PRIMENJENA PSIHOLOGIJA

No2, 2026

Contents

Primenjena psihologija
Vol. 19, No. 2, pp. 143–161, 2026

Research Article

N-acetylaspartate, Gamma-Aminobutyric Acid, and Glutamate in Narcissistic and Antisocial Personality Disorders and Healthy Controls: A Cross-Sectional Comparative Study

Seyyedeh Sahar Asgari Ghalebin[1]✉, Sajjad Basharpoor[1], Niloofar Mikaeili[1], Nader Hajloo[1], and Fatemeh Gholipour[2]

[1]*Department of Psychology, University of Mohaghegh Ardabili, Ardabil, Iran*
[2]*Jam Hospital, Tehran, Iran*

ABSTRACT

Narcissistic and antisocial personality disorders are complex psychological conditions characterized by enduring and maladaptive patterns of thinking, emotions, and behavior, with substantial biological differences. Alterations in N-acetyl aspartate (NAA), gamma-aminobutyric acid (GABA), and glutamate (Glu) may be associated with the neurobiological underpinnings of Narcissistic and Antisocial Personality Disorders. These neurometabolites play crucial roles in emotional regulation and impulse control. The present study aimed to investigate the metabolic differences between individuals with these two personality disorders and healthy controls. In a cross-sectional study, 180 participants, including 60 with narcissistic personality disorder, 60 with antisocial personality disorder, and 60 healthy controls, underwent proton magnetic resonance spectroscopy (1H-MRS) to measure and compare the concentrations of the neurometabolites NAA, GABA, and Glu in the anterior cingulate cortex (ACC) and left orbitofrontal cortex (OFC). Our results indicated significant group differences in the GABA/Cr and Glu/Cr ratios in the OFC region and in the NAA/Cr and GABA/Cr ratios in the ACC ($p < .001$). Specifically, GABA levels were reduced in both personality disorders compared to the control group, whereas glutamate levels were increased. The present study demonstrates that reduction of GABA and the increase of Glu in the OFC, along

with the decrease of NAA and GABA in the ACC, may result in neuronal functioning impairment in patients with narcissistic and antisocial personality disorders, in comparison with the control group. This may contribute to a better understanding of these disorders and improve diagnosis and treatment efficacy.

Keywords: narcissistic personality disorder, antisocial personality disorder, metabolite, proton magnetic resonance spectroscopy

UDK: 616.89-008.485
DOI: 10.19090/pp.v19i2.2633
Received: 13.05.2025.
Revised: 14.07.2025.
Accepted: 09.10.2025.

✉ Corresponding author's email: seyyedesaharasgarighalebin@gmail.com

Introduction

Personality disorders are organized into three clusters (A, B, C) based on shared phenomenological and etiological characteristics, as outlined in the DSM-5 (American Psychiatric Association, 2013). Cluster B disorders, encompassing narcissistic personality disorder (NPD) and antisocial personality disorder (ASPD), are characterized by emotional dysregulation, impulsivity, and interpersonal dysfunction. Contemporary models, such as the Alternative Model for Personality Disorders, emphasize dimensional traits like grandiosity and callousness for NPD and ASPD, respectively, which may stem from shared neurobiological underpinnings (Widiger & McCabe, 2020). Despite their overlap, NPD and ASPD differ in motivational drivers (i.e., self-enhancement versus external reward-seeking), leading to distinct behavioral outcomes (Miller et al., 2009). Prior studies highlight their high comorbidity but also note unique consequences, such as NPD's association with interpersonal hypersensitivity and ASPD's link to aggression (Mancke et al., 2018). These findings suggest that neurobiological differences in regions such as the anterior cingulate cortex (ACC) and orbitofrontal cortex (OFC), implicated in emotion regulation and decision-making, may underlie their distinct profiles, necessitating targeted investigation.

The prominent features of these disorders include impulsivity, aggression, and irritability, which can lead to disregarding the safety of others and engaging in risky lifestyles. These characteristics not only affect the individual but also create medical and psychological problems (e.g., chronic stress, anxiety or depressive disorders, and somatic complaints) for those in their social environment (Douzenis et al., 2012). Overall, these disorders impose significant social consequences and costs on society (Helle et al., 2019).

Narcissistic personality disorder is associated with a sense of grandiosity and a lack of empathy for others. Individuals with this disorder typically feel superior to others and have a strong need for attention and admiration. They may exploit others to achieve their goals (First et al., 2022) and consider themselves above others, expecting others to accept this view. This disorder can lead to unstable relationships and emotional problems (Phillips et al., 2012). Individuals with narcissistic personality disorder often

seek to impress others and may demonstrate arrogant and self-centered behaviors. They are highly dependent on others' admiration, and if this admiration is not forthcoming, they may experience anger or depression. These individuals are also extremely sensitive to criticism and may react strongly (Stoffers-Winterling et al., 2022).

Neuroimaging studies have implicated the ACC and OFC in the pathophysiology of Cluster B disorders, with evidence suggesting altered neurometabolite concentrations in these regions. For instance, reduced N-acetylaspartate (NAA) levels in the ACC have been associated with impaired neuronal integrity in ASPD (Smaragdi et al., 2019), while altered gamma-aminobutyric acid (GABA) and glutamate (Glu) levels in the OFC correlate with impulsivity and emotional dysregulation in NPD (Atmaca et al., 2014). These neurometabolites, measured relative to creatine (Cr) via multi-voxel spectroscopy, reflect neuronal health (NAA), inhibitory control (GABA), and excitatory signaling (Glu). However, few studies have directly compared NAA/Cr, GABA/Cr, and Glu/Cr ratios across NPD, ASPD, and healthy controls, limiting our understanding of their neurochemical distinctions. Building on these findings, this study hypothesizes that differential neurometabolite profiles in the ACC and OFC may elucidate the neurobiological basis of NPD and ASPD, contributing to refined diagnostic and therapeutic approaches.

Personality disorders have biological and environmental roots (Schermer et al., 2020). Identifying these factors and understanding the associated neural mechanisms can lead to the development of accurate diagnoses and new, effective treatment methods. One of the most important biological mechanisms involves neurometabolites and biomarkers, which can be explored using proton magnetic resonance spectroscopy (1H-MRS).

1H-MRS is a unique, non-invasive, and non-radioactive method for measuring the levels of neurometabolites in specific brain regions in living tissue. This technique can provide more accurate information about neural abnormalities at the cellular and metabolic levels compared to relatively general volumetric estimates. The neurometabolites identified by 1H-MRS primarily include N-acetyl aspartate (NAA), choline (Cho), myo-inositol (mI), Creatine (Cr), and others (Du et al., 2023). In a study conducted by researchers using MRS, individuals with antisocial personality disorder

exhibited a significant reduction in the Glu to GABA ratio in the striatum compared to the control group (Tully et al., 2024). Disruption in the Glu/GABA balance in the striatum may be linked to impulsive and aggressive behaviors in these individuals.

As observed, cellular metabolites in the brain can indicate certain behavioral problems and disorders. Since narcissistic and antisocial personality disorders share many similar behavioral characteristics, such as a lack of empathy, aggressive, and impulsive behaviors, they are sometimes misdiagnosed or incorrectly diagnosed simultaneously. Therefore, the current research aimed to investigate the comparison of neurometabolites NAA, GABA, and Glu in narcissistic and antisocial personality disorders and healthy controls. We targeted the left ACC and the left OFC, which play significant roles in regulating behavior and emotions, and examined the ratio of concentrations of the NAA, GABA, and Glu to Cr using multi-voxel spectroscopy in the present cross-sectional study.

Method

Participants

We determined our sample size using a priori power analysis with a desired power of 80%, a significance level (alpha) of 0.05, and an expected effect size of 0.5 based on prior research. This yielded a required sample size of 55 participants per group. Considering a potential 10% dropout rate [or attrition/non-participation, if more accurate], we increased the target sample size to 60 participants per group to ensure adequate statistical power. In this cross-sectional study with a control group, a total of 180 participants were included: 60 individuals with narcissistic personality disorder (NPD), 60 with antisocial personality disorder (ASPD), and 60 healthy controls. The three groups were matched in terms of age, education, and sex.

The clinical subsample (NPD and ASPD) was recruited from multiple psychiatric outpatient clinics in Tehran, Iran, between November 2024 and April 2025 . Individuals presenting for psychiatric assessment and treatment (outpatients) were screened. Participants were assessed using a clinical interview and the Millon Clinical Multiaxial Inventory–III (MCMI-III). We

initially screened 210 individuals. Of these, 193 met the study's eligibility criteria (89 NPD and 104 ASPD). The relatively high number of eligible ASPD cases (104) likely reflects the nature of the recruitment setting (multiple outpatient clinics) and our systematic screening approach over a six-month period (aimed at identifying individuals who met strict inclusion criteria), rather than the general prevalence of ASPD in the outpatient population.

For the clinical groups, inclusion criteria were: (1) a diagnosis of NPD or ASPD confirmed by clinical interview and MCMI-III (base rate score > 85), (2) absence of comorbid psychiatric disorders (assessed via clinical interview and review of existing records where available), (3) no history of psychiatric hospitalization or electroconvulsive therapy, (4) no history of head trauma, brain tumor, or chemotherapy, and (5) no claustrophobia. Exclusion criteria included refusal to undergo the procedure, alcohol/drug/stimulant use within the two weeks prior to assessment, and having received more than five psychotherapy sessions.

Of the 89 eligible individuals with NPD, 60 who were available and willing to take part in the study were selected. Similarly, of the 104 eligible individuals with ASPD, 60 who met the inclusion criteria, were available, and were demographically comparable to the NPD group were selected for the ASPD group.

Healthy controls were recruited via announcements at universities in Tehran. Sixty individuals matched to the patient groups in age, education, and sex were included. Controls had no current or past psychiatric disorders (based on screening interview and MCMI-III scores below 25 across all scales).

The study protocol was approved by the Ethics Committee of Mohaghegh Ardabili University (Approval code: IR.UMA.REC.1403.030) and conducted in accordance with the Declaration of Helsinki. All participants provided written informed consent prior to participation.

Imaging

Both MRI and 1H-MRS were conducted using a Discovery MR 750 MRI scanner with a strength of 3.0 Tesla (General Electric) and a standard gradient system. An 8-channel standard coil was used for transmitting and receiving the MR signal. The participant was positioned supine (lying on their

back), with the nasion marked as a reference point. Earplugs and foam pads were utilized to reduce noise and minimize head movement. T1-weighted MR images with fluid attenuation (T1 FLAIR) were routinely obtained with a repetition time (TR) of 1800 milliseconds and an echo time (TE) of 24 milliseconds, while T2-weighted MR images with fast spin echo were acquired with a TR of 4500 milliseconds and a TE of 120 milliseconds to confirm the absence of any structural or signal abnormalities in the brain.

The magnetic resonance imaging protocol in axial plane was performed using a T2-weighted fast spin-echo (FSE) sequence with a repetition time (TR) of 5000 milliseconds, echo time (TE) of 113 milliseconds, number of excitations (NEX) of 2, slice thickness of 5 millimeters, slice gap of 0 millimeters, totaling 18 slices, with a field of view (FOV) of 24 centimeters and a matrix size of 256 × 256 to provide an anatomical template for the placement of MRS voxels.

The volume of interest (VOI) for analysis was determined by an experienced spectroscopy specialist, using anatomical reference points in the left ACC and OFC to ensure accurate and consistent placement. All VOIs were positioned away from the lateral ventricles and cerebrospinal fluid found in the sulci or skull. The VOI size included 50 nominal voxels (7.5 × 7.5 × 10 cubic millimeters).

The imaging parameters were as follows: TR = 1000 milliseconds; TE = 144 milliseconds; Number of excitations = 1; Spatial matrix = 18 × 18; Field of view = 240 × 240 mm^2; Slice thickness = 10 mm; Nominal voxel size = 7.5 × 7.5 × 10 cubic millimeters.

Additional saturation bands were placed outside the VOI to minimize lipid contamination from the scalp. Before each spectroscopy scan, an automatic pre-scan was performed to achieve an optimal maximum full width at half maximum of 10 Hertz. The imaging time for the 1H-MRS sequence was 5 minutes and 28 seconds.

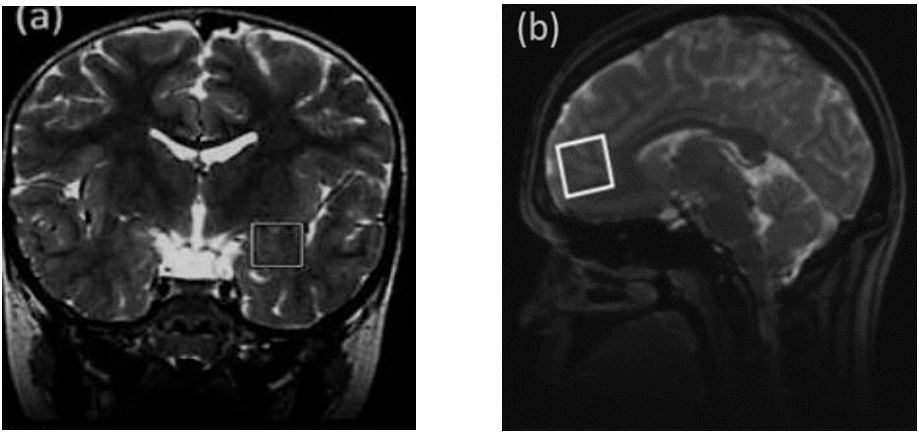
Spectral data analyses were conducted using the GE 3.0 T tool in the workstation (Sun, Advantage Windows ADW4.5). Distribution maps of various metabolites were obtained, and these maps were then merged with MRI images to produce the 1H-MRS curves. The software automatically

performed phase correction, frequency encoding, and baseline correction for the spectrum.

The internal MRI scanner software automatically calibrated the baseline, averaged the signal, and identified the metabolites, measuring the peak areas of NAA, GABA, and Glu in the ACC and OFC, and calculating the ratios of NAA/Cr, GABA/Cr, and Glu/Cr. A trained radiologist, unaware of each patient's diagnosis, conducted the placement of voxels for spectroscopy and all data analyses (Figure 1).

Figure 1

Location of Magnetic Resonance Spectroscopy Voxels in the OFC and ACC



Note. The MRI scan (a) shows the location of Magnetic Resonance Spectroscopy (MRS) in the left OFC and the area of voxel placement. The MRI scan (b) shows the location of Magnetic Resonance Spectroscopy (MRS) in the ACC and the area of voxel placement.

Statistical Analysis

Statistical analyses were performed using SPSS version 20, with a significance level set at .05 (two-tailed). Variables were assessed for normal distribution using the Kolmogorov-Smirnov goodness-of-fit test. Groups that differed in demographic, clinical, and metabolic variables were examined using parametric tests (t-test or one-way analysis of variance [ANOVA]) if the continuous variables were normally distributed, or non-parametric tests (Mann-Whitney test or Kruskal-Wallis test) if the continuous variables were

skewed. One-way ANOVA, along with Bonferroni correction, determined which groups were responsible for the differences. Correlation coefficients between abnormal neurotransmitter ratios and clinical data were calculated using Pearson correlation (for normally distributed variables) or Spearman correlation (for skewed variables).

Results

The chi-square test showed no significant group differences in the women-to-men ratio. Moreover, the results of one-way ANOVAs showed no significant group differences in years of age and years of education (for details, see Table 1).

Table 1

Demographic Characteristics of the Study Groups

Variable	NPD	ASPD	Control	*p*
Sex (Male/Female)	41/19	45/15	43/17	.72
Age, *M* (*SD*)	26.95 (4.39)	27.43 (5.22)	27.16 (5.19)	.86
Education, *M* (*SD*)	18.67 (7.63)	18.16 (8.99)	18.59 (6.44)	.93

Note. NPD = Narcissistic Personality Disorder; ASPD = Antisocial Personality Disorder.

The group differences in neurometabolite ratios (i.e., NAA/Cr, GABA/Cr, and Glu/Cr) in the OFC and ACC were examined using a series of one-way ANOVAs.

Regarding OFC, the results showed significant group differences in the concentrations of GABA/Cr and Glu/Cr, while no significant differences in NAA/Cr concentration were found (for details, see Table 2). The Bonferroni test was used to further examine the significant group differences in GABA/Cr and Glu/Cr. The results showed statistically significant differences in GABA/Cr ratio between the narcissistic personality disorder group and the control group ($p < .0167$), between the antisocial personality disorder group and the control group ($p < .0167$), and also between the two personality disorder groups ($p < .0167$). Moreover, statistically significant differences in the Glu/Cr ratio were also found between the narcissistic personality

disorder group and the control group ($p < .0167$), the antisocial personality disorder group and the control group ($p < .0167$), and between the narcissistic and antisocial groups ($p < .0167$).

In the left ACC region, on the other hand, significant group differences were found in the concentrations of NAA/Cr and GABA/Cr but not Glu/Cr (Table 2). According to the results of the Bonferroni test, the NAA/Cr ratio was significantly different between the narcissistic personality disorder group and the control group ($p < .0167$), and between the antisocial personality disorder group and the control group ($p < .0167$). The GABA/Cr ratio also showed significant differences between the narcissistic group and the control group ($p < .0167$), the antisocial group and the control group ($p < .0167$), and between the narcissistic and antisocial groups ($p < .0167$).

Table 2

Neurometabolite Ratios in the OFC and ACC Across Groups

Brain region	Metabolite ratio	HC, *M* (*SD*)	NPD, *M* (*SD*)	ASPD, *M* (*SD*)	*F*	*p*
OFC	NAA/Cr	0.011 (0.002)	0.010 (0.003)	0.010 (0.005)	1.27	.291
	GABA/Cr	0.028 (0.007)	0.019 (0.005)	0.015 (0.008)	62.52	< .0001
	Glu/Cr	0.010 (0.003)	0.014 (0.005)	0.017 (0.004)	44.41	< .0001
ACC	NAA/Cr	0.040 (0.005)	0.035 (0.003)	0.035 (0.007)	15.23	< .0001
	GABA/Cr	0.031 (0.008)	0.021 (0.007)	0.013 (0.006)	7.281	< .0001
	Glu/Cr	0.016 (0.002)	0.017 (0.003)	0.014 (0.008)	0.475	.689

Note. HC = healthy controls; ASPD = Antisocial Personality Disorder; NPD = Narcissistic Personality Disorder; OFC = orbitofrontal cortex; ACC = anterior cingulate cortex; NAA = N-acetyl aspartate; Cr = creatine; GABA = gamma-aminobutyric acid; Glu = glutamate.

Discussion

Based on our knowledge, this is the first study to investigate the levels of neurometabolites and biological differences between the two personality disorders, especially within a single class. To date, no studies have compared narcissistic personality disorder and antisocial personality disorder at these two points using 1H-MRS with a 3.0 T multi-voxel approach. This allows for a better definition and differentiation of these two disorders through biochemical mechanisms, ultimately leading to more specific psychotherapy and pharmacotherapy. While no previous research has directly compared these two disorders so far, a study conducted on individuals with antisocial personality disorder and healthy individuals found that the levels of GABA and Glu were significantly lower in those with antisocial personality disorder, which is consistent with our findings (Tully et al., 2024). The research by Basoglu et al. (2008) indicated that the level of Glu in the ACC axis was significantly reduced in antisocial patients compared to healthy individuals. Overall, in most studies, disorders have been compared with healthy individuals, and according to our analysis and comparison, the average levels of these metabolites differ compared to healthy individuals, with Glu increasing and GABA and N-acetylaspartate decreasing in antisocial personality disorder.

In a study by Basoglu et al. (2008) investigating antisocial behavior, psychopathy, and violent crimes among conscripted soldiers using MRS, no significant differences in metabolite ratios (NAA/Cr and Cho/Cr) between the two groups in the dorsolateral prefrontal cortex, ACC, and the amygdala-hippocampus were reported. The NAA/Cr ratio in the ACC had a significant negative correlation with overall psychopathy scores (PCL-R) and interpersonal/emotional problems. In another study examining the differences in the biomarker glutamate and glutamine (Glx), which are effective in aggressive behaviors in Bipolar and antisocial disorders, the ASPD group had higher levels of Glx in the dorsolateral prefrontal cortex (dlPFC) compared to the BD group and controls, with no significant differences in Glx levels between the BD group and controls. Regarding biomarkers associated with narcissism, all reviewed studies relied on genetic testing, with several notable examples. Lee et al. (2020) proposed

that personality disorders characterized by interpersonal sensitivity are associated with high concentrations of 8-hydroxy-2'-deoxyguanosine (8-OH-DG), an oxidized form of guanine and a biological marker of oxidative stress burden. In this study, participants underwent semi-structured diagnostic interviews and completed questionnaires regarding social cognition and emotional attribution. Blood samples were collected to measure levels of 8-OH-DG. The results indicated that narcissistic and borderline personality disorders independently predicted 8-OH-DG levels, regardless of age, sex, recent alcohol and cigarette use, current severe depression, and post-traumatic stress disorder, and that both narcissistic and borderline personality disorders independently predicted oxidative stress burden, irrespective of potential confounding factors.

Furthermore, Cheng et al. (2013) examined the levels of biological markers related to stress in response to emotional distress among narcissistic individuals. They showed that individuals with high narcissism exhibit a significant increase in cortisol and alpha-amylase levels when confronted with negative emotions, whereas no correlation was observed between these markers and negative emotions in individuals with low narcissism. These findings suggested that narcissism is associated with increased sensitivity to stress and physiological costs.

On the other hand, based on the literature reviewed, narcissistic personality disorder has not been examined using 1H-MRS; instead, it has mostly been studied metabolically through genetic evaluations and saliva tests. According to these findings, participants with higher scores on vulnerable narcissism exhibited stronger cortisol and emotional responses compared to those with higher scores on grandiose narcissism. Conversely, vulnerable narcissism positively correlates with schizotypal traits, while grandiose narcissism positively correlates with psychopathic traits (Borráz-León et al., 2023). Another study examining the brain structures of narcissistic individuals found a reduction in thickness in the anterior insular cortex, which plays a role in understanding social intentions and empathy; reduced brain volume in this area was also found. Moreover, decreased functional connectivity in these regions predicted changes in the concentrations of brain metabolites in these individuals (Griffith, 2021).

Therefore, it can be generally stated that the present research is consistent with previous studies.

According to the literature, the left orbitofrontal region is part of the prefrontal cortex and is involved in emotional processing, behavior control, decision-making, and reward and punishment learning (Rolls, 2023). In our study, there were significant differences in the concentrations of GABA/Cr and Glu/Cr among the three groups: narcissistic personality disorder, antisocial personality disorder, and the control group, while there was no significant difference in the concentration of NAA/Cr. The concentration of GABA/Cr was reduced in both the narcissistic and antisocial groups compared to the control group. Gamma-aminobutyric acid (GABA) is the primary inhibitory neurotransmitter in the brain, playing a crucial role in reducing neural activity, controlling anxiety, and impulsivity (Sideraki & Drigas, 2024). Decreased GABA levels are associated with increased neuronal excitability, anxiety, and impulsivity (Wang et al., 2023). Such neurobiological alterations may explain the impulsive and aggressive responses observed in our NPD and ASPD groups when facing simple stimuli—reactions that are typically well-regulated in healthy individuals. This inability in both personality disorders leads to social problems for them (Kolla et al., 2021). On the other hand, Glu is the primary excitatory neurotransmitter in the brain and plays a fundamental role in learning, memory, and the transmission of nerve signals (Niciu et al., 2012). An increase or imbalance in Glu levels can lead to neuronal excitability, anxiety, and neural damage (McGrath et al., 2022). The increase in Glu/Cr in the narcissistic and antisocial groups in the OFC region compared to the control group may indicate increased neuronal excitability and impulsive behaviors of these two groups relative to healthy individuals. NAA is considered a marker of neuronal health and integrity (Rebelos et al., 2022). The lack of significant difference in the concentration of NAA/Cr in the OFC region suggests that neuronal damage or dysfunction in this area may not be as apparent as the changes in GABA and Glu.

Additionally, according to the findings of the present study, in the left anterior cingulate cortex, which plays a vital role in behavioral regulation, cognitive control, emotional processing, and decision-making, there were significant differences in the concentrations of NAA/Cr and GABA/Cr

between individuals with narcissistic personality disorder, antisocial personality disorder, and the control group, as well as between the two personality disorders. The reduction in NAA/Cr in both the NPD and ASPD groups compared to the control group may indicate neuronal damage or dysfunction in this area. Furthermore, the decrease in NAA/Cr in the ACC region may be associated with cognitive and emotional problems in narcissistic and antisocial disorders, such as difficulties in decision-making, attention control, and emotional functioning. The reduction of GABA in both personality disorders in this area may also indicate decreased neural inhibition and increased aggression towards healthy individuals. The decrease in GABA aligns with the increase in behavioral and emotional issues in both narcissistic and antisocial personality disorders (Mazza et al., 2025). The difference in Glu/Cr concentration in the ACC region is at the threshold of significance. It is possible that a larger sample size could yield significant results, which might indicate the challenges faced by individuals with these personality disorders in learning social relationships, neural inhibition, and impulsive behaviors.

Overall, the results of this study suggest that there are neurochemical differences between narcissistic and antisocial personality disorders, as well as between these personality disorders and healthy individuals, in the orbitofrontal and anterior cingulate cortex regions. However, this study has limitations. While our sample size was determined by a priori power analysis to ensure sufficient statistical power, participants were recruited exclusively from clinical settings in Tehran. This recruitment approach might limit the generalizability of our findings to more diverse or global populations. Additionally, due to the cross-sectional nature of the present study, causal relationships cannot be evaluated. Lastly, the collection method used relative levels of metabolites rather than absolute levels, as most brain regions contain Cr. Generally, Cr is considered an internal reference as it is relatively stable among individuals. However, recent studies have shown that Cr is not as stable as previously expected (Sundgren et al., 2009). Therefore, a comparison of Cr levels among the three groups was conducted, and no differences in this measurement were observed. Overall, in this study, using Cr as an internal reference did not significantly affect the results. A suggestion for future research is to consider examining metabolites directly and longitudinally – across different time points. Conducting longitudinal

rather than cross-sectional studies could help investigate metabolic changes over time, as well as their relationship with the progression or improvement of personality disorders. Future research could also consider studying additional brain regions and additional metabolites.

Conclusion

This study found no significant differences in sex, age, or education level among the narcissistic personality disorder, antisocial personality disorder, and control groups, indicating these factors did not influence the results. Significant differences were observed in the left OFC for GABA/Cr and Glu/Cr ratios, with pairwise comparisons showing distinctions between narcissistic and control, antisocial and control, and narcissistic and antisocial groups. In the ACC, significant differences were noted in NAA/Cr and GABA/Cr ratios between the personality disorder groups and controls, and between the two disorders. These findings suggest distinct neurometabolite profiles in personality disorders, particularly in the OFC and ACC regions, warranting further investigation. This study's findings advance our understanding of the neurobiological underpinnings of Cluster B personality pathology. These results suggest that NPD and ASPD may involve unique disruptions in excitatory and inhibitory neurotransmission, potentially reflecting differential deficits in emotion regulation and impulse control. By identifying region-specific neurometabolite differences, this study informs dimensional models such as the Alternative Model for Personality Disorders, encouraging future research to explore targeted neuroimaging and therapeutic interventions, including neuromodulation, to address these neurochemical imbalances in personality disorders.

Conflict of interest

We have no conflicts of interest to disclose.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition). American Psychiatric Association. https://doi.org/10.1176/appi.books.9780890425596

Atmaca, M., Karakoc, T., Mermi, O., Gurkan Gurok, M., & Yildirim, H. (2014). Neurochemical Alterations Associated with Borderline Personality Disorder. *The International Journal of Psychiatry in Medicine*, *48*(4), 317–324. https://doi.org/10.2190/PM.48.4.f

Basoglu, C., Semiz, U., Oner, O., Gunay, H., Ebrinc, S., Cetin, M., Sildiroglu, O., Algul, A., Ates, A., & Sonmez, G. (2008). A magnetic resonance spectroscopy study of antisocial behaviour disorder, psychopathy and violent crime among military conscripts. *Acta Neuropsychiatrica*, *20*(2), 72–77. https://doi.org/10.1111/j.1601-5215.2008.00271.x

Borráz-León, J. I., Spreitzer, A., Scrivner, C., Landers, M., Lee, R., & Maestripieri, D. (2023). Cortisol reactivity to psychosocial stress in vulnerable and grandiose narcissists: An exploratory study. *Frontiers in Psychology*, *13*, 1067456. https://doi.org/10.3389/fpsyg.2022.1067456

Cheng, J. T., Tracy, J. L., & Miller, G. E. (2013). Are narcissists hardy or vulnerable? The role of narcissism in the production of stress-related biomarkers in response to emotional distress. *Emotion*, *13*(6), 1004–1011. https://doi.org/10.1037/a0034410

Douzenis, A., Tsopelas, C., & Tzeferakos, G. (2012). Medical comorbidity of cluster B personality disorders: *Current Opinion in Psychiatry*, *25*(5), 398–404. https://doi.org/10.1097/YCO.0b013e3283558491

Du, Y., Chen, L., Yan, M.-C., Wang, Y.-L., Zhong, X.-L., Xv, C.-X., Li, Y.-B., & Cheng, Y. (2023). Neurometabolite levels in the brains of patients with autism spectrum disorders: A meta-analysis of proton magnetic resonance spectroscopy studies (N = 1501). *Molecular Psychiatry*, *28*(7), 3092–3103. https://doi.org/10.1038/s41380-023-02079-y

First, M. B., Yousif, L. H., Clarke, D. E., Wang, P. S., Gogtay, N., & Appelbaum, P. S. (2022). DSM-5-TR: Overview of what's new and what's changed. *World Psychiatry*, *21*(2), 218–219. https://doi.org/10.1002/wps.20989

Griffith, K. (2021). You Might Think This Article Is About You: A Neurological Overview of Narcissistic Personality Disorder. *Scientific Kenyon: The Neuroscience Edition*, *5*(1), 37–44. Available at: https://digital.kenyon.edu/skneuro/vol5/iss1/8

Helle, A. (2019). Alcohol Use Disorder and Antisocial and Borderline Personality Disorders. *Alcohol Research: Current Reviews*, *40*(1), 5. https://doi.org/10.35946/arcr.v40.1.05

Kolla, N. J., Boileau, I., Karas, K., Watts, J. J., Rusjan, P., Houle, S., & Mizrahi, R. (2021). Lower amygdala fatty acid amide hydrolase in violent offenders with antisocial personality disorder: An [11C] CURB positron emission tomography study. *Translational Psychiatry*, *11*(1), 57-68. https://doi.org/10.1038/s41398-020-01144-2

Lee, R. J., Gozal, D., Coccaro, E. F., & Fanning, J. (2020). Narcissistic and Borderline Personality Disorders: Relationship With Oxidative Stress. *Journal of Personality Disorders*, *34*(Supplement), 6–24. https://doi.org/10.1521/pedi.2020.34.supp.6

Mancke, F., Herpertz, S. C., & Bertsch, K. (2018). Correlates of Aggression in Personality Disorders: An Update. *Current Psychiatry Reports*, *20*(8), 53. https://doi.org/10.1007/s11920-018-0929-4

Mazza, M., Lisci, F. M., Marzo, E. M., De Masi, V., Abate, F., & Marano, G. (2025). Why Do They Do It? The Psychology Behind Antisocial Behavior in Children and Adolescents. *Pediatric Reports*, *17*(2), 26. https://doi.org/10.3390/pediatric17020026

McGrath, T., Baskerville, R., Rogero, M., & Castell, L. (2022). Emerging Evidence for the Widespread Role of Glutamatergic Dysfunction in Neuropsychiatric Diseases. *Nutrients*, *14*(5), 917. https://doi.org/10.3390/nu14050917

Miller, J. D., Campbell, W. K., Young, D. L., Lakey, C. E., Reidy, D. E., Zeichner, A., & Goodie, A. S. (2009). Examining the Relations Among Narcissism, Impulsivity, and Self-Defeating Behaviors. *Journal of Personality*, *77*(3), 761–794. https://doi.org/10.1111/j.1467-6494.2009.00564.x

Niciu, M. J., Kelmendi, B., & Sanacora, G. (2012). Overview of glutamatergic neurotransmission in the nervous system. *Pharmacology Biochemistry and Behavior*, *100*(4), 656–664. https://doi.org/10.1016/j.pbb.2011.08.008

Phillips, J., Frances, A., Cerullo, M. A., Chardavoyne, J., Decker, H. S., First, M. B., Ghaemi, N., Greenberg, G., Hinderliter, A. C., Kinghorn, W. A., LoBello, S. G., Martin, E. B., Mishara, A. L., Paris, J., Pierre, J. M., Pies, R. W., Pincus, H. A., Porter, D., Pouncey, C., … Zachar, P. (2012). The six most essential questions in psychiatric diagnosis: A pluralogue part 1: conceptual and definitional issues in psychiatric diagnosis. *Philosophy, Ethics, and Humanities in Medicine*, *7*(1), 3. https://doi.org/10.1186/1747-5341-7-3

Rebelos, E., Daniele, G., Campi, B., Saba, A., Koskensalo, K., Ihalainen, J., Saukko, E., Nuutila, P., Backes, W. H., Jansen, J. F. A., Dagnelie, P. C., Köhler, S., De Galan, B. E., Van Sloten, T. T., Stehouwer, C. D. A., & Ferrannini, E. (2022). Circulating N-Acetylaspartate does not track brain NAA concentrations, cognitive function or features of small vessel disease in humans. *Scientific Reports*, *12*(1), 11530. https://doi.org/10.1038/s41598-022-15670-0

Rolls, E. T. (2023). Emotion, motivation, decision-making, the orbitofrontal cortex, anterior cingulate cortex, and the amygdala. *Brain Structure and Function*, *228*(5), 1201–1257. https://doi.org/10.1007/s00429-023-02644-9

Schermer, J. A., Colodro-Conde, L., Grasby, K. L., Hickie, I. B., Burns, J., Ligthart, L., Willemsen, G., Trull, T. J., Martin, N. G., & Boomsma, D. I. (2020). Genetic and Environmental Causes of Individual Differences in Borderline Personality Disorder Features and Loneliness are Partially Shared. *Twin Research and Human Genetics*, *23*(4), 214–220. https://doi.org/10.1017/thg.2020.62

Sideraki, A., & Drigas, A. (2024). GABA and Executive functions in ASD. *Scientific Electronic Archives*, *17*(3). https://doi.org/10.36560/17320241940

Smaragdi, A., Chavez, S., Lobaugh, N. J., Meyer, J. H., & Kolla, N. J. (2019). Differential levels of prefrontal cortex glutamate+glutamine in adults with antisocial personality disorder and bipolar disorder: A proton magnetic resonance spectroscopy study. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *93*, 250–255. https://doi.org/10.1016/j.pnpbp.2019.04.002

Stoffers-Winterling, J. M., Storebø, O. J., Kongerslev, M. T., Faltinsen, E., Todorovac, A., Sedoc Jørgensen, M., Sales, C. P., Edemann Callesen, H., Pereira Ribeiro, J., Völlm, B. A., Lieb, K., & Simonsen, E. (2022). Psychotherapies for borderline personality disorder: A focused systematic review and meta-analysis. *The British Journal of Psychiatry*, *221*(3), 538–552. https://doi.org/10.1192/bjp.2021.204

Sundgren, P. C., Nagesh, V., Elias, A., Tsien, C., Junck, L., Gomez Hassan, D. M., Lawrence, T. S., Chenevert, T. L., Rogers, L., McKeever, P., & Cao, Y. (2009). Metabolic alterations: A biomarker for radiation-induced normal brain injury—an MR spectroscopy study. *Journal of Magnetic Resonance Imaging*, *29*(2), 291–297. https://doi.org/10.1002/jmri.21657

Tully, J., Pereira, A. C., Sethi, A., Griem, J., Cross, B., Williams, S. C., Blair, R. J., Murphy, D., & Blackwood, N. (2024). Impaired striatal glutamate/GABA regulation in violent offenders with antisocial personality disorder and

psychopathy. *Molecular Psychiatry*, *29*(6), 1824–1832. https://doi.org/10.1038/s41380-024-02437-4

Wang, L.-Y., Wang, X.-P., Lv, J.-M., Shan, Y.-D., Jia, S.-Y., Yu, Z.-F., Miao, H.-T., Xin, Y., Zhang, D.-X., & Zhang, L.-M. (2023). NLRP3–GABA signaling pathway contributes to the pathogenesis of impulsive-like behaviors and cognitive deficits in aged mice. *Journal of Neuroinflammation*, *20*(1), 162. https://doi.org/10.1186/s12974-023-02845-3

Widiger, T. A., & McCabe, G. A. (2020). The Alternative Model of Personality Disorders (AMPD) from the Perspective of the Five-Factor Model. *Psychopathology*, *53*(3–4), 149–156. https://doi.org/10.1159/000507378

Primenjena psihologija
Vol. 19, No. 2, pp. 163–179, 2026

Research Article

Cyberbullying Aggression in Adolescence: The Contributions of Personality and Psychological Maturity

Jorge-Manuel Dueñas[1,2]✉, Carlos-Fionn Gómez-Reche[1], Diana Sánchez-Valiente[1], and Ainara Blanco-Goméz[1]

[1] *Departament de Psicologia, Universitat Rovira i Virgili, Tarragona, Spain*
[2] *Research Center for Behavior Assessment (CRAMC), Universitat Rovira i Virgili, Tarragona, Spain*

ABSTRACT

Cyberbullying during adolescence is a growing concern and is exacerbated by the widespread use of information and communication technologies (ICTs). This study explores the relationship between cyberbullying aggression, personality traits, and psychological maturity in a sample of Spanish adolescents from the city of Tarragona, Spain (N = 276, age range = 14–18 years, *M* = 16.2 years). Our sample consisted of 43% male, 56% female, and 1.1% non-binary students. Participants completed the European Cyberbullying Intervention Project Questionnaire (ECIP-Q), the Overall Personality Assessment Scale (OPERAS), and the Psychological Maturity Assessment Scale (PSYMAS). Descriptive analyses, correlational tests, independent-samples *t* tests, and hierarchical multiple regression analyses showed that boys scored significantly higher than girls in cyberbullying aggression (one-tailed), and also showed higher emotional stability, whereas girls scored higher in openness to experience. In the final regression model, higher extraversion, lower agreeableness, and lower work orientation significantly predicted cyberbullying aggression, while autonomy exhibited an insignificant effect. None of the gender interaction terms were significant, indicating that these associations did not differ between boys and girls. Overall, the findings highlight the central role of sociability, empathy, and responsibility in explaining adolescents' involvement in cyberbullying. From an applied perspective, interventions aimed at fostering empathy, perspective-taking, self-regulation, and impulse control, particularly in highly extraverted adolescents, may help reduce aggressive online behaviours.

Keywords: cyberbullying, adolescents, personality traits, psychological maturity, online aggression

UDK: 316.624-053.6
DOI: 10.19090/pp.v19i2.2589
Received: 11.11.2024.
Revised: 26.09.2025.
Accepted: 19.20.2025.

✉ Corresponding author's email: jorgemanuel.duenas@urv.cat

Introduction

The introduction and development of information and communication technologies (ICTs) have transformed social relations in recent decades. Human communication has evolved alongside advances in these technologies, resulting in new forms of communication and social interaction (Koch, et al., 2025; Gebremariam et al., 2024). The ease and speed of communication means that socialising is no longer bound to a specific time or place and can now occur anytime, anywhere.

The use of social networks (e.g., Facebook, Instagram, Telegram, Twitter) and contact apps (e.g., Grindr, Tinder) in adolescence has skyrocketed. This has led to a shift from purely analogue interactions to fully or partially digital ones. According to the latest national survey on ICT usage in Spain, 95% of adolescents in the families surveyed had mobile phones and accessed the internet daily. In addition, 90% of young people aged 16 to 24 reported having used at least three social networks in the previous few months (INE, 2021). These shifts in social interaction have also brought about changes in certain forms of aggression, including cyberbullying.

Cyberbullying is defined as an aggressive, intentional, repetitive, and persistent act carried out through ICTs by an individual or group against victims who are unable to defend themselves easily (Smith et al., 2008). Various forms of cyberbullying, including happy slapping, sexting, exclusion from chat groups, impersonation, and the spreading of rumours and photomontages, can exacerbate victimisation (Garaigordobil, 2011).

Previous studies have documented gender differences in cyberbullying aggression, though, overall, gender-related results have been inconclusive. Some studies have suggested that rates of cyberbullying aggression are higher in girls than in boys (Chan et al., 2019; Wyckoff et al., 2019), while others report a higher prevalence in boys (Sourander et al., 2010; Wachs & Wright, 2019; Zhou et al., 2018). Still others have found no significant gender differences (Kowalski & Limber, 2013; Navarro, Ruiz-Oliva et al., 2015).

Cyberbullying aggression has also been linked to various personality traits, including the Big Five (Çelik et al., 2012; Van Geel et al., 2017). Several studies, for example, report a negative relationship between agreeableness

and bullying/cyberbullying (Çelik et al., 2012; Festl & Quandt, 2013; Van Geel et al., 2017). These findings are consistent with expectations, as individuals who score highly in agreeableness tend to exhibit altruistic attitudes (Mitsopoulou & Giovazolias, 2015). Indeed, one study conducted with adolescents found that students with high altruistic motivation were less likely to engage in bullying behaviours (Thornberg & Wänström, 2018).

The relationship between extraversion and cyberbullying has also been analysed. Adolescents with high levels of extraversion tend to be more sociable and dominant, which may increase their likelihood of engaging in cyberbullying behaviours. Their impulsive nature and tendency to seek stimulation may lead them to act without considering the consequences, thereby increasing their probability of engaging in aggressive online behaviour (Escortell et al., 2020). Vikhman's 2023 study, for instance, suggests that extraversion could be a determining factor in the likelihood of perpetrating cyberbullying. On the other hand, openness has been shown to act as a protective factor against cyberbullying. A study of Spanish adolescents concluded that openness is negatively associated with cyberbullying and potentially reduces the likelihood of an adolescent engaging in online aggression (Escortell et al., 2020). Individuals with high scores in openness tend to be more receptive to new experiences and to have an open-minded attitude, thus making them less likely to participate in cyberbullying (Van Geel et al., 2017).

While emotional stability has not been widely associated with cyberbullying aggressors, it has been linked to cyberbullying victims (Alonso & Romero, 2017; Eweida et al., 2021). Conversely, low levels of conscientiousness have been associated with a higher likelihood of engaging in cyberbullying behaviours either as a victim or aggressor (Semerci, 2017; Vikhman, 2023). Beyond personality traits, another relevant construct for understanding adolescent behaviour is psychological maturity. This concept refers to the capacity to assume obligations, make responsible decisions while considering one's own characteristics and needs, and accept the consequences of one's actions. Psychological maturity comprises three dimensions: work orientation reflects the tendency to fulfil one's duties and obligations appropriately, autonomy denotes the predisposition to take initiative and make independent decisions without being overly controlled by

others, and identity refers to having a clear and stable sense of oneself. Together, these dimensions capture the extent to which adolescents are capable of acting responsibly, autonomously, and consistently in their personal and social lives. How psychological maturity and its three factors (work orientation, identity, and autonomy) may be related to cyberbullying aggression has scarcely been addressed in the literature. However, some indirect studies link these variables. For instance, research on moral maturity has indicated that personality traits and experiences of psychological abuse influence attitudes toward cyberbullying perpetration. In the context of social maturity, cyberbullies have been found to have high levels of social support and popularity goals, which suggests that these behaviours may be influenced by peer group dynamics and the desire for social acceptance (Romera et al., 2016). From a socioecological perspective, factors such as social self-efficacy and social reputation have been shown to influence one's likelihood of becoming a cyberbully. Adolescents with low emotional self-efficacy aiming to improve their social reputation are more prone to cyberbullying (Navarro, Yubero, & Larrañaga, 2015).

Despite extensive research on cyberbullying, how personality traits and psychological maturity interact to influence cyberaggression among Spanish adolescents remains poorly understood. This study is based on the General Aggression Model (GAM) (Anderson & Bushman, 2002), which proposes that personal and situational factors interact to influence aggressive behaviour. Applying this model to the context of cyberbullying, we hypothesise that certain personality traits and levels of psychological maturity may predispose adolescents to online aggression, with potential gender-specific patterns in these associations.

The aim of this study is to examine the relationship between aggression in cyberbullying and both personality traits and psychological maturity in a group of Spanish adolescents. Previous research suggests that adolescents with high levels of extraversion may be more likely to engage in aggressive behaviours in digital environments. This can be explained by their inclination toward sociability and desire for dominance, which may lead to a lack of reflection on the consequences of their online actions (Escortell et al., 2020; Vikhman, 2023). Conversely, individuals with low levels of openness may be at greater risk of involvement in cyberbullying, while those who are

more open to new ideas and experiences may eschew such behaviours due to their reflective and receptive nature (Escortell et al., 2020). Similarly, adolescents with low levels of agreeableness, characterised by reduced empathy and lower altruism, are also expected to be more likely to engage in cyberbullying (Van Geel et al., 2017; Mitsopoulou & Giovazolias, 2015).

Finally, although the literature on psychological maturity and cyberbullying is limited, we hypothesise that adolescents with low levels of work orientation and autonomy may show a greater tendency towards online aggression. A limited capacity for responsibility and autonomous decision-making may increase susceptibility to impulsive or aggressive online behaviours (Romera et al., 2016; Navarro, Yubero, & Larrañaga, 2015). Given the conflicting evidence, with some studies reporting a higher prevalence of cyberbullying among boys (WHO Europe, 2024; Sourander et al., 2010) and others suggesting no differences based on gender (Kowalski & Limber, 2013; Navarro, Ruiz-Oliva, et al., 2015), we explored potential gender differences in cyberbullying as well. Based on the most consistent pattern of findings, we expected boys to score higher than girls in cyberbullying aggression and therefore tested this prediction using one-tailed hypotheses. Previous research into gender differences in personality traits and psychological maturity has yielded mixed results when comparing boys and girls directly. For example, girls often score higher in agreeableness or openness, whereas other studies report no clear or consistent gender differences (Van Geel et al., 2017; Mitsopoulou & Giovazolias, 2015; Romera et al., 2016). Therefore, we did not advance specific predictions about gender differences in these variables.

Method

Participants

Our sample comprised 276 students (56% female, 43% male, and 1.1% non-binary students) from three public high schools in the province of Tarragona (Spain). The students were aged between 14 and 18 years old with an average age of 16.2 (*SD* = 1.08). Gender was operationalised using a binary variable (male/female) for regression analyses. Participants identifying as

non-binary (*n* = 3) were excluded from these analyses due to the small sample size.

Instruments

Cyberbullying Intervention Project Questionnaire (ECIP-Q; Brighi et al., 2012)

We used the ECIP-Q, which was originally developed in English and subsequently adapted into Spanish by Ortega-Ruiz et al. (2016). This instrument contains 22 Likert-style items with scores ranging from 0 to 4, where 0 means "*No*" and 4 means "*Yes, more than once a week*" in reference to the previous two months. The questionnaire comprises two scales: a) Cyberbullying victimisation, to identify those who have suffered some form of harassment through their mobile phone or other device with internet access, and b) Cyberbullying aggression, to evaluate harassment behaviours through the use of internet tools (e.g., digital identity impersonation, online social exclusion, rumour dissemination, etc.). For the present study, we only used the cyberbullying aggression scale (11 items). In our sample, the reliability of this scale was adequate (Cronbach's α = .78).

The Overall Personality Assessment Scale (OPERAS; Vigil-Colet et al., 2013)

The OPERAS is based on a model of the five major personality traits. Specifically, it evaluates the following factors: extraversion, agreeableness, conscientiousness, emotional stability, and openness. It comprises 40 Likert-scale items with five possible responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The test has adequate psychometric properties, and the reliability coefficients (Cronbach's alpha) of the factor scores for each scale are .86 (extraversion), .71 (agreeableness), .77 (conscientiousness), .86 (emotional stability), and .81 (openness). The instrument also includes four control items to detect response bias (social desirability and acquiescence). In our study, the Big Five trait scores were computed following the standard scoring procedure. The social desirability subscale was not included as a predictor in the analyses, but the control items were used to adjust the factor scores, thereby minimising the impact of response bias.

The Psychological Maturity Assessment Scale (PSYMAS, Morales-Vives et al., 2013)

The PSYMAS comprises 26 Likert-scale items with five possible responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Specifically, this questionnaire assesses psychological maturity, which it defines as the capacity to assume obligations and take responsible decisions while taking into account personal characteristics and needs and assuming the consequences of the acts themselves. Specifically, the questionnaire consists of three scales: work-orientation, autonomy, and identity. Work-orientation is defined as the tendency to meet one's own obligations; autonomy is defined as the predisposition to take initiative without allowing others to exert excessive control over oneself; identity is defined as one's knowledge of oneself. The PSYMAS has an adequate factor structure and the Cronbach's alpha coefficients were .71 (work-orientation), .78 (autonomy), and .77 (identity). The reliability of the total scale is .82.

Procedure

The questionnaires were administered collectively during class hours. Students were informed about the voluntary nature of their participation and the guarantee of anonymity and confidentiality. They were free to decline participation or withdraw at any point. Instructions on how to respond to the items were provided before administration. Formal ethical approval was obtained from the Ethics Committee of Rovira i Virgili University prior to the data collection. In addition, authorisation to conduct the study was obtained from the management teams of the participating schools. Written informed consent was obtained from all participants.

Descriptive analyses, Pearson correlations, and independent sample t-tests were conducted using SPSS 29.0. Gender comparisons for cyberbullying aggression used one-tailed tests (a priori directional hypothesis: boys > girls); all other tests were two-tailed. Gender was included as a dummy variable (female = 1, male = 0), and participants identifying as non-binary (n = 3) were excluded from these analyses due to the small sample size. Based on the correlation analyses, only those variables from the Big Five traits and psychological maturity dimensions that showed significant associations with cyberbullying aggression were included

in the regression analyses. Hierarchical multiple regression was conducted in three steps. Step 1: We entered the Big Five traits that showed significant bivariate correlations with cyberbullying aggression. Step 2: We added the PSYMAS dimensions that were significantly correlated with cyberbullying. Step 3: To test moderation, we included the interaction terms between gender and each predictor from seps 1 and 2. All continuous predictors were mean-centred prior to computing interactions. Incremental fit was evaluated via ΔR^2, and tolerance/VIF were inspected to assess multicollinearity.

Results

Gender differences were analysed using independent samples t-tests. Non-binary participants were excluded from these analyses due to their small representation in the sample. The results showed statistically significant gender differences in cyberbullying aggression (t (271) = 1.78, p = .039 [one-tailed]); as expected, boys reported higher mean scores (M = 17.5, SD = 6.7) compared to girls (M = 16.2, SD = 5.2). Significant gender differences were also found in emotional stability, with boys (M = 50.8, SD = 13.7) scoring higher than girls (M = 45.1, SD = 12.0), t (271) = 3.67, p < .001 (two-tailed). Additionally, girls showed significantly higher levels of openness to experience (M = 50.4, SD = 11.2) compared to boys (M = 44.1, SD = 11.4), t (271) = -4.54, p < .001 (two-tailed). No differences were found in relation to the other variables.

Table 1 presents the correlation matrix between cyberbullying aggression and the other study variables. Extraversion was positively and significantly correlated with cyberbullying aggression. In contrast, agreeableness and openness to experience showed significant negative correlations with cyberbullying aggression. Regarding psychological maturity, both work orientation and autonomy were negatively and significantly correlated with cyberbullying aggression. No significant associations were found between cyberbullying aggression and either emotional stability or conscientiousness.

Table 1

Correlations Between Cyberbullying Aggression and the Other Study Variables

Variable	
Extraversion	.13*
Emotional stability	.05
Conscientiousness	-.07
Agreeableness	-.22**
Openness	-.22**
Work orientation	-.14*
Autonomy	-.17**
Identity	-.11

*$p < 0.05$. **$p < 0.01$.

Collinearity diagnostics were conducted to ensure the absence of multicollinearity among predictors. All tolerance values were above .20, and all variance inflation factor (VIF) values were below the commonly accepted threshold of 5, indicating no concerns regarding multicollinearity in the regression models. To examine predictors of cyberbullying aggression, we conducted hierarchical multiple regression analyses. In Step 1, personality traits (Big Five) were entered into the model. This step explained 10.4% of the variance in cyberbullying aggression, $\Delta R^2 = .104$. Even at this first stage, higher extraversion and lower agreeableness emerged as significant predictors, indicating that adolescents who were more extroverted and less agreeable were more prone to engaging in cyberaggression.

In Step 2, psychological maturity variables were added. The inclusion of these variables accounted for an additional 2.6% of the variance, $\Delta R^2 = .026$. With these variables in the model, lower work orientation emerged as a significant predictor, suggesting that self-discipline and responsibility played a protective role against involvement in aggressive online behaviours. Autonomy was also found to have an insignificant effect in this step, pointing to a possible—but weaker—protective contribution of this dimension.

In Step 3, interaction terms between gender and each predictor were introduced to test whether the associations varied between boys and girls. This step did not account for additional variance, $\Delta R^2 = .018$, indicating that

the strength of the relationships between personality, psychological maturity, and cyberbullying aggression did not differ significantly by gender.

The final model (i.e., Model 3) was significant ($F(10, 262) = 4.61$, $p < .001$), explaining 14.8% of the variance ($R^2 = .148$; adjusted $R^2 = .116$). In this model, significant predictors were extraversion (positive direction), agreeableness (negative direction), and work orientation (negative direction). An insignificant effect was found for autonomy. Taken together, these findings indicate that individual characteristics related to sociability, empathy, and responsibility are central to explaining cyberbullying aggression, above and beyond gender differences (for detailed results of the hierarchical regression, see Table 2).

Table 2

Hierarchical Regression Model: Predicting Cyberbullying Aggression

Predictor	B	β	*t*	*p*
Model 1				
Extraversion	.076	.140	2.44	.015
Openness	–.103	–.191	–3.30	.001
Agreeableness	–.119	–.200	–3.46	< .001
$R^2 = .104$				
Model 2				
Extraversion	.081	.149	2.61	.009
Openness	–.089	–.164	–2.83	.005
Agreeableness	–.111	–.186	–3.22	.001
Work orientation	–.066	–.109	–1.89	.060
Autonomy	–.055	–.103	–1.74	.083
$R^2 = .130$				
Model 3				
Extraversion	.095	.175	2.07	.039
Openness	–.039	–.073	–0.83	.406
Agreeableness	–.092	–.155	–1.97	.049
Work orientation	–.134	–.222	–2.38	.018
Autonomy	–.059	–.109	–1.33	.185
Extraversion × Gender	–.023	–.095	–0.41	.681
Agreeableness × Gender	–.043	–.173	–0.68	.496
Openness × Gender	–.072	–.300	–1.16	.247
Work orientation × Gender	.102	.411	1.53	.127
Autonomy × Gender	.012	.050	0.19	.850
$R^2 = .148$				

Discussion

This study examined how personality traits and psychological maturity jointly predict cyberbullying aggression among Spanish adolescents, offering evidence that advances our current understanding of the individual factors associated with online aggressive behaviour. By applying the General Aggression Model (Anderson & Bushman, 2002), our findings support the idea that both stable personality dispositions and specific dimensions of psychological maturity, particularly work orientation, contribute to the likelihood of engaging in cyberaggression. Although openness initially showed a negative bivariate association with cyberaggression, it did not remain in the final model once maturity variables and gender interactions were considered, suggesting overlap with other traits.

Consistent with our hypotheses and with previous large-scale reports (WHO Europe, 2024; Sourander et al., 2010), the boys in our sample reported higher levels of cyberbullying aggression than girls. However, regression analyses revealed that these mean-level gender differences do not fully explain variability in online aggression. Rather, specific personality traits and dimensions of psychological maturity emerged as stronger predictors. In particular, higher extraversion, lower agreeableness, and lower work orientation were significantly associated with cyberbullying aggression. This pattern suggests that adolescents' propensity to engage in such behaviours depends more on their social, emotional, and regulatory characteristics than on gender itself. The absence of significant gender interactions further reinforces this interpretation, indicating that these mechanisms operate similarly for both boys and girls.

These results should also be interpreted within the broader cultural and technological context of Spanish adolescents. Spain is characterised by one of the highest rates of ICT penetration in Europe, with over 95% of young people reporting daily access to smartphones and social media platforms (INE, 2021). This level of digital connectivity expands opportunities for online socialising but also increases exposure to potentially harmful interactions. In school settings, peer reputation, group belonging, and the pursuit of social status often play central roles (Romera et al., 2016), which can foster the normalisation of aggressive online practices. Moreover, evolving patterns of

gender socialisation in Spain—marked by greater equality and changing expectations of adolescent behaviour—may help explain why studies report inconsistent gender differences in cyberbullying (e.g., Chan et al., 2019; Navarro, Ruiz-Oliva, et al., 2015; Wyckoff et al., 2019).

From a psychological perspective, our results converge with previous research that emphasises the predictive value of personality traits. Low agreeableness consistently emerged as a risk factor for cyberaggression. Adolescents with reduced agreeableness often struggle with empathy, compassion, and altruism, characteristics that normally inhibit aggressive behaviours (Van Geel et al., 2017; Mitsopoulou & Giovazolias, 2015). Extraversion was also positively correlated with cyberbullying, in line with prior findings (Escortell et al., 2020; Vikhman, 2023). Adolescents high in extraversion are typically sociable, dominant, and stimulation-seeking. While these characteristics can facilitate positive peer interactions, they may also predispose individuals to impulsive behaviours and reduced reflection on the potential consequences of their actions, thereby increasing the risk of aggression in digital contexts. When these two traits intersect—high extraversion combined with low agreeableness—adolescents may be particularly vulnerable to engaging in online aggression, as sociability and dominance are not tempered by empathy and perspective-taking.

Beyond personality traits, this study highlights the relevance of psychological maturity, a construct less frequently addressed in cyberbullying research. Among its three dimensions, work orientation emerged as a significant negative predictor of cyberbullying aggression. Adolescents with higher levels of work orientation tend to show greater responsibility, perseverance, and capacity for self-regulation, all of which act as protective factors against impulsive or harmful online behaviours. Conversely, those with low work orientation may find it more difficult to regulate impulses, adhere to obligations, or anticipate the consequences of their actions, which increases their vulnerability to engaging in cyberaggression. Together, these findings underscore the importance of considering developmental variables such as maturity alongside personality traits when examining aggressive behaviours in adolescence.

The practical implications of these results are noteworthy. First, the consistent role of agreeableness points to the value of interventions aimed at

promoting empathy, altruism, and perspective-taking skills, which may serve as protective mechanisms against cyberaggression. Second, strengthening work orientation (responsibility, perseverance, self-regulation) through educational initiatives may reduce involvement in online aggression. These skills can be integrated into broader socio-emotional learning programmes within schools. Finally, given that extraversion was identified as a risk factor, intervention strategies should also focus on helping highly extraverted adolescents manage impulsivity and develop reflective decision-making skills, encouraging these tendencies to manifest in ways that promote more adaptive and prosocial interactions.

In summary, the present findings highlight the interplay between personality traits and psychological maturity in explaining cyberbullying aggression. While gender differences exist at a descriptive level, the mechanisms underlying cyberaggression appear to be universal across boys and girls. The study contributes to the literature by underscoring the importance of psychological maturity—particularly work orientation—as a protective factor that complements well-established personality predictors. By addressing these dimensions through educational and psychosocial interventions, it may be possible to reduce the prevalence and harmful impact of cyberbullying among adolescents, fostering healthier and more responsible patterns of digital interaction.

Conflict of interest

We have no conflicts of interest to disclose.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

Alonso, C., & Romero, E. (2017). Aggressors and victims in bullying and cyberbullying: A study of personality profiles using the Five-Factor Model. *Spanish Journal of Psychology*, *20*, E76. https://doi.org/10.1017/sjp.2017.73

Anderson, C. A., & Bushman, B. J. (2002). Human aggression. *Annual Review of Psychology*, 53(1), 27–51. https://doi.org/10.1146/annurev.psych.53.100901.135231

Çelik, S., Atak, H., & Erguzen, A. (2012). The effect of personality on cyberbullying among university students in Turkey. *Egitim Arastirmalari - Eurasian Journal of Educational Research*, *49*, 129–150.

Chan, S. F., La Greca, A. M., & Peugh, J. L. (2019). Cyber victimization, cyber aggression, and adolescent alcohol use: Short-term prospective and reciprocal associations. *Journal of Adolescence*, *74*(May), 13–23. https://doi.org/10.1016/j.adolescence.2019.05.003

Escortell, R., Aparisi, D., Martínez-Monteagudo, M. C., & Delgado, B. (2020). Personality traits and aggression as explanatory variables of cyberbullying in Spanish preadolescents. *International Journal of Environmental Research and Public Health*, *17*(16). https://doi.org/10.3390/ijerph17165705

Eweida, R. S., Hamad, N. I., Abdo, R. A. E. H., & Rashwan, Z. I. (2021). Cyberbullying among adolescents in Egypt: A call for correlates with sense of emotional security and psychological capital profile. *Journal of Pediatric Nursing*, *61*. https://doi.org/10.1016/j.pedn.2021.05.008

Festl, R., & Quandt, T. (2013). Social relations and cyberbullying: The influence of individual and structural attributes on victimization and perpetration via the internet. *Human Communication Research*, *39*(1), 101–126. https://doi.org/10.1111/j.1468-2958.2012.01442.x

Garaigordobil, M. (2011). Prevalencia y consecuencias del cyberbullying: una revisión. *International Journal of Psychological Therapy*, *11*(2), 233–254.

Gebremariam, E., Alhassan, G. N., Kim, J., & Lwin, M. O. (2024). Digital socialization: Insights into interpersonal communication motives in social networks. *Frontiers in Psychology, 15,* 1400391. https://doi.org/10.3389/fpsyg.2024.1400391

INE, Instituto Nacional de Estadística de España (2021). *Encuesta sobre Equipamiento y Uso de Tecnologías de Información y Comunicación en los Hogares 2021 (TIC_H 2021)* (p. 57). https://www.ine.es/CDINEbase/consultar.do?mes=&operacion=Encuesta+sobre+Equipamiento+y+Uso+de+TIC+en+los+hogares&id_oper=Ir

Koch, T., Laaber, F., Arenas, A., & Florack, A. (2025). Socially (dis) connected in a connected world: The role of young people's digital maturity. *Computers in*

Human Behavior, 163, 108473. https://doi.org/10.1016/j.chb.2024.108473

Kowalski, R. M., & Limber, S. P. (2013). Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *Journal of Adolescent Health*, *53*(1), 13–20. https://doi.org/10.1016/j.jadohealth.2012.09.018

Mitsopoulou, E., & Giovazolias, T. (2015). Personality traits, empathy and bullying behavior: A meta-analytic approach. *Aggression and Violent Behavior*, *21*, 61–72. https://doi.org/10.1016/J.AVB.2015.01.007

Morales-Vives, F., Camps, E., & Lorenzo-Seva, U. (2013). Development and validation of the Psychological Maturity Assessment Scale (PSYMAS). *European Journal of Psychological Assessment*, *29*(1), 12–18. https://doi.org/10.1027/1015-5759/a000115

Navarro, R., Ruiz-Oliva, R., Larrañaga, E., & Yubero, S. (2015). The impact of cyberbullying and social bullying on optimism, global and school-related happiness and life satisfaction among 10-12-year-old schoolchildren. *Applied Research in Quality of Life*, *10*(1), 15–36. https://doi.org/10.1007/s11482-013-9292-0

Navarro, R., Yubero, S., & Larrañaga, E. (2015). Psychosocial risk factors for involvement in bullying behaviors: Empirical comparison between cyberbullying and social bullying victims and bullies. *School Mental Health*, *7*(4), 235–248. https://doi.org/10.1007/s12310-015-9157-9

Ortega-Ruiz, R., Del Rey, R., & Casas, J. A. (2016). Evaluar el bullying y el cyberbullying validación española del EBIP-Q y del ECIP-Q. *Psicologia Educativa*, *22*(1), 71–79. https://doi.org/10.1016/j.pse.2016.01.004

Romera, E. M., Cano, J. J., García-Fernández, C. M., & Ortega-Ruiz, R. (2016). Cyberbullying: Social competence, motivation and peer relationships. *Comunicar*, *24*(48), 71-79. https://doi.org/10.3916/C48-2016-07

Semerci, A. (2017). Investigating the effects of personality traits on cyberbullying. *Pegem Eğitim ve Öğretim Dergisi*, *7*(2), 211-230. https://doi.org/10.14527/pegegog.2017.008

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry, 49*(4), 376–385. https://doi.org/10.1111/j.1469-7610.2007.01846.x

Sourander, A., Klomek, A. B., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M., Ristkari, T., & Helenius, H. (2010). Psychosocial risk factors associated with cyberbullying among adolescents: A population-based study.

Archives of General Psychiatry, *67*(7), 720–728. https://doi.org/10.1001/archgenpsychiatry.2010.79

Thornberg, R., & Wänström, L. (2018). Bullying and its association with altruism toward victims, blaming the victims, and classroom prevalence of bystander behaviors: a multilevel analysis. *Social Psychology of Education*, *21*(5), 1133–1151. https://doi.org/10.1007/S11218-018-9457-7/FIGURES/1

Van Geel, M., Goemans, A., Toprak, F., & Vedder, P. (2017). Which personality traits are related to traditional bullying and cyberbullying? A study with the Big Five, Dark Triad and sadism. *Personality and Individual Differences*, *106*, 231–235. https://doi.org/10.1016/j.paid.2016.10.063

Vigil-Colet, A., Morales-Vives, F., Camps, E., Tous, J., & Lorenzo-Seva, U. (2013). Development and validation of the Overall Personality Assessment Scale (OPERAS). *Psicothema*, *25*(1), 100–106. https://doi.org/10.7334/psicothema2011.411

Vikhman, A. A. (2023). Personality predictors of cyber-victimization and cyber-bullying in adolescence. *Психология и Право* (*Psychology and Law)*, *13*(1), 94-106. https://doi.org/10.17759/psylaw.2023130107

Wachs, S., & Wright, M. F. (2019). The moderation of online disinhibition and sex on the relationship between online hate victimization and perpetration. *Cyberpsychology, Behavior, and Social Networking*, *22*(5), 300–306. https://doi.org/10.1089/cyber.2018.0551

World Health Organization, Regional Office for Europe. (2024, March 27). *One in six school-aged children experiences cyberbullying — finds new WHO Europe study*. https://www.who.int/europe/news/item/27-03-2024-one-in-six-school-aged-children-experiences-cyberbullying-finds-new-who-europe-study

Wyckoff, J. P., Buss, D. M., & Markman, A. B. (2019). Sex differences in victimization and consequences of cyber aggression: An evolutionary perspective. *Evolutionary Behavioral Sciences*, *13*(3), 254–264. https://doi.org/10.1037/ebs0000150

Zhou, Y., Zheng, W., & Gao, X. (2018). The relationship between the big five and cyberbullying among college students: the mediating effect of moral disengagement. *Current Psychology*, *38*(5), 1162–1173. https://doi.org/10.1007/s12144-018-0005-6

Primenjena psihologija
Vol. 19, No. 2, pp. 181–211, 2026

Originalni naučni članak

Od indikatora do latentnih profila: šta čini uspešno starenje?

Jelica Petrović[1], Milica Lazić[2]✉

[1] *Odsek za psihologiju, Filozofski fakultet, Univerzitet u Novom Sadu, Srbija*
[2] *Filozofski fakultet, Univerzitet u Novom Sadu, Srbija*

SAŽETAK

Uspešno starenje predstavlja multidimenzionalni fenomen koji je potekao iz biomedicinskog pristupa u okviru koga se, kao najrelevaniji indikatori, ističu visoko fizičko, psihičko i socijalno funkcionisanje u starosti. U okviru psihosocijalne paradigme insistira se na subjektivnom psihološkom iskustvu i ličnim psihološkim resursima kao dominantnim odrednicama uspešnog starenja. Osnovni cilj ovog istraživanja bio je da se identifikuju latentni profili starijih osoba, u odnosu na domen fizičkog, socijalnog i kognitivnog funkcionisanja, subjektivnog blagostanja i psihološke adaptacije. Drugo istraživačko pitanje odnosilo se na ispitivanje doprinosa pojedinačnih indikatora razlikovanju dobijenih profila. Uzorak su činile 293 starije osobe prosečne starosti 75 godina. Analizom latentnih profila (LPA) izdvojena su dva profila. Profil uspešnog starenja obuhvatao je ispitanike sa visokim vrednostima na pokazateljima zadovoljstva životom, pozitivnog afekta, subjektivnog zdravlja, socijalne mreže i povezanosti, postojanja smisla života i rezilijentnosti, te niskim vrednostima negativnog afekta, depresivnosti, zdravstvenih problema i ograničenja u aktivnostima. Drugi profil, profil izazovnog starenja, pokazivao je suprotne karakteristike na većini mera. Najveći doprinos u predikciji profila uspešnog starenja ostvaruju indikatori iz domena subjektivnog blagostanja i psihološke adaptacije: zadovoljstvo životom, postojanje smisla života i rezilijentnost u pozitivnom smeru, a negativni afekat i depresivnost u negativnom smeru. Rezultati idu u prilog savremenih psihosocijalnih modela koji naglašavaju psihološke resurse kao ključni mehanizam uspešnog starenja, posmatrajući ga kao dinamičan proces adaptacije na neizbežne promene i gubitke povezane sa starošću.

Ključne reči: uspešno starenje, analiza latentnih profila, subjektivno blagostanje, psihološka adaptacija

UDK: 159.922.6
DOI: 10.19090/pp.v19i2.2670
Primljeno: 15.08.2025.
Primljena korekcija: 25.11.2025.
Prihvaćeno za štampu: 05.12.2025.

✉ Kontakt imejl adresa: milica.lazic@ff.uns.ac.rs

Uvod

Demografski faktori poput drastičnog produženja životnog veka i pada nataliteta doveli su do vidljivog starenja stanovništva u gotovo svim populacijama sveta. Projekcije stanovništa predviđaju nastavak ovog trenda, naročito u najrazvijenijim zemljama sveta (Healy, 2004). Prema prospektivnom kriterijumu (preostali očekivani životni vek), Srbija spada među najstarije populacije na svetu (Satarić & Rašević, 2007). Demografske prognoze pokazuju da će u Srbiji do 2052. godine broj osoba starijih od 65 godina dostići trećinu ukupne populacije. Ovakvi objektivni pokazatelji (između ostalog) predstavljaju značajan signal javnim politikama da je vreme za ozbiljnije bavljenje populacijom starih i unapređenje kvaliteta života u starosti.

U savremenom svetu, na individualnom i društvenom nivou (pa tako i u gotovo svim naučnim disciplinama) starenje je donedavno uglavnom bilo negativno konotirano i povezivano sa neizbežnim propadanjem i padom funkcija. Međutim, očigledna velika heterogenost u kapacitetu starih odraslih da vode nezavisan, smislen i zadovoljavajući život podstakla je interesovanje istraživača da otkriju faktore "dobrog starenja", što je rezultiralo pojavom novih koncepata poput zdravog starenja, aktivnog starenja i uspešnog starenja. Među njima ipak postoje fundamentalne razlike: koncept zdravog starenja promovisao je politike zdravstvenih usluga za poboljšanje kvaliteta života starijih ljudi, dok aktivno starenje promoviše socijalnu uključenost starih (Lin et al., 2022). Uspešno starenje se nametnulo kao najuticajniji koncept i trenutno je jedan od najčešće korišćenih pojmova u savremenoj literaturi vezanoj za starenje (Martinson & Berridge, 2015). Uprkos tome, primetno je da još uvek ne postoji konsenzus po pitanju njegovog definisanja i merenja.

Uspešno starenje predstavlja multidimenzionalni fenomen čiji koreni sežu do klasičnih socio-psiholoških teorija razvoja, mnogo pre nego što je ovaj termin zvanično ustanovljen sredinom 80-ih godina prošlog veka. Termin uspešno starenje je u psihologiju uveo Havighurst, govoreći da je praktični zadatak gerontologije da stvori teoriju uspešnog starenja kako bi našla način da „doda život godinama" i poveća zadovoljstvo tokom kasnih faza životnog ciklusa (Havighurst, 1972). On naglašava da period nakon 60 godina života, koji karakteriše učestalost različitih gubitaka (povlačenje sa tržišta rada,

gubitak zdravlja, bliskih osoba i sl.), postavlja novi zahtev pred osobu: pronaći novu, svrsishodnu perspektivu i adaptirati se na nove uslove života i nove uloge. I Erikson (Erikson et al., 1986) ukazuje na mogućnost dostizanja optimalnih razvojnih ishoda u starosti: uspešno starenje predstavlja dosezanje mudrosti koja podrazumeva pronalaženje smisla u životu uz istovremeno prilagođavanje na gubitke povezane sa starošću.

I dok su klasične psihološke teorije razvoja naglašavale *ishode* razvoja kao pokazatelje uspešnog starenja, savremene teorije razvoja nastoje da odgovore na pitanje o načinima postizanja najpovoljnijih razvojnih ishoda. One uspešno starenje vide kao *proces*, te navode da je osnovni mehanizam uspešnog starenja psihološka adaptacija, tj.različiti procesi samoregulacije koji su zaduženi za održavanje balansa između dobitaka i gubitaka u starosti. Iz ugla savremenih teorija razvoja, način na koji se stara osoba suočava sa kontekstualnim ograničenjima ili gubicima resursa postaje najrelevantniji faktor uspešnog starenja (Brandtstädter & Rothermund, 2002).

Dvoprocesni model razvojne regulacije razlikuje asimilativne i akomodativne strategije adaptacije i naglašava važnost ravnoteže između ovih procesa za uspešno starenje (Brandtstädter & Greve, 1994; Greve, 2023). *Model selekcije, optimizacije i kompenzacije* (SOK) sugeriše da je uspešno starenje povezano sa svesnom pojačanom upotrebom SOK procesa (Freund & Baltes, 2002; Freund & Ebner, 2005). Treća uticajna savremena teorija razvoja, *Motivaciona teorija celoživotnog razvoja,* kao centralni mehanizam adaptacije na promene vidi regulaciju motivacije, tj.ravnotežu između strategija primarne i sekundarne kontrole (Heckhausen et al., 2010).

Formalno, koncept uspešnog starenja ponikao je iz biomedicinskog pristupa da bi se kasnije razvio u jedno široko razumevanje socijalne i psihološke adaptacije i psiholoških resursa u kasnom životnom dobu (Urtamo et al., 2019). Sam termin uspešno starenje postaje predmet ozbiljnije naučne rasprave kada su Rowe i Kahn (Rowe & Kahn, 1997) definisali indikatore uspešnog starenja: a) odsustvo bolesti i invaliditeta (očuvan nizak stepen rizika od oboljevanja i sa zdravljem povezanih invaliditeta); b) visok stepen mentalnog i fizičkog funkcionisanja; i c) aktivnu socijalnu uključenost i produktivnost. Ovi autori dakle vide uspešno starenje kao multidimenzionalni fenomen koji uključuje visoko fizičko, psihičko i

socijalno funkcionisanje u starosti, te možemo reći da obuhvata konstrukte aktivnog i zdravog starenja i predstavnik je biomedicinske paradigme u određenju ovog pojma.

Istraživanja su pokazala da se samo manjina starih objektivno uklapa u ove kriterijume, a da većina starih koji po ovim kriterijumima ne spadaju u kategoriju osoba koje uspešno stare - zapravo sebe smatraju uspešnima (Strawbridge et al., 2002). To je dovelo do razvoja tzv. laičkog pristupa određenju uspešnog starenja, po kome je neophodno uključiti percepciju uspešnog starenja od strane samih starijih osoba ili laika iz opšte populacije (Nosraty et al., 2015). Zapravo, mnogi stari koji imaju npr. hronične zdravstvene tegobe smatraju da uspešno stare, dok manji broj onih koji po objektivnim kriterijumima optimalno funkcionišu sebe ne vide kao ljude koji uspešno stare (Bowling, 2005). Način na koji osoba definiše uspeh u sopstvenom procesu starenja je u skladu sa onim što sugerišu novije razvojne teorije (tj. starije osobe uspešno starenje povezuju sa kapacitetom za korišćenje različitih mehanizama adaptacije na promene koje se dešavaju sa starošću) i često se pokazuje važnijim faktorom uspešnog starenja od odsustva bolesti i invaliditeta (Foster & Walker, 2015; Fagerström & Aartsen, 2013). U skladu sa tim je i treća, psihosocijalna perspektiva uspešnog starenja, a koja naglašava subjektivno psihološko iskustvo pojedinca u procesu starenja, te tako subjektivno blagostanje (zadovoljstvo životom, prisustvo pozitivnog i odsustvo negativnog afekta) postaje najistaknutiji pojedinačni kriterijum za proučavanje uspešnog starenja (Freund et al., 2013). Psihosocijalni pristup uspešnom starenju je išao u pravcu tendencije da se subjektivno psihološko iskustvo kao odrednica uspešnog starenja, sem blagostanja, proširi i na neke lične psihološke resurse (npr. Baltes & Baltes, 1990). U skladu sa tim su i rezultati istraživanja koja su koristila konfirmatornu faktorsku analizu i eksperimentalne podatke iz programa psiho-socijalnih intervencija: uspešno starenje obuhvata tri domena iz biomedicinskog modela (zdravlje, fizičku i kognitivnu funkcionalnost, aktivno angažovanje u životu), ali i psihološku adaptaciju gde možemo uključiti različite koncepte psihološkog fukcionisanja (Fernández-Ballesteros & Sánchez-Izquierdo, 2019). Savremene metaanalitičke studije (Kim & Park, 2017) potvrđuju psihološku adaptaciju kao četvrti domen uspešnog starenja. Upoređivanjem svih domena u pogledu jačine povezanosti sa uspešnim starenjem, autori zaključuju da psihološka adaptacija (zadovoljstvo životom, percepcija

sopstvenog procesa starenja, lične karakteristike, svrha života, percipirana socijalna podrška i sl.) ostvaruje najjači pojedinačni doprinos uspešnom starenju (Kim & Park, 2017). Jedna od najčešćih kritika psihosocijalnih modela uspešnog starenja odnosi se na to da se oslanjaju isključivo na subjektivne kriterijume. Stoga, u literaturi danas uglavnom postoji konsenzus o tome da je neophodno uzeti u obzir i subjektivne i objektivne kriterijume da bismo koncept uspešnog starenja sagledali celovito (Cosco et al., 2014; Depp & Jeste, 2006). Razmatranje isključivo subjektivnih kriterijuma (npr. samoprocenjeno blagostanje) može dovesti do zanemarivanja uslova sredine koji podržavaju ili otežavaju uspešno starenje. S druge strane, unapred određene definicije koje obuhvataju isključivo objektivne kriterijume prete redukcionizmom i potencijalno isključuju veliki broj starih kojima su postavljeni standardi prilično nedostižni iz objektivnih razloga (bolesti, invaliditeta ili konteksta u kome žive). U savremenim modelima uspešnog starenja se zbog toga kombinuju objektivni i subjektivni kriterijumi. Takav je model von Faberove i saradnika (von Faber et al, 2001) kojije uspešno starenje inicijalno definisao kao optimalno funkcionisanje u različitim oblastima života (fizičko, psiho-kognitivno i socijalno) i visoko subjektivno blagostanje. Kada su autori u model uključili i laičku perspektivu (kako stare osobe definišu uspešno starenje), model je proširen psihološkom adaptacijom, te je na taj način integrisao biomedicinsku, psihosocijalnu i laičku perspektivu. Faberova i saradnici zaključuju da domeni funkcionisanja i blagostanja nisu podjednako važni za stare osobe: postoji hijerarhija domena u iskustvu uspešnog i starenja. Naime, stari su blagostanje izjednačavali sa uspešnim starenjem, a kao najvažniji uslov za blagostanje (a time i uspešno starenje) isticali su svoje socijalne kontakte. Odsustvo ograničenja i gubitaka za starije osobe ne predstavlja uspešno starenje; uspeh se meri načinom na koji su ta ograničenja i gubici integrisani u lični stav prema starosti i procesu starenja.

Imajući u vidu različita određenja i kompleksnost koncepta uspešnog starenja, zadatak koji se postavlja pred istraživače je da prevaziđu redukcionizam i integrišu razmatranja različitih paradigmi, stvarajući jedan obuhvatni model uspešnog starenja. Uspešno starenje ne treba da bude elitistički nedostižni koncept, te da podrazumeva snažno vrednovanje nečega što je poželjno i da time nužno implicira da postoje uspešni i neuspešni, pobednici i gubitnici (Angus & Reeve, 2006). Zbog toga je dostizanje nekih

ishoda kao mere uspeha (npr. odsustvo bolesti i invaliditeta) bilo na meti kritika velikog broja istraživača koji sugerišu da uspešno starenje treba tretirati i kao proces koji traje i može imati različite oblike među pojedincima (Fagerström & Aartsen, 2013). Shodno tome, preporuka savremenih koncepcija je da se uz procenu statičkih kriterijuma – krajnjih tačaka uspešnog razvoja (npr. da li je osoba održala dobro zdravlje) uzmu u obzir i dinamički kriterijumi (da li je tekući proces dostizanja ishoda takav da maksimizira dobitke i minimizira gubitke; Baltes & Carstensen, 1996). Integrativni model uspešnog starenja bi konačno trebalo da uključi šire kontekstualne faktore, subjektivne i objektivne, opšte i specifične, te statičke i dinamičke kriterijume (Freund et al., 2013).

Problem i cilj istraživanja

Kombinujući subjektivne i objektivne, statičke i dinamičke indikatore uspešnog starenja, postavili smo kao osnovni istraživački cilj identifikaciju specifičnih latentnih profila starijih osoba, u odnosu na domene za koje različiti teorijski modeli pretpostavljaju da značajno utiču na uspešno starenje. Ispitivani domeni obuhvataju: domen fizičkog funkcionisanja (objektivni zdravstveni status, subjektivna procena zdravlja, procena funkcionalnih ograničenja); domen socijalnog funkcionisanja (širina socijalne mreže i subjektivna procena usamljenosti, tj. socijalne povezanosti); domen kognitivnog funkcionisanja (teškoće u radnoj memoriji); domen subjektivnog blagostanja (zadovoljstvo životom, pozitivni i negativni afekat, odsustvo simptoma depresivnost), te domen psihološke adaptacije (postojanje smisla života, rezilijentnost). Drugo istraživačko pitanje vezano je za diferencijalni doprinos pomenutih domena: koji pojedinačni indikatori najviše doprinose razlikovanju profila i time najbolje opisuju uspešno starenje na uzorku starih u Vojvodini?

Metod

Uzorak i postupak prikupljanja podataka

U istraživanju je učestvovalo 293 ispitanika iz Srbije, od kojih su 65,9% bile žene. Starost ispitanika varirala je od 65 do 93 godine, sa prosekom od 75,37 godina (*SD* = 7,13). Većina ispitanika imala je završeno osnovno ili srednje obrazovanje (67,3%). U trenutku sprovođenja istraživanja,

većina ispitanika živela je u urbanim sredinama (76,9%), a preko polovine ispitanika (62,1%) živelo je samostalno – bilo u sopstvenom domaćinstvu (16,4%) ili u ustanovi za smeštaj starijih osoba (45,7%). U braku je bilo manje od trećine ispitanih (29,3%). Istraživanje je sprovedeno na teritoriji Vojvodine, u domovima za stare i privatnim domaćinstvima. Ulogu ispitivača imali su psiholozi zaposleni u ustanovama za smeštaj starijih lica, kao i diplomirani psiholozi koji su prethodno prošli dodatnu obuku. Svi ispitivači su bili obučeni za adekvatnu primenu psiholoških instrumenata kod starije populacije, pre nego što su ostvarili prvi kontakt sa ispitanicima. Ispitanicima su pre početka istraživanja predstavljene informacije o ciljevima i toku ispitivanja, kao i obrasci informisanog pristanka. U uzorak su uključene samo osobe koje su dale pisanu saglasnost za učešće. Upitnici su popunjavani individualno, a trajanje ispitivanja se kretalo između 30 i 60 minuta. Po završetku ispitivanja, ispitanicima su date informacije o dostupnim oblicima profesionalne psihološke podrške, u slučaju da im ona bude potrebna. Istraživanje je prethodno odobreno od strane Etičke komisije Odseka za psihologiju Filozofskog fakulteta u Novom Sadu (broj projekta: 142-451-2665/2021-01).

Instrumenti

Skraćena skala zadovoljstva životom – SWLS-3 (engl. Satisfaction with Life Scale – 3; Kjell & Diener, 2021)

Skraćena skala zadovoljstva životom – SWLS-3 predstavlja sažetu verziju originalne petoajtemske skale zadovoljstva životom i sastoji se od prva tri ajtema iz izvorne forme (npr. *„Moj život je vrlo blizu onom što smatram idealnim“*). Ova verzija je razvijena sa ciljem da obezbedi bržu procenu opšteg zadovoljstva životom, uz očuvanje dobrih psihometrijskih karakteristika duže verzije. Ispitanici iskazuju stepen slaganja sa ponuđenim tvrdnjama na sedmostepenoj Likertovoj skali, u rasponu od 1 (*potpuno netačno*) do 7 (*potpuno tačno*). Skala je pokazala zadovoljavajuću pouzdanost i validnost, uključujući dobru test-retest pouzdanost i očekivane obrasce povezanosti sa drugim merama subjektivnog blagostanja (Kjell & Diener, 2021). U okviru ovog istraživanja, koeficijent interne konzistentnosti je zadovoljavajuć i iznosi 0,83.

Skala depresivnosti iz DASS-21 upitnika (engl. Depression, Anxiety and Stress Scale – 21; Lovibond & Lovibond, 1995)

Skala depresivnosti iz DASS-21 upitnika korišćena je za procenu simptoma depresivnosti u prethodnoj nedelji. U analizu su uključeni samo ajtemi koji čine subskalu depresivnosti (npr. *„Primetio sam da mi je teško da ostvarim inicijativu i započnem bilo šta“*). Ispitanici ocenjuju učestalost ovih emocionalnih stanja na četvorostepenoj Likertovoj skali, od 0 (*nimalo*) do 3 (*uglavnom ili skoro uvek*). Skala je više puta validirana na uzorku iz Srbije (npr. Jovanović i sar., 2021), a faktorskom analizom se dosledno izdvaja kao zaseban konstrukt u odnosu na anksioznost i stres. U ovom istraživanju interna pouzdanost subskale depresivnosti iznosi 0,90.

Skala pozitivnog i negativnog afekta za starije osobe (Rakočević & Gavrilov-Jerković, 2017)

Skala pozitivnog i negativnog afekta za starije osobe razvijena je sa ciljem merenja učestalosti prijatnih (4 ajtema: *smireno, snažno, zadovoljno, dobro raspoloženo*) i neprijatnih emocija (4 ajtema: *uplašeno, zbunjeno, nesrećno, ljuto*) kod starije populacije. Lista emocija bazirana je na cirkumpleksnom modelu afekta (Huelsman et al., 2003) i prilagođena je specifičnostima populacije starijih osoba. Ispitanici procenjuju koliko su često u protekloj nedelji iskusili svaku od navedenih emocija, koristeći petostepenu Likertovu skalu, u rasponu od 1 (*nikada ili skoro nikada*) do 5 (*uvek ili skoro uvek*). U ovom istraživanju, skala pozitivnog afekta pokazuje zadovoljavajuću pouzdanost (α = 0,79), dok je koeficijent interne konzistentnosti za negativni afekat nešto niži (α = 0,62).

Subjektivno zdravstveno stanje

Subjektivno zdravstveno stanje procenjivano je pomoću jedne stavke („*Kako biste ocenili Vaše trenutno zdravlje?*“) preuzete iz rada Rakočević i Gavrilov-Jerković (2017). Odgovor se daje na četvorostepenoj Likertovoj skali u rasponu od 1 (*loše*) do 4 (*odlično*), pri čemu viši skor odražava viši nivo percipiranog zdravlja.

Objektivno zdravstveno stanje

Objektivno zdravstveno stanje ispitano je putem jedanaestoajtemske ček-liste hroničnih bolesti i tegoba (Rakočević & Gavrilov-Jerković, 2017),

koja omogućava samoprocenu prisustva ili odsustva određenih zdravstvenih problema (npr. *visok krvni pritisak, dijabetes, bolesti srca*). Ispitanici su označavali da li trenutno boluju od svake od navedenih bolesti. Ukupan skor predstavlja broj postojećih zdravstvenih problema, pri čemu viši zbirni skor ukazuje na lošije objektivno zdravstveno stanje, odnosno veći broj dijagnostikovanih bolesti. Lista bolesti sastavljena je na osnovu pregleda literature o najčešćim hroničnim stanjima kod starijih osoba (npr. Andersen-Ranberg et al., 2001; Cho et al., 2011).

Groningenski upitnik za procenu ograničenja u aktivnostima (engl. Groningen Activity Restriction Questionnaire, GARQ; Kempen et al., 1996)

Groningenski upitnik za procenu ograničenja u aktivnostima koristi se za procenu funkcionalne sposobnosti starijih osoba kroz procenu ograničenja u obavljanju osnovnih i instrumentalnih aktivnosti u svakodnevnom životu. Upitnik sadrži 18 stavki koje se odnose na aktivnosti poput oblačenja, hranjenja, pripreme obroka i održavanja domaćinstva. Ispitanici ocenjuju u kojoj meri su sposobni da svaku aktivnost obavljaju samostalno, koristeći četvorostepenu Likertovu skalu od 1 (*mogu potpuno samostalno, bez ikakvih problema*) do 4 (*ne mogu samostalno, potrebna mi je pomoć*). Viši skor označava viši nivo funkcionalnih ograničenja. GARQ je validiran u brojnim istraživanjima koja se bave procenom fizičkog funkcionisanja i rehabilitacijom starijih osoba (npr. Szilasiova et al., 1998). Na ovom uzorku, upitnik je pokazao izuzetnu internu konzistentnost (α = 0,97).

Lubbenova skala socijalne mreže (engl. Lubben Social Network Scale, LSNS; Lubben, 1988)

Lubbenova skala socijalne mreže koristi se za procenu obima socijalne mreže i učestalosti percipirane socijalne podrške. Skala obuhvata šest stavki, pri čemu se tri ajtema odnose na odnose sa članovima porodice, a preostala tri na odnose sa prijateljima (npr. *„Koliko članova vaše porodice viđate ili kontaktirate bar jednom mesečno?“*). Odgovori se daju na šestostepenoj skali, od 0 (*ni sa kim*) do 5 (*sa devet ili više osoba*), pri čemu viši rezultati ukazuju na veću socijalnu mrežu. LSNS je pokazala dobru pouzdanost i validnost u različitim kulturama i među starijom populacijom (Lubben et al., 2006). U okviru ovog istraživanja, interna konzistentnost ukupne skale, kao opšte mere obima socijalne mreže iznosi α = 0,88.

Skraćena skala usamljenosti De Jong Gierveld (engl. De Jong Gierveld Loneliness Scale, DJGLS; de Jong Gierveld & Van Tilburg, 2010)

Skraćena skala usamljenosti De Jong Gierveld namenjena je proceni subjektivnog osećaja usamljenosti. U ovom istraživanju korišćena je verzija sa šest stavki, koja predstavlja skraćenu formu originalne jedanaestoajtemske skale (npr. *„Često se osećam odbačeno“*). Ispitanici procenjuju u kojoj meri se navedene tvrdnje odnose na njih, birajući jedan od tri ponuđena odgovora: *„da“*, *„donekle“* ili *„ne“*. Skala je validirana u prethodnim istraživanjima na srpskom jeziku (Jovanović & Gavrilov-Jerković, 2015), a u ovom uzorku pokazuje zadovoljavajuću internu konzistentnost (α = 0,71). Viši rezultati na skali ukazuju na niži nivo usamljenosti, odnosno višu socijalnu povezanost.

Procena smisla života

Procena smisla života u ovom istraživanju ispitivana pomoću jedne stavke preuzete iz Upitnika smisla života (engl. Meaning in Life Questionnaire, MLQ; Steger et al., 2006), koja se odnosi na prisustvo smisla, odnosno na to u kojoj meri osoba doživljava svoj život kao smislen. (*„Imam osećaj da moj život ima jasnu svrhu“*). Ispitanici izražavaju stepen slaganja sa tvrdnjom na petostepenoj Likertovoj skali, u rasponu od 1 (*potpuno netačno*) do 5 (*potpuno tačno*). Viši skor označava viši nivo percipiranog smisla života.

Kratka skala psihološke otpornosti (engl. Brief Resilience Scale, BRS; Smith et al., 2008)

Kratka skala psihološke otpornosti koristi se za procenu sposobnosti osobe da se brzo oporavi nakon stresnih događaja. U ovom istraživanju primenjena je skraćena verzija sa tri stavke (npr. *„Nakon teških trenutaka, brzo se trgnem i vratim u normalu“*). Ispitanici su izražavali stepen slaganja na petostepenoj Likertovoj skali, od 1 (*potpuno netačno*) do 5 (*potpuno tačno*), pri čemu viši skorovi ukazuju na izraženiju rezilijentnost. Na ovom uzorku skala pokazuje dobru internu konzistentnost (α = 0,86).

Inventar izvršnih funkcija za odrasle (engl. Adult Executive Functioning Inventory, ADEXI; Holst & Thorell, 2018)

Inventar izvršnih funkcija za odrasle razvijen je za procenu teškoća u izvršnom funkcionisanju, kroz dve dimenzije: radnu memoriju i inhibiciju. U

ovom istraživanju korišćena je isključivo subskala teškoća u radnoj memoriji (9 stavki; npr. *„Teško mi je da zapamtim duža uputstva“*). Ispitanici su izražavali saglasnost sa tvrdnjama na petostepenoj Likertovoj skali, od 1 (*potpuno netačno*) do 5 (*potpuno tačno*). Sve stavke su rekodirane tako da viši skor označava lošiju funkcionalnost, odnosno veći stepen teškoća. U ovom uzorku, interna konzistentnost subskale teškoća u radnoj memoriji iznosi α = 0,86.

Statistička analiza podataka

Analiza latentnih profila (LPA) sprovedena je korišćenjem softverskog paketa Mplus 8.1 (Muthén & Muthén, 2017), primenom metode maksimalne verodostojnosti putem algoritma maksimizacije očekivanja (engl. *expectation-maximization*). Model predstavlja profile određene na osnovu seta indikatora iz 5 domena: fizičkog, socijalnog, kognitivnog funkcionisanja, domena psihološke adaptacije i subjektivnog blagostanja. Radi određivanja optimalnog broja profila, korišćeni su različiti pokazatelji fita modela, uključujući Akaike-ov informativni kriterijum (AIC; Akaike, 1987) i Bajesov informativni kriterijum (BIC; Schwarz, 1978), pri čemu niže vrednosti ukazuju na bolji fit. Pored toga, primenjeni su prilagođeni Lo-Mendel-Rubin test (aLMR; Lo et al., 2001) i bootstrap test odnosa verodostojnosti (BLRT; Arminger et al., 1999) radi poređenja modela sa n i n–1 brojem profila. Statistički značajne p-vrednosti ovih testova ukazuju na prednost složenijeg (n) modela. Kvalitet klasifikacije procenjivan je putem entropije, koja predstavlja meru sigurnosti u raspodelu ispitanika po profilima i varira u rasponu od 0 do 1. Viši nivoi entropije ukazuju na precizniju klasifikaciju ispitanika po profilima. Vrednosti iznad 0,80 označavaju jasno razgraničene profile, vrednosti između 0,60 i 0,80 ukazuju na umerenu, ali prihvatljivu razdvojenost profila, dok entropija ispod 0,60 sugeriše nezadovoljavajuću klasifikaciju. Pre sprovođenja analize latentnih profila vrednosti na svim varijablama su standardizovane.

Za ispitivanje prediktora pripadnosti latentnom profilu uspešnog starenja primenjena je binarna logistička regresija. Rezultati binarne logističke regresije prikazani su kroz logit koeficijente (B), njihove standardne greške (SE), odnos šansi (odds ratio), kao i intervale poverenja od 95% (95% CI). Adekvatnost modela procenjena je pomoću Hosmer-Lemeshow testa,

dok je ukupna objašnjena varijansa izračunata korišćenjem Nagelkerkeovog R^2. Dodatno je ispitana tačnost klasifikacije, uključujući procenat tačno klasifikovanih slučajeva, kao i osetljivost, odnosno senzitivnost i specifičnost modela. Binarna logistička regresija, kao i analiza korelacije i deskriptivna statistika sprovedene su u statističkom softveru SPSS, verzija 26.

Rezultati

Deskriptivna statistika i korelacije između varijabli

Tabela 1 prikazuje osnovne deskriptivne pokazatelje za sve varijable korišćene u istraživanju, uključujući srednje vrednosti (*M*), standardne devijacije (*SD*), kao i koeficijente asimetrije (*Sk*) i spljoštenosti (*Ku*) distribucija. Varijable su grupisane u domene fizičkog, socijalnog i kognitivnog funkcionisanja, te domen psihološke adaptacije i subjektivnog blagostanja. Većina varijabli pokazuje umerene vrednosti asimetrije i spljoštenosti distribucija koje se nalaze unutar prihvatljivog raspona (između –2 i +2), što ukazuje na približno normalnu distribuciju podataka. Kada su u pitanju ostvarene prosečne vrednosti, u domenu fizičkog funkcionisanja objektivno zdravstveno stanje i ograničenja u aktivnostima su ispod teorijskog proseka, što zapravo ukazuje na relativno dobar zdravstveni status i očuvanu funkcionalnu sposobnost uzorka. U okviru emocionalnog funkcionisanja, beleži se prosečno nizak nivo depresivnosti i negativnog afekta, dok su pozitivni afekat i zadovoljstvo životom izraženiji od teorijskog proseka. Takođe, registruje se prosečno niži nivo teškoća u radnoj memoriji u poređenju sa očekivanim teorijskim prosekom. Prosečne vrednosti na ostalim varijablama su blizu teorijskog proseka.

Tabela 1

Deskriptivni pokazatelji varijabli korišćenih u istraživanju

Domen	Varijabla	Raspon	*M*	*SD*	*Sk*	*Ku*
Fizičko funkcionisanje	Subjektivna procena zdravlja	1 - 4	2,31	0,85	0,20	-0,55
	Objektivna procena zdravlja	0 - 8	2,34	1,77	0,64	-0,12
	Ograničenja u aktivnostima	18 - 72	29,55	14,85	1,40	0,91
Socijalno funkcionisanje	Socijalna mreža	0 - 30	16,21	7,21	-0,15	-0,58
	Socijalna povezanost	6 - 18	13,27	3,12	-0,31	-0,77
	Zadovoljstvo životom	3 - 15	10,51	3,25	-0,39	-0,68
Subjektivno blagostanje	Depresivnosti	0 - 21	4,79	5,20	1,31	1,10
	Pozitivni afekat	4 - 20	14,35	3,81	-0,34	-0,57
	Negativni afekat	4 - 18	7,71	3,07	0,93	0,42
Psihološka adaptacija	Postojanje smisla života	1 - 5	3,56	1,53	-0,57	-1,21
	Rezilijentnost	3 - 15	10,65	3,38	-0,44	-0,69
Kognitivno funkcionisanje	Teškoće radne memorije	1 - 5	2,18	0,83	0,59	-0,17

Napomena. *Sk* = skjunis; *Ku* = kurtozis.

Tabela 2 prikazuje matricu korelacija između varijabli korišćenih u istraživanju, kao i pokazatelje multikolinearnosti. Sve korelacije su u očekivanom smeru i uglavnom statistički značajne. Samo broj zdravstvenih tegoba (objektivno zdravstveno stanje) pokazuje nedoslednu povezanost sa ostalim varijablama u modelu. Najveću međusobnu povezanost ostvaruju indikatori subjektivnog blagostanja. Radi ispitivanja potencijalne multikolinearnosti među prediktorima, analizirani su faktori inflacije varijanse (VIF) i vrednosti tolerancije. Svi prediktori imali su VIF vrednosti ispod konvencionalno prihvaćenog praga od 5, uz odgovarajuće vrednosti tolerancije koje se kreću između 0,62 i 0,99. Ovi nalazi ukazuju na odsustvo multikolinearnosti u modelu.

Tabela 2

Korelacije između varijabli

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Zadovoljstvo životom	1											
2. Pozitivni afekat	0,62**	1										
3. Negativni afekat	-0,45**	-0,57**	1									
4. Depresivnost	-0,63**	-0,63**	0,59**	1								
5. Subjektivno zdravstveno stanje	0,44**	0,45**	-0,30**	-0,38**	1							
6. Objektivno zdravstveno stanje	-0,14**	-0,25**	0,15*	0,20**	-0,33**	1						
7. Ograničenja u aktivnostima	-0,36**	-0,31**	0,26**	0,36**	-0,39**	0,13*	1					
8. Socijalna mreža	0,40**	0,22**	-0,10	-0,37**	0,26**	-0,09	-0,28**	1				
9. Socijalna povezanost	0,36**	0,22**	-0,18**	-0,32**	0,33**	-0,01	-0,22**	0,38**	1			
10. Postojanje smisla života	0,35**	0,23**	-0,19**	-0,32**	0,28**	-0,03	-0,30**	0,31**	0,44**	1		
11. Rezilijentnost	0,44**	0,48**	-0,37**	-0,47**	0,34**	-0,24**	-0,26**	0,30**	0,19**	0,17**	1	
12. Teškoće u radnoj memoriji	-0,28**	-0,36**	0,33**	0,41**	-0,16**	0,11	0,17**	-0,20**	-0,18**	-0,11*	-0,31**	1
VIF	1,62	1,01	1,43	1,02	1,01	1,02	1,02	1,03	1,02	1,16	1,37	1,20
Tolerancija	0,62	0,99	0,70	0,98	0,99	0,98	0,98	0,97	0,98	0,86	0,73	0,83

**$p < 0,01$.

Analiza latentnih profila

U modelu su latentni profili određivani na osnovu indikatora iz domena subjektivnog blagostanja, psihološke adaptacije, fizičkog, socijalnog i kognitivnog funkcionisanja. Rezultati analize latentnih profila prikazani su u Tabeli 3. Upoređeni su modeli sa jednim do tri latentna profila, pri čemu su korišćeni standardni pokazatelji fita modela. Model sa dva profila pokazao je značajno bolji fit u poređenju sa jednoprofilnim rešenjem, uz niže vrednosti AIC (AIC = 9283,71) i BIC (BIC = 9419,87), visoku entropiju (0,91) i statistički značajne vrednosti aLMR (aLMR = 692,95, $p < .01$) i BLRT testa (BLRT = 702,33, $p < .01$). Dodavanje trećeg profila dodatno smanjuje AIC i BIC, ali rezultati aLMR (aLMR = 221,79, $p > 0,05$) i BLRT (BLRT = 224,79, $p > 0,05$) nisu statistički značajni u poređenju sa manje kompleksnim modelom, dok entropija opada na 0,84. Na osnovu ovih pokazatelja model sa dva latentna

profila je izabran za dalju analizu. Na Grafikonu 1 su prikazane prosečne vrednosti na standardizovanim merama ulaznih varijabli.

Tabela 3

Analiza latentnih profila: pokazatelji fita

	AIC	BIC	aLMR	BLRT	Entropija
Jedan profil	9960,04	10048,36	-	-	-
Dva profila	9283,71	9419,87	692,95**	702,33**	0,91
Tri profila	9084,91	9268,92	221,79	224,79	.0,84

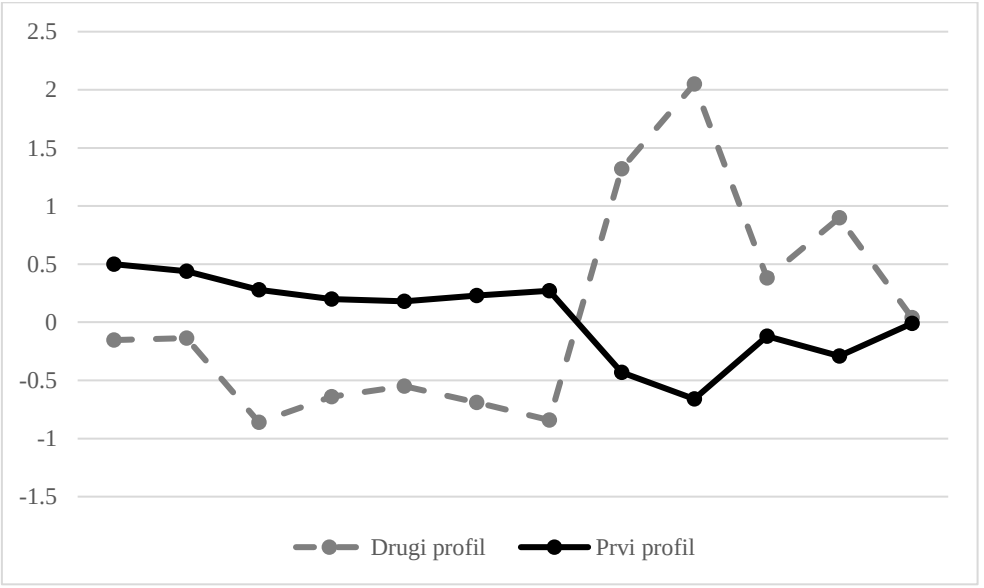
Napomena. AIC = Akaikov informacioni kriterijum; BIC = Bajesov informacioni kriterijum; aLMR = prilagođeni Lo-Mendel-Rubin Test (aLMR); BLR = Bootstrap Likelihood Ratio Test.

** $p < .01$.

Prvi izdvojeni profil, nazvan Profil uspešnog starenja, koji karakterišu visoke vrednosti na zadovoljstvu životom, pozitivnom afektu, subjektivnom zdravlju, socijalnoj mreži i povezanosti, postojanju smisla života i rezilijentnosti, kao i niske vrednosti na negativnom afektu, depresivnosti, broju zdravstvenih problema i ograničenjima u aktivnostima broji 224 ispitanika, odnosno 76,4% uzorka. Drugi profil karakterišu suprotne vrednosti na navedenim merama, koje ukazuju na teškoće u emocionalnom, fizičkom i socijalnom funkcionisanju, i čini ga 23,6% uzorka. Zanimljivo je napomenuti da su prosečne vrednosti u slučaju mere kognitivnog funkcionisanja gotovo iste za oba latentna profila.

Grafikon 1

Prosečne vrednosti profila na merama subjektivnog blagostanja, psihološke adaptacije, fizičkog, socijalnog i kognitivnog funkcionisanja



Prediktivni doprinos ulaznih varijabli pripadnosti profilu uspešnog starenja

Radi ispitivanja prediktivnih doprinosa ulaznih varijabli pripadnosti profilu uspešnog starenja, sprovedena je binarna logistička regresija. Zavisna varijabla bila je binarna (0 = izazovno starenje, 1 = uspešno starenje), a u model je simultano uneto 12 standardizovanih prediktora koji obuhvataju indikatore subjektivnog blagostanja, psihološke adaptacije, zdravstvenog, socijalnog i kognitivnog funkcionisanja.

Model je bio statistički značajan ($\chi^2_{(12)} = 282{,}06$, $p < .001$), što ukazuje da prediktorske varijable značajno razdvajaju profile. Nagelkerkeov R^2 iznosio je 0,93, što upućuje na visok procenat objašnjene varijanse kriterijuma. Hosmer-Lemeshow test nije bio statistički značajan ($\chi^2_{(8)} = 1{,}976$, $p = .982$), što ukazuje na dobro slaganje modela sa podacima. Ukupna tačnost

klasifikacije iznosila je 98%, pri čemu je 99,1% ispitanika tačno klasifikovano u profil uspešnog starenja, a 94,2% u profil izazovnog starenja.

Tabela 4 prikazuje rezultate binarne logističke regresije, odnosno logit koeficijente (B), njihove standardne greške (SE), odnos šansi (odds ratio/Exp(B)), kao i intervale poverenja od 95% (95% CI). Svi prediktori su standardizovani, te se odnosi šansi (odds ratios, OR) interpretiraju kao efekti promene od jedne standardne devijacije u prediktorskoj varijabli na verovatnoću pripadnosti profilu uspešnog starenja.

Zadovoljstvo životom pokazalo se kao izrazito snažan i statistički značajan pozitivan prediktor pripadnosti profilu uspešnog starenja (B = 3,88, p = .001; OR = 48,42), što ukazuje na to da porast zadovoljstva životom za jednu standardnu devijaciju povećava verovatnoću pripadnosti profilu uspešnog starenja više od 48 puta. Postojanje smisla života takođe je značajno doprinelo modelu (B = 2,25, p = .002; OR = 9,50), pri čemu porast ove varijable za jednu standardnu devijaciju povećava verovatnoću pripadnosti profilu uspešnog starenja gotovo 10 puta. Sličan obrazac nalazi se i kod rezilijentnosti (B = 2,15, p = .005; OR = 8,56), čiji porast povećava verovatnoću pripadnosti profilu uspešnog starenja više od 8 puta.

Negativni afekat pokazao je snažnu negativnu povezanost sa pripadnošću profilu uspešnog starenja (B = –4,25, p < .001; OR = 0,014). Preciznije, porast negativnog afekta za jednu standardnu devijaciju smanjuje verovatnoću pripadnosti profilu uspešnog starenja preko 71 put (1 / 0,014 = 71,43). Subskala depresivnosti pokazala je sličan efekat (B = –3,62, p < .001; OR = 0,027), pri čemu porast za jednu standardnu devijaciju smanjuje verovatnoću pripadnosti profilu uspešnog starenja oko 37 puta (1 / 0,027 = 37,04).

Ostali prediktori, uključujući pozitivni afekat (p = .935), subjektivnu procenu zdravlja (p = .972), broj zdravstvenih problema (p = .087), ograničenja u aktivnostima (p = .706), socijalnu mrežu (p = .235), socijalnu povezanost (p = .842) i teškoće u radnoj memoriji (p = .735), nisu pokazali statistički značajan doprinos u predikciji pripadnosti profilu uspešnog starenja.

Tabela 4

Rezultati binarne logističke regresije

	B	SE	Wald	*p*	Exp(B)	95% CI
Zadovoljstvo životom	3,88	1,15	11,25	0,001	48,41	5,01 - 467,51
Pozitivni afekat	-0,01	0,01	0,01	0,935	0,999	0,97 - 1,03
Negativni afekat	-4,25	1,15	13,54	0,000	0,014	0,01 - 0,14
Depresivnost	-3,61	0,95	14,44	0,000	0,027	0,01 - 0,17
Subjektivno zdravstveno stanje	-0,01	0,01	0,01	0,972	0,999	0,97 - 1,03
Objektivno zdravstveno stanje	-0,87	0,51	2,92	0,087	0,419	0,16 - 1,14
Ograničenja u aktivnostima	-0,01	0,01	0,14	0,706	0,996	0,97 - 1,02
Socijalna mreža	0,01	0,01	1,41	0,235	1,004	0,99 - 1,01
Socijalna povezanost	-0,01	0,03	0,04	0,842	0,994	0,94 - 1,05
Postojanje smisla života	2,25	0,74	9,20	0,002	9,503	2,22 - 40,7
Rezilijentnost	2,15	0,76	8,03	0,005	8,563	1,94 - 37,80
Teškoće u radnoj memoriji	0,04	0,47	0,01	0,935	1,039	0,41 - 2,63

Diskusija

Osnovni cilj istraživanja bio je utvrđivanje specifičnih latentnih profila starijih osoba, u odnosu na domene za koje različiti teorijski modeli pretpostavljaju da predstavljaju indikatore uspešnog starenja: domen fizičkog funkcionisanja (objektivni zdravstveni status, subjektivna procena zdravlja, procena funkcionalnih ograničenja); domen socijalnog funkcionisanja (širina socijalne mreže i subjektivna procena usamljenosti, tj. socijalne povezanosti); domen kognitivnog funkcionisanja (teškoće u radnoj memoriji); domen subjektivnog blagostanja (zadovoljstvo životom, pozitivni i negativni afekat, odsustvo simptoma depresivnost), te domen psihološke adaptacije (postojanje smisla života, rezilijentnost).

Rezultati analize latentnih profila (LPA) pokazali su da dvoprofilno rešenje najbolje opisuje podatke. Prvi profil, označen kao profil uspešnog starenja, obuhvatao je ispitanike sa visokim vrednostima na pokazateljima zadovoljstva životom, pozitivnog afekta, subjektivnog zdravlja, socijalne mreže i povezanosti, postojanja smisla života i rezilijentnosti, te niskim

vrednostima negativnog afekta, depresivnosti, zdravstvenih problema i ograničenja u aktivnostima. Drugi profil, profil izazovnog starenja, pokazivao je suprotne karakteristike na većini mera. Kognitivne teškoće su imale gotovo identične prosečne vrednosti u oba profila, što upućuje na njihovu ograničenu diskriminativnu vrednost u ovom uzorku. Prema ovim rezultatima, 76,4% ispitanog uzorka spada u kategoriju osoba koje uspešno stare. Iako se rešenje sa dva latentna profila pokazalo kao optimalno, ovaj nalaz treba razmatrati u kontekstu karakteristika uzorka. Relativno ujednačeni obrasci funkcionisanja u više domena sugerišu da identifikovani profili najverovatnije odražavaju razlike u opštem nivou funkcionisanja, pre nego jasno razgraničene kvalitativne obrasce uspešnog starenja. U tom smislu, identifikovani profili se mogu razumeti kao različite pozicije duž jedne iste dimenzije. Moguće je da bi veći i heterogeniji uzorak, sa izraženijim varijacijama u zdravstvenom i funkcionalnom statusu omogućio finiju identifikaciju latentnih profila.

Prevalencija uspešnog starenja u istraživanjima značajno varira u zavisnosti od korišćenih kriterijuma i metodologije, zbog čega je direktno poređenje rezultata otežano. Najznačajnije razlike beleže se između subjektivnih i objektivnih kriterijuma uspešnog starenja. Kada se posmatraju samo objektivni faktori (pretpostavljeni domeni iz biomedicinskog modela; Rowe & Kahn, 1997), procenti su veoma niski i kreću se između 10% i 15% (Plugge, 2021). Kada se posmatra samo subjektivno blagostanje, procenti onih koji uspešno stare su preko 60% (Liu et al., 2025; Plugge, 2021). Meta-analitičke studije koje uključuju i subjektivne i objektivne kriterijume pokazuju da se ukupna procenjena stopa uspešnog starenja među ljudima starosti preko 60 godina kreće u rasponu od 22% (Liu et al.,2025) do 35.8% (Depp & Jeste, 2006). Visok procenat starih osoba koje su u našem istraživanju klasifikovane u kategoriju uspešnog starenja je verovatno najpre posledica uzorka istraživanja, a koji je uključivao stare osobe očuvanog zdravstvenog statusa i funkcionalnih sposobnosti iz urbanih sredina. S druge strane, tome doprinosi i integrativno, široko određenje uspešnog starenja sa uključenim subjektivnim i objektivnim, te statičkim i dinamičkim indikatorima, što značajno povećava procenat osoba koje se kvalifikuju kao osobe koje uspešno stare.

Profilu uspešnog starenja u našem istraživanju pripadaju, dakle, osobe starije od 65 godina koje su zdrave, aktivne, imaju visok stepen

emocionalnog i socijalnog funkcionisanja i psihološki su adaptirane na promene povezane sa starošću. Dodatni istraživački interes predstavljalo je pitanje koji pojedinačni indikatori najviše doprinose razlikovanju profila i time najbolje opisuju uspešno starenje na uzorku starih u Vojvodini. Rezultati su pokazali da najveći doprinos u predikciji profilu uspešnog starenja ostvaruju indikatori iz domena subjektivnog blagostanja i psihološke adaptacije: zadovoljstvo životom, postojanje smisla života i rezilijentnost u pozitivnom smeru, a negativni afekat i depresivnost u negativnom smeru.

Dobijeni rezultat da su subjektivno blagostanje i psihološka adaptacija najvažniji indikatori latentnih profila uspešnog starenja govore u prilog psihosocijalnoj paradigmi uspešnog starenja koja naglašava subjektivno blagostanje i lične psihološke resurse (npr. Baltes & Baltes, 1990; Caprara & Mendoza-Ruvalcalba, 2019) kao dominantne kriterijume za proučavanje uspešnog starenja. Zadovoljstvo životom, rezilijentnost i smisao života spadaju u one psihološke resurse koji deluju kao zaštitini faktori, pomažući pojedincima da održavaju visok nivo blagostanja čak i u prisustvu fizičkih, socijalnih i drugih izazova u starosti. Drugim rečima, ovi indikatori najbolje odražavaju sposobnost prilagođavanja izazovima starenja. Savremene razvojne teorije takođe sugerišu da je uspešno starenje povezano sa kapacitetom za korišćenje različitih mehanizama adaptacije na promene i gubitke povezane sa starošću (Freund & Ebner, 2005; Greve, 2023; Heckhausen et al., 2010). U tom smislu, često se ističe da uspešno starenje zapravo može koegzistirati sa bolestima i funkcionalnim ograničenjima ako se koriste kompenzatorni psihološki i/ili socijalni mehanizmi (Young et al., 2009). Naši rezultati korespondiraju sa rezultatima meta-analize Kima i Parka (2017), a koji ističu četiri domena uspešnog starenja (izbegavanje bolesti i invaliditeta, održavanje funkcionalnosti, aktivno angažovanje u životu i psihološka adaptacija), pri čemu psihološka adaptacija pokazuje najjaču povezanost sa uspešnim sterenjem. Unutar ove analize pod psihološkom adaptacijom podrazumeva se zadovoljstvo životom, smisao života, personalne karateristike, percepcija procesa starenja, percipirana socijalna podrška te duhovno opredeljenje (Kim & Park, 2017).

Interesantno je da se pozitivan afekat, za razliku od ostalih indikatora subjektivnog blagostanja, nije pokazao relevantnim u formiranju profila uspešnog starenja. Očekivano je da kognitivna komponenta subjektivnog

blagostanja (zadovoljstvo životom) kao stabilnija i šira evaluacija života ima jaču ulogu u predikciji uspešnog starenja. Afektivne dimenzije blagostanja (pozitivni i negativni afekat) predstavljaju trenutne emocionalne statuse, ali ipak ne učestvuju simetrično u predikciji uspešnog starenja. Ovaj rezultat se može tumačiti kroz prizmu Teorije socioemocionalne selektivnosti (SST; Carstensen, 1995) koja polazi od ideje da se sa starenjem menja vremenska perspektiva: kako ljudi opažaju da im preostaje manje vremena, prioritet daju emocionalno značajnim i prijatnim iskustvima i efikasnije regulišu emocije. To dovodi do tzv. "efekta pozitivnosti" kod starijih osoba, oni svoju pažnju usmeravaju ka pozitivnijim stimulusima, pamte pozitivnije sadržaje i percipiraju negativne životne situacije kao manje ozbiljne. Ovaj efekat rezultira relativno visokim i stabilnim nivoom pozitivnog afekta među većinom starijih ispitanika (kao i u našem uzorku), bez obzira na objektivne životne okolnosti (Charles & Carstensen, 2010). Time njegova diskriminativna moć u predviđanju uspešnog starenja opada, naročito u uzorcima gde je varijabilnost pozitivnog afekta mala. S druge strane, negativni afekat predstavlja snažniji signal prisutnih stresora i gubitaka vezanih za starenje poput fizičkih i kognitivnih teškoća i redukovane socijalne aktivnosti (Steptoe et al., 2015), što su ključne komponente koje destabilizuju ukupno funkcionisanje u multidimenzionalnim modelima uspešnog starenja (npr. Rowe & Kahn, 1997). Druga istraživanja takođe potvrđuju da pozitivan afekat, iako češći u starijoj dobi, često gubi prediktivnu doprinos nakon kontrole drugih varijabli blagostanja, dok negativni afekat češće zadržava značajan prediktivni doprinos uspešnom starenju (Isaacowitz & Blanchard-Fields, 2012). Tako, pozitivni afekat može zapravo odražavati adaptivne strategije emocionalne regulacije u starosti, dok negativni afekat, zbog svoje povezanosti sa realnim stresorima i smanjenjem resursa, ostaje relevantan indikator odstupanja od optimalnog funkcionisanja u starosti.

Indikatori iz fizičkog domena (subjektivna i objektivna procena zdravlja, ograničenje u aktivnostima), socijalnog domena (socijalna mreža i socijalna povezanost) i kognitivnog domena (teškoće u radnoj memoriji), nisu pokazali statistički značajan doprinos u predikciji profilu uspešnog starenja. Ovo može biti posledica nekoliko međusobno povezanih faktora. Prvo, u uzorku je izražena niska heterogenost po pitanju zdravstvenog i kognitivnog statusa, što smanjuje varijabilnost i diskriminativnu moć ovih indikatora. Dodatno, kada je u pitanju socijalno funkcionisanje (širina socijalne mreže i

socijalna povezanost), moguće je da ono predstavlja ključni prediktor subjektivnog blagostanja i/ili psihološke adaptacije. Na primer, istraživanje von Faberove i saradnika sugeriše da domeni koji definišu uspešno starenje nisu podjednako važni za stare osobe, već postoji hijerarhija domena: blagostanje se izjednačava sa uspešnim starenjem, a kao najvažniji uslov za blagostanje (a time i uspešno starenje) stare osobe ističu kvalitet socijalnih kontakata (von Faber et al, 2001). Slično tome, na srpskom uzorku je pokazano da je socijalna mreža jedna od najvažnijih determinanti blagostanja u starosti (Petrović i sar., 2025). Drugim rečima, socijalno funkcionisanje i fizičko/mentalno zdravlje mogu imati indirektan uticaj na uspešno starenje, povećanjem rezilijentnosti, smisla i subjektivnog blagostanja koji su u ovom modelu imali dominantnu ulogu. Ova pretpostavka ukazuje na potrebu za daljim istraživanjima koja bi ispitala takve mehanizme posredovanja i interakcije između različitih domena uspešnog starenja. Izostanak razlika između profila u domenu radne memorije takođe treba tumačiti oprezno: ovaj rezultat može odražavati ograničenu varijabilnost uzorka, ali treba uzeti u obzir i korišćene mere u ovom istraživanju. Naime, merenje kognitivnog funkcionisanja je bilo zasnovano na samoproceni radne memorije, i vrlo je verovatno da ovaj indikator ne obuhvata svu složenost kognitivnog funkcionisanja. Kognitivni kapaciteti svakako spadaju u ključne odrednice savremenih modela uspešnog starenja, te je neophodno koristiti obuhvatnije i objektivnije indikatore ovog domena u narednim istraživanjima.

Sprovedeno istraživanje ima nekoliko važnih prednosti, ali i ograničenja. Pre svega, ono predstavlja prvo empirijsko ispitivanje uspešnog starenja u Srbiji, čime pruža temelj za buduće komparativne studije. Ispitivani uzorak starih je relativno dobrog zdravstvenog statusa i očuvane funkcionalne sposobnosti, što je omogućilo precizno posmatranje fenomena uspešnog starenja u delu populacije koja ne odstupa u velikoj meri od optimalnog funkcionisanja u starosti. S druge strane, imajući u vidu veliku heterogenost populacije starih, naši rezultati se ne mogu generalizovati na celokupnu populaciju. Relativno visoka zastupljenost ispitanika u profilu uspešnog starenja stoga delimično odražava karakteristike uzorka, te je važno naglasiti da dobijeni profile treba razumeti kao deskriptivne i probabilističke reprezentacije različitih obrazaca funkcionisanja starih u uzorku, ne kao striktne kategorije.

Stoga bi naredna istraživanja trebalo da uključe širi i heterogeniji uzorak starih, uključujući i starije osobe sa različitim zdravstvenim statusima i nivoima funkcionalnosti. Prilikom interpretacije rezultata treba imati u vidu i da ovo istraživanje nije ispitivalo relacije između različitih domena uspešnog starenja, što ograničava razumevanje mehanizama u kreiranju profila uspešnog starenja. Iako je model imao tendenciju da uključi sve relevantne domene uspešnog starenja, nisu analizirani važni spoljašnji indikatori – socioekonomski status, resursi i mogućnosti te uslovi u kojima osoba stari (dostupnost društvenih, kulturnih i socijalnih resursa), što je moglo doprineti dubljem razumevanju stepena uspešnosti starenja.

Pored identifikovanih prednosti i ograničenja, istraživanje ima i značajnu teorijsku i praktičnu vrednost. Naime, dobijeni rezultati pružaju prve empirijske podatke o prevalenciji i profilima starijih osoba koje funkcionišu na višem nivou u više domena, što omogućava upoređivanje sa drugim istraživanjima i dalje unapređenje relevantnih teorijskih modela uspešnog starenja. Naši rezultati idu u prilog savremenih psihosocijalnih modela koji naglašavaju psihološke resurse kao ključni mehanizam uspešnog starenja, posmatrajući ga dinamičan proces adaptacije na neizbežne promene i gubitke povezane sa starošću (Baltes & Baltes, 1990). Poseban praktični značaj ovih rezultata ogleda se u činjenici da zadovoljstvo životom, rezilijentnost i osećaj smisla (a paralelno i odsustvo depresivnosti i negativnog afekta) koji su se pokazali najrelevantnijim indikatorima uspešnog starenja predstavljaju psihološke resurse koji, iako relativno stabilni tokom životnog veka, poseduju značajan potencijal za promenu pod uticajem ciljano usmerenih intervencija (Górska et al., 2022; Lucas & Donnellan, 2007; Ryff, 2014; Sin & Lyubomirsky, 2009; Steger et al.,2009). Na taj način, ovo istraživanje ne samo da doprinosi razumevanju faktora uspešnog starenja, već pruža i konkretne smernice za promociju kvaliteta života u starijoj populaciji.

Finansiranje

Istraživanje prikazano u radu predstavlja deo projekta „Stari u Vojvodini – činioci uspešnog starenja“ koji je finansiran od strane Pokrajinskog sekretarijata za visoko obrazovanje i naučnoistraživačku delatnost Autonomne pokrajine Vojvodine.

Sukob interesa

Nemamo sukoba interesa za prijavljivanje.

Izjava o dostupnosti podataka

Podaci su dostupni na lični zahtev kontaktiranjem autorki.

Reference

Akaike, H. (1987). Factor analysis and AIC. In E. Parzen, K. Tanabe, & G. Kitagawa (Eds.), *Selected papers of Hirotugu Akaike* (pp. 371-386). Springer.

Andersen-Ranberg, K., Schroll, M., & Jeune, B. (2001). Healthy Centenarians Do Not Exist, but Autonomous Centenarians Do: A Population-Based Study of Morbidity Among Danish Centenarians. *Journal of the American Geriatrics Society*, *49*(7), 900–908. https://doi.org/10.1046/j.1532-5415.2001.49180.x

Angus, J., & Reeve, P. (2006). Ageism: A threat to "aging well" in the 21st century. *Journal of Applied Gerontology, 25*(2), 137–152. https://doi.org/10.1177/0733464805285745

Arminger, G., Stein, P., & Wittenberg, J. (1999). Mixtures of conditional mean-and covariance-structure models. *Psychometrika*, *64*(4), 475–494. https://doi.org/10.1007/BF02294568

Baltes, M. M., & Carstensen, L. L. (1996). The process of successful ageing. *Ageing and Society*, *16*(4), 397–422. https://doi.org/10.1017/S0144686X00003603

Baltes, P. B. & Baltes, M. M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P. B. Baltes & M. M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp. 1–34). Cambridge University Press.

Bowling, A. (2005). *Ageing well: Quality of life in old age.* Open University Press.

Brandtstädter, J., & Rothermund, K. (2002). The life-course dynamics of goal pursuit and goal adjustment: A two-process framework. *Developmental Review, 22*(1), 117–150. https://doi.org/10.1006/drev.2001.0539

Brandtstädter, J., & Greve, W. (1994). The aging self: Stabilizing and protective processes. *Developmental Review, 14*(1), 52–80. https://doi.org/10.1006/drev.1994.1003

Caprara, M., & Mendoza-Ruvalcaba, N. M. (2019). Promoting successful aging: A psychosocial perspective. In R. Fernández-Ballesteros, A. Benetos, & J.-M.

Robine (Eds.), *The Cambridge handbook of successful aging* (pp. 512–533). Cambridge University Press. https://doi.org/10.1017/9781316677018.029

Carstensen, L. L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current Directions in Psychological Science, 4*(5), 151–156. https://doi.org/10.1111/1467-8721.ep11512261

Charles, S. T., & Carstensen, L. L. (2010). Social and emotional aging. *Annual Review of Psychology*, *61*, 383–409. https://doi.org/10.1146/annurev.psych.093008.100448

Cho, J., Martin, P., Margrett, J., MacDonald, M., & Poon, L. W. (2011). The relationship between physical health and psychological well-being among oldest-old adults. *Journal of Aging Research*, *2011*(1), 605041. https://doi.org/10.4061/2011/605041

Cosco, T. D., Prina, A. M., Perales, J., Stephan, B. C., & Brayne, C. (2014). Operational definitions of successful aging: a systematic review. *International Psychogeriatrics*, *26*(3), 373–381. https://doi.org/10.1017/S1041610213002287

De Jong Gierveld, J., & Van Tilburg, T. (2010). The De Jong Gierveld short scales for emotional and social loneliness: Tested on data from 7 countries in the UN generations and gender surveys. *European Journal of Ageing*, *7*(2), 121–130. https://doi.org/10.1007/s10433-010-0144-6

Depp, C. A., & Jeste, D. V. (2006). Definitions and predictors of successful aging: a comprehensive review of larger quantitative studies. *The American Journal of Geriatric Psychiatry*, *14*(1), 6–20. https://doi.org/10.1097/01.JGP.0000192501.03069.bc

Erikson, E. H., Erikson, J. M., & Kivnick, H. Q. (1986). *Vital involvement in old age: The experience of old age in our time*. W. W. Norton & Company.

Fagerström, J., & Aartsen, M. (2013). Successful ageing and its relationship to contemporary norms: a critical look at the call to "age well." *Recherches Sociologiques et Anthropologiques, 44*(1), 51–73. https://doi.org/10.4000/rsa.918

Fernández-Ballesteros, R., & Sánchez-Izquierdo, M. (2019). Are psycho-behavioral factors accounting for longevity? *Frontiers in Psychology, 10,* Article 2516. https://doi.org/10.3389/fpsyg.2019.02516

Foster, L., & Walker, A. (2015). Active and successful aging: a European policy perspective. *The Gerontologist*, *55*(1), 83–90. https://doi.org/10.1093/geront/gnu028

Freund, A. M., & Baltes, P. B. (2002). Life-management strategies of selection, optimization and compensation: Measurement by self-report and construct validity. *Journal of Personality and Social Psychology, 82*(4), 642–662. https://doi.org/10.1037/0022-3514.82.4.642

Freund, A. M., & Ebner, N. C. (2005). The aging self: Shifting from promoting gains to balancing losses. In W. Greve, K. Rothermund, & D. Wentura (Eds.), *The adaptive self: Personal continuity and intentional self–development* (pp. 185–202). Hogrefe & Huber Publishers.

Freund, A. M., Nikitin, J., & Riediger, M. (2013). Successful aging. In R. M. Lerner, M. A. Easterbrooks, J. Mistry, & I. B. Weiner (Eds.), *Handbook of psychology: Developmental psychology* (2nd ed., pp. 615–637). John Wiley & Sons, Inc.

Górska, S., Singh Roy, A., Whitehall, L., Irvine Fitzpatrick, L., Duffy, N., & Forsyth, K. (2022). A systematic review and correlational meta-analysis of factors associated with resilience of normally aging, community-living older adults. *The Gerontologist*, *62*(9), e520–e533. https://doi.org/10.1093/geront/gnab110

Greve W. (2023). Adaptation across the lifespan: Towards a processual evolutionary explanation of human development. *Integrative Psychological & Behavioral Science*, *57*(4), 1119–1139. https://doi.org/10.1007/s12124-023-09767-y

Havighurst, R. J. (1972). *Developmental tasks and education.* David McKay.

Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological Review, 117*(1), 32–60. https://doi.org/10.1037/a0017668

Healy, J. (2004). *The benefits of an ageing population* [Discussion paper]. The Australia Institute. https://australiainstitute.org.au/wp-content/uploads/2020/12/DP63_8.pdf

Holst, Y., & Thorell, L. B. (2018). Adult executive functioning inventory (ADEXI): Validity, reliability, and relations to ADHD. *International Journal of Methods in Psychiatric Research*, *27*(1), e1567. https://doi.org/10.1002/mpr.1567

Huelsman, T. J., Furr, R. M., & Nemanick Jr, R. C. (2003). Measurement of dispositional affect: Construct validity and convergence with a circumplex model of affect. *Educational and Psychological Measurement*, *63*(4), 655–673. https://doi.org/10.1177/0013164403251331

Isaacowitz, D. M., & Blanchard-Fields, F. (2012). Linking process and outcome in the study of emotion and aging. *Perspectives on Psychological Science*, *7*(1), 3–17. https://doi.org/10.1177/1745691611424750

Jovanović, V. i Gavrilov-Jerković, V. (2015). Validacija srpskog prevoda skale soci jalne podrške MOS-SSS. *Primenjena Psihologija,* 8(3), 245–264. https://doi.org/10.19090/pp.2015.3.245-264

Jovanović, V., Gavrilov-Jerković, V., & Lazić, M. (2021). Can adolescents differentiate between depression, anxiety and stress? Testing competing models of the Depression Anxiety Stress Scales (DASS-21). *Current Psychology*, *40*(12), 6045–6056. https://doi.org/10.1007/s12144-019-00540-2

Kempen, G. I. J. M., Miedema, I., Ormel, J., & Molenaar, W. (1996). The assessment of disability with the Groningen Activity Restriction Scale. Conceptual framework and psychometric properties. *Social Science & Medicine*, *43*(11), 1601–1610. https://doi.org/10.1016/S0277-9536(96)00057-3

Kim, S. H., & Park, S. (2017). A meta-analysis of the correlates of successful aging in older adults. *Research on Aging*, *39*(5), 657–677. https://doi.org/10.1177/0164027516656040

Kjell, O. N., & Diener, E. (2021). Abbreviated three-item versions of the satisfaction with life scale and the harmony in life scale yield as strong psychometric properties as the original scales. *Journal of Personality Assessment*, *103*(2), 183–194. https://doi.org/10.1080/00223891.2020.1737093

Liu, Y., Zhang, X., Fu, X., Li, W., Wang, Y., & Lu, W. (2025). Successful aging rates of global older adults: A systematic review and meta-analysis. *Journal of the American Medical Directors Association*, *26*(6), 105334. https://doi.org/10.1016/j.jamda.2024.105334

Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika*, *88*, 767–778. https://doi.org/10.1093/biomet/88.3.767

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-U

Lubben, J. E. (1988). Assessing social networks among elderly populations. *Family & Community Health*, *11*(3), 42-52. https://psycnet.apa.org/doi/10.1097/00003727-198811000-00008

Lubben, J., Blozik, E., Gillmann, G., Iliffe, S., von Renteln Kruse, W., Beck, J. C., & Stuck, A. E. (2006). Performance of an abbreviated version of the Lubben Social Network Scale among three European community-dwelling older

adult populations. *The Gerontologist*, *46*(4), 503–513. https://doi.org/10.1093/geront/46.4.503

Lucas, R. E., & Donnellan, M. B. (2007). How stable is happiness? Using the STARTS model to estimate the stability of life satisfaction. *Journal of Research in Personality, 41*(5), 1091–1098. https://doi.org/10.1016/j.jrp.2006.11.005

Martinson, M., & Berridge, C. (2015). Successful aging and its discontents: A systematic review of the social gerontology literature. *The Gerontologist*, *55*(1), 58–69. https://doi.org/10.1093/geront/gnu037

Nosraty, L., Jylhä, M., Raittila, T., & Lumme-Sandt, K. (2015). Perceptions by the oldest old of successful aging, Vitality 90+ Study. *Journal of Aging Studies*, *32*, 50–58. https://doi.org/10.1016/j.jaging.2015.01.002

Petrović, J., Obradović, V., & Zotović-Kostić, M. (2025). Socijalna izolacija i blagostanje u starosti. *Primenjena Psihologija*, *18*(1), 3–41. https://doi.org/10.19090/pp.v18i1.2570

Plugge M. (2021). Successful ageing in the oldest old: objectively and subjectively measured evidence from a population-based survey in Germany. *European Journal of Ageing*, *18*(4), 537–547. https://doi.org/10.1007/s10433-021-00609-7

Rakočević, N., & Gavrilov-Jerković, V. (2017). Uloga usamljenosti u relaciji zdravlja i subjektivnog blagostanja u starosti. *Primenjena Psihologija*, *10*(3), 355–373. https://doi.org/ 10.19090/pp.2017.3.355-373

Rowe, J. W., & Kahn, R. L. (1987). Human aging: usual and successful. *Science*, *237*(4811), 143–149. https://doi.org/10.1126/science.3299702

Ryff C. D. (2014). Psychological well-being revisited: advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics*, *83*(1), 10–28. https://doi.org/10.1159/000353263

Satarić, N., & Rašević, M. (2007). *Vaninstitucionalna zaštita starijih ljudi u Srbiji*. Snaga prijateljstva–AMITY.

Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics*, 6, 461–464.

Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: a practice-friendly meta-analysis. *Journal of Clinical Psychology*, *65*(5), 467–487. https://doi.org/10.1002/jclp.20593

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine*, *15*(3), 194–200. https://doi.org/10.1080/10705500802222972

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, *53*(1), 80-93. https://psycnet.apa.org/doi/10.1037/0022-0167.53.1.80

Steptoe, A., Deaton, A., & Stone, A. A. (2015). Subjective wellbeing, health, and ageing. *The Lancet*, *385*(9968), 640–648. https://doi.org/10.1016/S0140-6736(13)61489-0

Strawbridge, W. J., Deleger, S., Roberts, R. E., & Kaplan, G. A. (2002). Physical activity reduces the risk of subsequent depression for older adults. *American Journal of Epidemiology*, *156*(4), 328–334. https://doi.org/10.1093/aje/kwf047

Szilasiova, A., Macejová, Z., Kovarova, M., Nagyová, I., Trejbal, D., Pramuk, I., & Beresová, A. (1998). The Groningen Activity Restriction Scale (GARS) in the evaluation of severity of rheumatoid arthritis. *Vnitrni Lekarstvi*, *44*(4), 195–200.

Von Faber, M., Bootsma-van der Wiel, A., van Exel, E., Gussekloo, J., Lagaay, A. M., van Dongen, E., Knook, D. L., van der Geest, S., & Westendorp, R. G. (2001). Successful aging in the oldest old: Who can be characterized as successfully aged?. *Archives of Internal Medicine*, *161*(22), 2694–2700. https://doi.org/10.1001/archinte.161.22.2694

Young, Y., Frick, K. D., & Phelan, E. A. (2009). Can successful aging and chronic illness coexist in the same individual? A multidimensional concept of successful aging. *Journal of the American Medical Directors Association*, *10*(2), 87–92. https://doi.org/10.1016/j.jamda.2008.11.003

The importance of psychological resources for successful aging: Results from a latent profile analysis

Jelica Petrović[1], Milica Lazić[2]

[1] *Department of Psychology, Faculty of Philosophy, University of Novi Sad, Serbia*
[2] *Faculty of Philosophy, University of Novi Sad, Serbia*

ABSTRACT

Successful aging is a multidimensional phenomenon originating from the biomedical approach, in which the most relevant indicators include high levels of physical, psychological, and social functioning in later life. Within the psychosocial paradigm, emphasis is placed on subjective psychological experiences and personal psychological resources as dominant determinants of successful aging. The primary aim of this study was to identify latent profiles of older adults across the physical domain, and the domains of social and cognitive functioning, subjective well-being, and psychological adaptation. The secondary aim was to examine the contribution of individual indicators in differentiating the identified profiles. The sample consisted of 293 older adults (M = 75 years). Latent profile analysis (LPA) identified two distinct profiles. The successful aging profile comprised participants with high scores on life satisfaction, positive affect, subjective health, social network and connectedness, sense of meaning in life, and resilience, and low scores on negative affect, depression, health problems, and activity limitations. The second profile, the challenging aging profile, exhibited opposite characteristics on most measures. Indicators from the domains of subjective well-being and psychological adaptation made the greatest contribution to predicting membership in the successful aging profile, with life satisfaction, sense of meaning in life, and resilience showing positive associations, and negative affect and depression showing negative associations. These findings support contemporary psychosocial models that emphasize psychological resources as key mechanisms of successful aging and conceptualize it as a dynamic process of adaptation to the inevitable changes and losses associated with aging.

Keywords: successful aging, latent profile analysis, subjective well-being, psychological adaptation

Primenjena psihologija
Vol. 19, No. 2, pp. 213–240, 2026

Originalni naučni članak

Psihološki korelati motivacije za slavom kod srednjoškolaca

Nenad Lazarević[1]

[1] *Samostalni istraživač, Beograd, Srbija*

SAŽETAK

Cilj istraživanja bio je da ispita odnos između grandioznog i vulnerabilnog narcizma i motivacije za slavom kod adolescenata. Uzorak je obuhvatio 232 učenika iz tri srednje škole u Beogradu (52,6% muškog pola; prosečna starost 16,07 godina). Grandiozni i vulnerabilni narcizam mereni su srpskom adaptacijom Inventara patološkog narcizma (PNI), dok je motivacija za slavom ispitana prilagođenom srpskom verzijom skale motivacije za slavu. Korelacione analize pokazale su da su oba oblika narcizma pozitivno povezana sa motivacijom za slavom i njenim subdimenzijama. Multipla regresiona analiza pokazala je da je grandiozni narcizam jači prediktor ukupne motivacije za slavom, subdimenzije grandiozne fantazije, eksploatacija i uslovno samopoštovanje pozitivno je doprinosilo predikciji, dok je samoomalovažavanje doprinosilo negativno. Naši rezultati sugerišu da motivacija za slavom uključuje i grandiozne i vulnerabilne komponente narcizma i odražava psihološke procese povezane sa samopoštovanjem, emocionalnom regulacijom i težnjom za statusnom afirmacijom. Visoka međusobna povezanost dimenzija patološkog narcizma pruža empirijsku podršku savremenim teorijskim modelima koji ističu njihovu međuzavisnost i zajedničke psihološke osnove. Dobijeni nalazi predstavljaju osnovu za kreiranje preventivnih i savetodavnih intervencija usmerenih ka razvoju stabilnog identiteta i smanjenju oslonca na spoljašnje priznanje kod mladih, naročito u savremenom digitalnom kontekstu. Istaknuta su metodološka ograničenja i predloženi pravci budućih istraživanja.

Ključne reči: grandiozni narcizam, vulnerabilni narcizam, motivacija za slavom, adolescenti, PNI

UDK: 316.628:159.923-053.6
DOI: 10.19090/pp.v19i2.2632
Primljeno: 08.05.2025.
Primljena korekcija: 17.10.2025.
Prihvaćeno za štampu: 16.01.2026.

✉ Kontakt imejl adresa: nenad.lazarevic86@hotmail.com

Uvod

Motivacija za slavom predstavlja značajan fenomen savremene kulture, naročito u kontekstu globalizacije i razvoja digitalnih tehnologija, koje omogućavaju širokom broju pojedinaca pristup javnoj pažnji i popularnosti. Društvene mreže i digitalni mediji stvorili su uslove u kojima je slava postala cilj mnogih pojedinaca, naročito mladih (Giles & Maltby, 2006; Jayson, 2013; Kelmon, 2024; Rui & Stefanone, 2016; Uhls & Greenfield, 2012) Empirijska istraživanja i teorijska razmatranja motivacije za slavom intenzivirala su se početkom 21. veka (Maltby, 2010; Maltby et al., 2010; Young & Pinsky, 2006).

Motivacija za slavom

Dosadašnja istraživanja pokazuju da slava nije samo društveni konstrukt, već i nehomeostazni motiv sa implikacijama za identitet, vrednosti i mentalno zdravlje pojedinca (Benson & Adinlewa, 2020; Giles, 2009; Maltby et al., 2002; Maltby et al., 2003; Noser & Zeigler-Hill, 2014; Sabzban & Safaei, 2021). Istraživanja ovog i sličnih konstrukata su fragmentirana i fokusirana na pojedine aspekte, dok šira teorijska slika još uvek nije formirana (Ahadi & Shahidi, 2023).

Koncept motivacije za slavom u psihologiji prvi je empirijski operacionalizovao Moltbi (Maltby, 2010) kroz Skalu motivacije za slavom (engl. Fame Interest Scale – FIS). Skala je konstruisana primenom analize glavnih komponenti na početnom skupu od 90 ajtema proizašlih iz implicitnih teorija o slavi (Maltby, 2010; Maltby et al., 2010). Naknadno je potvrđena kroz dve studije, pri čemu je definisano šest dimenzija konstrukta – intenzitet, ranjivost, životni stil slavnih, nagon, percipirana podobnost i altruizam – uz zadovoljavajuću pouzdanost i validnost (Maltby, 2010). Autor se nije bavio razvojem teorijskog modela, već je konstrukt definisao kroz instrument i njegove dimenzije, što je pristup koji su preuzela i kasnija istraživanja (Noser & Zeigler-Hill, 2014; Southard & Zeigler-Hill, 2016).

Paralelno, Jang i Pinski (Young i Pinsky, 2006) ispitivali su ličnost poznatih osoba pomoću Inventara narcističke ličnosti (engl. Narcissistic Personality Inventory – NPI). Slavnu ličnost definisali su kao osobu čiji je ugled dovoljan da bude pozivana u televizijske emisije zabavnog karaktera. Rezultati su pokazali da slavne TV ličnosti postižu značajno više skorove na

NPI skali narcizma u poređenju sa studentima (Young & Pinsky, 2006). Pored toga, slavne ličnosti ženskog pola postižu značajno više skorove na skali narcizma od njihovih kolega muškog pola, a poznate ličnosti iz TV rijaliti šoua postižu najviše skorove, a potom ih prate komičari, glumci i muzičari (Young & Pinsky, 2006).

U pomenutom istraživanju (Young & Pinsky, 2006) nije pronađena veza između NPI skora i godina provedenih u industriji zabave. U skladu sa ovim nalazom su i nalazi ranijih studija sprovedenih u Srbiji, a koje su ispitivale da li su slavne ličnosti imale narcističke tendencije i pre nego što su stekle slavu. Istraživanja sprovedena na uzorku srednjoškolaca (Lazarević, 2011; Mihajlović, 2012) pokazala su da ispitanici koji postižu više skorove na NPI skali takođe postižu više skorove na skali motivacije za slavom, merenoj srpskim prevodom engleske verzije *Fame Interest Scale* (Lazarević, 2011). Ti nalazi su popunili prazninu iz istraživanja Janga i Pinskog (Young & Pinsky, 2006), čime je stvoren koherentan temelj za dalja istraživanja.

Novija domaća istraživanja na adolescentima dodatno proširuju ovaj okvir, povezujući motivaciju za slavom sa Mračnom trijadom (Lazarević, 2024). Rezultati ukazuju na pozitivnu korelaciju između izraženosti mračnih osobina ličnosti i motivacije za slavom. Nalazi su u skladu sa rezultatima istraživanja Sautarda i Zigler-Hila (Southard & Zeigler-Hill, 2016), u kojem je korišćena Moltbijeva skala motivacije za slavom. Još jedno domaće istraživanje, zasnovano na HEXACO modelu ličnosti (Lazarević, 2025a), pokazalo je da osobine poput niskog Poštenja/Skromnosti, visoke Ekstraverzije i Otvorenosti ka iskustvu, a donekle i Emocionalnosti, značajno doprinose objašnjenju varijanse u motivaciji za slavom adolescenata. Takođe, domaće istraživanje (Lazarević, 2025b) ukazalo je na snažnu pozitivnu vezu između motivacije za slavom i medijskog pritiska savremenih medija, poput društvenih mreža i digitalnih platformi, na srednjoškolce.

Grandiozni i vulnerabilni narcizam

Savremeni psihološki modeli primarno razlikuju dve dimenzije narcizma: grandiozni i vulnerabilni (Dickinson & Pincus, 2005; Freis, 2018; Maples et al., 2025; Wink, 1991). Istovremeno, sve prisutniji su modeli koji narcizam posmatraju kao trofaktorski konstrukt – vulnerabilni narcizam, grandiozno divljenje/agensnost i grandiozni rivalitet (Miller et al., 2021;

Rogoza et al., 2022). Inventar patološkog narcizma (engl. Pathological Narcissism Inventory – PNI; Pincus et al., 2009) je prva skala u kojoj su istovremeno operacionalizovani patološki aspekti grandioznog i vulnerabilnog narcizma.

Iako su pojedini autori (Krizan & Herlache, 2017; Miller et al., 2014) tvrdili da skala nedovoljno precizno obuhvata grandiozni narcizam, naknadne analize (Edershile et al., 2018) pokazale su da su ove primedbe bile neosnovane. Kada se kontroliše preklapanje između dimenzija, grandiozna skala daje obrasce povezanosti koji odgovaraju savremenim ekspertskim definicijama narcističke grandioznosti. Osim što je danas među dominantnim skalama za merenje grandioznog i vulnerabilnog narcizma, pre konstrukcije PNI skale većina instrumenata za merenje narcizma zanemarivala je vulnerabilne aspekte (Fossati et al., 2015).

U psihološkoj literaturi, modeli narcizma, posebno oni koji integrišu grandiozni i vulnerabilni narcizam, mogu biti korisni za razumevanje njihovog odnosa sa motivacijom za slavom.

Dinamički model samoregulatornog procesuiranja (Morf & Rhodewalt, 2001) objašnjava oscilaciju između grandioznog i vulnerabilnog narcizma kao rezultat unutrašnjih i spoljašnjih konflikata. Prema ovom modelu, narcizam predstavlja pokušaj stabilizacije krhkog samopouzdanja, dok slava može funkcionisati kao sredstvo samopotvrde ili samoregulacije.

Model spektra narcizma (Krizan & Herlache, 2017) naglašava da dimenzije grandioznog i vulnerabilnog narcizma nisu nezavisne, već da se preklapaju kroz samoživost, samocentričnost i osećanje privilegovanog prava. Oba pristupa omogućavaju dinamičko sagledavanje motivacije za slavom kod adolescenata.

Procesni model potrage za narcisoidnim statusom (Grapsas et al., 2020) naglašava način na koji grandiozni narcisi biraju društvene kontekste u kojima mogu dominirati i sticati pažnju, dok model ne obuhvata vulnerabilnost. Grandiozni narcisi prate znakove povezane sa statusom i na osnovu njih procenjuju da li da se upuste u samopromociju (put divljenja) ili ponižavanje drugih (put rivalstva). Pretpostavlja se da su adolescencija i rane odrasle godine ključne za razvoj ovih obrazaca.

Evolucioni model (Mahadevan, 2024) posmatra grandiozni i vulnerabilni narcizam kao strategije traženja statusa: grandiozni narcizam

funkcioniše kao „jastreb" strategija za promociju statusa, dok vulnerabilni predstavlja „golub" strategiju za zaštitu statusa. Grandiozni narcizam manifestuje ekspanzivno traženje statusa, dok vulnerabilni reflektuje očuvanje već postojećeg statusa.

Pomenuti modeli narcizma omogućavaju bolje razumevanje mehanizama koji pokreću grandiozne i vulnerabilne odlike narcizma, objašnjavajući njihove međusobne razlike i sličnosti, kao i kontradiktorne nalaze u dosadašnjoj literaturi (Krizan & Herlache, 2017; Maples et al., 2025; Maxwell et al., 2011; Miller et al., 2021).

Istraživački problem i ciljevi

U prethodno prikazanim istraživanjima, ali i u drugim studijama (Greenwood, 2013; Wallace & Baumeister, 2002), uključujući i one u kojima su korišćene druge skale za merenje motivacije za slavom (Greenwood et al., 2013), istraživački fokus bio je prvenstveno na odnosu slave i grandioznog narcizma. Odnos između vulnerabilnog narcizma i motivacije za slavom ostao je nedovoljno ispitan. Imajući u vidu da je narcizam, barem u domaćim istraživanjima, jedan od najpouzdanijih prediktora motivacije za slavom (Lazarević, 2024; Lazarević, 2025a), u ovom istraživanju istovremeno će biti ispitan odnos između grandioznog i vulnerabilnog narcizma i motivacije za slavom.

Grandiozni i vulnerabilni narcizam predstavljaju relativno distinktivne, ali koegzistirajuće dimenzije narcizma, koje se često naizmenično pojavljuju u interpersonalnim interakcijama (Edershile et al., 2019; Edershile & Wright, 2021; Pincus et al., 2009). Istovremena analiza njihove povezanosti sa motivacijom za slavom može doprineti boljem razumevanju ovog fenomena i popuniti prazninu u dosadašnjim istraživanjima.

U skladu sa prethodno iznetim teorijskim i empirijskim osnovama, cilj ovog istraživanja jeste da se ispita povezanost dimenzija grandioznog i vulnerabilnog narcizma, sa motivacijom za slavom kod adolescenata srednjoškolskog uzrasta. Istraživanje teži da utvrdi u kojoj meri navedene dimenzije narcizma mogu predvideti motivaciju za slavom kao i da ispita razlike u njihovom relativnom doprinosu u predikciji.

Na osnovu toga mogu se sažeti tri glavna cilja istraživanja:

1. Postoje pozitivne korelacije grandioznog i vulnerabilnog narcizma sa motivacijom za slavom i njenim subdimenzijama kod adolescenata srednjoškolskog uzrasta.
2. Grandiozni narcizam predstavlja jači prediktor motivacije za slavom u poređenju sa vulnerabilnim narcizmom kod adolescenata srednjoškolskog uzrasta.
3. Zbog heterogenijeg uzorka u odnosu na dosadašnja domaća istraživanja, ispituje se struktura skale motivacije za slavom kako bi se proverila stabilnost njenih komponenti na domaćem uzorku.

Metod

Uzorak i postupak

Prigodan uzorak obuhvatio je 232 učenika (52,6% muškog pola) iz tri beogradske srednje škole (tehnička škola, mešovita škola i gimnazija), prvog (30,7%), drugog (37,8%), trećeg (23,7%) i četvrtog razreda (7,9%), prosečne starosti 16,07 godina.

Istraživanje je sprovedeno u učionicama tokom redovne nastave i trajalo je po jedan školski čas za svako odeljenje. Učenici su popunjavali upitnike onlajn, putem Google Forms platforme. Istraživač je bio prisutan tokom čitavog procesa u svakoj školi i svakom odeljenju.

Istraživanje je sprovedeno u skladu sa Etičkim kodeksom Društva psihologa Srbije, uz saglasnost školskih uprava i obavešteni pristanak učesnika. Ispitanicima je zagarantovana anonimnost i omogućeno da u bilo kom trenutku odustanu od učešća.

Instrumenti

Motivacija za slavom

Motivacija za slavom ispitivana je pomoću prilagođene srpske verzije skale Fame Interest Scale (Maltby, 2010). Originalna skala razvijena je na osnovu implicitnih teorija o slavi i obuhvata više sadržinskih domena motivacije za slavom. Srpski prevod skale prvi put je primenjen u domaćim istraživanjima 2011. godine (Lazarević, 2011), a potom je korišćen u više studija u kojima je pokazao zadovoljavajuću pouzdanost. Korišćena verzija

sadrži 66 ajtema sa petostepenom skalom odgovora, od 1 (*uopšte se ne slažem*) do 5 (*u potpunosti se slažem*). U ovom istraživanju struktura skale proverena je analizom glavnih komponenti, po uzoru na eksplorativni postupak korišćen u razvoju originalne skale. Izdvojene komponente prikazane su u delu Rezultati, dok su pripadajući ajtemi navedeni u Prilogu B. Ukupna pouzdanost skale u ovom istraživanju bila je visoka (α = .91), a pouzdanost izdvojenih komponenti prikazana je u Tabeli 1.

U ovom istraživanju konstrukt motivacije za slavom operacionalizovan je prema modelu Moltbija (Maltby, 2010), korišćenjem analize glavnih komponenti (PCA) radi identifikacije psiholoških dimenzija. Iako PCA ne pretpostavlja latentne faktore, dobijene kompozitne dimenzije tretirane su kao indikatori domena motivacije za slavom. Formalna potvrda latentne strukture zahtevala bi CFA na domaćem uzorku, u skladu sa metodološkim okvirom koji je primenio Moltbi (Maltby, 2010). Ovde je prihvaćen višedimenzionalni pristup koji omogućava sagledavanje različitih motivacionih težnji ka slavi u odnosu na narcističke osobine.

Dimenzije patološkog narcizma

Grandiozni i vulnerabilni narcizam ispitivani su srpskom adaptacijom Inventara patološkog narcizma (engl. Pathological Narcissism Inventory — PNI; Dinić & Vujić, 2019; Pincus et al., 2009). Skala sadrži 52 ajtema sa odgovorima sa odgovorima na Likertovoj skali od 0 (*uopšte se ne odnosi na mene*) do 5 (*u potpunosti se odnosi na mene*). U okviru PNI modela grandiozni narcizam obuhvata tendencije povezane sa samovažnošću, potrebom za divljenjem, grandioznim fantazijama, eksploatacijom i samoosnaživanjem kroz samopožrtvovanje. Vulnerabilni narcizam odnosi se na krhko i uslovljeno samopoštovanje, osetljivost na odbacivanje i kritiku, skrivanje slabosti, samoomalovažavanje i narcistički bes. Ukupna pouzdanost skale u ovom istraživanju bila je visoka (α = .93), dok su pouzdanosti dimenzija i subdimenzija prikazane u Prilogu C. Koliko je autoru poznato, ovo je jedna od prvih primena srpske adaptacije PNI skale na domaćem adolescentnom uzorku. Iako je PNI inicijalno razvijen za odraslu populaciju, prethodna istraživanja (Allroggen et al., 2018; Chrétien et al., 2018; Mechanic & Barry, 2014) ukazuju na njegovu primenljivost i na uzorcima adolescenata, što pruža osnovu za njegovu upotrebu u ovom istraživanju. PNI je primenjen na

adolescentima uz preliminarno izračunatu korektnu pouzdanost, ne kao puna validacija za taj uzrast.

Obrada podataka

Svi prikupljeni podaci obrađeni su u okviru statističkog programskog paketa IBM SPSS Statistics 25.0 (IBM Corp., 2017). Korelacije su ispitivane Pirsonovim koeficijentom korelacije. Relativna snaga prediktora ispitana je primenom multiple regresione analize, sa ciljem utvrđivanja doprinosa grandioznog i vulnerabilnog narcizma i njihovih subdimenzija u predikciji motivacije za slavom. Analiza glavnih komponenti korišćena je za proveru dosad utvrđenih dimenzija skale motivacije za slavom, na heterogenijem uzorku u odnosu na dosadašnja domaća istraživanja.

Rezultati

Primenom analize glavnih komponenata, uz *Promax* rotaciju, izdvojeno je osam komponenti skale motivacije za slavom (Tabela 1). Izdvojene komponente zajedno objašnjavaju 58,32 % varijanse početnog skupa varijabli. Rezultati KMO i Bartletovog testa, prikazani u Prilogu A, ukazuju na adekvatnost podataka za redukciju dimenzionalnosti i primenu analize glavnih komponenti.

Tabela 1

Analiza glavnih komponenata: Skala motivacije za slavom

Komponente	Karakteristični koren	% objašnjene varijanse	Kumulativni % objašnjene varijanse	Karakteristični koren nakon rotacije	α
1	22.86	34.12	34.12	8.83	.89
2	3.45	5.14	39.27	6.42	.90
3	3.09	4.61	43.89	5.36	.88
4	2.72	4.07	47.96	4.69	.87
5	2.09	3.13	51.09	4.01	.85
6	1.99	2.97	54.06	3.68	.71
7	1.35	2.24	56.30	2.57	.71
8	1.35	2.01	58.32	2.50	.83

Sadržaj izdvojenih komponenti u velikoj meri se preklapa sa domenima opisanim u radu Moltbija (Maltby, 2010), kao i sa komponentama dobijenim u prethodnim domaćim istraživanjima. Komponente su, prema sadržaju ajtema i relativnom udelu objašnjene varijanse, imenovane na sledeći način: 1. Prioritet, 2. Vulnerabilnost, 3. Altruizam, 4. Predispozicija, 5. Životni stil slavnih, 6. Promena ličnih vrednosti, 7. Životni standard i 8. Samoprecenjivanje (Prilog B). Prvih pet komponenti sadržinski su najbliže domenima opisanim u originalnoj konceptualizaciji motivacije za slavom, dok su poslednje tri komponente prethodno uočene i u domaćim istraživanjima. Imajući u vidu eksplorativni karakter analize, izdvojene komponente treba tumačiti kao empirijski dobijene kompozitne dimenzije motivacije za slavom, dok formalna provera latentne strukture skale ostaje zadatak budućih istraživanja.

U Prilogu C su prikazane interkorelacije prediktorskih varijabli koje će biti korišćene pri utvrđivanju odnosa sa kompozitnom varijablom motivacije za slavom (ukupnim postignućem na skali motivacije za slavom), kao i dimenzijama motivacije za slavom.

Sve interkorelacije među prediktorskim varijablama statistički su značajne i umereno do visoko pozitivne. Korelacija grandioznog i vulnerabilnog narcizma iznosi r = .71, što ukazuje na veliko preklapanje varijanse između ta dva aspekta narcizma na uzorku adolescenata. Nalazi iz Priloga C potvrđuju stavove autora skale PNI i njihova objašnjenja narcizma u kontekstu savremenih rasprava o prirodi narcizma u psihologiji. Takođe, visoka korelacija ukazuje i na mogućnost multikolinearnosti, koja je proverena pomoću pokazatelja tolerancije i VIF vrednosti. Rezultati ukazuju na to da ne postoje ozbiljne indikacije multikolinearnosti (Prilog D).

Kronbahovi alfa koeficijenti, prikazani dijagonalno u Prilogu C, ukazuju na visok nivo unutrašnje konzistentnosti svih dimenzija i subdimenzija PNI skale u ovom uzorku adolescenata, što pruža preliminarnu podršku njenoj pouzdanosti i primenljivosti u domaćoj adolescentnoj populaciji.

Nalazi prikazani u Tabeli 2 ukazuju na statistički značajne i pozitivne korelacije, koje se kreću od umerenih do visokih vrednosti. Uočavaju se razlike u obrascima korelacija grandioznog i vulnerabilnog narcizma, pri čemu sve korelacije ukazuju na moguću zajedničku latentnu karakteristiku narcizma u odnosu na motivaciju za slavom.

Tabela 2

Pirsonove korelacije grandioznog i vulnerabilnog narcizma sa ukupnom motivacijom za slavom i njenim subdimenzijama

	1	2	3	4	5	6	7	8	9
Grandiozni	.50***	.35***	.39***	.41***	.43***	.44***	.28***	.36***	.43***
Vulnerabilni	.42***	.27***	.43***	.24***	.25***	.34***	.28***	.43***	.19**

Napomena. 1 – Motivacija za slavom; 2 – Prioritet; 3 – Vulnerabilnost; 4 – Altruizam; 5 – Predispozicija; 6 – Životni stil slavnih; 7 – Promena ličnih vrednosti; 8 – Životni standard; 9 – Samoprecenjivanje.

**$p < .01$. ***$p < .001$.

U statistički značajnom prediktivnom modelu ($F(2, 229) = 49.97$; $R^2 = .28$; $p < .001$), grandiozni narcizam se pokazao kao jači prediktor motivacije za slavom u odnosu na vulnerabilni narcizam (Tabela 3). Interval pouzdanosti za vulnerabilni narcizam obuhvata negativnu donju granicu. Model objašnjava 28% varijanse kompozitne varijable motivacije za slavom.

Tabela 3

Grandiozni i vulnerabilni narcizam kao prediktori motivacije za slavom

Prediktor	B	SE	β	*t*	*p*	95% CI
Grandiozni narcizam	1.70	0.32	.47	5.34	.001	[1.04, 2.35]
Vulnerabilni narcizam	0.27	0.18	.12	1.53	.113	[-0.07, 0.61]

Napomena. B = nestandardizovani regresioni koeficijenti; SE = standardna greška; β = standardizovani regresioni koeficijenti. Kriterijumska varijabla: ukupna motivacija za slavom.

U statistički značajnom prediktivnom modelu ($F(7, 224) = 15.54$; $R^2 = .33$; $p < .001$) analiziran je doprinos svake subdimenzije grandioznog i vulnerabilnog narcizma u predikciji motivacije za slavom. Specifične subdimenzije grandioznog i vulnerabilnog narcizma objašnjavaju 33% varijanse motivacije za slavom adolescenata srednjoškolskog uzrasta, što je više u odnosu na predikciju zasnovanu na ukupnim dimenzijama grandioznog

i vulnerabilnog narcizma. Subdimenzije narcizma koje značajno doprinose predikciji motivacije za slavom su Grandiozne fantazije, Uslovno samopoštovanje, Eksploatacija, kao i, sa negativnim predznakom, Samoomalovažavanje (Tabela 4).

Tabela 4

Subdimenzije grandioznog i vulnerabilnog narcizma kao prediktori motivacije za slavom

Prediktor	B	SE	β	*t*	*p*	95% CI
Uslovno samopoštovanje	1.18	0.40	.25	2.97	.001	[0.40, 1.95]
Eksploatacija	1.67	0.77	.15	2.18	.030	[0.16, 3.17]
Samožrtvujuće samoosnaživanje	0.24	0.84	.02	0.29	.774	[-1.37, 1.85]
Skrivanje slabosti	-0.19	0.67	-.02	-0.28	.778	[-1.48, 1.11]
Grandiozne fantazije	2.96	0.63	.37	4.71	.001	[1.72, 4.20]
Samoomalovažavanje	-1.27	0.64	-.16	-2.02	.044	[-2.51, -.032]
Narcistički bes	0.43	0.58	.05	0.73	.732	[-0.72, 1.57]

Napomena. B = nestandardizovani regresioni koeficijenti; SE = standardna greška; β = standardizovani regresioni koeficijenti. Kriterijumska varijabla: ukupna motivacija za slavom.

Diskusija

Glavni cilj istraživanja bio je ispitivanje povezanosti grandioznog i vulnerabilnog narcizma sa motivacijom za slavom kod srednjoškolaca, kao i utvrđivanje doprinosa specifičnih subdimenzija ovih oblika narcizma u predikciji motivacije za slavom.

U skladu sa prvim ciljem istraživanja, utvrđene su pozitivne i statistički značajne korelacije između grandioznog i vulnerabilnog narcizma i ukupne motivacije za slavom, kao i između ovih oblika narcizma i većine

subdimenzija motivacije za slavom. Nalazi su u skladu sa prethodnim istraživanjima (Lazarević, 2011; Mihajlović, 2012; Young & Pinsky, 2006), a dodatno se ističe značaj vulnerabilnog narcizma, koji je do sada bio znatno manje proučavan u kontekstu motivacije za slavom.

Nalazi pokazuju da adolescenti sa izraženom motivacijom za slavom često ispoljavaju grandiozne i/ili vulnerabilne narcističke odlike. Grandiozni narcizam najjače korelira sa subdimenzijama Predispozicija **i** Samoprecenjivanje, dok vulnerabilni narcizam, pokazuje najvišu povezanost sa subdimenzijom Vulnerabilnost. Ovi nalazi ukazuju na postojanje različitih puteva ka motivaciji za slavom: neki adolescenti mogu te težnje razvijati kao proširenu samopercepciju sopstvene vrednosti (ego-sintono), dok kod drugih slava može predstavljati sredstvo za kompenzaciju osećanja neadekvatnosti.

Visoka korelacija između grandioznog i vulnerabilnog narcizma dodatno potvrđuje nalaze savremenih teorijskih modela (Krizan & Herlache, 2017; Maples et al., 2025; Morf & Rhodewalt, 2001; Pincus et al., 2009), prema kojima ova dva oblika narcizma dele zajedničku osnovu, često koegzistiraju ili predstavljaju smenjujuća stanja kod iste osobe. Ovaj uvid dodatno dobija na značaju kada se uzme u obzir da među dimenzijama narcizma nema značajne multikolinearnosti.

Na osnovu dobijenih rezultata može se pretpostaviti postojanje latentnog faktora — afektivno-socijalne nesigurnosti. Ovaj faktor objedinjuje potrebu za spoljašnjom afirmacijom i osetljivost na društvenu evaluaciju, što sugeriše da i grandiozne i vulnerabilne manifestacije narcizma mogu funkcionisati kao strategije emocionalne regulacije, čija (dis)funkcionalnost zavisi od konteksta i intenziteta izraženosti. Iako se ovakvo objašnjenje ne može do kraja i direktno potvrditi u okviru ovog istraživanja, otvara se prostor za buduća koja to mogu proveriti.

Analiza prediktivne snage pokazala je da grandiozni narcizam predstavlja snažniji prediktor motivacije za slavom u odnosu na vulnerabilni narcizam, što je u skladu sa drugim ciljem istraživanja. Nalaz je u skladu sa teorijskim modelima koji naglašavaju aktivno traganje za dominacijom i statusom kao centralnu osobinu grandioznog narcizma (Grapsas et al., 2020; Mahadevan, 2024).

Vulnerabilni narcizam, iako slabiji prediktor u odnosu na grandiozni, pokazuje nezavisnu i statistički značajnu pozitivnu povezanost sa

motivacijom za slavom. Ovo sugeriše da potreba za slavom kod vulnerabilnih adolescenata ima pretežno defanzivan karakter, služeći kao strategija očuvanja statusa ili obnove narušenog samopoštovanja (Freis, 2018; Mahadevan, 2024).

Određene subdimenzije grandioznog i vulnerabilnog narcizma pokazale su značajan doprinos u predikciji motivacije za slavom. Grandiozne fantazije su se istakle kao najjači pozitivni prediktor, potvrđujući samoregulatornu ulogu unutrašnjih grandioznih reprezentacija u oblikovanju težnje ka slavi (Finch & Hooley, 2023; Morf & Rhodewalt, 2001). Veća izraženost grandioznih fantazija povezana je sa većom verovatnoćom da adolescent razvije intenzivnu motivaciju za slavom kao sredstvo postizanja osećaja ličnog značaja. Eksploatacija, definisana kao instrumentalno korišćenje drugih za ostvarenje ličnih ciljeva, takođe se pokazala značajnim prediktorom, ukazujući na strateško korišćenje društvenih odnosa radi postizanja vidljivosti i priznanja (Grapsas et al., 2020).

Pozitivna uloga uslovnog samopoštovanja sugeriše da adolescenti čije samopouzdanje zavisi od spoljašnje validacije pokazuju izraženiju motivaciju za slavom. Nalaz je u skladu sa stranim nalazom o povezanosti nestabilnog samopoštovanja i motivacije za slavom (Noser & Zeigler-Hill, 2014). S druge strane, negativna povezanost samoomalovažavanja sa motivacijom za slavom ukazuje da adolescenti sa izraženim osećanjem neadekvatnosti izbegavaju javnu afirmaciju. Ovi nalazi doprinose razumevanju da motivacija za slavom kod adolescenata odražava suptilnu dinamiku između potrebe za potvrdom, unutrašnjih nesigurnosti i strategija traženja statusa (Morf & Rhodewalt, 2001; Mahadevan, 2024). Iako je u skladu sa teorijskim modelima narcizma, ovo takođe ukazuje da motivacija za slavom kod adolescenata nije jednostavna funkcija izraženog narcizma.

Nalazi ukazuju i na širu ulogu procesa emocionalne regulacije i statusnog samopotvrđivanja u formiranju motivacije za slavom. To ukazuje na potrebu da se razmotre i drugi psihološki i socijalni faktori – poput razvojnih zadataka adolescencije, vršnjačkih uticaja ili kulturnih vrednosti – koji mogu doprineti oblikovanju težnje ka javnoj afirmaciji. Činjenica da značajan deo varijanse ostaje neobjašnjen dodatno potvrđuje da motivacija za slavom kod adolescenata prevazilazi narcističke obrasce i obuhvata širi spektar psiholoških i socijalnih faktora (Ahadi & Shahidi, 2023; Maltby, 2010).

Dobijeni nalazi su od praktičnog značaja za savetodavni rad sa adolescentima, bilo u školskom ili kliničkom savetodavnom okruženju. Intervencije koje jačaju stabilnost samopouzdanja, promovišu intrinzične vrednosti i smanjuju preterani fokus na eksterno priznanje mogu doprineti zdravijem psihološkom razvoju mladih. Ovo je posebno važno u kontekstu savremene kulture, u kojoj slava postaje sve poželjniji i dostupniji cilj.

Dodatni izazov predstavlja digitalni kontekst, u kojem slava postaje sve prisutniji model ponašanja i vrednosti (Kelmon, 2024; Rui & Stefanone, 2016). U tom smislu, edukativni i savetodavni programi trebalo bi da promovišu autentičnost i zdravu samopercepciju kod adolescenata. Ovo se može postići kroz programe uvođenje sadržaja koji razvijaju medijsku pismenost, socijalno-emocionalne veštine i refleksiju o vrednostima i standardima uspeha.

U skladu sa trećim ciljem, analiza glavnih komponenti izdvojila je dimenzije koje su prethodno identifikovane i na manje heterogenim uzorcima u dosadašnjim domaćim istraživanjima. Dobijeni nalazi pokazuju sličnu strukturu u odnosu na prethodna domaća istraživanja (Bertović, 2012; Lazarević, 2024; Mihajlović, 2012; Vujović, 2011), što sugeriše stabilnost konstrukta motivacije za slavom u domaćem kontekstu.

Iako istraživanje doprinosi boljem razumevanju odnosa između narcizma i motivacije za slavom kod adolescenata, postoji nekoliko ograničenja. Uzorak je bio ograničen na srednjoškolce iz tri beogradske škole, što može ograničiti generalizabilnost rezultata. Pored toga, uzorak nije bio ujednačen po uzrastu, što otežava analizu razvojnih razlika. Buduća istraživanja trebalo bi da uključe veće i geografski raznovrsnije uzorke, kao i da istraže promene u motivaciji za slavom u zavisnosti od razvojnih faza adolescencije, obuhvatajući uzrast od 13 do 19 godina. Na većem uzorku bilo bi korisno ispitati polne razlike, kao i potencijalnu moderirajuću ulogu pola u odnosu na ispitivane varijable. Formalna provera strukture FIS skale pomoću CFA na većim uzorcima predstavlja zadatak za buduća istraživanja.

Zaključak

Rezultati ovog istraživanja potvrđuju da i grandiozni i vulnerabilni aspekti narcizma predstavljaju značajne prediktore motivacije za slavom kod adolescenata. Iako grandiozni narcizam pokazuje veću prediktivnu snagu,

vulnerabilni narcizam takođe doprinosi objašnjenju motivacije za slavom, naročito kroz subdimenzije poput uslovnog samopoštovanja. Nalazi podržavaju pretpostavku da motivacija ka slavi može funkcionisati kao strategija samopotvrđivanja, kako kod otvoreno samopromotivnih, tako i kod emocionalno osetljivih adolescenata. Ovo ima važne implikacije za dizajniranje intervencija usmerenih na jačanje stabilnog samopouzdanja i identiteta i otpornosti na spoljašnje vrednovanje kod adolescenata.

Zahvalnica

Zahvaljujem direktorima i stručnim saradnicima Tehničke škole Železnik, Srednje škole Barajevo i XIII beogradske gimnazije na pomoći u realizaciji istraživanja. Takođe, realizacija ovog rada ne bi bila moguća bez podrške prof. dr Veljka Đurića. Koristim ovu priliku da mu zahvalim na stručnom vođstvu, savetima i podsticaju. Njegova uloga pokretača teme motivacije za slavom u našem regionu bila je temelj i inspiracija za ovaj rad, kao i za njegovo uvođenje u domaći psihološki diskurs.

Sukob interesa

Nemam sukoba interesa za prijavljivanje.

Izjava o dostupnosti podataka

Podaci su dostupni na lični zahtev kontaktiranjem autora.

Reference

Ahadi, M., & Shahidi, S. (2023). Putting fame and celebrity in a psychosocial framework: A scientific analysis. *Changing Societies & Personalities*, *7*(4), 140–157. https://doi.org/10.15826/csp.2023.7.4.255

Allroggen, M., Rehmann, P., Schürch, E., Morf, C. C., & Kölch, M. (2018). The relationship between narcissism and personality traits of the Five-Factor-Model in adolescents and young adults: A comparative study. *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie*, *46*(6), 516–522. https://doi.org/10.1024/1422-4917/a000588

Benson, A. A., & Adinlewa, T. (2020). Influence of celebrities on young people's aspiration for higher learning and desire for fame. *GVU Journal of Communication Studies*, *2*, 44–55. https://oa.gloriousvisionuniversityjournals.ng/index.php/communicationstudies/article/view/47

Bertović, Lj. (2012). *Kognitivne sposobnosti, narcizam i želja za slavom* [Cognitive abilities, narcissism and the desire for fame] [Unpublished master's thesis]). Fakultet za pravne i poslovne studije „Dr Lazar Vrkatić“, Novi Sad.

Chrétien, S., Ensink, K., Descôteaux, J., & Normandin, L. (2018). Measuring grandiose and vulnerable narcissism in adolescents. *Mediterranean Journal of Clinical Psychology*, *6*(2), 1–23. https://doi.org/10.6092/2282-1619/2018.6.1848

Dickinson, K. A., & Pincus, A. L. (2005). Interpersonal analysis of grandiose and vulnerable narcissism. *Journal of Personality Disorders*, *17*(3), 188–207. https://doi.org/10.1521/pedi.17.3.188.22146

Dinić, B. M., & Vujić, A. (2019). The Pathological Narcissism Inventory: Measurement invariance across Serbian and USA samples and further validation. *European Journal of Psychological Assessment*, *36*(5), 670–680. https://doi.org/10.1027/1015-5759/a000537

Edershile, E. A., Simms, L. J., & Wright, A. G. C. (2018). A multivariate analysis of the Pathological Narcissism Inventory's nomological network. *Assessment*, *26*(4), 619–629. https://doi.org/10.1177/1073191118766412

Edershile, E. A., Woods, W. C., Sharpe, B. M., Crowe, M. L., Miller, J. D., & Wright, A. G. C. (2019). A day in the life of Narcissus: Measuring narcissistic grandiosity and vulnerability in daily life. *Psychological Assessment*, *31*(7), 913–924. https://doi.org/10.1037/pas0000717

Edershile, E. A., & Wright, A. G. C. (2021). Fluctuations in grandiose and vulnerable narcissistic states: A momentary perspective. *Journal of Personality and Social Psychology*, *120*(5), 1386–1414. https://doi.org/10.1037/pspp0000370

Finch, E. F., & Hooley, J. M. (2023). Functional fantasies: The regulatory role of grandiose fantasizing in pathological narcissism. *Frontiers in Psychiatry*, *14*, Article 1274545. https://doi.org/10.3389/fpsyt.2023.1274545

Fossati, A., Feeney, J. A., Carretta, I., Grazioli, F., Borroni, S., & Somma, A. (2015). The structure of pathological narcissism and its relationship with adult attachment styles: A study of Italian nonclinical and clinical adult participants. *Psychoanalytic Psychology*, *32*(3), 403–431. https://doi.org/10.1037/a0037175

Freis, S. D. (2018). The distinctiveness model of the narcissistic subtypes (DMNS): What binds and differentiates grandiose and vulnerable narcissism. In A. D. Hermann, A. B. Brunell, & J. D. Foster (Eds.), *Handbook of trait*

narcissism: Key advances, research methods, and controversies (pp. 37–46). Springer. https://doi.org/10.1007/978-3-319-92171-6_4

Giles, D. C. (2009). Parasocial interaction: A review of the literature and a model for future research. *Media Psychology*, *4*(3), 279–305. https://doi.org/10.1207/S1532785XMEP0403_04

Giles, D., & Maltby, J. (2006). Praying at the altar of the stars. *The Psychologist*, *19*(2), 82–85.

Grapsas, S., Brummelman, E., Back, M. D., & Denissen, J. J. A. (2020). The "why" and "how" of narcissism: A process model of narcissistic status pursuit. *Perspectives on Psychological Science*, *15*(1), 150–172. https://doi.org/10.1177/1745691619873350

Greenwood, D. N. (2013). Fame, Facebook, and Twitter: How attitudes about fame predict frequency and nature of social media use. *Psychology of Popular Media Culture*, *2*(4), 222–236. https://doi.org/10.1037/ppm0000013

Greenwood, D., Long, C., & Dal Cin, S. (2013). Fame and the social self: The need to belong, narcissism, and relatedness predict the appeal of fame. *Personality and Individual Differences, 55*(5), 490–495. https://doi.org/10.1016/j.paid.2013.04.020

IBM Corp. (2017). *IBM SPSS Statistics for Windows* (Version 25.0) [Computer software]. https://www.ibm.com/analytics/spss-statistics-software

Jayson, S. (2013, October 28). *Survey: Young people who use social media seek fame*. *USA Today*. https://www.usatoday.com/story/news/nation/2013/04/18/social-media-tweens-fame/2091199/

Kelmon, J. (2024, June 21). *How social media fuels kids' desire for fame*. GreatSchools. https://www.greatschools.org/gk/parenting/parenting-tips/social-media-fame-seeker/

Krizan, Z., & Herlache, A. D. (2017). The narcissism spectrum model: A synthetic view of narcissistic personality. *Personality and Social Psychology Review*, *21*(1), 3–26. https://doi.org/10.1177/1088868316685018

Lazarević, N. (2011). *Žudnja za slavom i narcizam* [Desire for fame and narcissism] [Unpublished bachelor's thesis]. Fakultet za pravne i poslovne studije „Dr Lazar Vrkatić“, Novi Sad.

Lazarević, N. (2024, maj). *Odnos mračne trijade, poštenja, izloženosti medijskom sadržaju i motivacije za slavom kod mladih srednjoškolskog uzrasta* [The relationship between the dark triad, honesty, exposure to media content,

and motivation for fame among high school youth] [Conference presentation]. Congress of Serbian Psychologists 2024. Sokobanja, Serbia

Lazarević, N. (2025a). *Odnos mračne trijade, osobina ličnosti prema HEXACO modelu i motivacije za slavom kod srednjoškolaca: Replikacija i proširenje modela* [The relationship between the dark triad, personality traits according to the HEXACO model, and motivation for fame in high school students: Replication and extension of the model] [Conference presentation]. Congress of Serbian Psychologists 2025. Divčibare, Serbia

Lazarević, N. (2025b). *Odnos izloženosti sadržaju i uticaju savremenih medija sa motivacijom za slavom kod mladih srednjoškolskog uzrasta* [The relationship between exposure to content and the influence of modern media with the motivation for fame among high school youth] [Conference presentation]. Congress of Serbian Psychologists 2025. Divčibare, Serbia

Mahadevan, N. (2024). Conceptualizing grandiose and vulnerable narcissism as alternative status-seeking strategies: Insights from hierometer theory. *Social and Personality Psychology Compass*, *18*(6), Article e12977. https://doi.org/10.1111/spc3.12977

Maltby, J. (2010). An interest in fame: Confirming the measurement and empirical conceptualization of fame interest. *British Journal of Psychology*, *101*(3), 411–432. https://doi.org/10.1348/000712609X466568

Maltby, J., Day, L., Giles, D., Gillett, R., Quick, M., Langcaster-James, H., & Linley, P. A. (2010). Implicit theories of a desire for fame. *British Journal of Psychology*, *99*(2), 279–292. https://doi.org/10.1348/000712607X226935

Maltby, J., Houran, J., & McCutcheon, L. E. (2003). A clinical interpretation of attitudes and behaviors associated with celebrity worship. *Journal of Nervous and Mental Disease*, *191*(1), 25–29. https://doi.org/10.1097/00005053-200301000-00005

Maltby, J., Houran, J., Lange, R., Ashe, D., & McCutcheon, L. E. (2002). Thou shalt worship no other gods—unless they are celebrities: The relationship between celebrity worship and religious orientation. *Personality and Individual Differences*, *32*(7), 1157–1172. https://doi.org/10.1016/S0191-8869(01)00059-9

Maples, S. T., Neumann, C. S., & Kaufman, S. B. (2025). Profiling narcissism: Evidence for grandiose-vulnerable and other subtypes. *Journal of Research in Personality*, *115*, Article 104585. https://doi.org/10.1016/j.jrp.2025.104585

Maxwell, K., Donnellan, M. B., Hopwood, C. J., & Ackerman, R. A. (2011). The two faces of Narcissus? An empirical comparison of the Narcissistic Personality Inventory and the Pathological Narcissism Inventory. *Personality and Individual Differences*, *50*(5), 577–582. https://doi.org/10.1016/j.paid.2010.11.031

Mechanic, K. L., & Barry, C. T. (2014). Adolescent grandiose and vulnerable narcissism: Associations with perceived parenting practices. *Journal of Child and Family Studies*, *24*(5), 1510–1518. https://doi.org/10.1007/s10826-014-9956-x

Mihajlović, D. (2012). *Žudnja za slavom i narcizam kod sportista* [Desire for fame and narcissism among athletes] [Unpublished master's thesis]. Fakultet za pravne i poslovne studije „Dr Lazar Vrkatić“, Novi Sad.

Miller, J. D., McCain, J., Lynam, D. R., Few, L. R., Gentile, B., MacKillop, J., & Campbell, W. K. (2014). A comparison of the criterion validity of popular measures of narcissism and narcissistic personality disorder via the use of expert ratings. *Psychological Assessment*, *26*(3), 958–969. https://doi.org/10.1037/a0036613

Miller, J. D., Lynam, D. R., Hyatt, C. S., & Campbell, W. K. (2021). Narcissism today: What we know and what we need to learn. *Current Directions in Psychological Science*, *30*(6), 519–525. https://doi.org/10.1177/09637214211044109

Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, *12*(4), 177-196. https://doi.org/10.1207/S15327965PLI1204_1

Noser, A., & Zeigler-Hill, V. (2014). Self-esteem instability and the desire for fame. *Self and Identity*, *13*(6), 701–713. https://doi.org/10.1080/15298868.2014.927394

Pincus, A. L., Ansell, E. B., Pimentel, C. A., Cain, N. M., Wright, A. G. C., & Levy, K. N. (2009). Initial construction and validation of the Pathological Narcissism Inventory. *Psychological Assessment*, *21*(3), 365–379. https://doi.org/10.1037/a0016530

Rogoza, R., Crowe, M. L., Jamison, L., Cieciuch, J., & Strus, W. (2022). Support for the three-factor model of narcissism and its personality underpinnings through the lens of network psychometrics. *Psychological Assessment*, *34*(9), 880–890. https://doi.org/10.1037/pas0001149

Rui, J. R., & Stefanone, M. (2016). The desire for fame: An extension of uses and gratifications theory. *Communication Studies*, *67*(5), 535–555. https://doi.org/10.1080/10510974.2016.1156006

Sabzban, M., & Safaei, I. (2021). Associating psychological symptoms and worshipping national Taekwondo champions as celebrities: The mediating role of maladaptive daydreaming and desire for fame. *Sport Psychology Studies*, *10*(37), 179–206. https://doi.org/10.22089/spsyj.2021.9537.2051

Southard, A. C., & Zeigler-Hill, V. (2016). The dark triad traits and fame interest: Do dark personalities desire stardom? *Current Psychology*, *35*(2), 255–267. https://doi.org/10.1007/s12144-016-9416-4

Uhls, Y. T., & Greenfield, P. M. (2012). The value of fame: Preadolescent perceptions of popular media and their relationship to future aspirations. *Developmental Psychology*, *48*(2), 315–326. https://doi.org/10.1037/a0026369

Vujović, M. (2011). *Povezanost žudnje za slavom i samopouzdanja kod dece osnovnoškolskog uzrasta* [The connection between the desire for fame and self-esteem in primary school children] [Unpublished bachelor's thesis]. Fakultet za pravne i poslovne studije, Novi Sad.

Wallace, H. M., & Baumeister, R. F. (2002). The performance of narcissists rises and falls with perceived opportunity for glory. *Journal of Personality and Social Psychology*, *82*(5), 819–834. https://doi.org/10.1037/0022-3514.82.5.819

Wink, P. (1991). Two faces of narcissism. *Journal of Personality and Social Psychology*, *61*(4), 590–597. https://doi.org/10.1037/0022-3514.61.4.590

Young, S. M., & Pinsky, D. (2006). Narcissism and celebrity. *Journal of Research in Personality*, *40*(5), 463–471. https://doi.org/10.1016/j.jrp.2006.05.005

Psychological Correlates of Fame Motivation in High School Students

Nenad Lazarević[1]

[1]*Independent Researcher, Belgrade, Serbia*

ABSTRACT

The aim of this study was to examine the relationship between grandiose and vulnerable narcissism and the motivation for fame among adolescents, building upon previous research that primarily focused on grandiose narcissism. The sample consisted of 232 high school students from three schools in Belgrade (52.6% male; *M* = 16.07 years). Grandiose and vulnerable narcissism were measured using the Serbian adaptation of the *Pathological Narcissism Inventory* (PNI), while the motivation for fame was assessed using the Serbian version of the *Fame Interest Scale* (FIS). Correlational analyses revealed that both forms of narcissism were positively associated with motivation for fame and its subdimensions. Multiple regression analysis indicated that grandiose narcissism was a stronger predictor of overall motivation for fame, while the subdimensions of grandiose fantasies, exploitation, and contingent self-esteem contributed positively, and self-devaluation negatively, to the prediction. The findings suggest that motivation for fame involves both grandiose and vulnerable components of narcissism and reflects psychological processes related to self-esteem, emotional regulation, and the pursuit of social status affirmation. The strong intercorrelation between dimensions of pathological narcissism provides empirical support for contemporary theoretical models emphasizing their interdependence and shared psychological foundations. These findings offer a basis for the development of preventive and counseling interventions aimed at fostering a stable identity and reducing reliance on external validation among youth, particularly in the modern digital context. Methodological limitations are highlighted, and directions for future research are proposed.

Keywords: grandiose narcissism, vulnerable narcissism, motivation for fame, adolescents, PNI

Prilozi

Prilog A

Rezultati KMO i Bartletovog testa sferičnosti za Skalu motivacije za slavom

Test	Vrednost
Kaiser-Meyer-Olkin (KMO)	.92
Bartlettov test sferičnosti $\chi^2(2211)$	10458.57***

***$p < .001$.

Prilog B

Rotirana matrica za osam izdvojenih komponenti Skale motivacije za slavom

Stavka		Zasićenja	Komponenta
1.	Učinio/la bih sve da postanem slavan/a	.70	Prioritet
2.	Da bih postao slavan spreman/na sam da uradim stvari koje većina drugih ljudi ne bi učinila	.62	Prioritet
3.	Oduvek sam želeo da postanem slavan	.65	Prioritet
4.	Očajno želim da postanem slavan	.61	Prioritet
5.	Biti slavan je ono što je stvarno važno u životu	.55	Prioritet
6.	Više od svega želim da budem slavan	.71	Prioritet
7.	Moja sudbina je da postanem slavan	.68	Prioritet
8.	Isključivo mislim o tome kako ću postati slavan	.73	Prioritet
10.	Jednog dana moj talenat će biti otkriven i ja ću postati slavan	.62	Prioritet
21.	Ja želim da postanem slavan da bih prevazišao sumnje koje me muče.	.52	Vulnerabilnost
22.	Kada bih postao slavan moj život bi dobio smisao	.43	Vulnerabilnost

Stavka	Zasićenja	Komponenta
23. Ja želim da postanem slavan jer bi mi to omogućilo da uspem u životu	.45	Vulnerabilnost
24. Slava bi mi omogućila da se osećam dobro	.50	Vulnerabilnost
25. Slava bi mi pomogla da podignem svoje uzdrmano samopoštovanje	.69	Vulnerabilnost
26. Ja sam nesiguran u sebe, slava bi mi pomogla da to prevaziđem	.78	Vulnerabilnost
27. Želim da postanem slavan jer bih tada bio zadovoljan sobom	.73	Vulnerabilnost
28. Kada bih postao slavan prevazišao bih osećanja koja me čine lako povredivim.	.67	Vulnerabilnost
29. Kada bih postao slavan ljudi bi me više uvažavali	.48	Vulnerabilnost
58. Želim da postanem slavan kako bih dao veći doprinos društvu	.57	Altruizam
59. Želim da postanem slavan kako bih promenio svet	.70	Altruizam
60. Želim da postanem slavan kako bih promovisao raspravu o tome šta je loše u ovom svetu	.80	Altruizam
61. Želim da postanem slavan kako bih bio dobar uzor mladima	.80	Altruizam
62. Mislim da bih kao poznata ličnost imao priliku da ispravim mnoge nepravde	.75	Altruizam
63. Želim da postanem slavan jer imam toliko toga da saopštim ljudima	.71	Altruizam
51. Imam sve ono što je potrebno da bih bio slavan	.40	Predispozicija
52. Imam dovoljno samopouzdanja da bih postao slavan	.49	Predispozicija
53. Imajući u vidu moj jedinstvni sklop ličnosti trebalo bi da postanem slavan	.48	Predispozicija

Stavka	Zasićenja	Komponenta
54. Uvek sam dobro raspoložen i to će mi pomoći da postanem slavan	.50	Predispozicija
55. Hoću da postanem slavan zbog toga što uživam u životu	.69	Predispozicija
56. Uvek sam optimista i to će mi pomoći da postanem slavan	.68	Predispozicija
34. Želim da vidim svoju sliku u novinama	.64	Životni stil slavnih
37. Čeznem da postanem slavan jer bih se divno osećao pod reflektorima	.51	Životni stil slavnih
40. Želim da budem slavan i da vidim moje ime na naslovnim stranicama	.68	Životni stil slavnih
41. Želim da budem slavan kako bi drugi pričali o meni	.51	Životni stil slavnih
43. Imajući u vidu moju sklonost ka provodu trebalo bi da sam već slavan	.71	Životni stil slavnih
9. Da sam slavan manje bih mario za druge ljude	.71	Promena ličnih vrednosti
12. Da sam poznata ličnost to bi značilo da sam bolji od drugih ljudi	.56	Promena ličnih vrednosti
13. Slava donosi moć	.39	Promena ličnih vrednosti
14. Ako neko želi da postane slavan moraće da prihvati da se ponaša površno	.57	Promena ličnih vrednosti
15. U svojoj težnji za slavom ja bih bio spreman da se odreknem određenih moralnih uverenja	.60	Promena ličnih vrednosti
16. Ukoliko želim da postanem slavan moraću da budem i sebičan	.44	Promena ličnih vrednosti
17. Kada bi trebalo da biram između porodice i prijatelja sa jedne strane, i slave sa druge strane - ja bih izabrao slavu.	.43	Promena ličnih vrednosti

Stavka	Zasićenja	Komponenta
33. Želim da postanem slavan kako bih se obogatio.	.57	Životni standard
39. Želim da budem slavan jer bih tada dosta putovao	.33	Životni standard
42. Želim da postanem slavan kako bih mogao sebi da priuštim stvari koje sada ne mogu.	.58	Životni standard
66. Slava bi mi omogućila da popravim svoj život.	.53	Životni standard
18. Trebalo bi da postanem slavan jer sam najbolji u onome što radim.	.54	Samoprecenjivanje
19. Toliko sam sjajan, trebalo bi da postanem slavan	.58	Samoprecenjivanje
20. Trebalo bi da postanem slavan jer sam neverovatno talentovan.	.53	Samoprecenjivanje

Napomena. Prikazane su samo zasićenosti veće od .30.

Prilog C

Interkorelacije između dimenzija i subdimenzija grandioznog i vulnerabilnog narcizma

	1	2	3	4	5	6	7	8	9
1. Grandiozni narcizam	α =.89								
2. Eksploatacija	.70***	α =.76							
3. Samožrtvujuće samoosnaživanje	.85***	.40***	α = .78						
4. Grandiozne fantazije	.86***	.40***	.59***	α = .81					
5. Vulnerabilni narcizam	.71***	.39***	.65***	.66***	α =.94				
6. Uslovno samopoštovanje	.59***	.23***	.60***	.54***	.88***	α = .88			
7. Skrivanje slabosti	.59***	.32***	.52***	.55***	.77***	.54***	α = .79		
8. Samo-omalovažavanje	.57***	.28***	.54***	.52***	.81***	.60***	.60***	α =.84	
9. Narcistički bes	.61***	.47***	.43***	.56***	.78***	.57***	.50***	.53***	α = .83

Napomena. Dijagonalno je prikazana Kronbahova α za sve dimenzije i subdimenzije.

***$p < .001$.

Prilog D

Tabela D1

Rezultati testa multikolinearnosti za dimenzije grandioznog i vulnerabilnog narcizma

Prediktor	Tolerancija	VIF
Grandiozni narcizam	.35	2.80
Vulnerabilni narcizam	.35	2.80

Napomena. VIF = Faktor inflacije varijanse (VIF).

Tabela D2

Rezultati testa multikolinearnosti za subdimenzije grandioznog i vulnerabilnog narcizma

Prediktor	Tolerancija	VIF
Uslovno samopoštovanje	.43	2.30
Eksploatacija	.68	1.46
Samožrtvujuće samoosnaživanje	.47	2.12
Skrivanje slabosti	.52	1.92
Grandiozne fantazije	.49	2.03
Samoomalovažavanje	.47	2.08
Narcistički bes	.47	2.09

Napomena. VIF = Faktor inflacije varijanse (VIF).

Primenjena psihologija
Vol. 19, No. 2, pp. 241–263, 2026

Research Article

The typology of impulsivity and its relations with aggression

Nataša Mihajlović[1], Milan Oljača[2]✉, and Bojana M. Dinić[2]

[1] *Faculty of Media and Communications, Belgrade, Serbia*
[2] *Department of Psychology, Faculty of Philosophy, University of Novi Sad, Serbia*

ABSTRACT

With the development of models that view impulsivity as a multidimensional trait, the question arises as to whether qualitatively distinct profiles (types) of impulsivity can be identified that differ in their relationships with specific outcomes. The aim of this study was to identify and validate profiles of impulsivity based on the multidimensional Impulsive Behavior Scale (UPPS–P). The sample included 1299 participants (49.3% men) from the Serbian general population. Dickman Impulsivity Inventory and the Reactive–Proactive Aggression Questionnaire were used for profile validation. The latent profile analysis identified five profiles, of which three were interpreted as qualitatively different: sensation seeking, urgency, and lack of premeditation and perseverance, while the remaining two profiles were characterized by quantitative differences in impulsivity (i.e., low and moderate impulsivity profiles). The sensation seeking profile was associated with the most adaptive characteristics – high functional impulsivity and low dysfunctional impulsivity and aggression. The urgency profile showed the least adaptive characteristics, including high functional and dysfunctional impulsivity and aggression. Identification of the qualitatively different profiles supports the use of a typological paradigm to describe impulsivity. At the same time, the results indicate the need to differentiate sensation seeking from other dimensions of impulsivity, especially urgency.

Keywords: impulsivity, sensation seeking, urgency, aggression, latent profile analysis

UDK: 159.923:616.89-008.444.9
DOI: 10.19090/pp.v19i2.2513
Received: 29.11.2023.
Revised: 15.07.2025.
Accepted: 15.02.2026.

✉ Corresponding author's email: milanoljaca@ff.uns.ac.rs

Introduction

Impulsivity is a multidimensional construct, most often defined as the inability to inhibit and delay behavior, acting without prior consideration and reduced sensitivity to the consequences of behavior (e.g., Reynolds et al., 2006). Impulsivity is a good example of "jingle" and "jangle" fallacies in psychology, with the former referring to the existence of different constructs under the same name and the latter referring to the existence of the same constructs with different names (Block, 1995). Berg et al. (2015) called impulsivity, disinhibition, and sensation seeking "a jingle-jangle triad," stating that each of these dimensions can be found in different personality models as a higher-order dimension that includes the previous two. For example, in Buss and Plomin's (1975) model of temperament, impulsivity is one of the basic dimensions whose subdimensions include, among others, disinhibition and novelty seeking.

Impulsivity was also studied independently of personality models. For example, Dickman's (1990) model of impulsivity includes two independent functions of impulsivity which both refer to the tendency to take action with very little prior thinking. That action may be an optimal strategy in the given moment and may lead to positive outcomes (functional impulsivity), or it may be harmful and lead to negative outcomes (dysfunctional impulsivity). A comprehensive study of impulsivity was conducted by Whiteside and Lynam (2001). Based on a joint factor analysis of items from eight scales of impulsivity and four subscales of NEO–PI–R which measure impulsive tendencies, they extracted four factors: 1) urgency – a tendency to engage in impulsive behavior under conditions of negative affect to alleviate negative emotions, although the action may have harmful long–term consequences; 2) (lack of) premeditation – difficulty in thinking and reflecting on the consequences of an act before engaging in that act; 3) (lack of) perseverance – an inability to remain focused on boring or difficult tasks; 4) sensation seeking – a tendency to enjoy and pursue exciting activities and an openness to new experiences that may be dangerous. The UPPS Impulsive Behavior Scale was proposed based on the obtained factor solution. These four factors had low mutual correlations and unique correlates: urgency was primarily associated with neuroticism, sensation

seeking with extraversion, and (lack of) premeditation and (lack of) perseverance with conscientiousness (Whiteside & Lynam, 2001).

Given their distinctiveness, the authors concluded that these factors did not represent different types of impulsivity but different processes that may lead to impulsive behaviors. Later, the distinction between urgency under negative and positive affect was proposed, resulting in the development of the UPPS–P scale (Cyders et al., 2007; Lynam et al., 2006). Positive urgency accounted for a portion of the variance in risky behavior that was not explained by other impulsivity factors, particularly in relation to drinking and gambling (Cyders et al., 2007; McCarty et al., 2017). The 59-item version of the UPPS–P questionnaire has become a widely used measure of impulsivity and has demonstrated good psychometric characteristics across different populations and cultures (Argyriou et al., 2019; Verdejo-García et al., 2010).

Previous research has found age to be negatively related to all UPPS–P scales, although correlations were low (Argyriou et al., 2019; Cándido et al., 2012; Zhang et al., 2020). Regarding sex differences, previous studies have been inconsistent, with some studies showing no significant sex differences (Cándido et al., 2012) and others showing significant differences in sensation seeking (Cross et al., 2011; Zhang et al., 2020) and positive urgency (Cyders, 2013), with men having significantly higher scores.

Impulsivity is associated with a wide range of risky behaviors, including tendencies toward aggression (e.g., Cale, 2006) and antisocial behavior (e.g., Maneiro et al., 2017). Impulsive and aggressive behavior are often linked, and in some classifications, impulsive aggression is specified as a distinct type of aggression (i.e., opposed to thoughtful aggression; García–Forero et al., 2009).

However, despite being associated, impulsivity and aggression represent distinct (yet related) constructs and show different heritability patterns (e.g., Dinić et al., 2019). According to theoretical assumptions, impulsivity is a characteristic of reactive aggression, i.e., aggression that represents an immediate reaction to a real or perceived threat as opposed to proactive aggression that is instrumental and planned (Dodge, 1991).However, when impulsivity is viewed as a multidimensional construct, meta-analyses have shown that negative urgency, or negative and positive

urgency, as well as lack of premeditation (Berg et al., 2015; Bresin, 2019) are the most important correlates of aggression. Furthermore, positive urgency was more strongly related to proactive aggression, and negative urgency was more strongly related to reactive aggression (Hecht & Latzman, 2015; Maneiro et al., 2017; Miller et al., 2012).

Other impulsivity dimensions also correlate with aggression. For example, lack of perseverance is more related to reactive aggression and lack of premeditation is more related to proactive aggression (Hecht & Latzman, 2015), although some studies show that both dimensions have a stronger correlation with proactive aggression (Latzman & Vaidya, 2013; Miller et al., 2012) – which is not in line with theoretical expectations. Finally, some studies found that proactive aggression is correlated with sensation seeking but not with a lack of premeditation and perseverance (Maneiro et al., 2017), and sensation seeking has nonsignificant or the lowest correlations with aggression (Hecht & Latzman, 2015; Miller et al., 2012). Based on the listed findings, it can be assumed that the dimensions of urgency are consistently associated with aggression, but for other dimensions of impulsivity, there are no consistent patterns of relationships.

Impulsivity was most often examined using a dimensional or variable–centered approach, which is dominant in personality psychology (Roth & von Collani, 2007). This approach focuses on variables that are assumed to have identical "content" for each person, while individual differences are quantitative in their nature (Laursen & Hoff, 2006). The dimensional approach is variable-centered because it focuses on understanding relationships, similarities, and differences among variables, rather than identifying constellations of variables within individuals (Laursen & Hoff, 2006; Robins et al., 1998). As a means of addressing the limitations of a variable-centered approach, the person-centered approach is being increasingly used. This approach aims to identify distinctive types characterized by a similar pattern of scores on a set of variables (Merz & Roesch, 2011; Roth & von Collani, 2007). Nevertheless, person-centered and variable-centered approaches can be considered complementary and not opposing (Robins et al., 1998; Spurk et al., 2020), as they can provide different types of information for the same phenomenon. For example, the dimensional approach should be applied when there is a need to locate a

new construct or measure within the nomological network of traits. On the other hand, a typological approach should be applied if someone is interested in the constellation of traits within a person (e.g., John, 1990).

In previous typological research, impulsivity was typically examined alongside constructs beyond impulsivity itself. For example, in the study that examined types based on UPPS dimensions and symptoms of posttraumatic stress disorder (PTSD), quantitatively different types differed mostly in negative urgency and PTSD symptoms. The profile with the highest negative urgency and PTSD symptoms was characterized by problems in anger regulation (Contractor et al., 2018). Similarly, in the typological study based on the dimensions of UPPS and dimensions of motivation for substance abuse, four quantitatively different types were identified. One profile only included high negative urgency followed by high conformity motive for substance use (Lannoy et al., 2020). Another study identified three profiles based on impulsivity, shopping motives, and self–esteem, with quantitative differences between negative and positive urgency and lack of premeditation (Challet–Bouju et al., 2020). However, the question of whether a typological approach based on impulsivity dimensions alone would be informative remains open.

Research Problem

The aim of this research was to identify and validate types of impulsivity. To the best of our knowledge, rare typological studies that included impulsivity always studied it in combination with other constructs, describing three to five profiles. The most prominent types, according to these studies included negative urgency (e.g., Contractor et al., 2018) or urgency and lack of premeditation (Challet–Bouju et al., 2020). However, based only on impulsivity dimensions, we could expect identification of different types according to the distinction of disinhibition and sensation seeking among the UPPS-P dimensions (Berg et al., 2015). Furthermore, previous research on the UPPS-P questionnaire (Cyders & Smith, 2007) showed that a three-factor hierarchical model could be used, wherein three higher-order factors were: emotion-based rash action (negative and positive urgency as lower-order factors), sensation seeking, and deficits in conscientiousness (lack of perseverance and premeditation as lower-order

factors). Correlations between these higher-order factors were low, suggesting that they reflect distinct processes and behavioral patterns. Thus, the primary aim of this study is to investigate whether a three-factor latent structure of impulsivity is reflected in distinct impulsivity profiles. We hypothesize that three qualitatively different profiles of impulsivity will emerge, differentiating between urgency, sensation seeking, and lack of premeditation and perseverance.

The secondary aim was to determine the construct (concurrent) validity of the profiles. Differences between the profiles in functional and dysfunctional impulsivity were examined, as well as in aggression. Based on previous research, it is expected that the type of impulsivity characterized by high sensation seeking will show high functional impulsivity (e.g., Brunas–Wagstaff et al., 1995), while other types will show higher dysfunctional impulsivity. Furthermore, it is expected that the type characterized by higher negative urgency will show the strongest relation to aggression (e.g., Cale, 2006). It remains unclear whether the identified impulsivity profiles will differentiate between positive and negative urgency. While this distinction is considered crucial for separating tendencies toward different functions of aggression (e.g., Hecht & Latzman, 2015), its theoretical and practical utility has been questioned (Berg et al., 2015). If the profile structure reveals differences between positive and negative urgency, we expect higher proactive aggression in profiles characterized by greater positive urgency and higher reactive aggression in profiles with greater negative urgency[1].

Method

Sample and procedure

The sample consisted of 1299 participants (49.3% men), aged 18 to 69 years (M = 39.95, SD = 13.35) of the general population from Serbia, among which 36.2% finished university, 15.6% finished college, 16.4% were students, 25.3% finished secondary, and 6.4% finished primary school. The sample was collected by the trained students as part of the coursework. There were pre-defined quotas for sex (50% males) and age (33.3% for each of the three age groups [i.e.,18 to 34, 35 to 49, and 50 to 65 years]). The

[1] The original hypothesis was rephrased during revision process to enhance clarity.

sample was convenient and mostly comprised of students' family members, friends, and acquaintances. The questionnaires were distributed in paper-and-pencil format. The study was approved by the Institutional Review Board.

Instruments

Impulsive Behavior Scale (UPPS–P Impulsive Behavior Scale; Cyders et al., 2007; Lynam et al., 2006) [2]

The original UPPS scale proposed by Lynam et al. (2006) consisted of 45 items and measured four dimensions of impulsivity. Later, Cyders et al. (2007) added 14 items to measure the fifth dimension – positive urgency. Therefore, the UPPS-P scale consists of 59 items with a four-point Likert-type scale (from 1 = *strongly disagree* to 4 = *strongly agree*) and measures five dimensions of impulsivity. Negative urgency is defined as the tendency to act quickly under the influence of intense negative affect (e.g., "when I feel bad, I will often do things I later regret in order to make myself feel better now"). Positive urgency is a tendency to act quickly under the influence of intense positive affect (e.g., "when I am in a great mood, I tend to get into situations that could cause me problems"). Lack of premeditation is defined as insufficient consideration of possible consequences of action, while lack of perseverance is defined as having difficulties in focusing on long, difficult, or tedious tasks. Sensation seeking includes seeking innovative and exciting experiences. Cronbach's alpha and the number of items for all scales are shown in Table 1. The UPPS-P was adapted into Serbian using the back-translation procedure. Prof. Dr. Bojana Dinić translated the instrument into Serbian, and a professional English translator independently back-translated it into English. The translated versions were then jointly reviewed to ensure appropriate adaptation to the Serbian context.

[2]Because this is the first use of UPPS-P in Serbian, the factor structure has been tested using confirmatory factor analysis, which was applied on item packages. Model fit was acceptable: MLχ^2 (179) = 1606.80, $p < .001$, CFI = .92, TLI = .90, RMSEA = .07, SRMR = .08).

Dickman's Impulsivity Inventory (DII; Dickman, 1990, for Serbian adaptation see Smederevac et al., 2019).

This inventory consists of 23 items with a binary response format (*Yes*/*No*) that measure functional impulsivity (the tendency to act with very little forethought in situations when it is optimal) and dysfunctional impulsivity (the tendency to act with very little forethought when this tendency is a source of difficulty). The instrument was adapted to Serbian by Smederevac et al. (2019). The validity of Serbian adaptation was confirmed by positive correlations between both functional and dysfunctional impulsivity and the behavioral activation system (BAS; impulsivity) and fight from the Revised Reinforcement Sensitivity Theory (Smederevac et al., 2019). In addition, functional impulsivity showed a negative correlation with the behavioral inhibition system (BIS; anxiety), and dysfunctional impulsivity showed positive correlations with freeze and flight.

Reactive–Proactive Aggression Questionnaire (RPQ; Raine et al., 2006, for Serbian adaptation see Dinić & Raine, 2020)

This questionnaire consists of 23 items with a three-point response format (from 0 = *never* to 2 = *often*) and measures the tendency toward reactive aggression (aggressive reaction to perceived or actual provocation) and proactive aggression (instrumental aggression, independent of external triggers). More information concerning the translation procedure and psychometric properties of the Serbian RPQ could be found in Dinić and Raine (2020).

Results

Descriptive Statistics and Correlations

All scores showed normal distribution (for proactive aggression, skewness was 1.35 and kurtosis was 1.12; for other scales, skewness and kurtosis were in the range between –0.93 and 0.86). The mean inter-item correlations for the UPPS-P scales ranged from .29 (lack of perseverance) to .36 (sensation seeking), reflecting coherence without redundancy across all scales. Most items exhibited acceptable corrected item-total correlations (item discrimination), ranging from .30 to .72. Although six items had lower

corrected item-total correlations (<.30), they were evenly distributed across the UPPS-P scales. No items were removed, as all items contributed to the good alpha reliability of the scales (Table 1).

Table 1

Descriptive Statistics and Alpha Coefficients for the Used Instruments

Instruments	Dimensions	α(*n*)	*M*	*SD*
Impulsive Behaviour Scale (UPPS–P)	Negative urgency	.85(12)	25.58	6.15
	Positive urgency	.86(14)	20.83	5.33
	Lack of premeditation	.82(11)	18.65	4.76
	Lack of perseverance	.79(10)	27.46	8.53
	Sensation seeking	.87(12)	25.30	8.21
Dickman's Impulsivity Inventory (DII)	Functional impulsivity	.80(11)	5.13	3.04
	Dysfunctional impulsivity	.81(12)	3.32	2.92
Reactive–Proactive Aggression Questionnaire (RPQ)	Reactive aggression	.79(11)	1.19	1.52
	Proactive aggression	.82(12)	7.99	3.35

Note. *n* = number of items; the response format for UPPS–P is four-point (1–4), for DII is binary (0–1), and for RPQ is three-point (0–2).

The UPPS-P dimensions exhibited the expected pattern of correlations, with particularly high correlation between positive and negative urgency and between lack of premeditation and lack of perseverance (Table 2). Sensation seeking showed lower correlation with the other UPPS-P dimensions. All correlations between the dimensions of impulsivity and aggression were significant and positive, except for the correlation between functional impulsivity and negative urgency and positive urgency and the correlation between sensation seeking and lack of perseverance (Table 2). All UPPS–P dimensions had significantly higher correlations with

dysfunctional impulsivity compared to functional impulsivity (Steiger's *Z* ranged from 9.47 to 17.26, all $p < .05$). The only exception was sensation seeking, which was significantly more correlated with functional impulsivity (Steiger's $Z = 7.32$, $p < .05$). Except for negative urgency, which was more correlated with reactive aggression (Steiger's $Z = 1.74$, $p < .05$), all UPPS–P dimensions had a significantly higher correlation with proactive aggression (Steiger's *Z* ranged from 2.26 to 3.24, all $p < .05$).

Table 2

Correlations Between UPPS–P, DII, and RPQ Scales

	NU	PU	PM	PR	SS	FI	DI	RA
PU	.74							
PM	.36	.41						
PR	.41	.42	.52					
SS	.11	.28	.25	–.05				
FI	–.07	.03	.26	–.16	.43			
DI	.51	.47	.56	.36	.18	.22		
RA	.40	.27	.14	.09	.16	.08	.26	
PA	.35	.34	.24	.19	.23	.12	.29	.43

Note. NU = negative urgency, PU = positive urgency, PM = lack of premeditation, PR = lack of perseverance, SS = sensation seeking, FI = functional impulsivity, DI = dysfunctional impulsivity, RA = reactive aggression, PA = proactive aggression. Correlations ≥ ± .07 are significant at $p < .05$.

Latent Profiles of Impulsivity

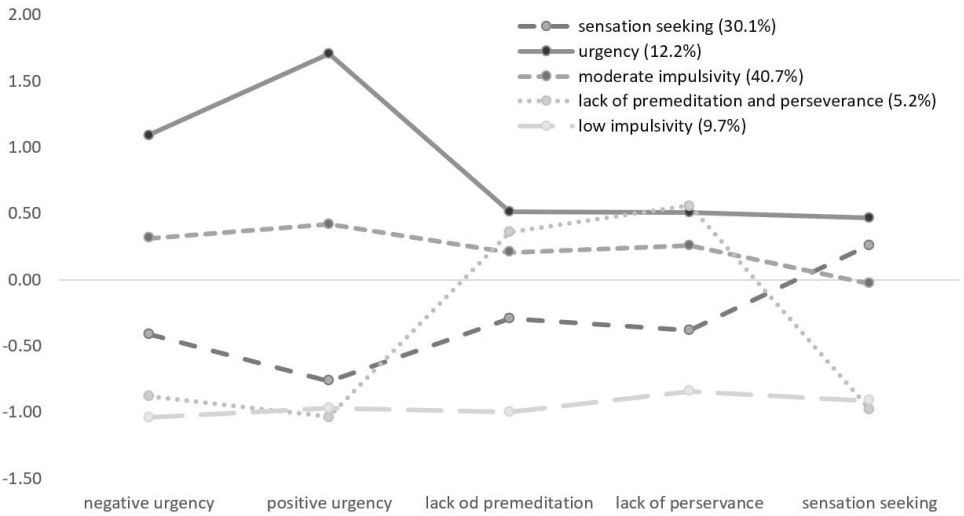
A latent profile analysis (LPA) was conducted to identify the profiles (i.e., types) based on the UPPS–P. Analysis was performed on *z*–scores in the R package "mclust" (Scrucca et al., 2016). The results showed that the best-fitting model was the model that contained five latent profiles (BIC = -14113.02, compared to second the best solution with six profiles BIC = -14131.29), in line with the recommendation that a higher BIC index indicates a better fit (Fraley & Raftery, 2007), while the difference between BIC indices of two models that is greater than 10 can be considered significant and large (Raftery, 1995). To test the stability of the profiles, we used the split-half method. We calculated the BIC coefficient for solutions with 2-6 latent

profiles. In one half of the sample, the optimal solution had 5 profiles (BIC = 7207). In the other half, the optimal solution had 6 profiles (BIC = 7180), but the solution with 5 profiles was the second-best (BIC = 7173), and the difference was below the recommended cut-off criteria (< 10). As the 6th profile included only 19 participants (less than 3%), we opted for a more parsimonious 5-profile solution.

The differences between the five profiles on all UPPS–P dimensions were significant ($F(4,1140)$ ranged from 73.76 to 1467.67, all $p < .001$, η^2_p ranged from .21 to .84; for the Bonferroni post hoc test, see Table A in Supplement).

Figure 1

Latent Profiles Based on UPPS–P Dimensions of Impulsivity



The *urgency profile* was characterized by very high scores on both positive and negative urgency, with a significantly higher score on positive urgency, followed by moderately high scores on other UPPS-P scales. This profile was significantly different from all other profiles on both urgency scales, but it did not differ in lack of premeditation and lack of perseverance from the lack of premeditation and perseverance profile. Also, this profile did

not differ from the sensation seeking profile on the sensation seeking dimension.

The *sensation seeking profile* was characterized by elevated scores on the sensation seeking scale; this profile had significantly higher scores on sensation seeking compared to all other profiles, except the urgency profile. Moreover, the sensation seeking profile had significantly lower scores on the other impulsivity dimensions compared to the urgency and moderate impulsivity profiles, but the scores were higher compared to the low impulsivity profile.

The *lack of premeditation and perseverance profile* was characterized by high scores on those two UPPS-P scales and low scores on other impulsivity scales. This profile did not differ from the low impulsivity profile on negative urgency, positive urgency, and sensation seeking, nor did it differ from the urgency and moderate impulsivity profiles in lack of premeditation and from the urgency profile in lack of perseverance.

The members of the *moderate impulsivity profile* had relatively high scores on all impulsivity dimensions, with the average scores on sensation seeking. This profile did not differ from the lack of premeditation and perseverance profile on the lack of premeditation scale, while all other differences were significant, with lower scores compared to the urgency profile and higher scores compared to the low impulsivity and sensation seeking profiles.

Lastly, the *low impulsivity profile* was characterized by low scores on all UPPS-P scales. Specifically, the scores were significantly lower compared to other profiles. The only exception were the scores on positive and negative urgency and sensation seeking, which did not differ between the low impulsivity and the lack of premeditation and perseverance profiles.

Sex and Age Differences Between the Profiles

Sex differences between the profiles were non-significant ($\chi^2(4) = 8.93$, $p = .06$), while the age differences were significant ($F(4, 1136) = 2.94$, $p < .05$). Members of the sensation seeking profile were significantly younger than members of the low impulsivity profile (for the Bonferroni post hoc test, see Table C in Supplement).

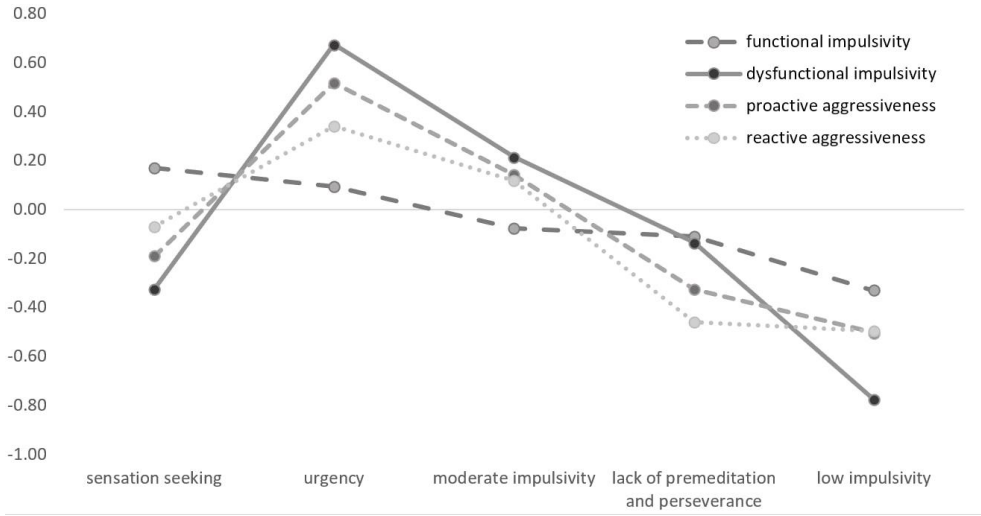
Profile Validation Based on the Dimensions of Impulsivity and Aggression

There were significant differences between profiles on functional ($F(4, 1135) = 6.92$, $p < .001$) and dysfunctional impulsivity ($F(4, 1135) = 57.55$, $p < .001$). Bonferroni's post hoc tests (Table D in Supplement) showed that the members of the sensation seeking profile had the highest scores on functional impulsivity – significantly higher compared to low and moderate impulsivity profiles, but not significantly higher compared to urgency and lack of premeditation and perseverance profiles. Regarding dysfunctional impulsivity, the urgency profile was characterized by the highest scores and was significantly different from all other profiles. Sensation seeking profile did not differ in dysfunctional impulsivity from profiles of lack of premeditation and perseverance and moderate impulsivity (and these two also did not differ from each other). On the other hand, members of the low impulsivity profile had the lowest scores on both functional and dysfunctional impulsivity, significantly lower than all the other profiles.

Profiles differed significantly in both reactive ($F(4,1139) = 16.25$, $p < .001$) and proactive aggression ($F(4,1139) = 25.11$, $p < .001$). The members of the urgency profile had significantly higher scores on both proactive and reactive aggression compared to other profiles, followed by the members of the moderate impulsivity profile (for the Bonferroni post hoc test results, see Table E in the Supplement). The low impulsivity profile had the lowest scores on both proactive and reactive aggression. There were no differences in proactive aggression between the lack of premeditation and perseverance profile and profiles of sensation seeking and low impulsivity. The members of the lack of premeditation and perseverance profile and the low impulsivity profile had the lowest scores on reactive aggression, and the two profiles were not significantly different.

Figure 2

Differences in Impulsivity Profiles Based on Functional and Dysfunctional Impulsivity and Proactive and Reactive Aggression



Discussion

The aim of this study was to identify latent profiles of impulsivity based on UPPS–P dimensions and to validate those profiles by examining their relationships with another measure of impulsivity and with functions of aggression. Five profiles were identified, among which both qualitative and quantitative differences were obtained. This result supports the view that the dimensional and typological approaches are complementary (Robins et al., 1998; Spurk et al., 2020). Furthermore, the three qualitatively distinct profiles identified in the present study correspond to the three higher-order factor structure of UPPS-P (Cyders & Smith, 2007).

The profile of sensation seeking was characterized by higher scores on sensation seeking and lower scores on all the other dimensions of impulsivity. This profile was also characterized by higher functional impulsivity and lower dysfunctional impulsivity and aggression. Thus, this profile seemed to be the most adaptive profile of the five profiles. It can be assumed that members of this profile strive for new and exciting experiences, and even if they react hastily, their reactions typically do not include hostility

and aggressive outcomes, but rather optimal, quick decisions. Furthermore, this profile contains more younger members compared to low impulsivity profile, which is in line with previous studies (e.g., Argyriou et al., 2019; Zhang et al., 2020). The extraction of this profile supports the view that sensation seeking is a distinct construct, showing different patterns of relationships with the outcome variables compared to other impulsivity characteristics that are predominantly related to disinhibition (Buss & Plomin, 1975). Sensation seeking also demonstrated weaker correlations with other impulsivity scales compared to the other UPPS-P dimensions. Previous research suggests that sensation seeking may be a protective factor: it is positively related to subjective well–being, unlike other dimensions of impulsivity (Ravert & Donnellan, 2021).

The core characteristics of the urgency profile, by which this profile differs significantly from all other profiles, are negative and positive urgency. This profile was characterized by high disinhibition, that is, the lack of ability to delay behavior, especially under strong positive or negative emotions. Members of this profile have higher scores on both functional and dysfunctional impulsivity. Moreover, dysfunctional impulsivity was the most prominent dimension within this profile, meaning that impulsive actions of members of this profile may often lead to negative outcomes.

Furthermore, this profile was characterized by higher aggression, suggesting it may be the least adaptive of the five profiles. In previous typological studies of impulsivity and other constructs, the types that showed a dysfunctional pattern of behavior included high negative urgency (e.g., Contractor et al., 2018; Lannoy et al., 2020). The results of our research are consistent with a meta-analysis showing that urgency is a key correlate of various psychopathological and other problems, including aggression, making it a central dimension of impulsivity (Berg et al., 2015; Bresin, 2019).

It should be noted that there were no separate profiles that would distinguish between negative and positive urgency. These two dimensions were highly correlated in this study (.74), and both equally contributed to the differences between profiles. Moreover, there was no significant difference in the correlations between those dimensions and proactive aggression, which does not align with previous studies (e.g., Hecht & Latzman, 2015). However, negative urgency was more strongly related to reactive aggression

than positive urgency, which is consistent with previous research (e.g., Hecht & Latzman, 2015). Both dimensions were positively related to dysfunctional impulsivity and were unrelated to functional impulsivity, in line with previous findings (Pawluk & Koerner, 2013). The relation with dysfunctional impulsivity is stronger for negative urgency. Although some distinction between the two urgency dimensions could be made at the dimensional level, it was not observed at the typological level. The distinction between positive and negative urgency has also been questioned in a meta–analysis study of UPPS-P correlates (Berg et al., 2015).

The profile of lack of premeditation and perseverance was characterized by high scores on those two UPPS-P scales, followed by low scores on other impulsivity scales. Members of this profile may experience difficulties with long-term planning and weighing the possible consequences of their actions, as well as difficulties concentrating on the current task if it is tedious or uninteresting. These difficulties do not seem to be related to positive or negative affect, but rather to the unexciting tasks with delayed results. Lack of premeditation and lack of perseverance were highly correlated, reflecting a low conscientiousness disposition. Furthermore, this profile showed lower aggression scores (as did the low impulsivity profile), which does not entirely align with previous research that showed that lack of premeditation was strongly related to aggression (Bresin, 2019).

Profiles of moderate and low impulsivity could be understood as predominantly quantitatively different. They were based on different degrees of impulsivity in general, and these differences were reflected in the differences in functional and dysfunctional impulsivity, as well as in aggression. Specifically, the low impulsivity profile had significantly lower scores on proactive and reactive aggression and dysfunctional impulsivity, while the two profiles did not differ in functional impulsivity.

Interestingly, there were no sex differences between the impulsivity profiles. Some of the previous research showed that men scored higher on the positive urgency and sensation seeking (Cyders, 2013), and in one meta-analysis, women showed higher urgency, but the effect size was small (Cross et al., 2011). It seems that the sex differences in impulsivity are rather inconsistent. Regarding the age structure of the high impulsivity profile, our results are in line with previous research in which older individuals are less

impulsive (e.g., Zhang et al., 2020), as well as research that showed that sensation seeking is more pronounced in younger individuals (Roberti, 2004; Roth et al., 2005).

There are several limitations to this study. The main limitation is that the profiles' stability has not been tested across different independent samples. Instead, we tested profile stability using the split-half method, which, in addition to the five-profile solution, also produced the six-profile solution. We recommend that future studies aim to replicate the impulsivity profiles in larger samples and different cultures and populations. The second limitation is that only the self–assessment data were collected. Further research could explore the congruence of obtained profiles by comparing the findings based on self–reported and others-reported data. The third limitation is related to the sampling procedure, which resulted in the convenient sample. Thus, the generalization of the results is limited.

Despite the limitations, the results of this research support the notion that dimensional and typological approaches could be considered complementary, and that each provides additional insight into the adaptability of impulsivity structure. The differences between the profiles of impulsivity are both quantitative and qualitative. Qualitatively different profiles are in line with the higher-order structure of UPPS-P proposed by Cyders and Smith (2007). Therefore, compared to the other profiles, the sensation seeking profile appears to be the most adaptive, whereas the urgency profile was the least adaptive and was associated with aggressive and broadly negative outcomes. Based on the results, it can be concluded that urgency and sensation seeking are core and distinctive characteristics of impulsivity. However, further research is needed to conclude on the relationship between these two dimensions and address the question of whether they are facets of impulsivity or independent constructs. The results contribute to a better understanding and usefulness of both the dimensional and typological approach in the study of impulsivity.

Funding

This research was supported by the Science Fund of the Republic of Serbia, No 7744418, Genetic and environmental influences on psychological adaptation of children and adults - GENIUS.

Conflict of interest

We have no conflicts of interest to disclose.

Data availability statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

References

Argyriou, E., Um, M., Wu, W., & Cyders, M.A. (2019). Measurement invariance of the UPPS–P Impulsive Behavior Scale across age and sex across the adult life span. *Assessment*, *27*(3), 432–453. https://doi.org/10.1177/1073191119832660

Berg, J.M., Latzman, R.D., Bliwise, N.G., & Lilienfeld, S.O. (2015). Parsing the heterogeneity of impulsivity: A meta–analytic review of the behavioral implications of the UPPS for psychopathology. *Psychological Assessment, 27*(4), 1129–1146. https://doi.org/10.1037/pas0000111

Block, J. (1995). A contrarian view of the five–factor approach to personality description. *Psychological Bulletin, 117*(2), 187–215. https://doi.org/10.1037/0033-2909.117.2.187

Bresin, K. (2019). Impulsivity and aggression: A meta–analysis using the UPPS model of impulsivity. *Aggression and Violent Behavior*, *48*, 124–140. https://doi.org/10.1016/j.avb.2019.08.003

Brunas–Wagstaff, J., Bergquist, A., Richardson, P., & Connor, A. (1995). The relationships between functional and dysfunctional impulsivity and the Eysenck personality questionnaire. *Personality and Individual Differences, 18*(5), 681–683. https://doi.org/10.1016/0191-8869(94)00202-4

Buss, A.H., & Plomin, R. (1975). *A temperament theory of personality development*. John Wiley & Sons.

Cale, E.M. (2006). A quantitative review of the relations between the "Big 3" higher order personality dimensions and antisocial behavior. *Journal of Research in Personality*, *40*(3), 250–284. https://doi.org/10.1016/j.jrp.2005.01.001

Cándido, A., Orduña, E., Perales, J.C., Verdejo–García, A., & Billieux, J. (2012). Validation of a short Spanish version of the UPPS–P impulsive behaviour scale. *Trastornos Adictivos*, *14* (3), 73–78. https://doi.org/10.1016/S1575-0973(12)70048-X

Challet–Bouju, G., Mariez, J., Perrot, B., Grall–Bronnec, M., & Chauchard, E. (2020). A typology of buyers grounded in psychological risk factors for compulsive buying (impulsivity, self–esteem, and buying motives): Latent class analysis approach in a community sample. *Frontiers in Psychiatry*, *11*, 277. https://doi.org/10.3389/fpsyt.2020.00277

Contractor, A.A., Caldas, S., Weiss, N.H., & Armour, C. (2018). Examination of the heterogeneity in PTSD and impulsivity facets: A latent profile analysis. *Personality and Individual Differences*, *125*, 1-9. https://doi.org/10.1016/j.paid.2017.12.022

Cross, C.P., Copping, L.T., & Campbell, A. (2011). Sex differences in impulsivity: A meta-analysis. *Psychological Bulletin, 137*(1), 97–130. https://doi.org/10.1037/a0021591

Cyders, M.A. (2013). Impulsivity and the sexes: Measurement and structural invariance of the UPPS–P Impulsive Behavior Scale. *Assessment*, *20*(1), 86–97. https://doi.org/10.1177/1073191111428762

Cyders, M.A., & Smith, G.T. (2007). Mood-based rash action and its components: Positive and negative urgency. *Personality and Individual Differences, 43*(4), 839–850. https://doi.org/10.1016/j.paid.2007.02.008

Cyders, M.A., Smith, G.T., Spillane, N.S., Fischer, S., Annus, A.M., & Peterson, C. (2007). Integration of impulsivity and positive mood to predict risky behavior: Development and validation of a measure of positive urgency. *Psychological Assessment, 19*(1), 107–118. https://doi.org/10.1037/1040-3590.19.1.107

Dickman, S.J. (1990). Functional and dysfunctional impulsivity: Personality and cognitive correlates. *Journal of Personality and Social Psychology, 58*(1), 95–102. https://doi.org/10.1037/0022-3514.58.1.95

Dinić, B., Nikolašević, Ž., Oljača, M., & Bugarski Ignjatović, V. (2019). A twin study of aggressiveness and impulsiveness relationship. *Primenjena Psihologija, 11*(4), 451–470. https://doi.org/10.19090/pp.2018.4.451-470

Dinić, B.M., & Raine, A. (2020). An item response theory analysis and further validation of the Reactive–Proactive Aggression Questionnaire (RPQ): The Serbian adaptation of the RPQ. *Journal of Personality Assessment, 102*(4), 469–479. https://doi.org/10.1080/00223891.2019.1573430

Dodge, K.A. (1991). The structure and function of reactive and proactive aggression. In D. Pepler & K. Rubin (Eds.), *The Development and Treatment for Childhood Aggression* (pp. 201–218). Hillsdale: Erlbaum.

Fraley, C., & Raftery, A. (2007). Model-based methods of classification: Using the mclust software in chemometrics. *Journal of Statistical Software*, *18*(6), 1–13. https://doi.org/10.18637/jss.v018.i06

García–Forero, C., Gallardo–Pujol, D., Maydeu–Olivares, A., & Andrés–Pueyo, A. (2009). Disentangling impulsiveness, aggressiveness and impulsive aggression: An empirical approach using self–report measures. *Psychiatry Research*, *168*(1), 40–49. https://doi.org/10.1016/j.psychres.2008.04.002

Hecht, L.K., & Latzman, R.D. (2015). Revealing the nuanced associations between facets of trait impulsivity and reactive and proactive aggression. *Personality and Individual Differences*, *83*, 192–197. https://doi.org/10.1016/j.paid.2015.04.021

John, O.P. (1990). The "Big Five" factor taxonomy: Dimensions of personality in the natural language and questionnaires. In L.A. Pervin (Ed.) *Handbook of personality: Theory and research* (pp. 66-100). Guilford Press.

Lannoy, S., Mange, J., Leconte, P., Ritz, L., Gierski, F., Maurage, P., & Beaunieux, H. (2020). Distinct psychological profiles among college students with substance use: A cluster analytic approach. *Addictive Behaviors, 109*, 106477. https://doi.org/10.1016/j.addbeh.2020.106477

Latzman, R.D., & Vaidya, J.G. (2013). Common and distinct associations between aggression and alcohol problems with trait disinhibition. *Journal of Psychopathology and Behavioral Assessment*, *35*(2), 186–196. https://doi.org/10.1007/s10862-012-9330-5

Laursen, B., & Hoff, E. (2006). Person-centered and variable-centered approaches to longitudinal data. *Merrill-Palmer Quarterly*, *52*(3), 377–389. https://doi.org/10.1353/mpq.2006.0029

Lynam, D.R., Whiteside, S.P., Smith, G. T., & Cyders, M A. (2006). *The UPPS–P: Assessing five personality pathways to impulsive behavior.* Purdue University. Unpublished report.

Maneiro, L., Gómez–Fraguela, J.A., Cutrín, O., & Romero, E. (2017). Impulsivity traits as correlates of antisocial behaviour in adolescents. *Personality and Individual Differences*, *104*, 417–422. https://doi.org/10.1016/j.paid.2016.08.045

McCarty, K. N., Morris, D. H., Hatz, L. E., & McCarthy, D. M. (2017). Differential associations of UPPS-P impulsivity traits with alcohol problems. *Journal of Studies on Alcohol and Drugs*, *78*(4), 617-622. https://doi.org/10.15288/jsad.2017.78.617

Merz, E.L., & Roesch, S.C. (2011). A latent profile analysis of the Five Factor Model of personality: Modeling trait interactions. *Personality and Individual Differences*, *51*(8), 915–919. https://doi.org/10.1016/j.paid.2011.07.022

Miller, J.D., Zeichner, A., & Wilson, L.F. (2012). Personality correlates of aggression: evidence from measures of the five–factor model, UPPS model of impulsivity, and BIS/BAS. *Journal of Interpersonal Violence*, *27*(14), 2903–2919. https://doi.org/10.1177/0886260512438279

Pawluk, E. J., & Koerner, N. (2013). A preliminary investigation of impulsivity in generalized anxiety disorder. *Personality and Individual Differences*, *54*(6), 732-737. https://doi.org/10.1016/j.paid.2012.11.027

Raftery, A.E. (1995). Bayesian model selection in social research. *Sociological Methodology*, 111–163. https://doi.org/10.2307/271063

Raine, A., Dodge, K., Loeber, R., Gatzke-Kopp, L., Lynam, D., Reynolds, C., Stouthamer-Loeber, M., & Liu, J. (2006). The reactive–proactive aggression questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive Behavior*, *32*(2), 159–171. https://doi.org/10.1002/ab.20115

Ravert, R.D., & Donnellan, M.B. (2021). Impulsivity and sensation seeking: Differing associations with psychological well–being. *Applied Research in Quality of Life*, *16*(4), 1503–1515. https://doi.org/ 10.1007/s11482-020-09829-y

Reynolds, B., Ortengren, A., Richards, J.B., & de Wit, H. (2006). Dimensions of impulsive behavior: Personality and behavioral measures. *Personality and Individual Differences*, *40*(2), 305–315. https://doi.org/10.1016/j.paid.2005.03.024

Roberti, J. W. (2004). A review of behavioral and biological correlates of sensation seeking. *Journal of Research in Personality*, *38*(3), 256-279. https://doi.org/10.1016/S0092-6566(03)00067-9

Robins, R.W., John, O.P., & Caspi, A. (1998). The typological approach to studying personality. In R.B. Cairns, L.R. Bergman, & J. Kagan (Eds.), *Methods and models for studying the individual* (pp. 135–160). Sage.

Roth, M., Schumacher, J., & Brähler, E. (2005). Sensation seeking in the community: Sex, age and sociodemographic comparisons on a representative German population sample. *Personality and Individual Differences*, *39*(7), 1261-1271. https://doi.org/10.1016/j.paid.2005.05.003

Roth, M., & von Collani, G. (2007). A head–to–head comparison of Big–Five types and traits in the prediction of social attitudes: Further evidence for a five–

cluster typology. *Journal of Individual Differences, 28*(3), 138–149. https://doi.org/10.1027/1614-0001.28.3.138

Scrucca L., Fop M., Murphy T.B., & Raftery A.E. (2016) mclust 5: Clustering, classification and density estimation using Gaussian finite mixture models. *The R Journal, 8*(1), 289–317. https://doi.org/10.32614/RJ-2016-021

Smederevac, S., Dinić, B., & Oljača, M. (2019). *Relations between functional and dysfunctional impulsivity and dimensions of the revised Reinforcement Sensitivity Theory*. Paper presented at the XVI European Congress of Psychology, Moscow, Russian Federation.

Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and "how to" guide of its application within vocational behavior research. *Journal of Vocational Behavior*, *120*, 103445. https://doi.org/10.1016/j.jvb.2020.103445

Verdejo-García, A., Lozano, Ó., Moya, M., Alcázar, M. Á., & Pérez-García, M. (2010). Psychometric properties of a spanish version of the UPPS–P impulsive behavior scale: reliability, validity and association with trait and cognitive impulsivity. *Journal of Personality Assessment, 92*(1), 70-77. https://doi.org/10.1080/00223890903382369

Whiteside, S.P., & Lynam, D.R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences*, *30*(4), 669–689. https://doi.org/10.1016/S0191-8869(00)00064-7

Zhang, Y., Qiu, X., Ren, Q., Zhou, Z., Zhou, H., Du, J., ... & Liu, W. (2020). Psychometric properties of the Chinese version of UPPS–P Impulsive Behavior Scale. *Frontiers in Psychiatry*, *11*, 185. https://doi.org/10.3389/fpsyt.2020.00185