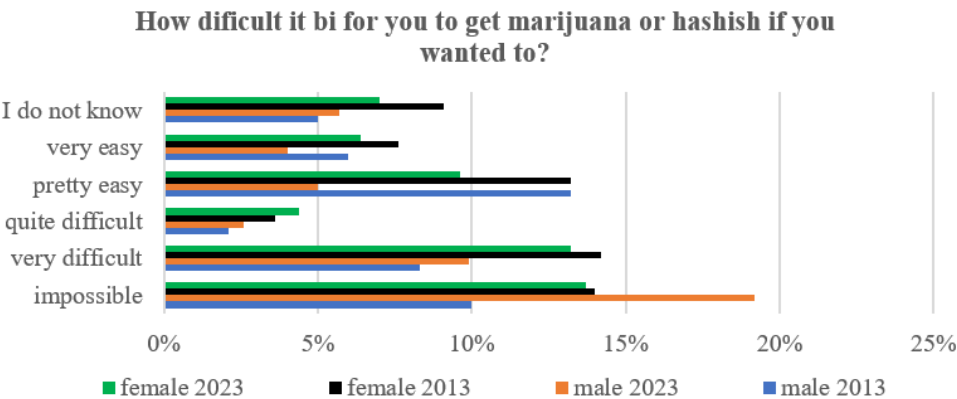


Figure 6. Ratio of respondents from 2013 and 2023 in relation to gender and availability of marijuana (hashish)

### Discussion

From the results presented above, it can be seen that the ten-year period between the examined groups brought somewhat surprising results. In Figure 1, it can be clearly seen that the trend of cigarette use is still increasing, almost twice as high as compared to the 2013 survey. In 2023, the US Centers for Disease Control and Prevention and the Food and Drug Administration used the National Youth Tobacco Survey to assess tobacco product use patterns among high school students in the United States. In the survey, the results showed that 22.2% of American high school students have tried to use or use tobacco products, which corresponds to 6.21 million

people.[10] A year earlier, a study from Europe was published where data were collected from the Global Tobacco Surveillance System (GTSS), in which schools from five countries participated: the Czech Republic, Slovakia, Slovenia, Romania and Lithuania. The results showed that almost a quarter of respondents who had never smoked cigarettes were susceptible to tobacco use in 4 of the 5 countries analyzed, with slightly lower percentages observed in Romania.[11] Knowing the health risks associated with the use of cigarettes, although a significant number of smokers and non-smokers chose the answer "high risk", does not prevent a significant part of the adolescents included in this research from consuming cigarettes. Various types of behavioral counseling interventions are effective in preventing early adolescent smoking initiation, including telephone counseling, computer-based and print-based interventions, and face-to-face counseling. Interventions to prevent the initiation of tobacco use should be provided to all youth who have not yet started using tobacco products, regardless of the presence or absence of other risk factors. The availability of cigarettes and alcohol is also at a worrying level (Figure 2 and 3). The sale of alcohol, tobacco and tobacco products to minors in our country is prohibited by law, so we come to the question of how the respondents get cigarettes? Market controls on the sale of tobacco as well as alcohol are almost ignored.

From the results presented above, it can be seen that the ten-year period between the examined groups brought somewhat surprising results. In Figure 1, it can be clearly seen that the trend of cigarette use is still increasing, almost twice as high as compared to the 2013 survey. When comparing research from the two mentioned periods, its consumption increase can be noticed. In 2013, 74% of respondents used alcohol, while in 2023, its use rose to 87% of respondents. When the data is sorted according to the year of high school education it can be seen that the use of alcohol dominates in the second grade, especially in 2023, where there is a high percentage jump. Table 1 shows the connection between the respondents' knowledge when using alcohol and its consequences. The results clearly show that a high percentage of respondents are aware of the high risk that the use of alcohol causes, but still a high percentage declare that they consume alcohol very often. When comparing the two surveys, a very small shift can be noticed. In 2013, a larger number of respondents consumed alcohol than in 2023, but the total number is still worrying, especially since it is about minors. In Figure 4, the results are also worrisome, because when we look at the age of the surveyed group and the ratio of answers where a certain part of the respondents answered that during the previous 12 months, 40 or more times, they found themselves in a situation where they did not remember anything due to drinking. Of course, most of the respondents answered that they have not found themselves in such a situation, but we should still be concerned about the respondents who have. According to a survey from Australia published in April 2024, the majority of respondents aged 14 and over have consumed alcohol in their lifetime. The National Drug Strategy Household survey 2022–2023 (NDSHS) shows that more than two-thirds (69%) of the population over 14 years of age consumed alcohol in the previous 12 months, 14.9 % never consumed a full serving of alcohol, and the share of those who consumed alcohol daily remained stable between 2019 (5.4%) and 2022/23 (5.2%). The NDSHS 2022/23 found that males in the adolescent period (39%) are still more likely to consume alcohol at risky levels than females in the same age group



(23%).[12] The study Alcohol use among adolescents in India: a systematic review from 2022, conducted by analyzing data on alcohol consumption among the youth population in India, showed that 55.3% of young people aged 17 to 23 believe that there are no harmful effects of alcohol on health.[13] The level of intoxication is usually related to the dose, the method of administration and the duration of the effect of the substance. The severity of intoxication is also affected by individual variability, such as differences in body weight, metabolism or alcohol tolerance. Susceptibility to intoxication may be greater in individuals with comorbid medical conditions such as renal or hepatic insufficiency. There are also genetic differences in susceptibility to intoxication by specific psychoactive substances associated with certain ethnic groups. Culturally and ethnically related genetic factors are better documented for alcohol than for other substances.[14]

When looking at the results showing the use of marijuana, a large percentage of respondents in both surveys (89%/2013 and 91%/2023) declared that they do not consume the specified substance. The results on the consumption of marijuana clearly show that the use of marijuana in the Gymnasium was higher in the 2013 survey than in 2023, also compared to the other two schools, the Gymnasium was the leader in the use of marijuana in 2013. In the last survey, there was a change in the situation, where the Gymnasium was in third place for the use of marijuana, while the first place was taken by the Mechanical School. When looking at the marijuana availability results in Figure 6, one can notice a large difference in ease of availability between the 2013 and 2023 surveys. Regardless of gender, in 2013 a much higher percentage of respondents were able to get the mentioned substance more easily than in 2023. From the analysis of data from the year 2022 published in the journal Cannabis Cannabinoid Research from Pennsylvania, it can be concluded that the prevalence of the use of marijuana (cannabis) at the world level in the previous year was estimated at 11.6 million users between the ages of 15 and 16.[15] According to the latest data from 2024, analyzing data from the USA and Australia, it is estimated that 2.8% of the young population currently smokes cannabis.[16] Studies have shown that the start of marijuana use before the age of 16 predicts reduced reaction time on a task of continuous attention processing, then that use is associated with worse performance on verbal memory and fluency tasks, as well as verbal intelligence quotient.[17] America, Western and Central Europe are the main consumer markets for cocaine, while Central Europe also represents an illegal transport line of psychoactive substances (PAS) for neighboring countries, and therefore the young population, which is in the process of developing personality and learning through experience, is therefore very subject to the risk of abuse of these substances. Public Health England has developed a campaign called Rise Above to influence behavior change to delay and prevent risky behaviors in children aged 11 to 16 and to prepare them for the transition to adulthood. Through content and activities, it helps young people to build resilience, prevent them from engaging in risky health behaviors and delay accepting adult behavior. They also provide a platform for the exchange of information and resources intended for schools and practitioners working on drug and alcohol prevention. ADEPIS (The Alcohol and Drug Education and Prevention Information Service) is the leading source of evidence-based information and tools for alcohol and drug education and prevention for schools.[18]

## Conclusion

The largest number of respondents from the 2013 survey who consume cigarettes, alcohol or marijuana came from Gymnasium, while from 2023 there were respondents from the High Mechanical School. Over a ten-year period, it can be noticed that the use of alcohol, but also the use of tobacco products, has increased. When we look at the sources of information and other methods of informing about the harmfulness of the use of the mentioned substances, we expected a small decrease in the frequency of use of alcohol and tobacco products. Given that the law prohibits the sale of tobacco products and alcohol to persons under the age of 18, we are left with the question of how the respondents get to all of the above? Through the research, we talked to the respondents and the most common answer was that they should find a place where they can get it, or an older person or parent provides it for them. In response to such a response, interventions that can be implemented and have a positive outcome are the education of the entire population, but start preventively from the youngest population, as well as the control of facilities that sell alcohol and tobacco products. Also, as an illegal substance, the use of cannabis is in a small percentage, but it exists. During periods of transition from childhood to adulthood, many young people need psychological help. The ways in which they experience life's obstacles are the most common trigger for psychoactive substances use. Also, the influence of the environment, the cultural legacy of male behavior, and the new generations that experience the abuse of psychoactive substances in a different way must not be ignored. The new generations are the ones who will be the bearers of both the new and the society of the future, and they should therefore be supported during the adolescent period.

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