BIOMEDICINSKA
ISTRAŽIVANJA
2017;8(2):153-164

UDK: 159.923-053.6:178.1+178.7
DOI: 10.7251/BII1702153I

Original article

Personality dimensions and social variables – predictors of cigarette smoking and alcohol consumption in adolescence

Miroljub Ivanović[1], Uglješa Ivanović[2]

[1]College of Vocational Studies for Teachers and Professional Computer Scientists – Sirmium, Sremska Mitrovica, Serbia

[2]Telecom Serbia, Ltd., Belgrade, Serbia

Summary

Introduction. The aim of the study was to examine the contribution of personal traits and social variables to the prediction of the frequency of cigarette and alcohol use in adolescents.

Methods. Two questionnaires: Big Five Inventory (BFI) and Role of Parents and Friends questionnaire were used in the pertinent sample of fourth-grade elementary school students (N = 268), 18 ± 1.76 years of age. The calculated Cronbach's alpha coefficient indicated a satisfactory internal consistency of the applied measuring instruments.

Results. Approximately 70% of adolescents did not smoke cigarettes, and 64% of them did not consume alcohol. Correlation analysis showed statistically significant connection between several variables. The results of hierarchical regression analysis, with the $p < 0.01$, showed that predictors explained 26% of total criterion variance (the frequency of cigarette smoking), and 27% of total criterion variance (the frequency of alcohol consumption), respectively. Thereat the following variables had statistically significant independent contribution to cigarette smoking: gender, neurosis, openness to experiences, cigarette smoking – parents and friends' reaction to cigarettes, while the best predictors of alcohol consumption among adolescents were agreeableness, alcohol consumption – friends, and friends' reaction to alcohol consumption.

Conclusion. The obtained data provided an important insight into the significance of insufficiently explored relations between social factors and personality traits and cigarette and alcohol use among adolescents.

Keywords: adolescents, cigarette smoking, alcohol consumption, questionnaires

Introduction

Evaluation of the influence of personality dimensions and social factors on the frequency of cigarette and alcohol use among adolescents has become a frequent subject of psychological research. The results of these studies indicate that the cigarette and alcohol use is a mass behavior of young people [1–4]. However, while

Correspondence to:
Prof. Miroljub Ivanović, PhD
29 Zmaj Jovina
22000 Sremska Mitrovica
miroljub.ivanovic@gmail.com

some studies have pointed out that female adolescents use cigarettes and alcohol more often than men [5–6], others have revealed the opposite results [7–8]. During the period of adolescence, there is an identical model of alcohol use (frequency and amount), which, after that period, starts to vary depending on sex [9]. According to the study by Kenney et al. [10], female adolescents use alcohol in smaller amounts than male adolescents do who consummate alcohol more frequently and in larger amounts, but this has not been explored enough.

Based on current research of Big Five Model of Personality Structure, personality dimensions correlate positively with risk behavior [12–14], but they correlate negatively with unexcused absence from school as well as with cigarette and alcohol use [15]. Previous study on correlation between personality dimensions and risky health behavior has shown that agreeableness correlates negatively with alcohol and cigarette use among both sexes, neuroticism and introversion correlate positively with female adolescents, while extroversion correlates positively with male adolescents [16]. Neuroticism, low conscientiousness, and agreeableness of adolescents correlate with alcohol use, or it is assumed that, due to unpleasant emotional states such as anxiety, anger, sadness, as well as due to the problems with stressful situations, high school graduates use alcohol in significant amounts [17–18].

Previous studies [19–21] have revealed that adolescents who have strong family bonds show sociability and responsibility, while antisocial behavior is expressed to a lesser degree, compared to those who do not have close relationship with their parents. Some authors have revealed positive correlation between cigarette and alcohol use among parents and their children, since higher alcohol use among parents correlates positively with the higher adolescent tendency to spend time with the peers consuming alcohol [22, 23].

Bagwell et al. [24] have stated that, during the period of adolescence, friends and peers represent significant social factor providing compact social unit for the development basic social skills such as conflict resolution, creating conditions for multiple forms of support, immediate imitation and social support, which further creates conditions for favorable and unfavorable impact on adolescent development. Also, it has been shown that peer contribution increases with age, especially when it comes to risky behavior because friends gain more significant role in making life choices, for example alcohol and cigarette use, while parents have greater role in the development values and life goals [25–26]. In addition to this, parents are often concerned that their children will adopt various negative behaviors due to "bad company" and peer pressure. Mary-Anne et al. [27] have stated that troublesome adolescent behavior has greater impact on the choice of friends than the group of peers has on individual adolescent behavior. Hence, friends chose one another based on identical personality dimensions, for example aggressiveness, depressiveness and so on. Also, friendly relationship with an individual who consumes addictive substances or deviates from social norms represents a dominant factor in risky adolescent behavior – adolescents spending time with friends who abuse addictive substances have more positive view on peers using cigarettes and alcohol [28].

The aim of this study was to examine the contribution of social variables in explaining the frequency of cigarette and alcohol use among adolescents, to determine to which degree the dimensions of Big Five Model of Personality explain the addictive substance use, the influence of social factors (cigarette and alcohol use among parents and peers, and their reaction to it) on the use of cigarettes and alcohol, as well as risky health behavior of adolescents of both genders.

Methods

Sample and procedure. This cross-sectional study included 268 students of both genders (males 132 – 53.75%), who were in their last year of high school. The mean age of the subjects was 17.5 years (SD = 1.24). The study was conducted in the following schools in January 2017: Medical School "Dr Miša Pantić", The

Economic, Technical, and Agricultural School, and Valjevo Gymnasium. Gender differences regarding age were not statistically significant [t (481) = 0.89, p > 0.05].

Subjects participation was voluntary and anonymous. Prior to the beginning of the research, subjects were introduced with the goals and methods of the study, after which they gave a written consent that their data could be used in the planned study. Furthermore, they were explained that they could withdraw from the study at any time (three subjects did so). Group size varied from 20 to 30 subjects, and their goal was to circle the appropriate number on evaluation scales. Individual filling of questionnaires lasted approximately 30 minutes. Testing was conducted by appropriately trained experts, under the supervision of a psychologist.

Results of the subject who was more than ± 3.30 on scales, expressed in z-values, were eliminated from this study.

Measuring instruments used in the work were as follows:

Big-Five Factor Personality Model consisted of 44 items [29]. The subject expressed the degree of acceptance with claims from five subscales: openness (10 items), conscientiousness (9 items), neuroticism (8 items), extraversion (8 items), and agreeableness (9 items). Answers were graded on a five-degree Likert scale (from 1 – completely disagree to 5 – completely agree). The scores of subjects for each subscale were formed as a simple linear combination of the items which comprised the subscale.

Basic descriptive indicators of self-validation, depending on subjects' personality traits, are shown in Table 1. Reliability of internal consistency of the Big-Five model ranges from 0.71 – 0.84, which illustrates a satisfying reliability of this composite measuring instrument (Table 1).

Parents and Peers Questionnaire. This inventory evaluates the frequency of cigarette smoking and alcohol consumption among parents and peers, as well as reactions of parents and peers to cigarette smoking and alcohol consumption among adolescents [14].

Frequency of cigarette smoking and alcohol consumption of parents and peers was defined by four items (for cigarettes – one item, beer, wine, and spirits – three items) on a six-degree scale (from 1 – never to 6 – every day). The items which evaluated the frequency of wine, beer and spirit consumption were summed individually for parents and peers. A higher score indicated more frequent consumption of alcohol and cigarette smoking. Reliability of internal consistency (Cronbach α) for the scales *alcohol consumption by peers* was 0.90, and for *alcohol consumption by parents* 0.77, respectively. This indicates that the reliability of this composite metric instrument is satisfying.

Reactions of parents and peers to the use

Table 1. Descriptive indicators and reliability (Cronbach α) of the Big-Five Factor Personality Model

Subscales	Mean ± SD	Range	α
Openness	35.12 ± 3.73	21 – 46	0.84
Consciousness	29.35 ± 3.48	21 – 40	0.71
Neuroticism	19.67 ± 2.92	13 – 29	0.74
Extroversion	31.49 ± 2.81	20 – 40	0.81
Agreeableness	32.17 ± 3.05	19 – 44	0.64

SD – standard deviation

Table 2. Descriptive indicators for the frequency of cigarette smoking and alcohol consumption among peers and parents and perceived reactions to the use of the mentioned abusive substances

Scales	Mean ± SD	Range	α
Cigarette smoking – parents	3.50 ± 2.28	1– 6	–
Cigarette smoking – peers	4.78 ± 1.68	1 – 6	–
Alcohol consumption - parents	9.96 ± 2.76	3 – 17	0.74
Alcohol consumption - peers	10.90 ± 3.40	3 – 18	0.90
Reaction of parents - cigarettes	1.92 ± 0.92	1 – 5	–
Reaction of peers - cigarettes	2.98 ± 1.03	1 – 5	–
Reaction of parents - alcohol	7.05 ± 2.53	3 – 15	0.86
Reaction of peers - alcohol	9.57 ± 2.55	3 – 15	0.91

SD – standard deviation

of cigarettes and alcohol among adolescents were evaluated by eight items (In your opinion, how would your parents/peers react if they found out you were smoking cigarettes/drinking beer/wine/spirits?), using a five-degree scale (from 1 – extremely negative to 5 – extremely positive). The items concerning the reactions of peers and parents to beer, wine, and spirit consumption were summed, so that a higher result indicated a more positive reaction of parents/peers. Reliability coefficient (Cronbach – α) for scales *reaction of peers to cigarette smoking, beer, wine, or spirits* was 0.91, and for *reaction of parents* 0.86 (Table 2), respectively, which implied measurement independent from nonsystematic errors.

The frequency of cigarette smoking was evaluated by one item, while alcohol consumption was assessed using three items (individually for beer, wine and spirits) on a five-degree scale (from 1 – never to 5 – every day). A higher score indicated a more frequent consumption of alcohol and cigarette smoking. Reliability coefficients (Cronbach α) for the scale *alcohol consumption – parents and peers* were 0.74 and 0.90, respectively. These findings signalize that the metric characteristic (reliability) of these scales is independent from nonsystematic errors and stochastic variations of measuring results.

Statistical analysis. Analysis of the obtained data was done by using methods of descriptive and analytical statistics: arithmetic mean (AM), standard deviation (SD), nonparametric Pearson correlation coefficient and hierarchical regression analysis for significance threshold from $p \leq 0.05$ to $p \leq 0.01$. Internal consistency of the questionnaire was tested using Cronbach's alpha coefficient. The statistical data analysis was conducted using SPSS, version 17.0.

Results

Table 3 shows frequencies of cigarette use scale and type of alcoholic beverage scale. More than two thirds of the examined adolescents do not have the habit of smoking cigarettes. Also, approximately 10% of the participants have tried cigarettes, while one tenth of adolescents consummate alcohol daily (beer, wine, hard liquor). Furthermore, more than a half of participants have never tasted alcohol, while the smallest number of them (2%) drink it every day.

Table 4 describes parametric Pearson's coefficients of correlation between the coupled variables: personality dimensions and contribution of parents and peers, as well as frequency of cigarette smoking and alcohol consumption. From a total of 45 correlation coefficients, four are statistically significant, while others have minimally significant linear mutual dependence.

The presented results show that the *variable cigarette smoking among adolescents* have a statistical and mildly positive correlation with personality dimensions *conscientiousness* and *agreeableness* ($r = 0.62$, $p < 0.01$), as well as with *neuroticism* and *extroversion* ($r = 0.54$, $p < 0.01$). The significant and relatively low positive correlations between variables *cigarette smoking – peers* and *cigarette smoking – parents* ($r = 0.29$, $p < 0.05$), and between *reaction of peers – cigarettes* and *reaction of parents – cigarettes* ($r = 0.33$, $p < 0.01$) have also been found. These stochastically significant linear correlations between personality dimensions and cigarette smoking indicate a tendency to data dispersion around the regression line in the same direction (linear growth of both values is observed) among the examined adolescent population.

The Pearson's correlation coefficient was

Table 3. Frequency of cigarette smoking and alcohol consumption

	Never	Several times a year	Several times a month	Several times a week	Every day
Cigarettes	69.26	8.93	5.00	2.66	9.96
Beer	19.18	20.48	50.07	10.08	2.10
Wine	16.65	50.03	31.43	4.75	0.03
Spirits	28.04	51.01	9.98	9.94	0.01

Data are presented as percentage.

applied (Table 5) with the aim of determining stochastically significant correlation between the variability of personality dimensions and alcohol consumption. Their values ranged from r = 0.01 to r = 0.58. From a total of 45 correlation coefficients, only four were statistically significant, while the remaining coefficients had zero values. This signalizes the fact that, on the basis of knowing the value of one variable, no conclusions can be drawn about the other.

Statistically significant and mildly negative correlation between the variables *cigarette smoking* and *personality dimensions consciousness and agreeableness* (r = -0.58, p < 0.01) was noticed. In addition, a positive and relatively low mutual relation was found between the variables *alcohol consumption – peers* and *alcohol consumption – parents* (r = 0.28, p < 0.01), and between variables *reaction of peers – alcohol* and *reaction of parents – alcohol* (r = 0.30, p < 0.01). The obtained positive and negative correlation coefficients among the remaining variables do not indicate linear mutual dependence between the variability of the observed phenomena.

In order to predict the results of the criterion – dependent variable (frequency of cigarette smoking) on the basis of interactional effects of predictors – independent variables, a hierarchical regression model was constructed (Table 6). In the first step of the hierarchical regression analysis, the demographic variable (gender) was included, while the second step comprised personality dimensions (openness and neuroticism). Finally, social factors (frequency of cigarette smoking parents/peers, as well as reaction of peers – cigarettes) were added as the third step of analysis.

In the total linear regression model, pre-

Table 4. Pearson's coefficients of correlation between personality dimensions and cigarette smoking

Variables	1	2	3	4	5	6	7	8	9
1 Openness	1.0	0.08	0.05	0.01	0.09	0.03	0.10	-0.12	
2 Consciousness		1.0	0.09	0.12	0.62**	0.11	0-.05	-0.09	-0.13
3 Neuroticism			1.0	0.54**	0.05	0.10	0.03	0.06	0.11
4 Extroversion				1.0	0.11	0.03	-0.08	-12	0.02
5 Agreeableness					1.0	0.01	0.09	-0.11	-0.13
6 Cigarette smoking - peers						1.0	0.29*	0.19	0.05
7 Cigarette smoking - parents							1.0	0.05	0.11
8 Reaction of peers – cigarettes								1.0	0.33**
9 Reaction of parents - cigarettes									1.0

*p < 0.05; **p < 0.01

Table 5. Pearson's coefficients of correlation between personality dimensions and alcohol consumption

Variables	1	2	3	4	5	6	7	8	9
1 Openness	1.0	-0.09	0.01	0.11	0.06	0.02	0.05	0.07	0.10
2 Consciousness		1.0	0.01	0.05	-58**	0.03	0.09	-0.10	-0.03
3 Neuroticism			1.0	0.02	0.05	0.01	0.05	0.02	-0.05
4 Extroversion				1.0	0.08	0.05	-0.02	-10	0.08
5 Agreeableness					1.0	0.01	0.11	-0.03	-0.10
6 Cigarette smoking - peers						1.0	.28**	0.07	0.01
7 Cigarette smoking - parents							1.0	.40**	0.04
8 Reaction of peers – cigarettes								1.0	.30**
9 Reaction of parents - cigarettes									1.0

*p < 0.05; **p < 0.01

Table 6. Predictors of the frequency of cigarette smoking

Predictors	*β*	SE	R^2	ΔR^2
1st step				
Demographic Variable Gender	0.25**	0.13	0.05	0.05
2nd step				
Personality dimensions				
Openness	-0.17*	0.10	0.12	0.10
Neuroticism	0.28**	0.15		
3rd step				
Social factors				
Cigarette smoking - parents	0.32**	0.08	0.26	0.08
Reaction of peers - cigarettes	0.37**	0.14		

β – Standard partial regression coefficient; SE – standard error of regression; R^2 - coeffient of determinance (total contribution of predictors to the explained variance); ΔR^2 change of the coefficient of determination (contribution of a certain group of predictors to the explained variance); *p < 0.05; **p < 0.01

dictor variables significantly explained and predicted 26% of total variance results of frequency of cigarette smoking (mean squared deviation from the arithmetic mean). Other factors and their constructs which were not investigated comprised the „remaining" 74% of variability of the dependent variable from central tendency, which was a satisfying amount of interpreted dispersion of the dependent variable together with independent variables [30].

In the first step, the β coefficient of the regression equation – gender – as an independent predictor, significantly explained the criterion, indicating that cigarette smoking was more prevalent among female adolescents. Personality dimensions included in the second step of the multivariate space significantly explained an additional 10% of the variance. Neuroticism (β = 0.28, p < .01) was a positive partial predictor of frequency of cigarette smoking, while openness (β = -0.17, p < 0.01) represented a negative predictor. In the third step, social factors – cigarette smoking – parents (β = 0.37, p < 0.01), and a dominant predictor – reaction of peers (β = 0.37, p < .01) presented positive partial predictors of cigarette smoking, and explained an additional 8% of dispersion of the criterion variable. These findings indicate that if parents smoke cigarettes more frequently, and if the reaction of peers is oriented positively, it is much more likely that the adolescents of both genders will smoke cigarettes.

The hierarchical regression analysis was also used (Table 7) with the aim of determining the contribution of predictor variables in explaining and predicting frequency of al-

Table 7. Predictors of the frequency of alcohol consumption

Predictors	*β*	SE	R^2	ΔR^2
1st step				
Demographic Variable Gender	-0.36**	0.11	0.15**	0.15**
2nd step				
Personality dimensions				
Agreeableness	0.29**	0.15	0.12**	0.09*
3rd step				
Social factors				
Alcohol consumption - parents	0.31**	0.10	0.27**	0.12**
Alcohol consumption - peers	0.19**	0.13		
Reaction of peers - alcohol	0.18**	0.12		

β – Standard partial regression coefficient; SE – standard error of regression; R^2 - coeffient of determinance (total contribution of predictors to the explained variance); ΔR^2 change of the coefficient of determination (contribution of a certain group of predictors to the explained variance); *p < 0.05; **p <.01

cohol consumption. The analyzed predictor model of variables significantly explained and predicted 27% of variance of the frequency of alcohol consumption, while the remaining 73% of variability of the dependent variable was influenced by other factors.

In the first step of analysis, the partial predictor, demographic variable – gender, explained independently 15% of variability of the criterion. This indicates that male adolescents consume alcohol more frequently. Personality dimensions included in the second step of regression analysis significantly explained an additional 9% of dispersion of the criterion. The personality dimension agreeableness represented an independent positive predictor ($\beta = 0.29$, $p < 0.01$), and its partial influence was lost in the third step of analysis due to the mutual dependence on *consumption of alcohol – peers*, and *consumption of alcohol – parents*. In the third step of the linear regression model, the group of social factors explained an additional 12% of variability of alcohol consumption, and thus three variables were included as partial positive predictors: the most dominant *alcohol consumption – parents* ($\beta = 0.31$, $p < 0.01$), *alcohol consumption – peers* ($\beta = 0.19$, $p < 0.01$), and *reaction of peers to alcohol consumption* ($\beta = 0.18$, $p < 0.01$).

Discussion

In the present study psychometric characteristics of measuring instruments (Big-Five Factor Model – BFF, and Parent and Peer Questionnaire) were evaluated in the Serbian population. Calculated Cronbach's alpha coefficients are in accordance with the results of previous research [14]. The obtained results show primarily that male adolescents consume alcohol and smoke cigarettes more frequently than female adolescents. It has been observed that, during adolescence, there is an identical model regarding the frequency of alcohol consumption among adolescents of both sexes [31]. Certain authors have pointed out that different motivation for alcohol consumption should be taken into consideration when interpreting gender differences. With male subjects, stressful and unpleasant situations are interpreted as triggers, while with female subjects alcohol consumption is used as a method of controlling their feelings [32].

Having in mind the fact that personality dimensions imply a constant predisposition towards risky health behavior as well as their partial contribution, which is notable in our research, significant influence of neuroticism and openness towards cigarette smoking, but also conscientiousness towards alcohol consumption has been observed. It is more likely that the young males in whom neuroticism is more pronounced will smoke more cigarettes [33], which is explained by behavioral models characterized by neuroticism. In that way, more frequent and more enhanced perception of unpleasant emotional states, as well as difficulties with stressful situations, generate a need for more frequent cigarette smoking. For instance, individuals with pronounced neuroticism smoke cigarettes more frequently in order to reduce their anxiety [34]. Findings regarding the influence of the personality dimension *openness to risky health behavior* in adolescents are not conclusive. Results of Telzer et al. [35] have indicated that openness is a negative predictor for cigarette smoking, but not for alcohol consumption. Considering the fact that high openness is characterized by more intense imagination, tendency towards transformation and different experiences, but also towards nonconventional beliefs, it is assumed that cigarette smoking does not present a challenge, and is an expected behavior among male adolescents who achieve high results on this scale. On the other hand, the individuals with high openness require more mental experiences rather than physical stimulations exposing them to risky health behavior [35].

Low conscientiousness proved itself to be a positive predictor for the consumption of alcohol during adolescence [37]. Male adolescents with low conscientiousness are characterized by insecurity, minimal organization, and insufficient regulation of influential factors, which implies a tendency towards risky health behavior.

The results obtained in the correlation ma-

trix, as well as the results of significance of predictor variables from the second step of hierarchical regression analysis, show the significance of agreeableness in alcohol consumption. However, the contribution of agreeableness is lost with the inclusion of social factors (parents and peers) in the equation, which is most likely a consequence of correlation between alcohol consumption and agreeableness among parents and peers. The frequency of alcohol consumption among parents and peers is perceived with a less visible dimension *agreeableness*, which is usually presented as a general factor connecting characterizing tendencies and behaviors such as kindness, cooperation and helpfulness. For these reasons, it is assumed that adolescents with prominent agreeableness exhibit reactions that are socially more acceptable, and tend to present their parents and peers in a positive way.

The obtained results regarding statistically significant interaction between personality dimensions and risky behavior turn the attention to relatively low coefficient values, which implies that the examined relations should be additionally evaluated in further research.

Our study has confirmed the hypothesis stating that social factors explain risky health behaviors more significantly than personality dimensions, where social factors are important contributors to cigarette smoking and alcohol consumption. Furthermore, an important contribution to the frequency of risky health behavior (cigarette smoking and alcohol consumption) of adolescents is the influence of parents and peers. This leads to the parents' responsibility for initiation of this kind of behavior in adolescents. In addition to this, the significance of parental behavior, and not reactions to health manifestations, enhances a larger parental contribution as a pattern, and not as a generator of verbal approval/disapproval, which is in accordance with theories of social learning. However, the framework in which parents make a pattern of behavior for adolescents depends on the relationship between parents and their children [38]. Research findings emphasize that the influence of parents is waning in adolescence, unlike the influence of peers which remains significant [17]. According to Weintraubat et al. [37], this can be interpreted by the fact that adolescents are increasingly socializing with their age-mates. Simultaneously, it is considered that parental contribution is different from that of peers – peers contribute to lifestyle choices (such as risky health behaviors) more intensively, while parents contribute to formation of values and goals [40]. It must be pointed out that parents also have a role in forming values of children. These values determine the choice of their friends. Friends are significant for quality adaptation, development of characteristic traits and differentiated skills, as well as inclusion and keeping various manifestations [41]. If adolescents have friends who exhibit risky behavior, the dominance of risk factor is emphasized [42]. Exposure to danger has a direct impact on adolescents through imitation, social stimulation, and legal consequences, or indirect one through formation of attitudes and opinions in connection to risky behavior [42]. However, it has not been established whether age-mates or the development of risky behavior by adolescents who require company with similar individuals influence development of risky behavior.

Significant limitations of this study, which should be taken into consideration in some of future studies, are as follows: the selection of a nonrandomized sample instead of randomized one, evaluation of frequency of risky health behavior among parents and peers, as well as their reactions. This greatly reduces the ability to generalize the obtained results. During evaluation of the frequency of parental risky behavior, the information concerning the existence of the mentioned risky behavior in one or both parents was not obtained. This can have significant consequences where risky health behavior in adolescents is concerned.

Further research should encompass the sample of parents and peers who would independently evaluate their frequency of use and their reaction to cigarette smoking and alcohol consumption among children. Additionally, the potential difference between actual consumption and perception of parents and peers regarding the consumption of alcohol among adolescents should be taken into considera-

tion as well. Simultaneously, it is necessary to analyze the partial contribution of parents as a model to risky health behavior with regard to gender of their adolescent children. It is recommended that future empiric research evaluates the relations between personality traits and social factors through longitudinal studies rather than transverse ones.

However, despite all of this limitations, the practical value of the obtained findings includes aiding parents, teachers, pedagogues and psychologists to identify more easily the adolescents with an increased risk to behavior that could endanger their health, with the aim of making an early prevention successful. Apart from personality dimensions, the importance of parents and peers, and their respective roles, in forming risky health behavior in adolescence is signalized in our research. Preventing risky health behavior in adolescents is particularly important because if a shift towards risky health behavior does not occur during adolescence, there is a minimal chance of its occurrence in later life.

Conclusion

This study contributes to better understanding of insufficiently explored dispositional and social factors in explaining the frequency of cigarette and alcohol use among adolescents. The results have shown that more than two thirds of preadolescents do not smoke cigarettes, and more than a half of them have never tasted alcohol. The value of Cronbach's alpha have shown satisfactory criterion validity, which further indicate the applicability of the measuring instruments used on Serbian population. Pearson correlation coefficient was used to determine statistically significant correlation among most of the variables, where the highest statistically relevant correlation was between cigarette/alcohol use and personality traits (conscientiousness and agreeableness), and the lowest one between the variables of *cigarette/alcohol use – peers* and *cigarette/alcohol use – parents*. The results of hierarchical regression analysis have shown that predictors explain 26% of the total criterion variance (frequency of cigarette use), and 27% of the total criterion variance (frequency of alcohol consumption), respectively. Taking this into account, the following variables have individual statistically significant contribution to cigarette use: gender, neuroticism, openness to new experiences, cigarette use – parents, and friends' reaction to cigarettes. The significant predictors of alcohol use are agreeableness, alcohol use – friends, and friends' reaction to alcohol consumption. The results of the study could help plan precise prevention strategies and treatments, with the primary focus on cigarette and alcohol use. This could be achieved by creating positive environment in both family and school. In addition, it is necessary to conduct a national antismoking-drinking campaign in the countries with small number of student smokers, with the aim of lowering the prevalence of smokers as well as increasing student awareness of smoking and alcohol issues.

The authors declare no conflicts of interest.
Autori izjavljuju da nemaju sukob interesa.

References

1. Mezquita L, Laura CL, Ibáñez MI, Villa H, Moya-Higueras J, Ortet G. Five-Factor Model and alcohol outcomes: Mediating and moderating role of alcohol expectancies. Personality and Individual Differences 2015;74:29–34.
2. Glavak, TR, Miletić GM, Sakoman S. Prevalence of substance use among the general population: Situation in Croatia and comparison with other European countries. Društvena istraživanja 2013;22(4):557–78.
3. Innamorati M, Maniglio R. Psychosocial correlates of alcohol use and heavy episodic drinking among Italian adolescents: Data from the second International Self-Reported Delinquency study. Am J Addict 2015;24(6):507–14.
4. Ritterman-Weintraub ML, Fernald LCH, Adler N, Bertozzi SS, Syme LS. Perceptions of Social Mobility: Development of a New Psychosocial Indicator Associated with Adolescent Risk Behaviors. Front Public Health 2015;3:62–9.

5. Sagoe, D, Andreassen CS, Molde H, Torsheim T, Pallesen, S. Prevalence and Correlates of Anabolic–Androgenic Steroid Use in a Nationally Representative Sample of 17-Year-Old Norwegian Adolescents. Subst Use Misuse 2015;50(2):139–47.

6. Leifheit, KM, Parekh J, Matson PA, Moulton LH, Ellen JM, Jennings JM. Is the Association between Neighborhood Drug Prevalence and Marijuana use Independent of Peer Drug and Alcohol Norms? Results from a Household Survey of Urban Youth. J Urban Health 2015;92(4):773–83.

7. Mohd M, Yaghma M, Sabri M, Aslinie B. Within-Family Discussion on Harmful Effects of Smoking and Intention to Initiate Smoking Among European Adolescents. Journal of Addiction Medicine 2015;9(4):261–5.

8. Piko BF, Varga S, Wills TA. A Study of Motives for Tobacco and Alcohol Use Among High School Students in Hungary. J Community Health 2015;40(4):744–9.

9. Kuhn C. Emergence of sex differences in the development of substance use and abuse during adolescence. Pharmacol Ther 2015;153:55–78.

10. Kenney S, Jones RN, Barnett NP. Gender Differences in the Effect of Depressive Symptoms on Prospective Alcohol Expectancies, Coping Motives, and Alcohol Outcomes in the First Year of College. J Youth Adolesc 2015;44(10):1884–97.

11. Brassai L, Piko BF, Steger MF. A reason to stay healthy: The role of meaning in life in relation to physical activity and healthy eating among adolescents. J Health Psychol 2015;20(5):473-82.

12. Zvolensky MJ, Taha F, Bono A, Goodwin RD. Big five personality factors and cigarette smoking: A 10-year study among US adults. J Psychiatr Res 2015;63:91–6.

13. Laursen B, Richmond A. Relationships: Commentary: Personality, Relationships, and Behavior Problems: It's Hard to Be Disagreeable. J Pers Disird 2014;28:143–50.

14. Kalebić-Maglca B, Martinac-Dorčić T. Osobine ličnosti i socijalni faktori kao odrednice konzumacije cigareta i alkohola kod adolescenata. Društvena istraživanja 2015;24(2):197–217.

15. Wills TA, Knight R, Williams RJ, Pagano I, Sargent JD. Risk Factors for Exclusive E-Cigarette Use and Dual E-Cigarette Use and Tobacco Use in Adolescents. Pediatrics 2015;85(1):43 –51.

16. Decuyper M, De Clercq B,Tackett JL. Assessing maladaptive traits in youth: An English-language version of the Dimensional Personality Symptom Itempool. Personality Disorders: Theory, Research, and Treatment, 2015;6(3):239–50.

17. Lee MR, Ellingson JM, Sher KJ. Integrating Social-Contextual and Intrapersonal Mechanisms of "Maturing Out": Joint Influences of Familial-Role Transitions and Personality Maturation on Problem-Drinking Reduction. Alcohol Clin Exp Res 2015;39(9):1775–87.

18. Wängqvist M, Lamb, ME, Frisen A, Hwang CP. Child and Adolescent Predictors of Personality in Early Adulthood. Child Development 2015;86(4):1253–61.

19. Sirois FM, Hirsch JM. Big Five traits, affect balance and health behaviors: A self-regulation resource perspective. Pers Individ Dif 2015;87: 59–64.

20. Ritterman-Weintraub ML, Fernald LC, Adler N, Bertozzi S, Syme SL. Perceptions of Social Mobility: Development of a New Psychosocial Indicator Associated with Adolescent Risk Behaviors. Front Public Health 2015;3:62–70.

21. El-Shahawy O, Sun P, Tsai JYK, Rohrbach LA, Sussman S. Sense of Coherence and Tobacco Use Myths Among Adolescents as Predictors of At-Risk Youth Cigarette Use. Subst Use Misuse 2015;50(1):8–14.

22. Armenta BE, Hautala DS, Whitbeck LB. The utility of the prototype/willingness model in predicting alcohol use among North American indigenous adolescents. Dev Psychol 2015;50(5):697–705.

23. Spirito A, Hernandez L, Cancilliere MK, Graves H, Barnett N. Improving Parenting and Parent-Adolescent Communication to Delay or Prevent the Onset of Alcohol and Drug Use in Young Adolescents with Emotional/Behavioral Disorders: A Pilot Trial. J Child Adolesc Subst Abuse 2015; 24(5):308–22.

24. Bagwell CL, Kochel KP, Schmidt ME. Friendship and Happiness in Adolescence. Friendship and Happiness 2015;4:99–116.

25. Reeb BT, Chan SYS, Conger KJ, Martin MJ, Hollis ND, Joyce Serido J, et al. Prospective Effects of Family Cohesion on Alcohol-Related Problems in Adolescence: Similarities and Differences by Race/Ethnicity. J Youth Adolesc 2015;40(10):1941–53.

26. Kwan PP, Sussman S, Valente TW. Peer Leaders and Substance Use Among High-Risk Adolescents. Subst Use Misuse 2015;50(3):283–91.

27. Reid M-A, MacCormack J, Sean Cousins & John G. Freeman. Physical Activity, School Climate, and the Emotional Health of Adolescents: Findings from 2010 Canadian Health Behaviour in School-Aged Children (HBSC) Study. School Mental Health 2015;7(3):224–34.

28. Vandewater EA, Park SE, Carey FR, Wilkinson AV. Intergenerational transfer of smoking across three generations and forty-five years. Nicotine & Tobacco Research 2014;16(1):11–7.

29. John OP, Donahue EM, Kentle RL. The Big Five In-

ventory-Versions 4a and 54. Berkeley: University of California, Berkeley, Institute of Personality and Social Research; 1991.

30. Walpole RE, Myers RH, Ye K. Probability & Statistics for Engineers & Scientists. Boston, MA: Prentice Hall; 2012.

31. Kaltiala-Heino R, Fröjd S, Marttunen M. Depression, conduct disorder, smoking and alcohol use as predictors of sexual activity in middle adolescence: a longitudinal study. Health Psychol Behav Med 2015;3(1):25–39.

32. Desrosiers A, Sipsma H, Divney A, Magriples U, Kershaw T. Emotion Expression and Substance Use in Newly Parenting Adolescents and Young Adults. J Clin Psychol 2015;71(7): 684–95.

33. Duncan SC, Gau JM, Farmer RF, Seeley JR, Kosty DB, Lewinsohn PM. Comorbidity and temporal relations of alcohol and cannabis use disorders from youth through adulthood. Drug Alcohol Depend 2015;149(1):80–6.

34. Arpawong TE, Sussman S, Milam JE, Unger JB, Land H, Sun P, et al. Post-traumatic growth, stressful life events, and relationships with substance use behaviors among alternative high school students: a prospective study. Psychol Health 2015;30(4):475–94.

35. Telzer EH, Fuligni AJ, Lieberman MD, Miernicki ME, Galván A. The quality of adolescents' peer relationships modulates neural sensitivity to risk taking. Soc Cogn Affect Neurosci 2015;10(3):389–98.

36. Zhu Q, Lou C, Gao E, Cheng Y, Zabin LS, Emerson MR. Drunkenness and its association with health risk behaviors among adolescents and young adults in three Asian cities: Hanoi, Shanghai, Taipei. Drug Alcohol Depend 2015;97(1):251–6.

37. Whitehead R, Currie D, Inchley J, Currie C. Educational expectations and adolescent health behaviour: an evolutionary approach. Int J Pub Health 2015;60(5):599–608.

38. Kandel DB, Pamela C, Griesler PC, Hu MC. Intergenerational Patterns of Smoking and Nicotine Dependence Among US Adolescents. Am J Pub Health 2015;55(11):63–72.

39. Rulison KL, Feinberg M, Gest SD, Osgood W. Diffusion of Intervention Effects: The Impact of a Family-Based Substance Use Prevention Program on Friends of Participants. J Adolesc Health 2015;57(4):433–40.

40. Yu S, Koplan J, Eriksen MP, Yao S, Redmon P, Song J, et al. The Effects of Antismoking Messages From Family, School, and Mass Media on Smoking Behavior and Smoking Intention Among Chinese Adolescents. Journal of Health Communication: International Perspectives 2015;20(11):1255–63.

41. Yoshito K, Crick NR. Direct and interactive links between cross-ethnic friendships and peer rejection, internalizing symptoms, and academic engagement among ethnically diverse children. Cultur Diversity Ethnic Minor Psychol 2015;21(2):191–200.

42. Mercken L, Steglich C, Sinclair P, Holliday J, Moore L. A longitudinal social network analysis of peer influence, peer selection, and smoking behavior among adolescents in British schools. Health Psychol 2012;31(4):450–9.

Dimenzije ličnosti i socijalne varijable – prediktori upotrebe cigareta i alkohola u adolescenciji

Miroljub Ivanović[1], Uglješa Ivanović[2]

[1]Visoka škola strukovnih studija za obrazovanje vaspitača i poslovnih informatičara – Sirmijum, Sremska Mitrovica, Srbija

[2]Telekom Srbija, a.d. Beograd, Srbija

Uvod. Osnovni cilj istraživanja bilo je ispitivanje doprinosa osobina ličnosti i socijalnih varijabli u predikciji frekvencije upotrebe cigareta i alkohola kod ispitanika adolescentskog uzrasta.

Metode. Na uzorku učenika IV razreda srednjih škola (N = 268) prosečne starosti 18 ± 1,76 godina primenjena su dva upitnika: Petofaktorski upitnik ličnosti (BFI) i Upitnik uloge roditelja i prijatelja. Izračunate vrednosti Cronbach alfa koeficijenta ukazale su na zadovoljavajuću internu konzistentnost primenjenih mernih instrumenata.

Rezultati. Oko 70% adolescenata nije pušilo cigarete, a 64% njih ne konzumira alkohol. Korelaciona analiza je pokazala statistički značajnu povezanost između nekoliko varijabli. Rezultati hijerarhijske regresione analize su, uz p-vrednost < 0,01, pokazali da prediktori objašnjavaju 26% ukupne varijanse

kriterijuma (učestalosti upotrebe cigareta), odnosno 27% ukupne varijanse kriterijuma (frekvencije konzumiranja alkohola). Pritom, statistički značajan samostalan doprinos na upotrebu cigareta imaju varijable: pol, neuroticizam, otvorenost prema iskustvima, upotreba cigareta – roditelji i reakcija prijatelja na cigarete, dok su za konzumiranje alkohola adolescenata najbolji prediktori bili prijatnost, upotreba alkohola – prijatelji i reakcija prijatelja na upotreba alkohola.

Zaključak. Dobijeni podaci osvetljavaju značaj nedovoljno istraženih odnosa između socijalnih faktora i dimenzija ličnosti i upotrebe cigareta i alkohola u adolescentskoj populaciji.

Ključne reči: adolescenti, pušenje cigareta, konzumiranje alkohola, upitnici

Received – Primljen: 10/02/2017 Accepted – Prihvaćen: 29/05/2017