

FAMILY RISK AND PROTECTIVE FACTORS AMONG YOUNG SUBSTANCE NON-CONSUMERS AND CONSUMERS

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SUMMARY

The aim of this study is to contribute to a better understanding of the influence of a family environment on the consumption of addictive substances and promote the importance of including the family environment in addiction prevention strategies. The study, whose results are presented in this paper, was carried out within the project "Development of the system of crime prevention and a support for the establishment of a coordination unit for the prevention of crime". The project was designed in collaboration with the University of Zagreb, Faculty of Education and Rehabilitation Sciences, Office of the United Nations Development Program in Croatia and the Ministry of Internal Affairs of Republic of Croatia. In this study, CTC Survey for children and youth (Mihić, Novak and Bašić, 2010) was conducted in a period from September to October 2010 in three primary and secondary schools in Split. Results presented in this paper are obtained on a sample of children from second and fourth grades of secondary school (N = 623). Findings showed that frequent substance consumers on a significantly larger scale perceive presence of risk factors in their families (in adequate family rules, family conflicts, parents who support the anti-social behavior and consumption of addictive substances) in comparison to non-consumers. Equally, some substance non-consumers unlike frequent consumers more frequently perceive the presence of protective factors in their families (family attachment, family opportunities for prosocial engagement and family rewards for prosocial engagement). Based on the results of this study, directions for planning the substance abuse prevention within the family context were given.

Keywords: *substance abuse, risk and protective factors, family, youth, prevention*

INTRODUCTION

Abuse of addictive agents and the illness of addiction represent one of the most relevant public health problems in many countries, Croatia included. The problem remains relevant regardless of the numerous papers written on the subject, countless instances of research, conferences, prevention programs (Ersche, Jones, Williams, Turton, Robbins, 2012; Ivandić-Zimić, 2011; Petrović, 2009; Sakoman, Rabotek-Šarić & Kuzman, 2002). The gravity of this problem is reflected in the consequences that appear, both in terms of individual health and social relations. Sinanović (2002) lists the following consequences of addiction for the health status of an individual: weight loss, various permanent damage to the body, sleep disorders, continued feeling of tiredness, and a host of addiction-related illnesses,

most commonly those associated with high-risk sexual behavior. Along with having an impact on individual health, the abuse of addictive substances generally decreases the quality of life, which may bring about negative consequences for the individual and for the individual's relationships within families. Traffic incidents must also be mentioned as consequences of substance abuse, especially when it comes to alcoholism. Furthermore, lack of finances that would support the addiction may lead one into criminal activity, a further negative consequence of substance addiction.

In Croatia, National Program for Youth Addiction Prevention for the 2010-2014 period, aimed at children and youth in the educational system, and in the system of social care, has been drawn up with a growing number of persons treated for addiction and an increase in availability of addictive substances in

mind.¹ To a large extent, the National Program focuses on measures of universal prevention and early detection among high-risk groups. The Program's principal aim is to combat and prevent the appearance of addiction among children and youth, and to prevent high-risk behavior in experimenting with addictive substances. Successful implementation of the Program requires fundamental research of the problem of addiction, such as research of risk and protective factors that would enable us to get a better understanding of the problem and to design a more effective approach to solving the problem. The aim of the research presented in this paper is to support a better understanding of the features of the family environment that have an impact on consumption of addictive agents and to promote the relevance of family involvement in addiction prevention strategies.

Comparative analysis of prevalence of addictive substances among the youth

Every four years, since 1995, the ESPAD (European School Survey Project on Alcohol and Other Drugs)² surveys are conducted in numerous European countries, including Croatia, providing a highly important source of data related to consumption of addictive substances in the youth population. The most recent ESPAD survey (Kuzman et al., 2012) was conducted in 2011, with 37 countries participating. Sixteen year-olds across Europe are the population from which the ESPAD samples are taken. The most recent results (Kuzman et al., 2012) show that the largest proportion of youth that consume alcohol can be found in the Czech Republic (93% of all surveyed), Denmark (92%), Germany (89%), and Greece (89%), while Croatia is ranked 11th with 85% of 16 year-olds consuming alcoholic beverages. Even though the growth in the proportion of youths consuming alcohol is not as dramatic as that found in the 1999 and 2003 surveys, the Croatian figure is still above the European mean for the 2011 survey round. When it comes to abuse of illegal drugs (marijuana, ecstasy, amphetamines, LSD, crack, heroin, cocaine), the data indicate that a large proportion of surveyed European youths experiments with psychoactive drugs such as marijuana or hashish. In Croatia, the data show that 21% of boys and 14% of girls have at least once tried marijuana, which places us below the ESPAD countries' mean. When it comes to use of LSD and ecstasy, the situation in Croatia remains unchanged with regard to 2007, with 5% of youths stating that they have consumed these substanc-

es. The interesting issue is that there was a correlation, with a coefficient 0,79, between consuming LSD and ecstasy on the one hand, and consuming marijuana on the other. Furthermore, it is important to note that Croatia takes the number one spot among surveyed countries when it comes to abuse of inhalants, with 25% of boys and 31% of girls stating that they had at least once tried that particular addictive substance.

The role of family in the abuse of addictive substances

With the role that the family plays in the process of individual development and socialization, the family surroundings make for the most important context for prevention of mental, emotional and behavioral problems (Ferić Šlehan, 2008). Sakoman et al. (2002) note that the beginning of the use of tobacco, alcohol and drugs typically takes place during adolescence, and that the specificities of that particular developmental stage, along with lack of experience and a certain willingness to take risks that comes with the age, make adolescents the population group that suffers the highest risk of substance abuse. For that reason, Sakoman (2009) also states that it ought to be the family that becomes the main carrier of addiction prevention activities, in spite of the fact that it is precisely that system that may, in its pathology or dysfunctionality, be one of the most important factors that increase the risk of addiction to psychoactive substances. Hawkins, Catalano and Miller (1992) point out that family surroundings can in numerous ways affect the the incidence of psychoactive substance abuse among the youth. They also state that, apart from transfer of genetic predisposition for alcohol abuse, the attitudes and behaviors related to addictive substance displayed by the parents may also be relevant for youth addiction. Lack of consistency in upbringing, family conflicts and weak attachment between parents and children make for some of the characteristics of family environments that may have a substantial impact on the appearance of addiction and addiction behavior in children and youth (Brook et al., 1990).

Table 1 shows the remaining risk factors that are found in the family and that may be related to substance abuse, as stated in the literature. It is necessary to point out that these characteristics represent risks for the appearance of substance abuse, which does not imply that these are predictors of such behavior. *Risk factors* are defined as "those characteristics, variables

1 http://www.uredzadroge.hr/upload/File/Dokumenti/Nacionalni%20program%20prevencije%20ovisnosti/Nacionalni_program_prevencije_ovisnosti_s_koricom.pdf

2 http://www.hzjz.hr/skolska/espada_2011.pdf

or dangers which, if present and for a certain individual, signify greater likelihood that this individual, rather than someone from the general population, would develop a behavioral disorder.” (Bašić, 2009)

Table 1. Risk factors in the family influencing substance abuse

AUTHOR(S)	RISK FACTORS IN THE FAMILY
Gerra et al. (2004)	<ul style="list-style-type: none"> inadequate care by the mother, poor attachment to the mother
Donovan (2004)	<ul style="list-style-type: none"> parents' inadequate attitudes towards substance abuse
Sakoman, Brajša-Žganec and Glavak (2002)	<ul style="list-style-type: none"> inadequate relationship between the parent and child lack of respect for the parents poor relationship between the parents
Brajša-Žganec et al. (2002)	<ul style="list-style-type: none"> poor family relationships
Farrington et al. (1990)	<ul style="list-style-type: none"> low socio-economic status of the family
Leavitt (1995)	<ul style="list-style-type: none"> lack of attachment between parents and children lack of discipline or inconsistency in upbringing substance abuse by the parents conflicts between the parents
Hawkins, Catalano i Miller (1992) Shillington et al. (2005) Birckmayer et al. (2004)	<ul style="list-style-type: none"> substance abuse by parents or other family members poor parental control over children weak attachments between children and parents
Chassin et al. (2005)	<ul style="list-style-type: none"> parental neglect
“Drug Free Organization” ³	<ul style="list-style-type: none"> inconsistency or severe punishments lack of support in the family inadequate parental expectations inconsistency in parents' attitudes towards substance abuse
Baumrind (1983)	<ul style="list-style-type: none"> parents' unrealistic expectations communication with the child that includes blame-placing, resentment, not acknowledging success

Given the results of research thus far, as shown in Table 1, the following may be noted as relevant risk factors found in the family surroundings which affect the appearance of substance abuse: poor relationships or conflicts in the family, inadequate upbringing processes, substance abuse by parents or other family members, parents' inadequate attitudes towards substance abuse, weak attachment between parents and children. It should also be noted that low socioeconomic status and poverty are also significant factors in the appearance of substance abuse

(Farrington et al., 1990). When it comes to upbringing and consistency in the process of upbringing, it is interesting to note the work done by Brook et al. (1990), who find that the role of the mother is more important than that of the father. They find that children of those mothers that are consistent in the way they approach upbringing are less likely to consume marijuana than the children of those mothers that do not apply proper upbringing procedures and who bring about the feeling of guilt in the child in order to induce desired behavior. It is also interesting to note that research conducted in the 1980s (Hawkins et al., 1992) shows that along with negative influence of inconsistent upbringing procedures, substance abuse in youths may be positively affected by excessive control on behalf of one of the parents and concurrent permissive style employed by the other parent.

Table 2 provides a list of protective factors that may be found in the family, which act to prevent the appearance of substance abuse, as found in the literature. *Protective factors* are defined as those that “mitigate or decelerate the effects of exposure to risk factors and thus reduce the incidence of problematic behavior” (Pollard, Hawkins and Arthur, 1999, in Bašić, 2009).

Table 2. Protective factors in the family

AUTHOR(S)	PROTECTIVE FACTORS IN THE FAMILY
Raboteg-Šarić, Sakoman and Brajša-Žganec (2002) Stewart (2002) Birckmayer et al. (2004)	<ul style="list-style-type: none"> a close relationship with parents parental support adequate parental supervision
US National institute for research in drug abuse ⁴	<ul style="list-style-type: none"> firm and positive ties in the family parental supervision over their children's behavior and over the peers' behavior. clear and consistently applied rules in the family parents' involvement in children's lives
Department of State Health Services ⁵	<ul style="list-style-type: none"> parents' familiarity with children's activities mutual decision-making (under some circumstances, when appropriate)
Kliewer and Murrelle (2007)	<ul style="list-style-type: none"> positive interactions between parents and children parents' religiosity

Results of research listed in Table 3 list the following the protective factors relevant to the matter of substance abuse: good quality familial relations, especially attachment between parent and child,

3 <http://timetoact.drugfree.org>

4 <http://www.drugabuse.gov>

5 <http://www.dshs.state.tx>

adequate and consistent implementation of upbringing procedures and parents' knowledge of children's activities. Brook et al. (1990) gave special attention to the quality of the relationship between parents and children in their work concerning the appearance of substance abuse. They consider strong attachment between parents and children to be extraordinarily important in prevention of substance abuse. Furthermore, they point out that the quality of a child's attachment to his/her parents is a key factor in internalizing positive values, attitudes and behaviors displayed by the parents. Hawkins et al. (1992) point out that trust that exists between parents and child, positive relationships in the family and involvement of parents in the growth and development of their child represent the bases of prevention of problem behaviors, child and youth substance abuse included.

It is important to emphasize the need for continued implementation of factors that have an impact on the appearance of youth substance abuse. Given the results of studies conducted thus far (Huser, Small & Eastman, 2008; Brown, 2005; Turner i Sanders, 2005; Colosi i Dunifon, 2003; Kumpfer i Alvarado, 2003; Riley, 1993), it is possible to determine a more detailed direction of effective parenting programs, which may also contribute to prevention of substance abuse in children and the youth:

- increase of positive attitudes between parents, and between parents and child
- development of family attachments, support and emotional warmth
- improvement of communication skills (both with the partner and with the child)
- reduction of stress in the family
- improvement of knowledge about child development
- setting of boundaries and family rules
- promotion of family rituals
- creation of a stimulating and safe environment for a child's development.

However, numerous authors emphasize that the most efficient strategies for substance abuse prevention work through multiple systems that a young person is included in, which includes prevention activities in schools and the overall community, along with the family (Bašić, 2009; Kulis et al., 2007; Vellema, Templeton & Copello, 2005; Botvin i Griffin, 2003; Coughlan, Doyle & Carr, 2002; Bauma et al., 2002). In that regard, it is important to state that prevention programs in these surroundings need to be scientifically based, and be designed in such a manner that allows for measurement of their effectiveness.

METHODS

Aim, problem statement and hypotheses

This project's main aim is to investigate the risk and protective factors that may be found within the family, in the population of young non-consumers and frequent consumers of alcohol, marijuana, ecstasy, inhalants and LSD.

In line with the defined aim, the following research problems and hypotheses are stated:

1. To determine whether there is a difference in the within-family risk factors in non-consumers and frequent consumers of alcohol, marijuana, ecstasy, inhalants and LSD.
- H1:** Frequent consumers of addictive agents, when compared with non-consumers, are more likely to perceive the risk factors in the family - inadequate family rules, family conflict and parents who support antisocial behavior and substance abuse.
2. To determine whether there is a difference in the frequency of presence of family protective factors in non-consumers and consumers of alcohol, marijuana, ecstasy, inhalants and LSD.
- H2:** Non-consumers of addictive agents, when compared to frequent consumers, are more likely to perceive the presence of protective factors in their family, such as family attachment, family environment that supports pro-social activities, and rewarding of pro-social activities.

Research description

This research study has been implemented as part of the project "Support in enforcement of systematic crime prevention work and establishment of Crime Prevention Coordination Unit". The project was being conducted in the area of the town of Split during 2010, in cooperation with UNDP office in Croatia, Ministry of the Interior of the Republic of Croatia and University of Zagreb's Faculty of Education and Rehabilitation Sciences, with prof. dr. Josipa Bašić as principal investigator. The survey was conducted in September and October 2010. Before administering the survey, high school students were asked to provide written consent for taking part in research, while in the case of elementary school students both students and parents were asked for written consent. The students filled in the survey questionnaire in group, during a school period.

Sampling strategy

There were 623 students that took part in this research process, all of them from among either sophomores or seniors in the First Grammar School, Fifth Grammar School “Vladimir Nazor” and the Trade School. The criteria of size, school success and neighborhood were taken into account in order to increase the diversity in the sample. It is necessary to point out that, in spite of the just listed selection criteria, the representativeness of the sample is limited with regard to sex, with 415 female students (68%) and 197 male students (32%). The surveyed youths’ age ranged from 15 to 18: there were 15,1% 15 year-olds, 37,9% 16 year-olds, 15,8% 17 year-olds and 30,9% 18 year-olds. Among the surveyed, there were 334 sophomores (54%) and 282 seniors (46%).

Description of the measurement

For this project, the CTC Children and Youth Questionnaire (Mihić, Novak and Bašić, 2010) was

used. The questionnaire is made up of 140 questions about perception of the presence of 18 risk and 9 protective factors which are found in four domains: community, school, family, and peers/individual. These factors are designed as composite variables. Those among them that represent risk factors are inadequate rules in the family, conflicts in the family, parents’ inadequate attitudes towards anti-social behaviors, and their inadequate attitudes towards substance abuse. The composite variables that represent protective factors in the family are family attachments, opportunities for pro-social activities in the family, rewards for pro-social activity in the family. Table 3 provides the list of survey questions that are included in each of the composite measures used in this paper.

Cronbach’s alpha was used as a measure of reliability of the sub-scales of risk and protective factors, and it was found that it ranges from ,69 to ,77: inadequate rules in the family ($\alpha = ,74$), conflicts in the family ($\alpha = ,70$), parents’ inadequate attitudes towards asocial behavior ($\alpha = ,71$), parents’

Table 3. Elements of composite variables of risk and protective factors

RISK FACTORS COMPOSITE VARIABLES	ELEMENTS/QUESTIONS
INADEQUATE RULES IN THE FAMILY	<ul style="list-style-type: none"> • My parents ask if I have done my homework. • My parents would notice if I didn not come home on time. • When I am not home, one of my parents knows where I am and who I am with. • There are clear rules in my family. • My family has clear rules about consuming alcohol. • My family has clear rules about consuming drugs. • My parents would notice if I had some wine/beer/hard liquor without their approval. • My parents would notice if I cut class.
FAMILY CONFLICTS	<ul style="list-style-type: none"> • My family members often yell at or insult each other. • My family members often fight and have strong disagreements.
PARENTS' INADEQUATE ATTITUDES TOWARDS ANTI-SOCIAL BEHAVIOR	<ul style="list-style-type: none"> • How bad would your parents think stealing something worth more than 30HRK is? • How bad would your parents think writing graffiti/tagging or drawing/writing something on buildings or other people’s properties (without their approval) is? • How bad would your parents think your getting into a fight is?
PARENTS' INADEQUATE ATTITUDES TOWARDS SUBSTANCE ABUSE	<ul style="list-style-type: none"> • How bad do you think your parents would consider your drinking regularly (once or twice a month)? • How bad do you think your parents would consider your smoking? • How bad do you think your parents would consider your smoking marijuana?
PROTECITVE FACTORS COMPOSITE VARIABLES	
FAMILY ATTACHMENTS	<ul style="list-style-type: none"> • I am close to my mother. • I confide in my mother. • I am close to my father. • I confide in my father.
OPPORTUNITIES FOR PROSOCIAL ACITIVITIES IN THE FAMILY	<ul style="list-style-type: none"> • My parents create opportunities for us to do fun things as a family together. • My parents ask for my opinion when making decisions related to me. • When I have a personal problem, I can approach my mother/father for help.
FAMILY REWARDS FOR PROSOCIAL ACTIVITY	<ul style="list-style-type: none"> • My parents notice when I do something good, and they commend me for it. • My parents tell me when they are proud of something I’ve done. • I like spending time with my mother. • I like spending time with my father.

inadequate attitudes towards substance abuse ($\alpha = ,69$), family attachments ($\alpha = ,75$), opportunities for pro-social activities in the family ($\alpha = ,76$), rewards for pro-social activity in the family ($\alpha = ,77$).

In order to fulfill the aim of the project, data from variables related to consumption of individual psychoactive substances (alcohol, marijuana, ecstasy, inhalants, LSD), in one's lifetime and in the preceding 30 days, have been used. These variables have been measured on a Likert-type six-degree scale (never, once or twice, 3 to 5 times, 6 to 9 times, more than 10 times, more than 20 times). The answers to these questions were summarized in two categories: that of non-consumers and that of frequent consumers. The former category includes all the students that replied "never" to the above question, while the latter category includes those that replied with "6 to 9 times", "more than 10 times" and "more than 20 times".

Methods of data analysis

In order to test the hypotheses and ascertain whether there are differences in the presence of risk and protective factors in the families of non-consumers and frequent consumers, respectively, chi-squared tests have been conducted.

RESULTS

Presence of risk and protective factors in the families of non-consumers and frequent consumers

With regard to the presence of risk factor "inadequate rules in the family", the result of the chi-squared test ($\chi=16,70$) shows that frequent consumers of alcohol are significantly ($p<,01$) more likely to perceive the presence of such rules when compared to those that do not drink alcohol (Table 4).

In the case of use of marijuana in the preceding 30 days, the chi-squared test result ($\chi=15,99$) points to more frequent consumers are also being significantly more likely to perceive the above risk factor in their family. Frequent consumers of LSD in the 30 days preceding the survey perceive the presence of the above risk factor in 41,7% of cases, which is significantly more often than those that do not consume this psychoactive substance. The results are similar for those consuming ecstasy and inhalants, where frequent consumers are also more likely to perceive the presence of inadequate rules in the family, with the result for the former being $\chi=12,44$, and $\chi=18,42$ for the latter. In both cases, the difference is statistically significant ($p<,01$). Those students that frequently abuse addictive substances are

Table 4. Presence of inadequate family rules: a comparison of non-consumers and frequent consumers of psychoactive substances

	INADEQUATE FAMILY RULES					X2	df	p
	YES		NO					
	N	%	N	%				
Drinking alcohol in the past 30 days					16,70	1	,000**	
NON-CONSUMERS	13	8,5	140	91,5				
FREQUENT CONSUMERS	29	27,6	76	72,4				
TOTAL	42	16,3	216	83,7				
Consuming marijuana in the past 30 days					15,99	1	,000**	
NON-CONSUMERS	53	10,6	449	89,4				
FREQUENT CONSUMERS	9	37,5	15	62,5				
TOTAL	62	11,8	464	88,2				
Consuming LSD in the past 30 days					8,25	1	,004**	
NON-CONSUMERS	73	13	490	87				
FREQUENT CONSUMERS	5	41,7	7	58,3				
TOTAL	78	13,6	497	86,4				
Consuming ecstasy, ever					12,44	1	,000**	
NON-CONSUMERS	78	13,6	495	86,4				
FREQUENT CONSUMERS	3	75	1	25				
TOTAL	81	14	496	86				
Inhaling glue or other inhalants, ever					18,42	1	,000**	
NON-CONSUMERS	62	12,2	447	87,8				
FREQUENT CONSUMERS	10	43,5	13	56,5				
TOTAL	72	13,5	460	86,4				

** $p<,01$

more perceptive of the presence of inadequate rules in the family than are students that do not.

The comparison of perception of presence of conflicts in the family among non-consumers and frequent consumers of psychoactive substances (Table 5) found that in the case of marijuana, chi-squared test results ($\chi=4,42$) point to frequent consumers more commonly perceiving the presence of the above stated risk factor, with a significance level of $p<,05$

When it comes to consuming alcohol, LSD, ecstasy and inhalants, the differences in the perception of this risk factor between frequent consumers and non consumers have not been statistically significant.

All of the results in Table 6, related to the comparison of perception of presence of parents' inad-

equated attitudes towards asocial behavior between non-consumers and frequent consumers are statistically significant ($p<,01$) and point to this risk factor being more commonly perceived by the frequent consumers.

Results of the chi-squared test ($\chi=7,94$) for frequent consumers of alcohol show that 8,3% among them perceive their parents' inadequate attitudes towards asocial behavior, while only 1,3% of non-consumers perceive those in their own families. Perception of these attitudes is more common in consumers of marijuana (25%), LSD (50%), as well as among consumers of ecstasy, than it is among non-consumers. With regard to consumers of inhalants, the chi-squared test ($\chi=20,03$) shows that they significantly ($p<,01$) more often perceive their parents' inadequate attitudes towards asocial behavior than non-consumers do.

Table 5. Presence of conflicts in the family: a comparison of non-consumers and frequent consumers of psychoactive substances

	CONFLICTS IN THE FAMILY					X2	df	P
	YES		NO					
Consuming marijuana in the past 30 days	N	%	N	%	4,42	1	,035*	
NON-CONSUMERS	191	37	325	63				
FREQUENT CONSUMERS	14	58,3	10	41,7				
TOTAL	205	38	325	62				

* $p<,05$

Table 6. Parents' inadequate attitudes towards anti-social behavior: a comparison of non-consumers and frequent consumers of psychoactive substances

	PARENTS' INADEQUATE ATTITUDES TOWARDS ANTI-SOCIAL BEHAVIOR					X2	df	p
	YES		NO					
Drinking alcohol in the past 30 days	N	%	N	%	7,94	1	,005**	
NON-CONSUMERS	2	1,3	154	98,7				
FREQUENT CONSUMERS	9	8,3	99	91,7				
TOTAL	11	4,2	253	95,8				
Consuming marijuana in the past 30 days	N	%	N	%	50,15	1	,000**	
NON-CONSUMERS	8	1,5	510	98,5				
FREQUENT CONSUMERS	6	25	18	75				
TOTAL	14	2,6	528	97,4				
Consuming LSD in the past 30 days	N	%	N	%	91,61	1	,000**	
NON-CONSUMERS	12	2,1	568	97,9				
FREQUENT CONSUMERS	6	50	6	50				
TOTAL	18	3	574	97				
Consuming ecstasy, ever	N	%	N	%	36,87	1	,000**	
NON-CONSUMERS	13	2,2	577	97,8				
FREQUENT CONSUMERS	2	50	2	50				
TOTAL	15	2,5	579	97,5				
Inhaling glue or other inhalants, ever	N	%	N	%	20,03	1	,000**	
NON-CONSUMERS	10	1,9	513	98,1				
FREQUENT CONSUMERS	4	16,7	20	83,3				
TOTAL	14	2,6	533	97,4				

** $p<,01$

The risk factor of “parents’ inadequate attitudes towards substance abuse” (Table 7) appears in 13,8% of cases of frequent consumers of alcohol, while only appearing in 2,5% of cases of non-consumers.

The results of the chi-squared test ($\chi=12,19$) show that those students that frequently drink alcohol significantly more often ($p<,01$) perceive the presence of their parents’ inadequate attitudes towards substance abuse than non-consumers do. In the case of frequent marijuana consumers, the chi-squared result of $\chi=10,309$ points to their more common perception of the above risk factor ($p<,01$). With the LSD consumers, 18,2% of those surveyed perceive the presence of this factor, while only 4,8% of non-consumers do, with the difference being significant at $p<,01$ level. Frequent consumers of ecstasy perceive this risk factor in 50% of the cases,

while the same is true for 4,6% of non-consumers. Here, the difference is statistically significant at $p<,01$, with $\chi=17,75$. The category of inhalant abuse is the only one where no statistically significant difference in perception of this risk factor between non-consumers and frequent consumers.

Presence of protective factors in the families of non-consumers and frequent consumers of addictive substances

The calculation of the significance of the difference between non-consumers and frequent consumers of alcohol when it comes to perception of the presence of protective factor of “family attachments” showed that the non-consumers significantly ($\chi=10,60$, $p<,01$) more often confirm its presence than frequent consumers (Table 8).

Table 7. Parents’ inadequate attitudes towards substance abuse: a comparison of non-consumers and frequent consumers of psychoactive substances

	PARENTS’ INADEQUATE ATTITUDES TOWARDS SUBSTANCE ABUSE					X2	df	p
	YES		NO					
Drinking alcohol in the past 30 days	N	%	N	%	12,19	1	,000**	
NON-CONSUMERS	4	2,5	153	97,5				
FREQUENT CONSUMERS	15	13,8	94	86,2				
TOTAL	19	7,1	247	92,9				
Consuming marijuana in the past 30 days	N	%	N	%	10,30	1	,001**	
NON-CONSUMERS	18	3,5	502	96,5				
FREQUENT CONSUMERS	4	16,7	20	83,3				
TOTAL	22	2	522	96				
Consuming LSD in the past 30 days	N	%	N	%	4,03	1	,045**	
NON-CONSUMERS	28	4,8	555	95,2				
FREQUENT CONSUMERS	2	18,2	9	81,8				
TOTAL	30	5,1	564	94,9				
Consuming ecstasy, ever	N	%	N	%	17,75	1	,000**	
NON-CONSUMERS	27	4,6	566	95,4				
FREQUENT CONSUMERS	2	50	2	50				
TOTAL	29	4,9	568	95,1				

* $p<,05$; ** $p<,01$

Table 8. Family attachments: a comparison of non-consumers and frequent consumers of psychoactive substances

	FAMILY ATTACHMENTS					X2	df	p
	YES		NO					
Drinking alcohol in the past 30 days	N	%	N	%	10,60	1	,001**	
NON-CONSUMERS	98	66,2	50	33,8				
FREQUENT CONSUMERS	49	45,8	58	54,2				
TOTAL	147	57,6	108	42,4				
Consuming marijuana in the past 30 days	N	%	N	%	12,33	1	,000**	
NON-CONSUMERS	298	61,8	190	38,9				
FREQUENT CONSUMERS	6	25	18	75				
TOTAL	304	59,4	208	40,6				
Inhaling glue or other inhalants, ever	N	%	N	%	9,68	1	,002**	
NON-CONSUMERS	300	60,6	195	39,4				
FREQUENT CONSUMERS	6	27,3	16	72,7				
TOTAL	306	59,2	211	40,8				

** $p<,01$

Among those that do not consume marijuana, 61,8% perceive a presence of family attachments, and the difference between this result and that for frequent consumers is statistically significant ($\chi=12,33$, $p<,01$). The proportion of frequent consumers that perceive the presence of this protective factor is 25% with regard to consuming LSD and ecstasy, no statistically significant differences in the perception of this factor between non-consumers and consumers were found. There is a statistically significant difference ($p<,01$) in this regard between inhalant non-consumers and consumers: 60,6% of the former and 27,3% of the latter perceive the presence of this protective factor.

The protective factor of “opportunities for pro-social activities in the family” is perceived by 83% of non-consumers of alcohol, and by 57,4% of frequent consumers of this addictive substance. (Table 9)

The result of the chi-squared test ($\chi=20,79$) shows that non-consumers of alcohol significantly ($p<,01$) more often perceive this factor’s presence than frequent consumers of alcohol. There is also a statistically significant ($p<,01$) difference in the frequency with which this factor is perceived by non-consumers and frequent consumers of marijuana and LSD. Here, the chi-squared test results are $\chi=12,33$ for marijuana and $\chi=7,69$ for LSD. The proportion of non-consumers of marijuana that perceive opportunities for pro-social activities in the family is 81%, and 78,5% among non-consumers of LSD. Among frequent consumers, the proportions

are 52% in the case of marijuana and 46,2% in the case of LSD. The perceptions of ecstasy consumers and non-consumers are not statistically different in this regard.

With regard to the protective factor of “family rewards for pro-social activities”, results (Table 10) show that 83,1 of non-consumers and 59% of frequent consumers of alcohol perceive this factor’s presence in their families ($\chi=18,09$, $p<,01$).

In the case of marijuana, those that do not consume it more often perceive the presence of the above protective factor ($\chi=28,01$, $p<,01$), as is the case for those that do not consume LSD. In the category of ecstasy non-consumers and frequent consumers, no statistically significant difference between the perceptions of the two groups was found ($\chi=1,68$). Among those that do not consume inhalants, 79,5% of those surveyed perceive family rewards for pro-social activities, while the percentage is 47,8 among frequent consumers ($\chi=12,93$).

DISCUSSION

The first research problem this project was trying to solve was determining whether there is a difference in the perception of risk factors in the families of non-consumers and frequent consumers of various addictive substances. The above results show that frequent consumers significantly more often perceive the presence of inadequate family rules in their own families than non-consumers do. It should be noted that for the purpose of this research, the

Table 9. Presence of opportunities for pro-social activities in the family: a comparison of non-consumers and frequent consumers of psychoactive substances

	OPPORTUNITIES FOR PRO-SOCIAL ACTIVITIES IN THE FAMILY					X2	df	p
	YES		NO					
Drinking alcohol in the past 30 days	N	%	N	%	20,79	1	,000**	
NON-CONSUMERS	127	83	26	17				
FREQUENT CONSUMERS	62	57,4	46	42,6				
TOTAL	189	72,4	72	27,6				
Consuming marijuana in the past 30 days	N	%	N	%	12,33	1	,000**	
NON-CONSUMERS	413	81	97	19				
FREQUENT CONSUMERS	13	52	12	48				
TOTAL	426	79,6	109	20,4				
Consuming LSD in the past 30 days	N	%	N	%	7,69	1	,006**	
NON-CONSUMERS	449	78,5	123	21,5				
FREQUENT CONSUMERS	6	46,2	7	53,8				
TOTAL	455	77,8	130	22,2				
Inhaling glue or other inhalants, ever	N	%	N	%	32,42	1	,000**	
NON-CONSUMERS	415	80,3	102	19,7				
FREQUENT CONSUMERS	8	32	17	68				
TOTAL	423	78	119	22				

** $p<,01$

Table 10. Presence of family rewards for pro-social activities: a comparison of non-consumers and frequent consumers of psychoactive substances

	FAMILY REWARDS FOR PRO-SOCIAL ACTIVITIES						
	YES		NO		X2	df	p
	N	%	N	%			
Drinking alcohol in the past 30 days					18,09	1	,000**
NON-CONSUMERS	123	83,1	25	16,9			
FREQUENT CONSUMERS	62	59	43	41			
TOTAL	185	73,1	68	25,9			
Consuming marijuana in the past 30 days					28,01	1	,000**
NON-CONSUMERS	402	80,9	95	19,1			
FREQUENT CONSUMERS	8	34,8	15	65,2			
TOTAL	410	78,8	110	21,2			
Consuming LSD in the past 30 days					11,11	1	,001**
NON-CONSUMERS	440	78,6	120	21,4			
FREQUENT CONSUMERS	4	36,4	7	63,6			
TOTAL	444	77,8	127	22,2			
Inhaling glue or other inhalants, ever					12,93	1	,000**
NON-CONSUMERS	400	79,5	103	20,5			
FREQUENT CONSUMERS	11	47,8	12	52,2			
TOTAL	411	78,1	115	21,9			

**p<,01

concept of inadequate family rules also includes the level of information that the parents have about their child's behavior and the presence and clarity of the family rules. The results are congruent with the findings of research in other countries (Leavitt, 1995; Hawkins et al., 1992). Kandel and Andrews (1987) have also found a relationship between low level of parents' information on the child's activities and the child's abuse of psychoactive substances. They also point out the relevance and negative impact of inconsistent parenting and lack of rules in the family. Baumrind (1983) states that a permissive style of parenting is often related to risk-prone behavior among children and youths, substance abuse included. Along with the importance of parents' setting of rules and consistent parenting, it is also necessary that the parents provide an adequate role model for their children. Being informed about the child's activities, adjoined by quality communication and trust, lowers the probability that the child will engage in problematic behavior, such as substance abuse.

Investigating the perception of conflict in the family yielded some interesting results. In this case, there are statistically significant differences only when it comes to consumption of marijuana: frequent consumers perceive this risk factor in 58% of cases, while the same is true for 37% of non-consumers. Hawkins et al. (1992) found that conflicts in the family are often related to delinquent behavior of the child and substance abuse. However, a specific link between family conflict and marijuana

abuse was found by Kliewer and Mirrelle (2007). Frequent arguments and verbal and physical conflict have a negative impact on the child in any case. It is possible that children that grow up in such settings are more likely to consume marijuana precisely because of its "calming" effect. Hyman and Sinha (2008) find that, among the youth, there is a correlation between negative life events, traumas and inadequate stress-coping skills, and frequent consumption of marijuana.

When it comes to the risk factor of parents' inadequate attitudes towards asocial behaviors, results show that frequent consumers significantly more often perceive its presence in their own families, and this holds across all of the discussed addictive substances. Farrington (1995) also finds that such attitudes among parents increase the probability that the children would display anti-social behavior. The results of this research are congruent with the model of social development (Cleveland et al., 2008, Catalano and Hawkins, 1996), according to which the explanation for the individual's behavior lies in the theories of social control, social learning and differential association. This model states that, if parents do not perceive anti-social behavior as negative, it is very likely that such attitudes and values will be displayed by their children, which may result in the child's asocial behavior, such as engaging in theft, violence or substance abuse.

The final risk factor whose impact on substance abuse was assessed here is the perception of parents' inadequate attitudes towards substance abuse itself.

Results have shown that frequent consumers of all listed substances, except for inhalants, significantly more often perceive the presence of such attitudes in their parents than non-consumers do.

Numerous authors (Bahr, Hoffman and Yang, 2005; Gil, Wagner and Vega, 2000; Leavitt, 1995; Hawkins, Catalano and Miller, 1992) have found a correlation between substance abuse and parents' inadequate attitudes towards substance abuse. McDermott (1984) even states that parents' adequate attitudes in this regard have more of an impact on their child avoiding substance abuse than parents' behavior itself. However, research by Ellickson et al. (2001) finds that parental behavior, e.g. their substance abuse, has better predictive power on children's substance abuse than their permissive attitudes. In any case, it ought to be noted that the presence of this risk factor points to the existence of a dysfunctional family, which is by no means a healthy environment for the development of a child, as suggested by the fact that 8 to 50% (depending on the abused substance) of frequent consumers of addictive substances perceive this risk factor as present in their lives. This problem is exacerbated by the fact that parents who hold such problematic attitudes are not likely to be willing to change and be included in parental prevention programs.

With all the findings taken into account, the H1 can be said to be confirmed by the data - frequent consumers of addictive substances more commonly perceive risk factors in their family than non-consumers do.

The second research problem was to determine whether there is a difference in the perception of protective factors, when non-consumers and frequent consumers of alcohol, marijuana, ecstasy, LSD and inhalants are compared.

With regard to the protective factor of family attachments, this research shows that its presence is significantly more often perceived by non-consumers of alcohol, marijuana and inhalants, when compared with frequent consumers of these substances. Much of previous research has shown that a close relationship with parents and parental support constitute a significant protective factor when it comes to prevention of substance abuse (Mrug, Gaines, Su, Windle, 2010; Birckmayer, Holder, Yacoubian, Friend, 2004; Raboteg-Šarić, Sakoman, Brajša-Žganec, 2002; Stewart, 2002). Quality, trust-based relationship between parents and child significantly reduces the likelihood that the children will display problematic behaviors,

which include substance abuse (Hawkins et al.). Itković and Bilan (1995) found that the children list the wish to not disappoint their parents and a close relationship with their parents as prime reasons for not engaging in substance abuse. Our research, however, has not shown that there is a difference in the perception of family attachments between frequent consumers and non-consumers of LSD and ecstasy. With regard to ecstasy, several studies that focus on the link between family characteristics and this particular substance abuse have been conducted (Martins and Alexandre, 2009; Martins et al., 2008; Puente et al., 2008; Martins et al., 2007), but none have focused on the relationship between protective factors in the family and consuming of ecstasy, which includes an assessment of the effect of family attachments. It seems that this area requires further research, so that we may gain a better insight into the specificities of family environments of those youths that consume ecstasy and LSD, with a particular emphasis on protective factors in the family.

The protective factor of opportunities for pro-social activities in the family is significantly more commonly perceived by non-consumers than it is by consumers of alcohol, marijuana, LSD and inhalants. The difference in perception across these groups was not statistically significant only in the case of ecstasy. Results suggest that those families that provide their children with more opportunities for pro-social activity and encourage them to actively engage in family activities, can also expect that the children will be less likely to engage in substance abuse. This protective factor is closely related to the family attachment factor, thus it is not surprising that the two yield similar results. Hundley and Mercer (1987) point out that the involvement of children in the family decision-making process, when age-appropriate, is very important for strengthening the attachments in the family and achieving high quality relationships.

Finally, the effect of family rewards for pro-social activities was also investigated. Non-consumers of all listed substances with the exception of ecstasy were found to be more likely to perceive the presence of this factor in their families. Hawkins et al. (1992) found that the absence of rewards for pro-social behavior or lack of consistency in rewarding has a negative impact on prevention of substance abuse among the youth. By rewarding pro-social behavior, the parents develop the attitude in their children that this sort of behavior "pays" and that it is noticed and appreciated by their environment. It is probably for this reason that these children

feel less of a need to seek approval from peers by engaging in substance abuse. There is a need for further research of this issue as well, so that our understanding of different findings between ecstasy and other addictive substances is improved.

It follows from all that was stated above that H2 was partially confirmed in this research - non-consumers of some of the listed substances more commonly perceive the presence of protective factors - family attachments, opportunities for pro-social activity in the family and family rewards for pro-social activity - in their midst.

CONCLUSION

The results of our research have confirmed the importance of including the family into the planning and implementation of substance abuse prevention strategies aimed at the youth. Our findings show that certain characteristics of the family are more commonly found in consumers of addictive substances than in non-consumers, and vice versa. Frequent consumers of addictive substances more commonly perceive inadequate rules in the family, family conflicts, parents' inadequate attitudes on anti-social behaviors and substance abuse. On the other hand, those that more often perceive the presence of family attachments, opportunities for pro-social activities and family rewards for pro-social activities in their midst, less often engage in substance abuse.

These results provide us with a good basis for further planning of more complex and general research concerning the impact of the family environment on the appearance of substance abuse. It ought to be pointed out that most research in this area focuses on risk factors. However, in order to gain a better understanding of the problem and appearance of substance abuse, research into pro-

TECTIVE factors is necessary as well. Regarding the risk and protective factors in the environment of the family, future research should address the impact of a larger number of factors on the appearance of substance abuse. This research might be directed at examining the impact of a wider set of biological, psychological and social characteristics of the parents and the family environment, such as socioeconomic status of the family or parents' personality traits. It would also be useful to involve the parents directly so as to gain a better insight into the family. Our results also point to a number of specificities regarding the type of substance that is abused, further investigation of which could be highly relevant.

Even though this project only included several of family-related risk and protective factors in the incidence of substance abuse, the results may nevertheless have a significant impact on the planning of scientifically based addiction prevention programs in Croatia. Scientifically grounded prevention programs aimed at the family should be designed to simultaneously reduce the incidence of risk factors and increase the incidence and support the creation of the protective factors. Partially and separately affecting the risk factors or the protective factors does not allow for the achievement of significant results in the area of prevention. It must also be pointed out that prevention in the family must be supplemented by preventive activities in schools and community as a whole.

An approach to addiction and substance abuse must be scientifically grounded, and as such must form a basis for a scientific approach to prevention in Croatia, including continued implementation of etiological and epidemiological research, planning of multi-level, developmentally appropriate, and theoretically grounded prevention programs, and the evaluation of effectiveness of such preventive interventions.

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