NBP. Nauka, bezbednost, policija
Published by
University of Criminal Investigation and Police Studies
2026, Vol. 31, Issue 1, pp. 34–46
https://doi.org/10.5937/nabepo31-58122
Original Scientific Paper

Differences in Family Risk Factors of Drug Use in Adolescent Girls and Boys

[1]**Ivana Radovanović**[1], [2]**Marija Maljković**[2]

[1]*University of Criminal Investigation and Police Studies, Belgrade, Serbia*

[2]*University of Belgrade, Faculty of Special Education and Rehabilitation, Serbia*

Submitted: 2025-04-09 • Accepted: 2025-10-01 • Published: 2026-01-08

Abstract: Adolescence is a critical period for the initiation of drug use, which is associated with many risk factors, including family-related ones. Given the importance of the family as an agent in the socialization process, it is essential to examine which factors in this area deserve the most attention, as well as whether there are gender differences in this process.

This study aimed to examine 30 family-related risk factors associated with drug use, as well as to analyse gender differences between male and female adolescents. The data were collected from a representative sample of 1,287 high school students from Belgrade (average age = 17.04, standard deviation = 1.147), of whom 52.5% were girls. The participants completed an anonymous self-assessment questionnaire during school hours, with the assistance of the school psychologist. Drug use was defined as the use of cannabinoids, depressants, stimulants, or hallucinogens either very rarely, occasionally, or when the need arises. Family-related risk factors were reported by participants using a checklist that included 30 experiences identified in relevant literature as risk factors associated with the family context. Canonical discriminant analysis was applied separately to the samples of boys and girls, resulting in two statistically significant discriminant functions.

In the sample of boys, this function was defined by seven family-related variables, six of which served as predictors of differences between drug users and non-users. In the sample of girls, thirteen factors influenced the differences between those who had used drugs and those who had not. The only common risk factors for both genders were: frequent arguments with parents, poor communication with family members, and attempts to run away from home.

The research results have shown that there are differences in the number and nature of family-related risk factors for drug use between boys and girls. These differences are significant for prevention practices and must be taken into account when designing prevention programs, if we want those programs to be effective.

Keywords: adolescents, drug use, gender differences, risk factors, family factors.

1 Corresponding author: ivana.radovanovic@kpu.edu.rs • https://orcid.org/0000-0002-3555-5140 • Phone: +381 66 88 95 66 1

2 marijamaljkovic@fasper.bg.ac.rs • https://orcid.org/0000-0003-1003-3490

eISSN 2620-0406

INTRODUCTION

Drug use or abuse of psychoactive substances among youth is a global public health issue (United Nations Office on Drugs and Crime [UNODC], 2023), with adolescence being the critical age of initiation of drug use and ages 18 to 25 when maximum usage of drugs occurs (United Nations, 2018). In Europe, cannabis usage prevalence among students aged 15–16 during their lifetime is on average 16.0%, while 7.1% of students can be considered current users (European Monitoring Centre for Drugs and Drug Addiction, 2020). While young people are in general more vulnerable to drug use than adults are (Luikinga et al., 2018), reliable data on the prevalence of usage of different drugs among age groups of young people varies and is not often available for middle or low-income countries (UNODC, 2023). In Serbia, the data show that 7.8% of adolescents aged 14–15 have tried cannabis, with a prevalence larger among boys than girls (Institut za javno zdravlje, 2023).

Studies emphasizing the aetiology of drug use among adolescents are scarce and point to complex multilevel developmental influences. Studies often focus on early life stress and adverse childhood experiences, such as physical and sexual abuse, and their impact on drug consumption in later life (Hoffmann et al., 2024; Liebschutz et al., 2002; Wakeford et al., 2018). Thus far, research data confirm a positive relationship between chronic maltreatment and subsequent drug use, with a history of physical and sexual abuse being associated with adolescent drug use (Gabrielli et al., 2016; Kobulsky, 2017; Trucco & Hartmann, 2021). Furthermore, factors such as emotional disorders point to key differences in drug usage, showing a high rate of comorbidity, e.g. generalized anxiety disorder and substance abuse (Simon, 2009).

While drug usage has been linked to many risk factors, great attention among them has been paid to family risk factors in explaining behaviour problems and drug usage. A study conducted by Serpelloni et al. (2013) on a large sample of adolescents aged between 15 and 19 showed that drug usage was significantly influenced by aspects such as parental attention and control. Family conflicts are also identified within family factors – the conflicts between parents and between parents and children; adverse childhood experiences (e.g. domestic violence, maltreatment) (Brook et al., 2009; Hoffmann et al., 2024; Leban & Gibson, 2020; Smetana & Rote, 2019); parental and relatives substance abuse and attitudes that approve drug abuse (Abar et al., 2014; Rusby et al., 2018), poor control and supervision of children's behaviour (Haugland et al., 2019); parental psychopathology (Schindler, 2019) etc. Furthermore, the authors who emphasize the socialization process also insist on the influential importance of family economic status, intact family unit, a sense of belonging to the family, a healthy family environment, etc. (Bartol & Bartol, 2009; Griffin & Botvin, 2010; Hawkins et al., 1995; Lovrić, 2007).

However, research results also indicate general gender differences in drug usage – age when drug usage started, length of usage, frequency of delinquent behaviour and type of offenses connected to drug usage, and in neurochemical indicators and hormones (Breen et al., 2005; Hser et al., 2005; Krebs-Kraft et al., 2010; Zweben, 2003). Similar patterns are found in adolescent drug use, mostly in the frequency of drug usage and age differences in the first contact with drugs (Radovanović, 2016; Vidaković & Dickov, 2008). For male adolescents, substantial influences on cannabis use are poor family relationships and school problems (Butters, 2005). When it comes to family risk factors, some theories indicate that

relationships between parents and children are more salient for girls compared to males (Trucco, 2020). This thus indicates that girls' drug usage may be more susceptible to parental influences, with research data revealing that parents monitor girls more than boys, that girls are more prone to peer-pressure drug use in the context of low parental monitoring compared to boys, and that early life stress leads to more adverse life outcomes including substance abuse in girls compared to boys (Hemovich et al., 2011; Ryan et al., 2015; Wakeford et al., 2018). Furthermore, girls are more likely than boys to engage in drug use if their parents have little knowledge about the places where they spend their time, indicating the importance of parental knowledge in female adolescents' drug use (Serpelloni et al., 2013). However, findings also indicate that the risk of adolescent drug abuse in the context of parental drug use is the same for both girls and boys (Rusby et al., 2018).

The main aim of this research was to determine, using a representative sample of high school students in Belgrade, the disparities and potential gender differences in family risk factors between adolescents who use and those who do not use drugs. Additionally, the study aimed to identify specific risk factors within the family environment that may have predictive value and serve as a foundation for planning preventive programs and interventions.

METHOD

Sample

The sample consisted of 1,287 high school students from Belgrade. Participants were from 15 to 19 years of age (M_{age} = 17.04, SD_{age} = 1.147), with 47.5 % boys (n = 611) and 52.5% girls (n = 676). The sample was randomly selected and is representative of the Belgrade adolescent population.

Procedure and Questionnaire

The data on drug use and family-related risk factors were collected using a questionnaire specifically designed for the purposes of this study. All questions were closed-ended, with predefined answer options. The data were collected anonymously during a single 45-minute class period, after obtaining participants' consent. The data were collected by school psychologists.

The list of family-related risk factors was formed based on two sources: (1) previous research, whose results were published in relevant scientific journals and which rely on indicators identified in the literature as risk factors in the family context, and (2) theoretical concepts of socialization, stress, parenting styles, and similar areas. The sample of variables is presented in Table 1. Most variables were measured on an interval scale. Drug use was defined as the consumption of any amount or type of substances from the groups of cannabinoids, depressants, stimulants, or hallucinogens. The data on drug use were collected by asking participants to rate the frequency of their drug consumption (I do not use drugs at all; I use them very rarely; I use them occasionally; I use them when I feel the need). All responses other than "I do not use drugs at all" were treated as drug use.

Statistical Analysis

The data were analysed using canonical discriminant analysis. Based on the collected data, two groups of adolescents were formed: those who had not used drugs and those who had. The first group consisted of 1,059 adolescents (82.3%), and the second group included 228 adolescents (17.7%). Canonical discriminant analysis was applied separately to the sample of boys who had used drugs and those who had not, as well as to the sample of girls. The group of boys who had not used drugs consisted of 516 participants (84.5% of boys), while 95 boys (15.5%) had used drugs. The group of girls who had not used drugs consisted of 543 participants (80.3% of girls), while 133 girls (19.7%) had used drugs. Statistical analysis was conducted using SPSS software (IBM SPSS Statistics version 22.0 for Windows).

RESULTS

The results of the canonical discriminant analysis of differences in family-related risk factors between male and female adolescents who had used and had not used psychoactive substances are presented through two latent dimensions – one for the sample of boys and the other for the sample of girls. The main parameters of these dimensions, including their canonical correlation and level of statistical significance, standardized canonical discriminant coefficients, as well as the correlations of each family-related variable with the latent dimensions, are shown in the Table 1. The centroids of the groups of adolescents who had used and who had not used drugs are also presented.

As shown in Table 1, the canonical correlation of the discriminant function responsible for differences in the presence or absence of drug usage in the group of boys is .376 ($p <$ .000). The discriminant function responsible for differences in the presence or absence of drug usage in the group of girls is .514 ($p <$ .000). This difference in canonical correlation between the groups of boys and girls suggests girls' higher sensitivity to family risk factors and is an indicator of gender differences in family aetiology of drug usage.

In boys, the function is defined by parents' divorce (.466 and .566)[3], run-away attempts (.356 and .498), quarrels with parents (.186 and .443), father's domestic violence (.245 and .433), parents' insults (.099 and .399) and frequent father's absence for over 30 days (.194 and .365). The nature of listed variables leads to the conclusion that the function actually describes severely disturbed family relations of these adolescents. Parents' divorce (.466)[4], run-away attempts (.356) and lack of trust and bad communication in the family (.360) have a notable role in this set of factors. These three factors have a direct influence on the differences in the presence or absence of drug usage and they enable the prediction of behaviour differences.

3 The first coefficient is canonical discriminant coefficient, and the second is variable and function correlation.

4 The given coefficient indicates the significance of this variable in predicting differences in drug usage when the influences of all other 29 variables are controlled, i.e. constant.

Table 1. *Drug Usage and Family Environment Variables in Boys and Girls*[5]

Significance of Wilks' Lambda and Discriminant Function Parameters								
Boys: can. r = .376; Wilk's lambda .859; Chi-square 68.500; $p < .000$ Girls: can. r = .514; Wilk's lambda .736; Chi-square 105.149; $p < .000$								
Variables	**Boys**		**Girls**		**Variables**	**Boys**		**Girls**	
	c	**r**	**c**	**r**		**c**	**r**	**c**	**r**
Perception of family economic status	.038	.048	.031	.118	Insults coming from parents	.099	.399	.047	.328
Death of mother or father	-.131	-.123	.036	.121	Father's alcoholism	-.084	.197	.070	.378
Death of other close family member	.132	.134	-.240	-.093	Father's domestic violence	.245	.433	-.223	.334
Absence of father for over 30 days	.194	.365	-.024	.185	Insecurity and poverty in the family	.116	.129	-.265	.120
Absence of mother for over 30 days	.002	.168	.225	.220	Having a wish for something frequently and not having it	-.200	-.020	.100	.205
Parents' divorce	.466	.566	.081	.173	Frequent moving from place to place	-.217	.015	.258	.374
Severe illness in the family	.026	.157	.064	.205	Bad living conditions	.137	.122	-.079	.231
Authoritative parenting style	.017	.116	.052	.159	Parental physical control	-.076	.093	-.022	.
Anarchic parenting style	.062	.253	.022	.307	Parental psychological control	.194	.020	-.015	.149
Democratic parenting style	-.003	.199	.212	.257	Family support in trouble	-.341	-.001	-.189	.170
Conflicting parenting style	.060	.240	.284	.248	Criminal behaviour of family members	-.080	.137	.369	.525
Quarrels with parents	.186	.443	.183	.426	Acquiring social skills in the family	.098	.217	.266	.337
Feeling of not being a loved child	.043	.198	.274	.461	Inadequate punishments and rewards	-.021	-.081	-.077	-.071
Physical punishment from mother	-.088	-.108	-.009	.213	Lack of trust and bad communication in the family	.360	.368	.170	.423
Physical punishment from father	.028	.237	-.006	.187	Running away from home	.356	.498	.417	.614
Group centroids in boys: absence of drug usage = - .182; drug usage = 1.898									
Group centroids in girls: absence of drug usage= - .333; drug usage = 1.089									
c stands for standardized canonical coefficient; r stands for variable and function correlation									

In girls, the discriminant function is defined by three variables that are the same as in the group of boys: frequent quarrels with parents (.183 and .426), lack of, or bad family communication (.170 and .423) and run-away attempts (.417 and .614). However, in the group of girls, this function is also defined by father's alcoholism (.070 and .378), criminal behaviour of family members (.369 and .525) feeling of not being a loved child (.274 and .461). Drug usage predictors in girls are also different. Run-away attempts again have the

5 Variables which are significant to the differences in drug usage are coloured grey, which makes it easy to follow not only the nature of these variables but also gender differences between them.

strongest direct influence on the differences (.417)[6], and apart from it, the only other significant predictor is criminal behaviour of family members (.369). Keeping all these data in mind, it seems that latent dimension responsible for girl's drug usage differences mostly indicates the presence of family social pathology (criminal behaviour of family members, run-away attempts, and father's alcoholism) and the sense of not belonging to the family, and thus can be identified in this way.

DISCUSSION

Undoubtedly, the most important result of this analysis of differences between adolescents who use and those who do not use drugs is the identification of family-related factors that differ significantly depending on gender. For practical reasons, the discussion of both sets of results will be presented jointly.

Out of 30 family environment variables, considering the canonical discriminant coefficients and the correlations of these variables with the discriminant function, only four are the same for boys and girls. In other words, only four contribute to the differences between those who use and those who do not use drugs when it comes to gender. These are "adolescents' arguments with parents", "mistrust and poor communication between adolescents and parents", "running away from home" and "adolescents being insulted by parents". The first three have the status of predictors of these differences, while the fourth is only correlated with the discriminant function without predictive ability.[7]

In all other cases, there are clear differences. For boys, besides the four family factors mentioned earlier that are common, significant contributions to the differences between drug users and non-users come from "absence of the father from the family for more than 30 days", "father's violence in the family", and especially strongly, "parental divorce".

For girls, in addition to the three, or conditionally four, common variables, the differences are also influenced by "mother's absence for more than 30 days", "democratic" and "conflictual parenting styles", "feeling unloved", "frequent moves from place to place", "family members' criminal behaviour", and, as a protective factor against drug use, "acquiring social skills within the family". All these variables have the status of predictors of differences in drug use versus non-use, with "family members' criminal behaviour" standing out in particular for its predictive strength (.369 and .525). To these predictors for girls, "father's alcoholism", which has a correlation with the function of .378, and "anarchic parenting style" (.307) can also be added.

A recap of these results shows a clear predominance of family-related risk factors in predicting differences in drug use among female adolescents. Among male adolescents, besides the four variables common with girls, only three others show a significant ability to differentiate between those who use and those who do not use drugs (parental divorce, father's absence for more than 30 days, and father's violence in the family). In total, therefore, seven family factors out of 30 in the sample contribute to the differences in drug use

6 Canonical discriminant coefficient.

7 At first glance, "father's violence in the family" might also be considered a common factor in differences in drug use, but this variable only has the status of a predictor for boys. For girls, it clearly acts as a suppressor, as there is a difference in the signs between the discriminant coefficient and the correlation.

and non-use. For girls, this number is twice as high. In addition to the four common factors with boys, another 10 family factors influence differences in this behaviour. Of these 10 extra factors, seven are predictors (mother's absence for more than 30 days, democratic and conflictual parenting styles, feeling unloved by parents, frequent moves from place to place, family members' criminal behaviour, and the protective factor of acquiring social skills within the family), while two are only correlated with the discriminant function (anarchic parenting style and father's alcoholism) and one acts as a suppressor (father's violence in the family).

A significantly larger number of family factors contributing to differences in drug use among girls is an important, but not the only, gender difference in the relationship between family factors and drug use. This difference also exists in the nature of these factors. For example, among boys, there is a very strong influence of parental divorce on drug use, and a less strong but noticeable influence of father's violence in the family and father's absence from the family for more than 30 days. These three factors do not contribute at all to differences in drug use among girls. For girls, a very strong predictor of differences is "family members' criminal behaviour" and somewhat less strong but still notable influences on these differences are "feeling unloved", "frequent moves from place to place" and the protective factor of "acquiring social skills within the family". None of these factors exist among boys; in fact, they have zero value for boys. Of course, it should not be overlooked that there are four factors common to both boys and girls. However, careful analysis would show that they clearly differ in the degree of predictive power. This is especially evident with "mistrust and poor communication between adolescents and family" and also "running away from home", if one considers the magnitude of canonical discriminant coefficients and the percentages of variance in differences predicted by these factors. Without going into details, it is enough to say that, for example, mistrust and poor communication with the family predict 12.96% of the variance in differences among boys, but only 2.89% among girls.

The extended focus on gender differences in family environment factors that influence drug use is not without reason. First, because it reveals which family factors are important for drug use. Listing these individual factors for boys and girls simultaneously provides a clear picture of the family's role in this behavioural disorder. The results obtained generally align with those of other researchers, such as Serpelloni et al. (2013), as well as a larger number of authors mentioned in the introduction. The existence of the same factors in both boys and girls, and especially the presence of gender-dependent differences among them, has quite important practical implications for the prevention of drug use.

Among the predictors for both genders, those characterized by disturbed relationships between the family and the adolescent dominate. Accordingly, preventive interventions should primarily focus on resolving this conflict – stopping running away from home, strengthening trust between parents and the child, and ensuring quality communication between them.

In parallel, when it comes to girls, the presence of criminal behaviour in the family, frequent absence of the mother, a conflictual parenting style – meaning frequent disagreements between parents regarding how to treat their daughter – permissiveness toward adolescents and their demands, and frequent relocations primarily serve to describe a family situation marked by a rather strong conflict between the female student and her family.

Preventive interventions best suited to the described nature of relationship disturbances would involve education or training for parents in parenting skills, effective communication with children, rules for supervising children, developing self-esteem and empathy, and similar areas. Parents would need to acquire specific knowledge about how to behave and communicate with their female adolescent child (due to the incorrect parenting styles they may be using), while the female adolescents themselves would benefit from learning about sound decision-making and resilience against negative influences such as family members' criminal behaviour, frequent relocations, and the mother's absence.

Specific interventions targeting risk factors in boys would primarily focus on overcoming the effects of parental divorce and the father's absence, as well as interventions aimed at addressing the status of victims of family violence through training in social and life skills. Special emphasis should be placed on developing critical thinking, decision-making skills, boosting self-confidence, and encouraging the ability to integrate into and belong to positive peer groups.

Since one of the basic rules in selecting and designing preventive strategies and programs is their suitability to the nature and structure of the risk and protective factors that allow for predicting the disorder, it is clear that the same preventive interventions for boys and girls can be based only on the factors common to both genders. That is, only in cases of running away from home, poor relationships (quarrels) between adolescents and parents, mistrust and poor communication between adolescents and parents, and insults from parents. All other preventive interventions must differ and be adapted to the specificities and differences in the aetiology present in each gender. Accordingly, interventions that do not rely on the actual aetiology of a behaviour, as well as insisting on factors not identified as predictors, make no sense and are doomed to ineffectiveness from the outset.

At the end of this section, a general observation about the influence of family factors on drug use, but from a different perspective. This concerns the differences in canonical correlations of the discriminant functions isolated for boys and girls and the possible implications of these differences. For boys, this correlation is approximately .376, which practically means that the family factors from the sample – all 30 of them – explain only 14.14% of the variance in differences between drug users and non-users. For girls, the canonical correlation is .514, and its square shows that the percentage of explained differences, with the same sample of family factors, is significantly higher (26.42%). In both cases, it can be said that the percentage of explained variance is relatively low, especially for boys, but this result is currently secondary. What is more important is that this disproportion in the percentage of explained variance is further evidence of the existence of gender differences in the aetiology of drug experimentation, i.e. in the initial stages of its use.

CONCLUSION

In the previous chapter, in the discussion of the results of this study, it was noted that family factors can explain only 14.14% (for boys) and 26.42% (for girls) of the variance in differences between drug users and non-users. This result largely demonstrates greater sensitivity of girls to family problems, but it also challenges the existing beliefs about the unquestioned influence of family factors when it comes to adolescent drug use. Addi-

tionally, the analysis of the impact of variables from the family environment on drug use reliably established that there are differences in the number and nature of family risk factors between boys and girls, as well as which of these factors have indirect and which have direct effects. This is a result that requires careful attention, and all procedures should be adapted accordingly, starting with the creation of gender-sensitive instruments for detecting risk factors in various areas (family, school, peer groups, personality).

The implications of these gender-based differences are especially important for the process of designing preventive programs and interventions. When it comes to drug use, applying the same approaches to both boys and girls regarding family aetiology appears doomed to fail from the outset. The analysis of factors important for drug use identified that certain variables play different roles depending on gender, as well as differing in the intensity of their influence. It is clear that a certain number of variables from the family environment act as predictors. These variables are able to explain the differences between students who have no contact with drugs and those who use them. It is important to reiterate that these variables differ between boys and girls. Since some factors are common to both genders, some preventive interventions may share common content. However, when designing preventive interventions, it is also necessary to consider that the predictive strength of these differences varies between individual variables. Some variables only have indirect predictive effects, and this must also be taken into account to avoid investing resources in interventions that focus on factors without significant or any real role. But not only that. Because preventive programs require serious resources and specially trained personnel, they must be approached with great care both from a scientific and practical standpoint. From the scientific perspective, it is essential to verify the results and conclusions presented here and in other studies through new research on samples not only of adolescents but also younger age groups, in different social contexts, using different data analysis models, employing larger and possibly different samples of family variables, and, above all, through interdisciplinary approaches. If the results of these studies converge on the fundamental patterns discovered, systematic and multidimensional training of staff for implementing these preventive programs will be necessary. It is also essential to ensure reliable evaluation of the effectiveness of these preventive programs through robust techniques and new research efforts.

What must be kept in mind when designing preventive programs and interventions based on family-origin factors is not only the relatively low amount of variance in this behaviour explained by these factors but also the small number of factors that reveal such influence. This fact limits the manoeuvring space for the creators of these programs, as well as for those who implement them. Unfortunately, these are not the only problems in designing and implementing these preventive programs. Some of these factors are not susceptible to change through preventive interventions, some only to a very small extent, and some are of such a nature that require the involvement of the broader social community. But that is not all. It is also possible that the authors of this research, for certain reasons, were biased or insufficiently informed and therefore did not include the best predictors of drug use of family origin in the sample of variables.

Also, due to the importance of examining risk factors for drug use at early ages, one significant limitation of the conducted research may be the fact that the sample does not include participants younger than 15 years old. Unfortunately, based on some practical experienc-

es, preventive interventions that begin at these ages may already be a delayed response. Therefore, it seems necessary that future research on adolescent drug abuse should, as much as possible, include students from the upper grades of elementary school. It is also a fact that the sample of students does not provide the possibility to analyse family influences in different social environments – such as smaller towns, rural areas, industrial settlements, etc. – and this may represent an important limitation of this research.

For the planning and development of preventive programs at higher levels – programs that would function as an established part of the education system and/or social welfare services – the research results on the influences of various factors, including family factors within those environments, are necessary. Finally, it should be noted that the data were collected based solely on adolescents' self-reports. A potential limitation stems from the possibility that respondents may have been dishonest or biased in their answers, not only regarding drug use but also concerning their family circumstances, their relationship with parents, attitudes toward family, and even the research itself.

A true understanding of the influence of family factors can only be obtained through a larger number of studies on this phenomenon, preferably using the same variables and similar adolescent samples. Therefore, it is essential to repeat such research by independent investigators, to apply multiple data analysis models, and to employ different research approaches: longitudinal studies, replication of key studies, conducting the same or similar research in smaller communities, etc.

The phenomenon of drug use among adolescent populations is too important a problem to rely solely on partial and periodic research as a basis for prevention of this behaviour. It should not be forgotten that, on the other hand, prevention efforts face a strong opposition from groups and organizations that have an interest in the absence of prevention.

REFERENCES

Abar, C. C., Jackson, K. M., Colby, S. M., & Barnett, N. P. (2014). Parent-child discrepancies in reports of parental monitoring and their relationship to adolescent alcohol-related behaviors. *Journal of Youth and Adolescence*, *44*(9), 1688–1701. https://doi.org/10.1007/s10964-014-0143-6

Bartol, C., & Bartol, A. (2009). *Juvenile delinquency and antisocial behavior: A developmental perspective*. Pearson Prentice Hall.

Breen, C., Roxburgh, A., & Degenhardt, L. (2005). Gender differences among regular injecting drug users in Sydney, Australia, 1996–2003. *Drug and Alcohol Review*, *24*(4), 353–358. https://doi.org/10.1080/09595230500263871

Brook, J. S., Brook, D. W., Zhang, C., & Cohen, P. (2009). Pathways from adolescent parent-child conflict to substance use disorders in the fourth decade of life. *American Journal on Addictions*, *18*(3), 235–242. https://doi.org/10.1080/10550490902786793

Butters, J. E. (2005). Promoting healthy choices: The importance of differentiating between ordinary and high-risk cannabis use among high-school students. *Substance Use & Misuse*, *40*(6), 845–855. https://doi.org/10.1081/JA-200030803

European Monitoring Centre for Drugs and Drug Addiction. (2020). *ESPAD report 2019: Results from the European school survey project on alcohol and other drugs*. Publications Office. https://data.europa.eu/doi/10.2810/877033

Gabrielli, J., Jackson, Y., & Brown, S. (2016). Associations between maltreatment history and severity of substance use behavior in youth in foster care. *Child Maltreatment*, *21*(4), 298–307. https://doi.org/10.1177/1077559516669443

Griffin, K. W., & Botvin, G. J. (2010). Evidence-based interventions for preventing substance use disorders in adolescents. *Child and Adolescent Psychiatric Clinics of North America*, *19*(3), 505–526. https://doi.org/10.1016/j.chc.2010.03.005

Haugland, S. H., Coombes, L., & Stea, T. H. (2019). Associations between parenting and substance use, meal pattern and food choices: A cross-sectional survey of 13,269 Norwegian adolescents. *Preventive Medicine Reports*, *14*, 100862. https://doi.org/10.1016/j.pmedr.2019.100862

Hawkins, J. D., Arthur, M. W., & Catalano, R. F. (1995). Preventing substance abuse. In M. Tonry, & D. P. Farrington (Eds.), Building a safer society: Strategic approaches to crime prevention. *Crime and Justice*, *19*, 343–427. https://doi.org/10.1086/449234

Hemovich, V., Lac, A., & Crano, W. D. (2011). Understanding early-onset drug and alcohol outcomes among youth: The role of family structure, social factors, and interpersonal perceptions of use. *Psychology, Health & Medicine*, *16*(3), 249–267. https://doi.org/10.1080/13548506.2010.532560

Hoffmann, E., Šobot, V., Ivanović-Kovačević, S., Knežević, V., & Vejnović, A.-M. (2024). The correlation between traumatic experiences and psychoactive substance use among adolescents: Implications for educational practice. *Zbornik Instituta za pedagoška istraživanja*, *56*(1), 163–183. https://doi.org/10.2298/zipi2401163h

Hser, Y. I., Evans, E., & Huang, Y. C. (2005). Treatment outcomes among women and men methamphetamine abusers in California. *Journal of Substance Abuse Treatment*, *28*(1), 77–85. https://doi.org/10.1016/j.jsat.2004.10.009

Institut za javno zdravlje "Dr. Milan Jovanović Batut". (2023). *Rezultati istraživanja ponašanja u vezi sa zdravljem dece školskog uzrasta u Republici Srbiji 2022. godine* [(Health behaviour in School-aged Children Survey, HBSC]. https://www.batut.org.rs/download/aktuelno/HBSC%20kljucni%20rezultati%202024.pdf

Kobulsky, J. M. (2017). Gender differences in pathways from physical and sexual abuse to early substance use. *Children and Youth Services Review*, *83*, 25–32. https://doi.org/10.1016/j.childyouth.2017.10.027

Krebs-Kraft, D. I., Hill, M. N., Hillard, C. J., & McCarthy, M. M. (2010). Sex difference in cell proliferation in developing rat amygdala mediated by endocannabinoids has implications for social behavior. *Proceedings of the National Academy of Sciences of the United States of America*, *107*(47), 20535–20540. https://doi.org/10.1073/pnas.1005003107

Leban, L., & Gibson, C. L. (2020). The role of gender in the relationship between adverse childhood experiences and delinquency and substance use in adolescence. *Journal of Criminal Justice*, *66*, 101637. https://doi.org/10.1016/j.jcrimjus.2019.101637

Liebschutz, J., Savetsky, J. B., Saitz, R., Horton, N. J., Lloyd-Travaglini, C., & Samet, J. H. (2002). The relationship between sexual and physical abuse and substance abuse consequences. *Journal of Substance Abuse Treatment*, *22*(3), 121–128. https://doi.org/10.1016/s0740-5472(02)00220-9

Lovrić, S. (2007). *Droga i socijalizacija mladih*. Grafomark.

Luikinga, S. J., Kim, J. H., & Perry, C. J. (2018). Developmental perspectives on methamphetamine abuse: Exploring adolescent vulnerabilities on brain and behavior. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *87*, 78–84. https://doi.org/10.1016/j.pnpbp.2017.11.010

Radovanović, I. (2016). *Zloupotreba droga u populaciji srednjoškolskih učenika: Fenomenologija, etiologija i modeli prevencije* [Doctoral thesis, The University of Belgrade, Faculty of Special Education and Rehabilitation]. https://phaidrabg.bg.ac.rs/view/o:13279

Rusby, J. C., Light, J. M., Crowley, R., & Westling, E. (2018). Influence of parent-youth relationship, parental monitoring, and parent substance use on adolescent substance use onset. *Journal of Family Psychology*, *32*(3), 310–320. https://doi.org/10.1037/fam0000350

Ryan, J., Roman, N. V., & Okwany, A. (2015). The effects of parental monitoring and communication on adolescent substance use and risky sexual activity: A systematic review. *The Open Family Studies Journal*, *7*(1), 12–27. https://doi.org/10.2174/1874922401507010012

Schindler, A. (2019). Attachment and substance use disorders – Theoretical models, empirical evidence, and implications for treatment. *Frontiers in Psychiatry*, *10*(727). https://doi.org/10.3389/fpsyt.2019.00727

Serpelloni, G., Genetti, B., Andreotti, A., Sperotto, M., Carpignano, A. I., & Zermiani, M. (2013). *Differences in the risk factors for illicit drug use among young females and males aged 15–19 years*. Publication No. 104. United Nations Interregional Crime and Justice Research Institute. https://unicri.org/sites/default/files/2019-11/English%20version.pdf

Simon, N. M. (2009). Generalized anxiety disorder and psychiatric comorbidities such as depression, bipolar disorder, and substance abuse. *Journal of Clinical Psychiatry*, *70*(Suppl. 2), 10–14. https://doi.org/10.4088/JCP.s.7002.02

Smetana, J. G., & Rote, W. M. (2019). Adolescent-parent relationships: Progress, processes, and prospects. *Annual Review of Developmental Psychology*, *1*(1), 41–68. https://doi.org/10.1146/annurev-devpsych-121318-084903

Trucco, E. M. (2020). A review of psychosocial factors linked to adolescent substance use. *Pharmacology Biochemistry and Behavior*, *196*(1), 172969. https://doi.org/10.1016/j.pbb.2020.172969

Trucco, E. M., & Hartmann, S. A. (2021). Understanding the etiology of adolescent substance use through developmental perspectives. *Child Development Perspectives*, *15*(4). https://doi.org/10.1111/cdep.12426

United Nations Office on Drugs and Crime. (2023). *World drug report 2023*. https://www.unodc.org/res/WDR-2023/WDR23_Exsum_fin_DP.pdf

United Nations. (2018). *World drug report 2018*. E.18X.XI.9. Retrieved from https://www.unodc.org/wdr2018

Vidaković, B., & Dickov, A. (2008). Karakteristike žena koje su zavisne od opijata. *Eskulap*, *3*(1–2), 54–62.

Wakeford, A. G. P., Morin, E. L., Bramlett, S. N., Howell, L. L., & Sanchez, M. M. (2018). A review of nonhuman primate models of early life stress and adolescent drug abuse. *Neurobiology of Stress*, *9*, 188–198. https://doi.org/10.1016/j.ynstr.2018.09.005

Zweben, J. E. (2003). Special issues in treatment: Women. In A. W. Graham, T. K. Schultz, & M. F. Mayo-Smith (Eds.), *Principles of addiction medicine* (pp. 566–580). American Society of Addiction Medicine.