



INDICATORS OF EARLY RECOGNITION AMONG CROATIAN YOUTH AT HIGH RISK OF SUBSTANCE ABUSE

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The aim of the study was to identify psychosocial indicators in micro and macro-milieus that reveal adolescents at high risk of substance abuse. The research using a representative sample was carried out among 2 823 high school students throughout Croatia. We devised a questionnaire to assess student's socio-economic status, family functioning, school functioning, satisfaction with life, and relationships with friends. Students in the group at risk of substance abuse (tobacco smoking, alcohol consumption, and drug use) differ from the students in the group not at risk. The most important variables that determine these differences are: a) respondents' attitudes towards their friends and acquaintances who smoke cigarettes, drink alcohol, and use drugs; b) gender; and c) truancy. In addition, compared to adolescents that are not at risk, adolescents at risk function worse in a family and school milieu and are less satisfied with their life in general. Smoking cigarettes, alcohol consumption, and use of drugs are mainly associated with the use of these substances within peer group. Therefore, to reduce the abuse of psychoactive substances, it is necessary to strengthen an individual's resistance to the social peer pressure and pay attention to the quality of relationships between adolescents as well as with their parents and teachers.



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INTRODUCTION

Results of epidemiological research, such as research conducted by the National Institute on Drug Abuse (Weinberg et al., 1998), show that the family situation, school, peer company, and some other social variables can be risk factors for initial use of psychoactive substances among adolescents. Identification of these factors would enable investigators to anticipate which adolescents might continue with substance abuse and subsequently become addicted (Rhodes and Jason, 1990). The theory of primary socialization by Oetting and Donnermeyer encompasses the stated factors and aims and explains their role in the development of substance abuse behavior in adolescents. According to this theory, there are specific primary sources for social learning. The sources of primary socialization in adolescence are family, school, and peers (Oetting and Donnermeyer, 1998).

The family is an important source of pro-social norms. To successfully convey parental values and standards that correspond with cultural norms and norms of the broader social community, a good level of communication between an adolescent and his or her family is important. Young people, during adolescence, start to rebel against the authority of their parents and certain social conventions (i.e., expressing that rebellion through the clothes they wear or their hairstyle). They also reject some parental standards, such as parents' disapproval of drugs, which can lead teenagers into experimentation with drugs (Rhodes and Jason, 1990). As adolescents re-evaluate parental standards, the role of their peers becomes more and more important in conveying standards and values. Most adolescents spend a lot of time with their peers in or out of school (Clarke-Stewart et al., 1988). Even those adolescents who are relatively independent usually conform to the attitudes of peers to gain a certain social status within a relevant group of peers (Oetting and Beuvais, 1986).

Some adolescents grow up in families that are incomplete (Miller, 1997) or dysfunctional. Parents themselves often take some addictive substances. Frequently, problems include father's alcoholism, mother's addiction to pills, or their siblings' drug addiction (Weinberg et al., 1998). Children usually identify themselves with their parents who are seen as role models and assume their parents' behavior (Orlandi et al., 1990). However, problems with adolescents are not only restricted to seriously dysfunctional families, but can even emerge in families in which parents lack some of the parental skills necessary for dealing with a child during various phases of development, especially adolescence (Oetting and Donnermeyer, 1998). Adolescence is a period in which teenagers

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discover inconsistency in their parents' arguments about the risk of addictive substance use, since many parents drink alcohol, smoke cigarettes, or take pills for sedation. These behavioral patterns can be copied by adolescents, thus reducing the possibility that they adopt "a healthy life style". Children living with parents who have brought them up in an inadequate and inefficient way will not identify themselves with their parents and accept their parents' standards and values. Instead they will identify themselves with other children who have similar problems in their families. These children will influence each other when it comes to experimenting with drugs. Research carried out by Welte et al. (1990) showed that drug use among children stems from their relationships with peers who also take drugs and who do not have adequate relationships with their parents. On the other hand, it is more probable that children who develop an adequate, close relationship with their parents and accept their parents' attitude that taking drugs is harmful, will not associate with peers who experiment with drugs (Rhodes and Jason, 1990).

Identification with teachers, who may also serve as role models during adolescence, is also important. Students who do not have a person to identify with and who are opposed to school as an institution will start experimenting with drugs more readily than students who identify themselves with competent teachers (Rhodes and Jason, 1990). Moreover, failure at school can induce an adolescent to start experimenting with drugs. This can lead to frequent truancy and persuade the adolescent to associate with a group of peers that have the same problems. Undoubtedly, failure at school is connected with drug use in adolescents (Welte et al., 1990).

An extensive epidemiological study was carried out by the Governmental Center for Prevention and Outpatient Treatment of Addiction in Zagreb in 1997 and 1998. In a questionnaire for an epidemiological follow-up (unpublished data), responses show that many of the addicts upon their first admission for treatment stated fun or curiosity (52.1%) was the main reason they started to experiment with drugs. Second, the most frequent cause was peers' or friends' influence (24.2%), whereas problems in the family and school were mentioned in smaller percentages. The importance of peers is an obvious factor in initial drug use.

If we want to have a high-quality strategy for the suppression of addiction in a community, improving the possibilities of early recognition among the young population at high risk of substance abuse is of utmost importance. Thus, it would then be possible to take preventive measures and dissuade the young population from experimenting with drugs. In our research, we have attempted to identify the influencing factors

that could simultaneously serve as the indicators of early recognition among the youth at high risk of substance abuse.

METHODS

Sample

The research using a representative sample was conducted among Croatian high school students. The sample was drawn from all high schools in the Republic of Croatia so that high schools from each county were represented proportionally to their share in the total population of high school students. Two percent of high school students from each grade were selected at random choice from a list of gymnasiums and trade schools in each county. The total number of students in the sample was 2 823. The median age of respondents was 16 years and 4 months. Subjects were grouped according to the risk of smoking, alcohol consumption, and drug use; resulting in three groups each with two levels of substance abuse.

A. In the first group, based on their answers to the question *How many times have you smoked cigarettes?*, two levels of smoking were found:

1. Students who have never or once or twice smoked cigarettes were in the *no risk* group of smoking cigarettes (N=948). Out of them, 42.1% were boys and 57.9% were girls; 59.7% were in the first and second year and 40.3% were in the third and fourth year; 25.9% attended gymnasiums and 74.1% attended other schools.

2. Students who have smoked or still smoke every day were in the *at risk* group of smoking cigarettes (N=927). Out of them, 47.4% were boys and 52.6% girls; 46.2% of the students in this group were in the first and second year, and 53.8% were in the third and fourth year; 22.3% attended gymnasiums and 77.7% attended other schools.

B. In the second group, based on their answers to the question: *How many times have you drunk alcohol?*, two levels of drinking were found:

1. Students who have drunk alcohol and those who have tried it 1-9 times in their life were put in the *no risk* group of alcohol consumption (N=702). Out of them, 32.5% were boys and 67.5% were girls, in the first and second year (66.5%) and in the third and fourth year (33.5%); 22.9% of them attended gymnasiums, and 78.1% attended other schools.

2. Students who had drunk alcohol 6 or more times in the past 30 days were in the *at risk* group of alcohol consumption (N=476). There were 69% of boys and 31% of girls in this group; 50.2% of the students were in the first and second year, and 49.8% in the third and fourth year; 24.4% went to gymnasiums, and 75.6% went to other schools.

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C. In the third group, based on their answers to the question: *How many times have you taken drugs?*, two levels of drug use were found:

1. Students who have never taken drugs in their life were in the *no risk* group of taking drugs (N=2 083). There were 42.3% of boys and 57.7% of girls; 58.2% of these students were in the first and second year, and 41.8% in the third and fourth year; 22.1% attended gymnasiums, and 77.9% attended other schools.

2. Students who had taken drugs once or up to 40 times or more in the past 30 days were in the *at risk* group of taking drugs (N=292). Out of them, 60.3% were boys and 39.7% were girls; 42.1% of these students were in the first and second year, and 57.9% were in the third and fourth year of high school; 28.8% of the pupils attended gymnasiums, and 71.2% of students went to other schools.

Measures

For the purpose of this research, we created a detailed questionnaire with various groups of questions that covered socio-demographic features, attitudes, values of the adolescent respondents, family relationships, parental skills in child upbringing, peer relationships and success at school. In addition, questions related to use of free time, the frequency of use of addictive substances and attitude toward such a behavior, and the frequency of problematic behavior among youth were also included. We presented the results of this research on the indicators of early recognition among youth at high risk of substance abuse by choosing the answers to the following variables in the questionnaire: socio-economic status, family functioning, functioning at school, satisfaction with life, and peers and their substance use. These factors were chosen because they may reflect the indicators of early recognition among youth at high risk of smoking, drinking, and drug use.

Socio-economic variables were defined by gender (1 – boys; 2 – girls), age (1 – first and second year of high school; 2 – third and fourth year of high school), parents' education (the sum of parents' education, from 1 – no elementary school or incomplete elementary education, to 7 – M. A./M. S. or Ph. D., range of results 1-14), marital status of the parents (1 – married; 2 – other), and assessment of financial situation (1 – excellent, or better than the majority; to 5 – poor, worse than the majority).

Family variables were graded by the respondents' answers to the following questions: *How good are relationships in the family?* (1 – mostly harmonious and understanding; to 4 – frequent quarrels and physical fights), *How often do you respect your parents' opinions and demands?* (1 – yes, I willingly respect and accept them; to 5 – no, I do not respect them at all and I

do not care what they think); *How did your family treat you when you were a child?* (composite result, range 5-25; the higher the result, the worse the relationship). Factor analysis obtained on five items which are related with intra-familial relationships in childhood extracted one factor that accounts for 49.8% of total variance and is significantly saturated with all five items. Furthermore, we included grading scales for respondents to estimate how they had been punished by the parents: a) a frequency of physical punishment, b) verbal punishment and rebuke, c) punishment by silence and refusal to talk, d) forbidding something they cared about very much, e) not punished at all (1 – not true, to 5 – absolutely true); *Do your parents smoke?* (1 – no, 2 – yes); *Is alcohol consumed at your home?* (1 – alcohol is not consumed at all, to 4 – it is consumed everyday, for lunch, and often during the day); *Would you like to talk to your parents about the risks of taking drugs?* (1 – no, 2 – I do not know, 3 – yes); *Have you ever run away from home?* (1 – no, 2 – yes); *Do you attend church masses and how important is religion in your life?* (composite result of two items – $r=0.50$; from 1 – it is not important and I do not attend church, to 4 – it is very important and I attend mass every Sunday, the range is 1-8).

The set of *Peers' and friends' involvement in substance use variables* was defined on the basis of the following scale: *Do you have close friends?* (from 1 – no, not one, to 4 – yes, 4 and more), and according to a respondent's assessment of the number of friends and acquaintances who smoke, drink, or use drugs (from 1 – not one of them, to 5 – all of them).

The set of *School and functioning at school variables* was described by the following variables: type of school a respondent attends (1 – gymnasium, 2 – other), school success at the end of the last school year (from 1 to 5), number of days respondent was absent from school because of truancy (assessment on the scale from 1 – not one, to 6 – 7 or more days), and repetition of grade (1 – no, 2 – yes).

The set of *Boredom and satisfaction with life variables* was tested by a respondent's answers to the following questions: *Do you often get bored during the week because you don't know what to do?* (1 – yes, I'm often bored, to 4 – no, I am never bored), *How satisfied are you with your life in general?* (from 1 – very dissatisfied, to 5 – very satisfied).

Procedure

Results presented in this study are part of broader research on the structure of pathological phenomena (substance abuse, delinquency, criminal behavior) which was carried out in the spring of 1998. Within a classroom setting, students were asked to fill out the questionnaire anonymously. Research assistants provided detailed instructions and also motivated the students to give honest and valid answers.

Data analysis

Data obtained from this research were analyzed descriptively and using the multivariate methods for data analysis. To establish the statistical significance between the groups at no risk and at high risk of smoking cigarettes, alcohol consumption, and drug use, the analysis of variance (ANOVA) was used for each of the variables. The importance of each variable for discrimination of each of the groups was analyzed by discriminant analysis. Three discriminant analyses were conducted on the groups of students at risk and at no risk of smoking, alcohol consumption, and drug use, which allowed us to maximally discern between the groups where all the variables were taken into account at the same time. In discriminant analysis the greatest possible number of discriminant functions equals the number of variables or groups minus one. Thus, in each analysis in our study there was only one discriminant function possible that described the position of two groups of students within the area of the discriminating variable. By checking Wilks's lambda significance in each analysis, we checked the possibility of distinguishing between the two groups of students on the basis of the set of applied variables. For each analysis, we calculated the standard coefficients and the coefficients of the discriminant function structure, which helped with the analysis of relations between individual variables and formed discriminant function (Table 2). The relative positions of the groups in the discriminant function were shown by the positions of their centroids. We classified the subjects in one of the two groups on the basis of the discriminant function reached for each analysis.

RESULTS

As shown in Table 1, there were differences between at risk and not at risk groups of smoking cigarettes, alcohol consumption, and drug use in almost every respect, from family functioning and socio-economic status to peers and functioning at school: Moreover, results showed that adolescents in the at risk group are more likely to express less acceptable behavior and poorer interpersonal relations in most cases.

Socio-economic status

Students at higher risk of smoking, alcohol consumption, and drug use were more often male. 52.3% of male adolescents were at risk of smoking, 58.8% at risk of alcohol consumption, and 16.5% at risk of using drugs. Among the adolescent females, 46.9% were at risk of smoking, 23.6% at risk of alcohol consumption, and 8.7% at risk of using drugs. Senior high school students, that is, third and fourth year, were at higher

TABLE 1
Mean values and
standard deviations of
the results of students
at risk and not at risk
of smoking, alcohol
consumption, and
drug use, as well as
the results of one-way
analysis of variance
(* $p \leq 0.01$; * $p \leq 0.05$)

	Smoking						Alcohol						Drugs					
	Not at risk			At risk			Not at risk			At risk			Not at risk			At risk		
	M	SD	F	M	SD	F	M	SD	F	M	SD	F	M	SD	F	M	SD	F
Gender ^a	1.61	0.49	1.55	0.50	0.50	5.10*	1.71	0.45	1.33	0.47	144.26**	1.60	0.50	1.45	0.49	17.49**		
Age ^b	1.43	0.50	1.56	0.50	23.60**	1.35	0.48	1.50	0.50	19.24**	1.43	0.50	1.61	0.49	24.68**			
Parents' education ^c	8.21	2.66	8.24	2.44	0.03	8.07	2.71	8.89	2.65	18.99**	8.18	2.60	8.95	2.31	17.16**			
Parents' marital status ^d	1.12	0.32	1.17	0.37	6.26**	1.14	0.34	1.16	0.37	1.16	1.13	0.33	1.15	0.36	0.74			
Financial situation in the family ^e	2.84	0.61	2.85	0.77	0.04	2.86	0.68	2.81	0.77	0.88	2.83	0.66	2.91	0.83	2.38			
Intra-familial relationships ^f	1.50	0.67	1.76	0.78	46.79**	1.54	0.72	1.75	0.80	16.28**	1.57	0.71	1.84	0.82	24.67**			
Accepting parents' opinions and demands ^g	2.06	0.94	2.41	1.10	42.06**	2.05	0.91	2.52	1.08	48.38**	2.14	0.94	2.76	1.16	77.45**			
Intra-familial relationships in childhood ^h	8.75	3.29	9.70	3.86	24.75**	8.90	3.48	9.88	4.00	14.89**	9.03	3.45	9.89	3.93	11.24**			
Physical punishments ⁱ	1.95	1.12	2.09	1.21	5.15*	1.93	1.11	2.11	1.21	4.96*	1.96	1.11	2.11	1.21	3.08			
Punishments by rebuke or words ^j	3.50	1.20	3.58	1.22	1.36	3.44	1.28	3.69	1.17	8.73**	3.51	1.20	3.65	1.16	2.68			
Punishments by silence and refusal to talk ^k	1.71	1.11	1.81	1.21	1.21	1.73	1.16	1.91	1.27	4.91*	1.74	1.15	1.84	1.20	1.25			
Deprivation of something i care about a lot ^l	2.50	1.45	2.85	1.49	20.30**	2.48	1.45	2.83	1.49	12.12**	2.62	1.46	2.80	1.49	3.06			
Never punished by parents ^m	2.11	1.31	1.88	1.25	11.78**	2.08	1.30	1.97	1.22	1.64	2.02	1.28	1.86	1.21	3.12			
Parental smoking ⁿ	1.56	0.50	1.69	0.46	27.12**	1.59	0.49	1.60	0.49	0.09	1.59	0.49	1.65	0.48	2.98			
Alcohol consumption in the family ^o	2.13	0.66	2.24	0.72	8.71**	2.05	0.66	2.34	0.71	36.12**	2.17	0.66	2.38	0.83	17.98**			
Talking with parents about drugs ^p	2.58	0.90	2.23	0.93	0.33	2.27	0.89	2.18	0.92	2.15	2.24	0.90	2.12	0.96	3.25			

(continued on the next page)

(Table 1 continued)

	Smoking				Alcohol				Drugs						
	Not at risk		At risk		Not at risk		At risk		Not at risk		At risk				
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD			
Running away from home ^e	1.03	0.17	1.13	0.33	48.94**	1.02	0.15	1.13	0.34	39.74**	1.04	0.20	1.15	0.36	42.69**
Going to church and importance of faith ^s	6.14	1.69	5.42	1.70	62.52**	6.29	1.61	5.19	1.80	89.66**	6.05	1.63	4.90	1.76	92.59**
Having close friends ^t	3.14	0.79	3.33	0.74	20.89**	3.14	0.80	3.36	0.80	15.25**	3.21	0.79	3.33	0.77	4.17*
Friends or acquaintances smoke ^u	3.37	0.91	4.18	0.55	402.14**	3.43	0.95	4.03	0.67	103.40**	3.63	0.80	4.16	0.61	88.84**
Friends or acquaintances drink alcohol ^v	3.16	1.03	3.79	0.86	154.45**	2.85	0.98	4.12	0.73	423.97**	3.31	0.97	4.09	0.78	128.42**
Friends or acquaintances take drugs ^z	1.43	0.74	2.35	1.19	302.18**	1.41	0.78	2.40	1.19	220.16**	1.47	0.73	3.42	0.89	1266.72**
Type of school ^{aa}	1.73	0.45	1.74	0.44	0.55	1.76	0.43	1.72	0.45	1.14	1.76	0.42	1.65	0.48	13.35**
General school performance ^{ab}	3.95	0.87	3.42	0.85	131.81**	3.87	0.85	3.44	0.94	48.11**	3.81	0.88	3.36	0.91	49.47**
Missing classes-truancy ^{ac}	1.37	0.88	2.38	1.56	224.17**	1.34	0.84	2.46	1.60	178.85**	1.57	1.07	2.84	1.62	229.86**
Repeating a grade ^{ad}	1.03	0.18	1.16	0.37	66.50**	1.06	0.24	1.14	0.35	16.50**	1.07	0.25	1.16	0.37	24.01**
Boredom in life ^{ae}	2.97	0.95	2.82	1.03	7.46**	2.92	0.99	2.83	1.02	1.50	2.90	0.98	2.77	0.99	3.37
Satisfaction with one's own life ^{af}	3.66	0.90	3.43	1.01	18.93**	3.62	0.92	3.41	1.05	10.18**	3.60	0.90	3.41	1.00	8.33**

a 1 – boys, 2 – girls.

b 1 – the first and second high school grade, 2 – the third and fourth high school grade.

c sum of mother's and father's education 1 – no elementary school or not finished, to 7 – M.A./M.S. or Ph.D. – results range 1 – 14.

d 1 – married, 2 – other.

e 1 – much better than the majority, to 5 – poor, significantly worse than others.

f 1 – harmony and understanding prevail, to 4 – frequent quarrels and fights with physical fighting.

g 1 – yes, I take them into account and accept willingly, to 5 – I do not take them into account at all

h 1 – I do not care about their opinion at all, and I do not care about their opinion at all.

i composite result, range from 5 to 25, with higher result meaning worse relationship.

j 1 – not true, to 5 – absolutely true.

k 1 – not true, to 5 – absolutely true.

l 1 – not true, to 5 – absolutely true.

m 1 – not true, to 5 – absolutely true.

n 1 – no, 2 – yes.

o 1 – they do not drink at all, to 4 – they drink during lunch and often in-between meals.

p 1 – no, 2 – I do not know, 3 – yes.

r 1 – no, 2 – yes.

s result composed of two scales; from 1 – it is not important and I do not go to church, to 4 – it is very important and I go to church every Sunday; results range from 1 to 8.

t 1 – no, not one, to 4 – yes, 4 and more.

u 1 – not one, to 5 – all.

v 1 – not one, to 5 – all.

z 1 – not one, to 5 – all.

aa 1 – gymnasium, 2 – other schools.

ab 1 to 5.

ac 1 – nothing, to 6 – 7 days or more.

ad 1 – no, 2 – yes.

ae 1 – yes, I am frequently bored, to 4 – I am never bored.

af 1 – very dissatisfied, to 5 – very satisfied.

risk than younger students in first and second year. Among first and second year students, 43.1% were at risk of smoking, 33.9% of alcohol consumption, and 9.2% of using drugs. Among senior students, 56.6% were at risk of smoking, 50.2% of alcohol consumption, and 16.3% of using drugs. A difference in parents' education between the groups at risk and not at risk of smoking could not be found, but there was a difference with regard to alcohol consumption ($M_R=8.95$, $M_{NR}=8.18$, $p<0.001$), where the parents of adolescents in the group at risk were of higher education. In the group of adolescents whose parents were married, 48.1% were at risk of smoking, and in the group of adolescents whose parents were divorced, living in extramarital communion, or deceased (one or both), 57.1% were at the risk of smoking. A difference in alcohol consumption and drug use between the groups with respect to the marital status of the parents could not be found. A difference between groups according to the family financial situation variable was not established in any of the three types of risky behavior.

Family variables

In families with adolescents at risk with respect to all three domains of substance abuse behaviors, interpersonal family relationships were more often less harmonious than in families with adolescents not at risk (smoking – $M_R=1.76$, $M_{NR}=1.50$, $p<0.01$; alcohol consumption – $M_R=1.75$, $M_{NR}=1.54$, $p<0.01$; drugs – $M_R=1.84$, $M_{NR}=1.57$, $p<0.01$). These adolescents at risk had less respect for the demands and opinions of their parents (smoking – $M_R=2.41$, $M_{NR}=2.06$, $p<0.01$; alcohol – $M_R=2.52$, $M_{NR}=2.05$, $p<0.01$; drugs – $M_R=2.76$, $M_{NR}=2.14$, $p<0.01$). Moreover, adolescents at risk grew up in families in which family relationships were quite poor (smoking – $M_R=9.70$, $M_{NR}=8.75$, $p<0.01$; alcohol – $M_R=9.88$, $M_{NR}=8.90$, $p<0.01$; drugs – $M_R=9.89$, $M_{NR}=9.03$, $p<0.01$). Adolescents at risk were physically punished by their parents more often than adolescents who were not at risk of smoking ($M_R=2.09$, $M_{NR}=1.95$, $p<0.05$) and alcohol consumption ($M_R=2.11$, $M_{NR}=1.93$, $p<0.05$). However, this was not the case with respect to drug use, where no difference could be found between the groups. Adolescents at risk of alcohol consumption were given the silent treatment and their parents refused to talk to them more often than adolescents not at risk ($M_R=1.91$, $M_{NR}=1.73$, $p<0.05$), whereas in the case of smoking and using drugs, there was no difference between groups. Adolescents at risk of smoking and alcohol consumption were punished by deprivation more often than adolescents not at risk such that they were forbidden to have or do something they cared a lot about (smoking – $M_R=2.85$, $M_{NR}=2.50$, $p<0.01$; alcohol – $M_R=2.83$, $M_{NR}=2.48$, $p<0.01$), which was not the case with adolescents at risk of

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using drugs. Adolescents not at risk of smoking were not punished by their parents more often compared to adolescents at risk of smoking ($M_R=1.88$, $M_{NR}=2.11$, $p<0.01$), whereas there is no difference between the groups with respect to alcohol consumption and drug use. More parents of adolescents at risk of smoking smoke than the parents of adolescents not at risk, whereas with regard to alcohol consumption and drug use, a difference between groups was not found. 54.8% of parents of adolescents at risk of smoking also smoked. Parents of the adolescents at risk in all three domains more often consumed alcohol than the parents of adolescents not at risk (smoking – $M_R=2.24$, $M_{NR}=2.13$, $p<0.01$; alcohol – $M_R=2.34$, $M_{NR}=2.05$, $p<0.01$; drugs – $M_R=2.38$, $M_{NR}=2.17$, $p<0.01$). No difference was found between the groups in neither of the domains regarding the adolescents' wish to talk to their parents about the risks of using drugs. Adolescents at risk in all three domains ran away from home more often than adolescents not at risk. Of all the adolescents who ran away from home at least once, 81.5% are at risk of smoking, 76.3% of alcohol consumption, and 33.8% of using drugs.

Peers

Adolescents at risk with respect to the three substance abuse behaviors had more close friends than adolescents not at risk (smoking – $M_R=3.33$, $M_{NR}=3.14$, $p<0.01$; alcohol – $M_R=3.36$, $M_{NR}=3.14$, $p<0.01$; drugs – $M_R=3.33$, $M_{NR}=3.21$; $p<0.01$). Close friends or acquaintances of the adolescents at risk, according to their statements, smoke (smoking – $M_R=4.18$, $M_{NR}=3.37$, $p<0.01$; alcohol – $M_R=4.03$, $M_{NR}=3.43$, $p<0.01$; drugs – $M_R=4.16$, $M_{NR}=3.63$; $p<0.01$), consume alcohol (smoking – $M_R=3.79$, $M_{NR}=3.16$, $p<0.01$; alcohol – $M_R=4.12$, $M_{NR}=2.85$, $p<0.01$; drugs – $M_R=4.09$, $M_{NR}=3.31$, $p<0.01$), and use drugs (smoking – $M_R=2.35$, $M_{NR}=1.43$, $p<0.01$; alcohol – $M_R=2.40$, $M_{NR}=1.41$, $p<0.01$; drugs – $M_R=3.42$, $M_{NR}=1.47$; $p<0.01$).

School and functioning at school

Adolescents at risk and those not at risk of smoking and alcohol consumption did not significantly differ with respect to the type of school they attended, which was not the case with adolescents at risk of drug use, most of whom attended gymnasiums. Among the adolescents that attended gymnasiums, 15.4% were at risk of drug use. More of the students at risk in all three domains performed less successfully at school at the end of the previous school year than students not at risk (smoking – $M_R=3.42$, $M_{NR}=3.95$, $p<0.01$; alcohol – $M_R=3.44$, $M_{NR}=3.87$, $p<0.01$; drugs – $M_R=3.36$, $M_{NR}=3.81$, $p<0.01$), missed more classes (truancy) (smoking – $M_R=2.38$, $M_{NR}=1.37$, $p<0.01$; alcohol – $M_R=2.46$, $M_{NR}=1.34$, $p<0.01$; drugs – $M_R=2.84$, $M_{NR}=1.57$,

$p < 0.01$), and more of them had repeated a grade. Of all the students who had repeated a grade, 78.2% were at risk of smoking, 60.5% of alcohol consumption, and 26.7% of drug use.

Boredom, satisfaction with life, and the role of religion

Adolescents not at risk of smoking felt boredom more often than students at risk ($M_R = 2.82$, $M_{NR} = 2.97$, $p = 0.006$), whereas there was no difference in this respect between at risk and not at risk groups of alcohol consumption and drug use. Adolescents at risk in all three domains were less satisfied with their life than adolescents not at risk (smoking – $M_R = 3.43$, $M_{NR} = 3.66$, $p < 0.01$; alcohol – $M_R = 3.41$, $M_{NR} = 3.62$, $p = 0.002$; drugs – $M_R = 3.41$, $M_{NR} = 3.60$, $p = 0.004$). Adolescents not at risk in all three domains of substance abuse behaviors went to church more often and faith was more important to them than to the adolescents at risk (smoking – $M_R = 5.42$, $M_{NR} = 6.14$, $p < 0.01$; alcohol – $M_R = 5.19$, $M_{NR} = 6.29$, $p < 0.01$; drugs – $M_R = 4.90$, $M_{NR} = 6.05$, $p < 0.01$).

Discriminant analyses results

Discriminant analyses results (Table 2) show that gender, truancy, and friends or acquaintances' smoking, alcohol consumption, and drug use are the most important variables in which the group at risk and the group not at risk of smoking, alcohol consumption, and drug use differ. This means that adolescents who smoke have more friends who smoke, those who drink alcohol have more friends who drink alcohol, and those who use drugs have more friends who use drugs than adolescents who do not smoke, drink alcohol, or use drugs.

Smoking

With respect to smoking, the discriminant analysis results (Wilks's $\Lambda = 0.61$, Chi-square = 671.885, $df = 28$) for both groups show significant discrimination. Differences between the groups in the attributed area of examined variables are statistically significant ($p < 0.0001$). Around 38% of total variability in the differences between the group at risk and the group not at risk of smoking can be attributed to this set of 28 variables (canonical correlation = 0.62). The "friends and acquaintances' smoking" variable carries the strongest load into the discriminant function, followed by the "friends and acquaintances' taking drugs" variable. In other words, variables that cover themes related to friends and their substance use emerge as the most important. According to the results (structure coefficients), the strongest association between the function and chosen variables is shown in the "friends and acquaintances' smoke" variable, followed by the "friends and acquaintances' taking drugs" and the "truancy" variables. The position of the group not at risk of smoking is 0.782 standard units apart from the group centroid towards the lower results, whereas the group at risk

of smoking is only 0.802 standard units apart towards higher results. According to the classification *a posteriori* carried out on the basis of applied set of variables, the accuracy of classification of adolescents into either the group at risk or not at risk of smoking was 77.12%, which represents a significant improvement when compared with the expected percentage of accurate classification with a chance of 50% (as we started with two groups of respondents).

TABLE 2
Results of three discriminant analyses of groups at risk and not at risk of smoking, alcohol consumption, and drug use

Variable	Smoking		Alcohol		Drugs	
	Standardized coefficients ^a	Structure coefficients ^b	Standardized coefficients ^a	Structure coefficients ^b	Standardized coefficients ^a	Structure coefficients ^b
Gender	-0.026	-0.076	-0.375	-0.420	-0.102	-0.110
Age	0.098	0.164	0.018	0.154	0.024	0.128
Parents' education	-0.090	0.006	0.057	0.153	-0.038	0.107
Parents' marital status	0.080	0.085	0.065	0.038	0.086	0.026
Financial situation in the family	-0.041	0.007	-0.041	-0.033	0.079	0.040
Intra-familial relationships	0.060	0.231	-0.023	0.141	-0.057	0.128
Accepting parents' opinions and demands	-0.010	0.219	0.089	0.243	0.097	0.226
Intra-familial relationships in childhood	0.073	0.168	-0.001	0.135	0.040	0.086
Physical punishments	-0.020	0.077	-0.006	0.078	-0.004	0.045
Punishments by rebuke or words	-0.023	0.039	0.048	0.103	-0.022	0.042
Punishments by silence and refusal to talk	-0.034	0.061	-0.023	0.078	-0.047	0.029
Deprivation of something I care about a lot	0.023	0.152	0.007	0.121	-0.054	0.045
Never punished by parents	-0.061	-0.116	0.062	-0.045	0.001	-0.045
Parental smoking	0.091	0.176	-0.000	0.010	-0.004	0.044
Alcohol consumption in the family	-0.021	0.100	0.116	0.210	0.028	0.110
Talking with parents about drugs	0.050	-0.019	0.043	-0.051	-0.041	-0.046
Running away from home	0.076	0.237	0.111	0.221	0.054	0.168
Going to church and importance of faith	-0.107	-0.267	-0.183	-0.331	-0.118	-0.247
Having close friends	0.202	0.154	0.164	0.137	0.060	0.052
Friends or acquaintances smoke	0.576	0.678	-0.093	0.356	-0.054	0.242
Friends or acquaintances drink alcohol	-0.111	0.420	0.615	0.721	-0.053	0.291
Friends or acquaintances take drugs	0.382	0.588	0.182	0.520	0.910	0.915
Type of school	-0.016	0.025	0.002	-0.037	-0.063	-0.094
General school performance	-0.191	-0.388	-0.114	-0.243	-0.100	-0.180
Missing classes-truancy	0.300	0.506	0.294	0.468	0.246	0.390
Repeating a grade	0.168	0.276	0.006	0.142	0.039	0.126
Boredom in life	-0.007	-0.092	0.071	-0.043	0.023	-0.047
Satisfaction with one's own life	-0.094	-0.147	-0.089	-0.112	-0.009	-0.074

^a Standardized coefficients show how much a particular variable contributes to forming results on discriminate function. The higher the standardized coefficients, the greater the load of the variable into group discrimination.

^b Structure coefficients point at the association of certain variables and discriminant function. The higher the structure coefficients, the greater the load of the variable into group discrimination.

Alcohol consumption

For the groups at risk and not at risk of alcohol consumption, the discriminant analysis results (Wilks's lambda=0.51, Chi-square=565.69, df=28) indicate a significant discrimination between the groups. The differences between the groups in the attributed area of examined variables are statistically significant ($p < 0.0001$). Around 49% of total variability in the differences between the group at risk and the group not at risk of alcohol consumption can be attributed to the set of 28 variables (canonical correlation=0.70). The variable that carries the most load in the discriminant function is again the friends theme – "alcohol consumption among friends and acquaintances", followed by the "gender" variable. According to the results (structure coefficients), the "friends and acquaintances consume alcohol" variable shows the strongest association of all chosen variables with the function. This is followed by the "friends and acquaintances take drugs" and "friends and acquaintances smoke cigarettes" variables, and then "truancy" and "gender". The position of the group not at risk of alcohol consumption is 0.795 standard units apart from the group centroid toward lower results, whereas the position of the group at risk of alcohol consumption is 1.182 standard units apart from the group centroid toward higher results. According to the classification *a posteriori* carried out on the basis of applied set of variables, the accuracy of classification of adolescents into the group at risk and group not at risk of alcohol consumption was 82.85%, which is a significant improvement when compared with the expected percentage of accurate classification by 50% chance.

Drug use

For both the group at risk and group not at risk of taking drugs, the discriminant analysis results (Wilks's lambda=0.54, Chi-square=1085.592, df=28) show that discrimination between the groups is significant. Again, the differences between the groups in the area of examined variables are statistically significant ($p < 0.001$). Around 47% of total variability in the differences between the two groups can be attributed to this set of 28 variables (canonical correlation = 0.68). Again, the variables covering peers carried the strongest load into the function – "drug use of friends and acquaintances" and "truancy". According to our results (structure coefficients), of all the chosen variables the "friends and acquaintances take drugs" and "friends and acquaintances consume alcohol" variables show the strongest association with the function. These are followed by "truancy", "taking into consideration parents' demands and opinions", "going to church and importance of religion", "repeating the grade", etc. The position of the group not at risk of

DISCUSSION

taking drugs is 0.341 standard units apart from the group centroid towards the lower results, whereas the position of the group at risk of alcohol consumption is 2.493 standard units towards higher results. According to the classification *a posteriori* carried out on the basis of applied set of variables, the accuracy of classification was 93.31%, which is very high.

Our research results show that the most important indicators of early recognition among youth at risk of substance abuse in the Republic of Croatia is peers' and friends' involvement in substance use. Numerous studies on the relationship between peers and risks of taking addictive substances show that adolescents at risk have more close friends than adolescents not at risk (Oetting and Beuvais, 1990; Shedler and Block, 1990). Furthermore, adolescents at risk have more close friends or acquaintances who smoke, consume alcohol, and take drugs than adolescents not at risk (Donohew et al., 1999; Oetting and Beuvais, 1987).

Our study results on predictors of alcohol consumption among adolescents show that the main predictor of alcohol consumption in young people is whether their friends drink, which is concordant with other research results (Barber et al., 1998). Moreover, our results, as well as the results of a three-year study research by Stevens et al. (1996) on marijuana smoking, show that the predictors of initial smoking of marijuana are peer company who take drugs, higher school year, poor success at school, dissatisfaction with school, feeling unloved by the family, and unpopularity at school. Most probably, adolescents choose friends according to the characteristics they share. Therefore, smoking, alcohol consumption, and drug use among adolescents strongly influences their choice of similar friends. Adolescents choose friends who behave similarly and are probably raised in a similar way because children often transfer the values and norms they adopt in their family to their friends. We can assume that the results of our research would point to a greater importance of parental variables had we taken some other indicators of family cohesion, dynamics, or child-rearing practices as family variables. Research conducted by Deković and Raboteg-Šarić (1996) showed that a low level of intimacy and closeness with parents as well as lack of parental insight into their children's activities induce adolescents to spend more time with their peers, which may also include spending time with peers who take addictive substances (Oetting and Beuvais, 1990). Raboteg-Šarić and Brajša-Žganec's research (2000) revealed the same findings. Their findings showed that, at the end of elementary school, parental supervision grows weaker, which can make children become more susceptible to the influence of their peers who engage in inappropriate be-

havior. Our research results are similar. Adolescents who have better relationships with their parents, or whose parents show greater emotional engagement and devotion to their children, also have better relationships with their friends (Deković and Raboteg-Šarić, 1996) On the other hand, traumatic experiences such as violence in the family, or other traumatic events, are connected with more frequent alcohol consumption among adolescents (Clark et al., 1997).

Other significant findings in our research are related to school and functioning at school. High school students at risk achieved poorer average success at the end of the school year than their peers not at risk. They were truants and repeated the grade more often, as research by Sakoman et al. (1999) also showed. Research by Calafat et al. (1997) revealed that there is a positive correlation between the risk of drug use among adolescents and their poor performance at school (the more truancy, the poorer the school performance). Research by Sakoman et al. (1999) showed that the students who perform poorly at the school and play truant, drink alcohol more often, and that students at trade schools drink alcohol more often than pupils at gymnasiums, as was confirmed by our research.

Our study suggests that boys smoke, drink alcohol, and use drugs more often than girls do. An extensive research among American adolescents yielded the same results (Hoffman and Johnson, 1998). Research on smoking habits among high school students in Zagreb also showed that gender is significantly related to smoking habits and attitudes towards smoking, where male respondents smoke more cigarettes and approve of smoking more than female respondents (Sakoman et al., 1997). Research on risk factors and characteristics of alcohol drinking habits among adolescents showed that male adolescents drink alcohol more often, that they got heavily drunk more often, and that they engage in inappropriate behavior caused by alcohol more often than female adolescents (Sakoman et al., 1999). Research on American adolescents confirmed our finding that older students are at higher risk than younger ones (Hoffman and Johnson, 1998). Research by both Oetting and Beuvais (1990) and Rhodes and Jason (1990) showed the same results. Research on smoking habits among high school students in Zagreb (Sakoman et al., 1997) confirmed our results that there were no differences with regard to the education of parents between the groups of students at risk and not at risk of smoking. However, research findings on drinking habits among adolescents were different from our finding that the parents of adolescents at risk were of a higher educational level (Sakoman et al., 1999). Although some researches have shown that parents of adolescents at risk were more often unmarried than the parents of the children not at risk (Oetting and Beuvais, 1990), we did not obtain such re-

sults, except in the case of smoking. This seems to suggest that harmony and mutual understanding between members of the family is more important than the family being formally together. Numerous studies on intra-familial relationships show that in the families of adolescents at risk, relationships between family members are less harmonious and less understanding than in the families of adolescents not at risk. This has been confirmed in longitudinal studies – adolescents who had not taken any addictive substances at the time of the first survey but started using them between the first and the second survey, lived more often in families where members did not get along and family relationships were disruptive (Shedler and Block, 1990). Our research showed that the parents of adolescents at risk of smoking smoked more often than the parents of adolescents not at risk of smoking, as has been confirmed by other research (Sakoman et al., 1997). Moreover, the parents of adolescents at risk in all three domains consumed alcohol more than the parents of adolescents not at risk, which has also been confirmed (Campo and Rohner, 1992). The already mentioned research by Calafat et al. (1997) showed that running away from home is significantly related to the use of addictive substances among adolescents. We found the same connection.

We can conclude that the use of addictive substances (tobacco, alcohol, drugs) is closely connected with the use of these same substances within peer group. Research shows that it is necessary to develop an adolescent's resistance to peer social pressure by intervening with measures of substance abuse prevention, thus reducing the use of psychoactive substances among adolescents (Ellickson et al., 1999). It is also important to focus attention on the quality of relationships between adolescents as well as relations with their parents and teachers. Undoubtedly, the quality of relationships adolescents have with their peers depend to a great extent on the quality of relationships they have with adults (primarily parents and teachers). Our findings reflect those in other studies carried out in other societies, indicating that substance abuse among youth has parallels in other parts of the world, and that the experience of youth is universal in this regard.

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Indikatori ranog prepoznavanja visokorizične populacije hrvatske mladeži u odnosu na zlouporabu sredstava ovisnosti

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Cilj istraživanja bio je utvrditi psihosocijalne indikatore mikro- i makrookružja za rano prepoznavanje visokorizične populacije mladih u odnosu na zlouporabu sredstava ovisnosti. Istraživanje je provedeno na reprezentativnom uzorku srednjoškolaca iz cijele Hrvatske (N=2 823). Primijenjen je upitnik kojim su ispitani socioekonomski status, obiteljsko funkcioniranje, školsko funkcioniranje, zadovoljstvo životom i odnosi s prijateljima. Rezultati pokazuju da su najvažnije varijable koje razlikuju rizične i nerizične skupine s obzirom na uzimanje sredstava ovisnosti (pušenje, konzumiranje alkohola i uzimanje droge): a) procjene ispitanika o pušenju, konzumiranju alkohola i uzimanju droge njihovih prijatelja i znanaca, b) spol i c) markiranje iz škole. Rizični učenici, u usporedbi s nerizičnima, lošije funkcioniraju u obiteljskom i školskom okružju i manje su zadovoljni životom općenito. Uporaba sredstava ovisnosti u najvećoj mjeri povezana s uporabom istih sredstava u skupini vršnjaka. Kako bi se smanjila upotreba psihoaktivnih tvari, potrebno je ojačati otpor pojedinca socijalnom pritisku vršnjaka te poboljšati kvalitetu odnosa između adolescenata i njihovih roditelja i učitelja.

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Indikatoren zur Früherkennung vom Rauschmittelmissbrauch extrem bedrohter Jugendlicher in Kroatien

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Das Ziel dieser Untersuchung war, die psychosozialen Indikatoren des Mikro- und Makromilieus zur Früherkennung vom Rauschmittelmissbrauch (Zigaretten, Alkohol und Drogen) extrem bedrohter Jugendlicher zu ermitteln. Die Untersuchung wurde in einer repräsentativen Gruppe von Mittelschülern aus ganz Kroatien (N = 2823) durchgeführt. Mit dem zu diesem Zweck erarbeiteten Fragebogen wollte man den gesellschaftlichen und wirtschaftlichen Status, das Familienleben, die schulischen Leistungen, die allgemeine Zufriedenheit mit dem Leben und das Verhältnis zu Freunden ergründen. Die Ergebnisse zeigten, dass sich Risikogruppen und nicht gefährdete Gruppen vor allem anhand folgender Variablen unterscheiden: a) Einschätzung des Zigaretten-, Alkohol- und Drogenkonsums im Freundes- und Bekanntenkreis; b) Geschlechtszugehörigkeit und c) Fernbleiben vom Unterricht. Gefährdete Schüler haben überdies größere Schwierigkeiten im Familienkreis sowie in der Schule und sind mit ihrem Leben allgemein weniger zufrieden als die anderen. Der Rauschmittelmissbrauch erfolgt zumeist im Kreise Gleichaltriger. Um den Gebrauch psychoaktiver Genussmittel einzuschränken, muss der Widerstand des Einzelnen hinsichtlich des Drucks, den seine Altersgenossen auf ihn ausüben, gestärkt werden. Ebenso gilt, das Verhältnis zwischen Adoleszenten einerseits und Eltern und Lehrern andererseits zu verbessern.