



## Differences in temperament and character dimensions in adolescents with various conduct disorders

Razlike u temperamentu i karakteru kod adolescenata sa raznim poremećajima ponašanja

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### Abstract

**Background/Aim.** Adolescence is characterized both by a large developmental potential and by an increased risk for emergence of different forms of psychopathology. International classifications of mental disorders recognize the psychopathology of adolescence at the age of 15–18 through the categories of conduct disorders and some forms of addiction: chemical and non-chemical. The aim of this research was to analyse the personality structure among four groups of adolescents manifesting different types of conduct disorder based on Cloninger’s Psychobiological theory of personality. **Methods.** The research sample consisted of 140 respondents at the age of 16–18, divided into five groups: 30 respondents manifesting socialized conduct disorder, 20 adolescents in conflict with the law, 30 respondents manifesting abuse of psychoactive substances, 30 respondents with the problem of the Internet addiction and 30 from general population. The Belgrade Adolescent Personality Inventory (BAPI) questionnaire was used for the purpose of assessment of personality. Multivariate analysis of variance (MANOVA), followed by univariate

analysis of variance (ANOVA) was used to examine differences between the given groups of adolescents. **Results.** The results of MANOVA show differences in the personality structure among the groups, both in the dimensions of temperament,  $F(20,418.84) = 2.71, p < 0.001$ , Wilks’s lambda 0.67, and in the dimensions of character,  $F(12,344.24) = 3.27, p < 0.001$ , Wilks’s lambda is 0.75. Socialized conduct disorder is characterized by low self-directedness and average cooperativeness. Adolescents in conflict with the law have the lowest persistence, together with low self-directedness and cooperativeness. Adolescents abusing psychoactive substances have low harm avoidance and self-transcendence. Adolescents with Internet addiction are characterized by high novelty seeking (impulsivity and curiosity), low self-directedness and the lowest cooperativeness. **Conclusion.** The results show that the dimensions of personality can play an important role in etiopathogenesis of various disorders in adolescents.

**Key words:** mental disorders; adolescent; substance-related disorders; character; personality.

### Apstrakt

**Uvod/Cilj.** Adolescenciju karakteriše veliki razvojni potencijal, ali i pojačani rizik od formiranja različitih vidova psihopatologije. Psihopatologiju adolescencije uzrasta od 15 do 18 godina, međunarodne klasifikacije mentalnih poremećaja prepoznaju kroz kategorije poremećaja ponašanja i neke vidove bolesti zavisnosti: hemijskih i nehemijskih. Cilj istraživanja bio je da se na osnovu Klonindžerove psihobiološke teorije ličnosti analizira struktura ličnosti kod četiri grupe adolescenata koji manifestuju različite oblike poremećaja ponašanja. **Metode.** Uzorak istraživanja sastojao se od 140 ispitanika uzrasta

od 16 do 18 godina, podeljenih u pet grupa: 30 ispitanika koji su manifestovali socijalizovani poremećaj ponašanja, 20 adolescenata sa poremećajem ponašanja u sukobu sa zakonom, 30 ispitanika sa problemom zloupotrebe psihoaktivnih supstanci, 30 ispitanika sa problemom zavisnosti od interneta i 30 ispitanika kontrolne grupe. Za procenu strukture ličnosti korišćen je upitnik *Belgrade Adolescent Personality Inventory* (BAPI). Razlike između grupa adolescenata ispitane su multivarijantnom (MANOVA) i univarijantnom (ANOVA) analizom varijanse. **Rezultati.** Rezultati multivarijantne analize varijanse pokazuju da postoje razlike u strukturi ličnosti između svih grupa, kako na dimenzijama temperamenta,  $F$

(20,418.84) = 2.71,  $p < 0.001$ , Vilksova lambda 0,67, tako i na dimenzijama karaktera,  $F(12,344.24) = 3,27$ ,  $p < 0,001$ , Vilksova lambda 0,75. Socijalizovani poremećaj ponašanja karakteriše niska samousmerenost, ali prosečna kooperativnost. Adolescenti u sukobu sa zakonom imaju najnižu perzistenciju, kao i nisku samousmerenost i kooperativnost. Adolescenti koji zloupotrebljavaju psihoaktivne supstance imaju nisko izbegavanje štete i autotranscedenciju. Za adolescente sa internet zavisnošću

karakteristična je visoka potraga za novinama (impulsivnost i radoznalost), niska samousmerenost i najniža kooperativnost. **Zaključak.** Rezultati ukazuju da dimenzije ličnosti mogu igrati značajnu ulogu u etiopatogenezi različitih poremećaja adolescenata.

**Ključne reči:**  
ponašanje, poremećaji; adolescenti; poremećaji izazvani supstancama; karakter; ličnost.

## Introduction

Adolescence is characterized both by a large developmental potential and by the risk for the emergence and structuring of various forms of psychopathology<sup>1</sup>. International classifications of mental disorders (ICD 10 and DSM IV) mostly recognize the psychopathology of adolescence of the age between 15 and 18 through the categories of conduct disorders and some forms of addiction<sup>2,3</sup>.

Conduct disorders are a heterogeneous group characterized by a broad spectrum of repetitive and persistent antisocial patterns, creating a continuum<sup>4</sup>. At one pole of the continuum are mild disorders which can be pre-delinquent, situation-caused or a part of developmental crisis and need not to be based on an antisocial construction. The ICD 10 Classification recognizes them as socialized conduct disorder. On the other pole of the continuum are the modes of conduct having the characteristic of juvenile delinquency, revealed already in early childhood, with a tendency to being transformed into the antisocial personality disorder<sup>5</sup>. Conduct disorders also involving a conflict with the law make a non-socialized form of disorders. They are characterized by the lack of actual integration into the peer group, with the presence of more aggressive forms of delinquency and the disturbance of relations with adults in the form of hostility and frustration. Accordingly, the American DSM IV Classification distinguishes two models of understanding the antisocial conduct and antisocial personality disorder after the age of 18: children and adolescent types of conduct disorder<sup>6,7</sup>. Both forms of disorders are significantly more present in males. The children type of conduct disorder inclines towards the antisocial personality disorder. The adolescent type of conduct disorder can persist as a disorder only in the period of adolescence.

Another large group of adolescence problems is the abuse of and the addiction from psychoactive substances, together with relatively new forms of non-chemical addiction, which unofficial name "Internet addiction", became common in the professional and popular literature. Causes of occurrence and course of psychoactive substances abuse (PAS) are often connected to the problem of intensive short or permanent anxiety. The emergence of problems related to abuse of PAS goes through early, middle and late phases<sup>8</sup>. The early phase is characterized by the abuse of PAS manifested through "experimenting" ("trying") or "social use". The middle phase is characterized by a slow transition from abuse to addiction, whereas the late phase is characterized by addiction.

Under the influence of the development of electronic communications and the accompanying forms of entertain-

ment offered through new communication patterns, new disorders are emerging – particularly emphasized in the adolescence period<sup>9,10</sup>. They have not been officially included into the diagnostic classifications, although the coming American DSM V Classification brings clearer guidelines for diagnosing the disorder. For the time being, the clinical practice and professional literature recognize the problem under the name of "Internet addiction"<sup>11</sup>. One group of experts perceives the problem in the light of behavioral, non-chemical or even technological addiction, whereas the other group comprehends the problem in the light of impulse control disorder<sup>12</sup>. There is an agreement among both groups of experts about the fact that the Internet by itself does not create "addiction" but it is the individual personality which finds specific forms of satisfaction in the "cyberspace"<sup>13,14</sup>.

The personality assessment has always been determined by the use of certain questionnaires and the theory in the background thereof. In this research, the adolescence subject matter was analyzed through the prism of the psychobiological theory of personality of Robert Cloninger. This theory defines the personality through interactive shaping of biological and social factors, describing seven dimensions of personality: four dimensions of temperament and three dimensions of character<sup>15-17</sup>.

The paper deals with determining the relation between the basic dimensions of personality defined by the Cloninger's personality model and various forms of disorders in the adolescence period having both similarities and specific differences: socialized conduct disorder, conduct disorder that includes the conflict with the law, abuse of PAS and Internet addiction. In accordance with the chosen subject matter, the research was aimed at determining specificities and differences in the personality structure among the four groups of adolescents expressing the aforementioned forms of conduct disorders and the differences in the personality structure between the groups of adolescents with conduct disorders in comparison with the adolescents from the general population.

## Methods

### Sample

The research was conducted in the period between January and November 2012 in public health institutions, private hospitals, and correctional institution for adolescents in conflict with law in Belgrade, Niš and Knjaževac, as well as in Belgrade secondary schools. Inclusion of a large number of institutions into the research was necessary due to the formation of different research groups. All respondents and

their parents (parents' consent was necessary due to the juvenile age of the respondents) signed the Form of informed consent. The sample consisted of 140 respondents in total, between 16 and 18 years of age ( $M_{age} = 16.86$ ), out of which 72 (51.4%) male and 68 (48.6%) female. The sample encompassed five groups of respondents: 30 respondents manifesting socialized conduct disorder (diagnosed socialized conduct disorder according to the ICD 10 Classification from the scope of the diagnosis F91.2); 20 respondents with conduct disorder in conflict with the law (pronounced judicial measure of committal to an educational institution); 30 respondents with the problem of abuse of PAS (fulfillment of criteria of substance abuse according to the ICD 10 Classification); 30 respondents with the problem of Internet addiction (fulfillment of criteria on the basis of the Young's Internet Addiction Test (IAT)); and 30 respondents from the control group. The fifth group consisted of adolescents from the general population who did not manifest conduct problems or some form of addiction, nor other forms of psychopathological manifestation. Additional criteria for all respondents were the absence of psychotic manifestations, central nervous system (CNS) injuries or other somatic illnesses, the absence of problems in intellectual development and voluntary acceptance of participation in the research for all respondents.

#### *Procedure*

The adolescents with socialized conduct disorder were tested in Belgrade secondary schools and additionally in private psychiatric surgeries, upon the received approval from the school principal, Parents council and with the agreement of the private surgeries owners. The research was conducted in the two central Belgrade high schools: XIV Belgrade High School and Zemun High School; in one suburban secondary school – Grocka Secondary School, and in one vocational secondary school in Belgrade: Architecture and Technical Secondary School. The participants were initially selected by their head teachers, then they had an interview with school psychologists and at the end with the members of the research team within the school premises. The members of the research team conducted a typical psychiatric interview on the basis of which the diagnosis of social conduct disorder was established. The tests were distributed by the school psychologists and by the members of the research team in the school psychologist's premises.

The adolescents with conduct disorder in conflict with the law (pronounced judicial measure of committal to an educational institution), were tested within the PIKS project, (PIKS – *Program intervencija u kriznim situacijama* – Intervention programme in critical situations), conducted by the Republic Institute for Social Protection. The programme has obtained an approved by the Ministry of Labour and Social Issues, as well as special contracts with each of the three above-mentioned institutions – correctional institutions (Belgrade, Niš, Knjaževac). Tests have been distributed by the psychologists in these institutions.

The adolescents with the problem of PAS abuse were tested in the Special Hospital for Substance Abuse, as well as in

two specialized private hospitals for substance abuse (private hospitals "Lorijan" and "Netrex zone", both from Belgrade), all upon the obtained official consent and permission for research conducting, as well as the consent of the Ethic board in the public health institution / the private hospitals owners.

The adolescents with non-chemical addiction were tested in the Day Hospital for Non-Chemical Addiction of the Special Hospital for Substance Abuse, upon the obtained official consent and approval for the research, as well as the consent of the Ethic board in the above-mentioned Belgrade secondary schools, following the above-stated procedure. The adolescents with non-chemical addiction filled in tests in the psychiatric surgery, in the public health institutions, and in the school psychologist's premises.

The control group adolescents were tested in the above-stated Belgrade secondary schools following the already stated procedure. The tests for the adolescents were distributed by the members of the research team during specially organized classes agreed with the head teachers and the school psychologists.

The time necessary for the tests filling in was from 45 to 90 minutes, approximately up to 60 minutes. The research in the above-stated schools lasted one school class or one school class and a break.

#### *Instruments*

Since the respondents were classified into groups on the basis of the ICD-10 Classification criteria, the test criterion was used only for the group of adolescents with Internet addiction problem, considering that this disorder had not yet been included into the official classification. To that end, the Young's Internet Addiction Test (IAT) consisting of 20 items was used for self-assessment of the problems related to the use of Internet. The following classification of scores was used in this paper: the score of 20–39 average use; 40–69 frequent problems due to the use of Internet; 70–100 significant problems due to the use of Internet<sup>18</sup>. The adolescents classified into the category of "Internet addicts" had IAT score above 70.

For the purpose of personality assessment we used the BAPI, a questionnaire constructed on the basis of Cloninger's theory of personality, which measures four dimensions of temperament and three dimensions of character. The BAPI consists of 46 items grouped into 4 temperament scales: Novelty Seeking (NS) divided into two subscales – Impulsivity (NS Im) and Explorative Curiosity (NS Ec); Harm Avoidance (HA); Reward Dependence (RD) and Persistence (P) and 3 character scales: Self-Directedness (SD); Cooperativeness (C) and Self-Transcendence (ST). The respondents answered on a 5-level Likert-type scale. BAPI is created for adolescents from 14 to 18 years of age<sup>19, 20</sup>. The questionnaire's scale showed a satisfactory reliability (0.66–0.80), particularly having in mind a small number of items (5–6) *per* scale. Confirmatory factor analysis in principle confirmed the two main dimensions of temperament and character as defined by Cloninger. The only exception was the case of NS, for which two-factor solution is more conveni-

ent. NS is composed of Explorative Curiosity and Impulsivity which differs “good” (curious, interested, creative) and “bad” (impulsive, impatient, chaotic) features of this dimension.

*Statistics*

Data analysis was performed by SPSS. Multivariate analysis of variance (MANOVA), followed by univariate analysis of variance (ANOVA) was used to examine differences between the given groups of adolescents. Before the analysis, the basic psychometric characteristics of BAPI were examined.

**Results**

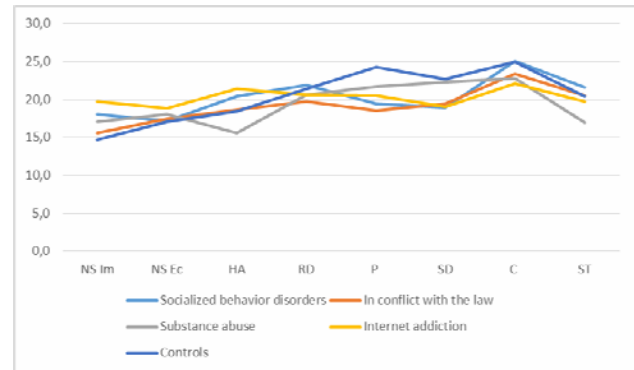
The obtained results show the satisfactory psychometric characteristic of the BAPI scale on this sample, having in mind only 6 items *per* scale. Cronbach’s alpha ranges from 0.70 to 0.82, apart from the Reward Dependence (RD) scale with a marginal reliability (0.60). Even the NS subscales, Impulsivity and Curiosity with 5 items each have an acceptable reliability (0.66 and 0.67) (Table 1).

The results of multivariate analysis of variance (MANOVA) show significant differences in personality structure among all the four groups of adolescents, both in dimensions of temperament,  $F(20,418.84) = 2.71, p < 0.001$ , Wilk’s lambda is 0.67, and in dimensions of character,  $F(12,344.24) = 3.27; p < 0.001$ , Wilk’s lambda is 0.75.

When observing differences in particular scales, significant differences notably exist at all scales except for the RD scale and the NS Curiosity subscale (Table 2).

The dimensions of personality that differ the groups are

mainly the Impulsivity (NSI) subscale, Persistence (P) and Harm Avoidance (HA) scales, representing the dimensions of temperament which in fact essentially optimize the development of a stable, mature character. In relation thereto, significant differences among the groups are shown in the Self-Directedness (SD) and Cooperativeness (C) dimensions of character which, together with Persistence (P), are the highest in the group of adolescents from the general population (Figure 1).



**Fig. 1 – Groups profiles in temperament and character dimensions.**

**NSIm – Novelty Seeking Impulsivity; RD – Reward Dependence; P – Persistence; SD – Self-Directedness; C – Cooperativeness; ST – Self-Transcendence.**

**Discussion**

The lack of adequate instruments for assessment of adolescents’ personality and the open issues about the development of adolescents’ personality structure point to theoretical and practical problems in the research. The BAPI is a new

**Table 1**

**Descriptive statistics and adolescents temperament and character scales validity**

Temperament and character dimension	$\bar{x}$	SD	Min	Max	Sk	Ku	Number of items	$\alpha$
Impulsivity (NS Im)	17.19	4.21	5	25	-0.39	-0.22	5	0.66
Explorative Curiosity (NS Ec)	17.69	3.55	8	23	-0.70	0.00	5	0.67
Harm avoidance (HA)	18.96	6.14	6	30	-0.10	-0.89	6	0.82
Reward dependence (RD)	21.11	3.93	11	29	-0.32	-0.67	6	0.60
Persistence (P)	21.48	5.31	7	30	-0.38	-0.42	6	0.86
Self-directedness (SD)	20.72	5.14	6	30	-0.68	0.37	6	0.75
Cooperativeness (C)	23.73	3.70	16	30	-0.10	-1.06	6	0.67
Self-transcendence (ST)	19.68	6.16	6	30	-0.44	-0.48	6	0.83

NS – Novelty Seeking.

**Table 2**

**Differences between the groups in temperament and character dimensions**

Temperament and character dimension	Socialized behavior disorders	In conflict with the law	Substance abuse	Internet addiction	Controls	Group comparison				
	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	$\bar{x} \pm SD$	F	df <sub>w</sub>	df <sub>b</sub>	p	$\eta^2$
Impulsivity (NS Im)	18.13 ± 3.60	15.62 ± 4.31	17.07 ± 3.47	19.70 ± 3.70	14.67 ± 4.40	7.38	4	128	0.00	0.19
Explorative Curiosity (NS Ec)	17.17 ± 3.74	17.54 ± 4.43	18.10 ± 4.04	18.83 ± 3.17	17.07 ± 2.89	1.24	4	128	0.299	0.04
Harm avoidance (HA)	20.43 ± 5.32	18.62 ± 5.98	15.60 ± 6.34	21.37 ± 5.46	18.43 ± 6.00	4.34	4	128	0.003	0.12
Reward dependence (RD)	21.87 ± 4.38	19.69 ± 3.59	20.63 ± 4.16	20.57 ± 3.93	21.37 ± 3.17	0.97	4	128	0.434	0.03
Persistence (P)	19.43 ± 5.96	18.46 ± 4.77	21.67 ± 4.47	20.53 ± 5.49	24.30 ± 4.08	4.94	4	128	0.001	0.13
Self-directedness (SD)	18.90 ± 5.40	19.41 ± 4.05	22.27 ± 4.84	19.03 ± 5.08	22.67 ± 4.16	4.29	4	132	0.003	0.12
Cooperativeness (C)	25.07 ± 3.97	23.35 ± 4.08	22.77 ± 3.30	22.07 ± 3.12	25.00 ± 3.54	4.21	4	132	0.003	0.11
Self-transcendence (ST)	21.63 ± 5.86	20.53 ± 3.39	17.03 ± 7.03	19.67 ± 5.79	20.37 ± 5.17	2.65	4	132	0.036	0.07

NS – Novelty Seeking.

form of questionnaire for temperament and character assessment based on the Robert Cloninger's Psychobiological model of temperament and character. It has been constructed in our region and is fully adjusted to our population in the cultural aspect. Its satisfactory psychometric characteristics have in several occasions been confirmed in the process of construction<sup>20</sup>, as well as in this report.

The adolescents with socialized conduct disorder showed an emphasized novelty seeking in the sense of impulsivity, reduced persistence, i.e. weak endurance and low self-directedness, however without a weak cooperativeness, which points to their good inclusion into the society, i.e. their peer group. This group of adolescents represents a milder form of conduct disorder, characterized by running away from school and/or home, in fact running away from the source of problem as a "coping" strategy, while remaining good social contact with the peer group of similar tendencies. The problem appears when all possibilities for running away from problems are exhausted and when pressure emerges both from the parents and from the school for the accumulated problems to be resolved. Low Self-Directedness confirms the difficulties in adjusting the behavior to the situation, weakly defined goals and feeling of responsibility for own acts. Particularly high scores in the reward dependence indicate social and emotional sensitivity. This finding, together with the accompanying cooperativeness, point to the socialization potential which can act as a protective factor for development of subsequent behavioral disorders, therefore transitional adolescent crises which are to be overcome in future are more typical for this group.

The adolescents with conduct disorder including the conflict with the law have similar characteristics. They score the lowest persistence, which indicates the difficulties in endurance and easily giving up. Also, they have reduced harm avoidance as a reflection of absence of fear from punishment which does not inhibit their behavior, and lower cooperativeness in relation to the group with socialized form of behavioral disorder, having in mind their antisocial behavioral tendencies. A specific problem of this group is the lowest reward dependence (although not significantly), as a reflection of weaker social and emotional responsiveness. Within a reduced response to reward and punishment (reduced scores on RD and HA), a successful implementation of educational methods is difficult and requires more intensive therapeutic interventions.

For the adolescents with the abuse of PAS it is characteristic that in comparison with other groups of respondents they have the lowest scores in Harm Avoidance (HA), reflecting their inclination towards a risky and auto-destructive behavior which is not inhibited by fear from harmful consequences. This contradicts to the earlier researches of abuse of and dependence from PAS, which emphasized a high level of harm avoidance<sup>21</sup>. It is possible that exactly the abuse of PAS has the function to reduce the anxiety related to high scores in this dimension, or that – which was not the case in our sample – anxiety and depression (high HA scores) appear later, in developed addiction phase, as consequences of secondary addiction-related problems. Another specificity is lower scores in self-transcendence.

This can be related to the experience of the absence of sense or spiritual values, leading to the need for escape from reality through the abuse of PAS. In the selected sample of respondents, the abuse of substances did not achieve the level of dependence, increasing the chances for therapeutic success<sup>8</sup>. Many researches emphasize the importance of personality in emergence of problems with use and abuse of PAS and not only the availability of the substances, whereas additional family and other environmental factors can play a decisive role in further deepening of the disorder to the level of addiction.

The adolescents who developed Internet addiction have the lowest Self-Directedness (SD) and Cooperativeness (C) character dimensions, however rather of asocial than of antisocial type. Considering that this group also has the highest scores in Harm Avoidance, the combination of these two dimensions can point to the actual social anxiety and avoidance of society through protective isolation and withdrawal into the virtual world. In addition, this group is also characterized with the highest scores in both components of Novelty Seeking (NS), Impulsivity (NS Im), and Explorative curiosity (NS Ec). This is in accordance with the typical Internet-related conduct problem, emphasizing the impulse control disorder<sup>11</sup> regardless of the reason this control has been disturbed. It is possible that the technological progress brings a new opportunity for expressing impulsivity in the virtual reality, or, which is more probable, long sitting in front of the computer and seizing into often violent contents lead to irritability, with a tendency for its impulsive relieve. The results of researches carried out so far indicate that Internet by itself does not create the "addiction" but it is the individual personality which finds specific forms of satisfaction in the "cyberspace"<sup>12</sup>. Observed as a whole, this group of adolescents has the most risky profile, with the lowest character and the most unstable temperament characteristics, particularly in relation to internal conflict of contradictory aspirations such as the aspirations towards novelties (high NS scores) and inhibiting anxiety in front of them (high HA scores).

The group of adolescents from the general population is very heterogeneous, except when it is about the absence of manifestation of psychopathological forms of behavior; therefore, any common description of personality would be senseless. However, their scores in personality dimensions point to the most mature personality structure, in the sense of the most developed character dimensions and the highest Persistence (P), the lowest Impulsivity (NS Im), moderate Harm Avoidance (HA) and increased Reward Dependence (RD), being an optimum combination for the development of a stable and mature personality.

On the basis of these results all the examined groups of adolescents differ *per* low scores in character dimensions in relation to young people from the general population, while temperament dimension specifically distinguishes particular groups of youth with behavioral problems. On the basis of the obtained results we can say that personality dimensions can play a significant role in etiopathogenesis of different adolescents' disorders. The results can be a base for psychodiagnostic assessment, as well as for creating programs and interventions for prevention adolescence prob-

lems. Socialized conduct disorder can be not an ephemeral developmental phase in adolescence, however, the preventive work in this phase can prevent complications of the problem and deepening of disorders within the framework of other unfavorable circumstances. Among the adolescents in conflict with the law, the conduct disorder have already achieved the level of problems requesting educational court measures; however, the personality profile has no characteristics of a serious antisocial disorder and intensive, integrative therapeutic interventions might yield promising results. The abuse of substances is still only the first phase in addictive disorders and there are possibilities for termination of further development of the problem, which requires timely implementation of the existing preventive programs and creation of new ones. The adolescents with Internet addiction problem in our research have the most extreme scores in personality dimensions, which might represent a significant factor of psychopathological risk.

The research results confirmed the hypotheses of this paper that the clinical groups of adolescents differ from the group from general population, which is in line with earlier findings of Cloninger et al.<sup>17</sup> on the basis of the Self-Directedness and Cooperativeness character dimensions which differentiate the respondents along the normal-pathological dimension<sup>22-24</sup>. The character dimensions' scores

are the highest on the scales of the group general population. The results also confirmed the other hypotheses of the study, showing that different personality profiles can be connected with specific disorder manifestations.

This study has some limitations that should be taken into account when interpreting its findings and conclusions. First, it is a descriptive, cross-sectional study, which limits the ability to determine causal relationships between the personality and various conduct disorders. Second, research sample, primarily because of the size, may not be representative of all the adolescents in Serbia.

### Conclusion

It can be concluded that the dimensions of personality can play an important role in etiopathogenesis of different adolescence disorders. Assessment of these dimensions of personality could be useful in psychodiagnostic evaluation, risk assessment of development problems in adolescence, as well as in considering therapeutic goals. These findings suggest the need for further longitudinal-type studies on larger samples as well as the need for creation more efficient preventive and therapeutic programs, and their more systematic and coordinated implementation.

### R E F E R E N C E S

1. *Erikson HE*. Identity and life cycle. Belgrade: Zavod za udžbenike; 2008. (Serbian)
2. *Dukanac V*. Correlation of socio-pathological and adolescent psychopathology with the structure of the personality of parents and family functioning. Belgrade: Faculty of Special Education and Rehabilitation; 2013. (Serbian)
3. *World Health Organization*. ICD-10 International Classification of Diseases. Belgrade: Zavod za udžbenike i nastavna sredstva; 1992. (Serbian)
4. *Pejović-Milovančević M*. Conduct disorder. In: *Bojanin S, Popović-Deušić S*, editors. Developmental psychiatry. Belgrade: Institute of Mental Health; 2012. p. 361–72. (Serbian)
5. *Radulović D*. Conceptual framework of conduct disorder - psychological approach. In: *Radovanović D*, editor. Conduct disorder and juvenile delinquency: Special-pedagogical discourse. Belgrade: University of Belgrade, Faculty of Special Education and Rehabilitation; 2007. p. 11–29. (Serbian)
6. *Moffitt TE*. Adolescence-limited and life-course-persistent antisocial behavior: a developmental taxonomy. *Psychol Rev* 1993; 100(4): 674–701.
7. *Loeber R*. Development and risk factors of juvenile antisocial behavior and delinquency. *Clin Psychol Rev* 1990; 10(1): 1–41.
8. *Ramah A*. Substance abuse in children and adolescents. In: *Bojanin S, Popović-Deušić S*, editors. Developmental psychiatry. Belgrade: Institute of Mental Health; 2012. p. 435–54. (Serbian)
9. *Grüsser SM, Thalemann R, Griffiths MD*. Excessive computer game playing: evidence for addiction and aggression. *Cyberpsychol Behav* 2007; 10(2): 290–2.
10. *Batthyany D, Muller KW, Benker F, Wolfing K*. Computer game playing: clinical characteristics of dependence and abuse among adolescents. *Wien Klin Wochenschr* 2009; 121(15–16): 483–5.
11. *Young KS*. Internet addiction: the emergence of a new clinical disorder. *Cyberpsychol Behav* 2008; 1(3): 237–44.
12. *Shapira NA, Lessig MC, Goldsmith TD, Szabo ST, Lazovitz M, Gold MS*, et al. Problematic - internet use: proposed classification and diagnostic criteria. *Depress Anxiety* 2003; 17(4): 207–16.
13. *Popović-Čitić B, Marković M, Popović V*. Internet addiction – current knowledge and dilemmas. In: *Kordić B, Kovačević A, Banović B*, editors. Responding to security risks in educational institutions. Belgrade: Faculty of Security Studies; 2012. p. 261–71. (Serbian)
14. *Elder GH, Nguyen TV, Caspi A*. Linking family hardship to children's lives. *Child Dev* 1985; 56(2): 361–75.
15. *Cloninger R, Przybeck T, Svrakic D, Wetzel R*. The Temperament and Character Inventory (TCI): A guide to its development and use. St Louis: Washington University; 1994.
16. *Džamonja-Ignjatović T, Svrakic DM, Svrakic N, Jovanovic MD, Cloninger RC*. Cross-cultural validation of the revised Temperament and Character Inventory: Serbian data. *Compr Psychiatry* 2010; 51(6): 649–55.
17. *Cloninger CR, Svrakic NM, Svrakic DM*. Role of personality self-organization in development of mental order and disorder. *Dev Psychopathol* 1997; 9(4): 881–906.
18. *Chang MK, Law SP*. Factor structure for Young's Internet Addiction Test: A confirmatory study. *Comput Human Behav* 2008; 24(6): 2597–619.
19. *Dukanac V, Džamonja-Ignjatović T, Milanović M*. Construction and psychometric checking of Adolescent Temperament and Character Inventory ATCI-80. *Engrami* 2011; 33(3): 5–17. (Serbian)
20. *Džamonja-Ignjatović T, Milanović M, Dukanac V*. Belgrade Adolescent Personality Inventory: bridging the gap between personality assessment in children and adults. *Psihološka istraživanja* 2014; 17(1): 35–53.
21. *Svrakic D, Cloninger CR, Svrakic N, Lažić B, Miličević D, Nastasić P*. Drug addiction and choice of drugs: Temperament and

- personality as risk factors. *Ser J Exp Clin Res* 2010; 11(3): 93–8.
22. *Svrakic DM, Whitehead C, Przybeck TR, Cloninger CR*. Differential diagnosis of personality disorders by the seven-factor model of temperament and character. *Arch Gen Psychiatry* 1993; 50(12): 991–9.
23. *Svrakic D, Cloninger R*. Personality disorder. In: *Kaplan H, Sadock B*, editors. *Comprehensive Textbook of Psychiatry*. Philadelphia, Baltimore, New York, London, Buenos Aires, Hong Kong, Sydney, Tokyo: Williams and Wilkins; 2005. p. 2063–104.
24. *Ignjatovic-Dzamonja T, Svrakic D*. Western personality models applied in Eastern Europe: Yugoslav data. *Compr Psychiatry* 2003; 44(1): 51–9.

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