



Characteristics of empathy and psychopathy among pathological Internet users and opiate-dependent persons

Karakteristike empatije i psihopatije kod osoba koje patološki upotrebljavaju internet i kod zavisnika od opijata

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Abstract

Background/Aim. The debate about diagnostic criteria for differences and similarities as psychosocial characteristics of pathological Internet users and Internet and substance addicts still continued. The aim of the study was to investigate the differences between empathy and psychopathy among subjects with pathological Internet use (PIU) and opiate dependence. **Methods.** The cross sectional study was performed at the Methadone Center of the Clinical Centre of Vojvodina, Novi Sad, Serbia, with 40 consecutively recruited patients with opiate dependence (OD group) and compared to age matched (25 to 35 years) random online recruited subjects ($n = 80$). They were divided into two groups: 40 subjects with PIU and 40 controls according to cut-off score of 39 or less obtained at Questionnaire regarding the Internet use assessment. The questionnaires for sociodemographic data, Emotion Specific Empathy (EMI) questionnaire and Psychopathy Assessment Questionnaire (PAQ) were applied. Descriptive statistics, χ^2 -tests, ANOVA and MANOVA analysis were used for data assessment

Apstrakt

Uvod/Cilj. Debata oko dijagnostičkih kriterijuma i sličnosti između problematične upotrebe interneta i zavisnosti od supstanci, kao i razlika između njihovih psiholoških karakteristika još traje. Cilj istraživanja je bio da se ispituju razlike između empatije i psihopatije kod zavisnika od opijata i osoba koje prekomerno upotrebljavaju internet. **Metode.** U kliničku studiju preseka konsekutivno je bilo regrutovano 40 opijatskih zavisnika lečenih u Metadonskom centru Kliničkog centra Vojvodine (OD grupa), koji su upoređeni sa 80 ispitanika nasumično odabranih i uparenih po starosti, koji su po-

which was performed by the SPSS software (version 20.0) and $p < 0.05$ was applied. **Results.** There were more differences among psychopathy dimensions than empathy dimensions among PIU subjects, controls and heroin dependent subjects. The PIU group demonstrated the lowest psychopathy dimensions except for the lifestyle dimension which was higher than in the control group. On the contrary, the PIU group showed the highest empathy, with two dimensions as the most prominent ones: empathy with negative emotions and emotional reactions provoked by empathy. **Conclusion.** The PIU subjects are characterized by high empathy and low psychopathy. These findings suggest that it would be useful to consider seriously the dimensions of empathy and psychopathy when developing strategies to prevent PIU and planning educational programs for persons with problems related to the Internet overuse disorder.

Key words: empathy; antisocial personality disorder, internet; opioid related disorders.

punili upitnike preko internet mreže i koji su razvrstani u dve grupe: 40 ispitanika koji patološki upotrebljavaju internet (PIU) grupa i 40 ispitanika koji ne ispunjavaju kriterijume za PIU (kontrolna grupa). Svi ispitanici su popunili saglasnost, Sociodemografski upitnik, Upitnik za procenu upotrebe interneta, Upitnik za procenu psihopatije i Upitnik za procenu empatije. U obradi rezultata korišćena je deskriptivna statistika, χ^2 -test, analize varijanse (ANOVA i MANOVA) u SPSS programu (verzija 20.0). statistički značajan rezultat smatran je za $p < 0.05$. **Rezultati.** Između ispitanih grupa utvrđene su veće razlike u dimenzijama psihopatije nego empatije. Grupa PIU je imala niže skorove za sve dimenzije psi-

hopatije, osim dimenzije životnog stila. Međutim, PIU grupa je imala najviši skor za empatiju uz najizraženije dve dimenzije u odnosu na ostale dve grupe: empatija sa negativnim emocijama i emocionalne reakcije provocirane empatijom. **Zaključak.** Osobe sa PIU se karakterišu visoko izraženom empatijom i niskom psihopatijom. Rezultati ove studije ukazuju na to da bi bilo korisno da

se ozbiljno razmotre i procene dimenzije empatije i psihopatije u razvoju strategija u prevenciji PIU, kao i u planiranju edukativnih programa za osobe sa PIU.

Ključne reči:
empatija; ličnost, antisocijalni poremećaji; internet; poremećaji izazvani opioidima.

Introduction

In the last century, all around the world the Internet use spread to all aspects of life¹. The Internet as a medium has an important role in making certain behaviors addictive, but the popular concept of the Internet addiction (IA) needs to be distinguished from patterns of excessive or abnormal Internet use². Currently, there is no strong enough evidence base to provide support for the Internet addiction disorder³. The models of the Internet addiction and substance addiction share some criteria, such as feeling a loss of control over its use, ensuing psychological, social professional conflicts or problems and preoccupation with Internet content when not using it.

A lack of formalized diagnostic criteria and valid and reliable assessment instruments for pathological Internet use (PIU), make assessment and treatment paradigms difficult⁴. Nonetheless, there are a growing number of researches in this field.

Given a lack of consensus on the subject of the Internet addiction, a focus on problematic behaviors appears to be guaranteed⁵. There is raising interest in empathy assessment for better understanding of the Internet overuse. Empathy is not a single but a multidimensional ability to perceive, feel and understand the emotional states of others. The core components of empathy are emotion recognition, perspective taking and affective responsiveness, however the most studies are focused on single component such as cognitive or affective ones⁶.

The behavioral-addiction perspective suggests that the IA could share similar characteristics with substance dependence.

Successful social behavior and empathic abilities are fundamental for many disorders of social cognition, including psychopathy⁷.

Low empathy is associated with aggressive behavior and externalizing psychopathology⁸. There are some neurobiological evidence for a dialectic between empathy and predatory violence with suggestions for an early introduction of empathy training in treatment-resistant psychopathy⁹.

The present study was designed to examine the characteristics of empathy and psychopathy among persons with problematic Internet use and opiate dependence.

Methods

Setting and sample

The cross-sectional study was performed at the Methadone Center of the Clinical Centre of Vojvodina, Novi Sad, with 40 consecutive recruited patients with opiate dependence (OD group). They were both gender patients who met

International Classification of Diseases – 10th Revision (ICD-10) criteria for opiate dependence and had been taking methadone therapy at least for six months.

They were compared to 80 subjects who were randomly recruited online and divided into two groups: 40 subjects with PIU (PIU group) and 40 controls without PIU (control group) according to cut-off score of 49 or less on Questionnaire for the Internet use assessment¹⁰.

The inclusion criteria for all participants (N = 120) was the age from 20 to 35 years.

The exclusion criteria for all participants were: presence of any co-morbid mental disorder and severe co-morbid medical disorder. After receiving information about the study, all subjects provided their written informed consent prior entering the study procedures.

Ethics committee permission and institutional approval were obtained for this study.

Instruments

Sociodemographic data were collected by means of a questionnaire constructed for this study: age, gender, marital status, employment, residence, socio-economic status and parents' marital status. The subjects were investigated about motives for beginning the Internet or heroin use.

The Internet use was assessed by the Internet problematic use (IPU) questionnaire¹⁰. The IPU consisted of three factors. According to the total score there was the following scoring scale: the normal Internet use scored 0–49, the mild problematic Internet use 50–79 and severe in Internet use scored 80–100. The scale had good internal consistency ($\alpha = 0.944$, $\alpha_1 = 0.912$, $\alpha_2 = 0.878$ and $\alpha_3 = 0.771$) and good discriminative ability, so, 89.6% of the subjects were properly classified into categories.

Emotion Specific Empathy (EMI) questionnaire consisted of 42 items with five-point answers on Lickert scale¹¹. The EMI had four subscales: Empathy with negative emotions (EN), Empathy with positive emotions (EP), Empathy as a social role (SR) and Emotional reactions (ER) provoked by empathy. Permission to use the scale was obtained from the author.

Psychopathy Assessment Questionnaire (PAQ), consisted of 40 items with yes-no answers¹². Factor analysis identified four factors: Antisocial behaviour, Lifestyle, Psychopathic affect and Interpersonal relations.

Data analysis

Descriptive statistics, χ^2 -tests, ANOVA and MANOVA analysis were applied for data assessment using SPSS software version 20.0.

Results

Sociodemographic data were explored. Each group consisted of 40 subjects. The mean age [\pm standard deviation (SD)] ($M \pm SD$) in the OD group was 24.7 ± 5.4 years, in the PIU group 24.4 ± 5.2 years and 24.6 ± 5.8 years in the control group, without a significant difference among the groups ($p = 0.979$).

More male than female subjects were in the total sample (male vs. female was 62.5% vs. 37.5%, respectively), without gender differences among the groups ($\chi^2 = 4.48$, $p = 0.106$). The most subjects lived in the urban environment (80%), without a significant difference among the groups ($\chi^2 = 4.06$, $p = 0.131$). A significant difference was not recorded for employment status ($\chi^2 = 4.48$, $p = 0.106$), but little more unemployed subjects among OD than PIU and fewer among the subjects in the control group. There was a significant difference in a level of education among the groups. In the PIU group most frequent answer was 12 years of education (45%) so as in the controls (75%), but a majority of the subjects in the OD group had only 8–11 years of education (55%). The financial status analysis showed the low level among almost a half of the OD group (45%), but a majority of the controls and the PIU group subjects declared middle financial level (95% and 92.5%, respectively). The controls were mostly married (77.5%), but both the PIU and OD group had only 32.5% married subjects. The majority of the subjects had no children (71.7%), without group differences.

The parents' marital status demonstrated that the majority of controls (77.5%) and only 32.5% of subjects in both the OD and PIU groups had married parents. The divorced parents situation was the most frequently present in the PIU group (55%), then in the OD group (27.5%) and the control group (10%).

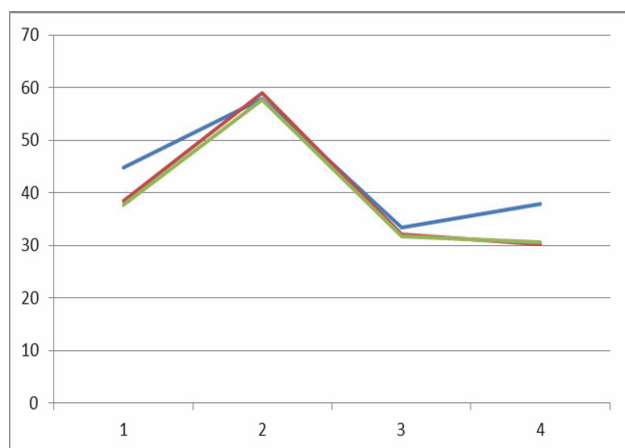


Fig. 1 – The group differences for empathy dimensions on Emotion Specific Empathy questionnaire (EMI).

1. Empathy with negative emotions (EN); 2. Empathy with positive emotions (EP); 3. Empathy as a social role (SR); Emotional reactions provoked by empathy (ER); blue – pathological internet use (PIU) group; red – opiate dependence (OD) group; green – control group.

Analysis of motives at the beginning of the Internet use were peer influence, school problems and psychological prob-

lems among the subjects in the PIU group, but in the OD group, the most frequent motives were curiosity, fun and boredom.

The empathy was investigated in all three groups (Figure 1).

Assessment of empathy performed by EMI scale and MANOVA (Figure 1) showed that the PIU group demonstrated the highest score for three dimensions of empathy: EN, SR and ER provoked by empathy. The only two dimensions showed significant differences among the groups: EN ($p = 0.003$) and ER ($p = 0.009$). The OD group had the highest score only for EP but without significant difference, in relation to other two groups.

Psychopathy assessment

Related to the total PAQ score, analysis of variance showed a significant difference among groups ($F = 84.295$, $df = 2$, $p = 0.000$). The OD group had the highest total score. The differences were significant among all three groups, (Wilks $\lambda = 0.118$, $F = 54.327$, $p = 0.000$). MANOVA was applied and the statistically significant group differences for each psychopathy dimension was rated. The OD group had the highest average score for all four psychopathy dimensions. The highest score showed the lifestyle dimension (score 16.88) but less prominent were antisocial behaviour vs. interpersonal relations vs. psychopathic affect dimensions (13.08, vs. 14.23 and 12.08, respectively). The control group had a significantly higher average score vs. the PIU group for the following three dimensions: interpersonal relations (11.90 vs. 10.50, respectively), psychopathic affect (10.83 vs. 9.88, respectively) and antisocial behavior (10.75 vs. 8.18, respectively). Only the lifestyle dimension showed a significantly higher score between the PIU and control group (11.88 vs. 10.70, respectively) and lower than the OD group score (16.83).

Discussion

In this study, the persons aged from 25 to 35 years were explored. This age was chosen as a sample-level moderator because of the literature suggestions that there may be important differences in psychosocial factors related to age, since younger individuals may show higher vulnerability to the negative consequences of the IA than adults under similar levels of duration and intensity of the Internet use¹³. The different social roles and lifestyle between youth and adults was usually observed, and this is related to emotional, behaviour and social aspects of their functioning. Also, exploring the psychopathy dimensions is more suitable to young adults than to adolescents.

In this paper more male than female subjects were in the groups, but without any significant differences. The higher prevalence of male subjects was reported for PIU in adolescents, which was associated with strong emotional-motivational states and different underlying motivations that may require different prevention and treatment program⁴.

The PIU group and the control group showed most frequently a level of 12 years of education, but a majority in the

OD group achieved a level of 8–11 years of education. The largest number of unemployed persons were found among opiate dependent persons, the fewer of them in the PIU group and the fewest among the controls with a significant difference. This is consistent with reports of other authors for the PIU subjects¹⁴. The majority of all subjects had average financial status, but almost a half of opiate addicts had the low level financial status. The groups did not differ in residence; the majority lived in urban environment. A majority of subjects from all groups were without children. These could be explained by matching age from 25 to 35 years and similar social and cultural background of all subjects. A majority of the controls were married, but there were fewer married subjects in the PIU group while the fewest of them were in the OD group. The parents' marital status demonstrated that the majority of the controls had married parents. The largest number of divorced parents was found in the PIU group and single parents in the OD group. The literature data revealed that a young person suffering from the Internet addiction and substance use shared similar family factors and both were considered to be a behavioral problem syndromes and family-based preventive approach was suggested¹⁵.

Analysis of motives to start using the Internet were peer influence, school problems and psychological problems among the PIU group but among the opiate dependents the most frequent motives were curiosity, fun and boredom. The peer influence for the majority of subjects (82.4%) who started using heroin, was reported to be, on average, at age of 20 years¹⁶.

The IA might be explained from a perspective of interpersonal difficulties since the online space provides a rewarding sense of warmth, belonging and well-being. In other words, the virtual space functions as a substitute for a lack of actual relationships. Some researchers reported that interpersonal problems such as social anxiety and poor social competence positively correlated with the IA¹³.

Empathy is not a single, but a multidimensional ability to perceive, feel and understand the emotional states of others. However, most studies were focused on single aspects of empathy, such as emotion perception⁶. In this study the PIU group showed the highest mean score on three dimensions subscale (Figure 1). The highest EN dimension in the PIU group indicated that this group showed the most prominent ability for emotional engagement in unpleasant situations. By contrast, reports from Germany and China presented some data with evidence that across both cultures more PIU was associated with low empathy among students while self-report measured problematic use of the Internet¹⁷. There are many screening and diagnostic instruments for PIU and the IA, which led to very different estimation of the PIU or IA, ranging from < 1% to 27%¹⁸. The heterogeneous instruments influence the concept of PIU and empathy, but also the sample selection could be taken into account when explaining such long intervals of their assessment¹⁹.

In this paper the psychopathy was explored as a multi-dimensional feature, too. Related to the total PAQ score analysis of variance, a significant differences among all three groups was shown (Figure 2). The opiate dependence group showed the highest total score. Also, a significant group dif-

ferences for each psychopathy dimension were analyzed (Figure 2). The OD group had the highest average score for all four psychopathy dimensions (Figure 2). The highest score showed lifestyle dimension, but less prominent were antisocial behavior vs. interpersonal relations vs. psychopathic affect dimensions, respectively.

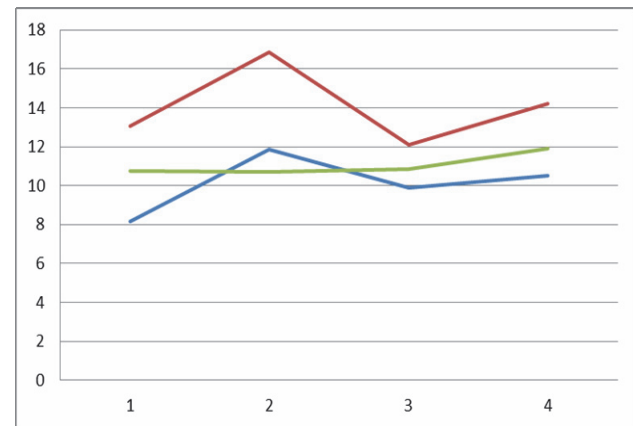


Fig. 2 – Psychopathy dimensions score on the Psychopathy Assessment Questionnaire (PAQ). 1 – Antisocial behaviour; 2 – Lifestyle; 3 – Psychopathic affect; 4. Interpersonal relations; blue – pathological internet use (PIU) group; red – opiate dependence (OD) group; green – control group.

The control group had a significantly higher average score for three dimensions comparing to the PIU group: interpersonal relations, psychopathic affect and antisocial behavior.

The PAQ assessment showed the lowest mean scores in the PIU group for three psychopathy dimensions, but only the lifestyle dimension showed a significantly higher score in the PIU group comparing to the control group and lower than the OD group score. The lifestyle dimension is related to an outstanding need for stimulation, unresponsibilities and substance abuse. These could be factors that motivate subjects with PIU to use the Internet excessively. If these factors are seriously considered, clinical interventions may be designed to improve resiliency with an aim that individuals susceptible to PIU may better cope with adversity⁴. Also, some researchers suggested that PIU demonstrated significant psychosocial and functional impairments and shared many features with impulse control disorders and substance dependence^{20,21}.

Regarding negative consequences of PIU, there are some reports on disrupted interpersonal relationships, increased delinquent and criminal behavior, poor work and school performance.

Persons with prominent psychopathy were characterized to have a tendency for substance abuse which was confirmed by neurobiological findings²². The hemodynamic neuron activity was tested and Hare Psychopathy Checklist-Revised Cope (HPC-R) was applied to over two hundred adult heroin dependent subjects. The results of this neurobiological investigation confirmed a correlation between of psychopathy with dysfunction of limbic and paralimbic system, which is related to substance craving, making moral decisions and fear of adjustment and emotional recall²³.

The presented study has some limitations due to the cross-sectional design and sample size. Further prospective investigations with large samples and within longer period of time are needed. It is necessary to take into account that psychosocial variables of the problematic Internet use reflected cultural differences from various parts of the world. However, the findings suggested that more vulnerable individuals could be identified by assessing psychopathy and empathy dimensions so that further methods of protection from the IA could be developed.

Conclusion

There were more differences in psychopathy dimensions than in empathy dimensions among the PIU, controls

and OD subjects. The PIU group demonstrated the low prominent psychopathy dimensions except the lifestyle dimension which was significantly higher than in the control group. On the contrary, the PIU group showed the highest empathy level, but the most prominent were the following two dimensions: EN and ER provoked by empathy.

These findings suggest that it would be useful to consider the dimensions of empathy and psychopathy seriously when developing strategies to prevent PIU and planning educational programs for persons with the PIU.

Conflict of interest

The authors declare no conflict of interest.

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