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Relationships between personality traits, negative affectivity and procrastination in high school students

Relacije između osobina ličnosti, negativnog afektiviteta i prokrastinacije kod srednjoškolaca

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Abstract

Introduction/Aim. Procrastination includes intentional postponing of either starting or finalizing a task and is one of the most important aspects of an academic achievement. The aim of this study was to examine the possibility of procrastination prediction based on the values of certain personality traits and negative affective states (anxiety, depression, stress) in high school students. **Methods.** The research was conducted over a sample of 900 high school students from 9 high schools in Niš attending the 3rd and 4th grade. The research included the following instruments: The Big Five Inventory (BIF), Depression, Anxiety and Stress Scale (DASS-21), as well as the Procrastination Scale. **Results.** The model consisting of personality traits was a statistically meaningful predictor of procrastination. Prediction variables found to be statistically significant were neuroticism, as a positive correlate of procrastination, and conscientiousness, as a negative correlate. None of the negative affectivity dimensions (anxiety, depressiveness and stress) was partially shown to be a significant predictor. **Conclusion.** The lack of conscientiousness can be considered to be the core of procrastination, whereas neuroticism, i.e. some of its facets, such as anxiety, may be encouragement to avoid a task. Obtained results may be used as suggestions to psychological institutions in schools as to which factors are significant for perceiving procrastination problems with students.

Key words:
anxiety; personality assessment; procrastination; students; surveys and questionnaires.

Apstrakt

Uvod/Cilj. Prokrastinacija podrazumeva namerno odlaganje otpočinjanja ili završavanja nekog zadatka i jedan je od bitnih aspekata akademskog postignuća. Cilj ovog rada bio je ispitivanje mogućnosti predviđanja prokrastinacije na osnovu poznavanja vrednosti osobina ličnosti i dimenzija negativnog afektiviteta (stres, anksioznost i depresivnost) kod učenika srednjih škola. **Metode.** Istraživanje je sprovedeno na uzorku od 900 srednjoškolaca iz 9 srednjih škola u Nišu, koji pohađaju treći i četvrti razred. U istraživanju su korišćeni sledeći instrumenti: Inventar velikih pet (*Big Five Inventory* – BFI), Skala depresivnosti, anksioznosti i stresa (DASS-21) i Skala prokrastinacije. **Rezultati.** Model koji čine osobine ličnosti bio je statistički značajan prediktor prokrastinacije. Prediktorske varijable koje su se pokazale kao statistički značajne bile su neuroticizam, kao pozitivni korelat prokrastinacije i savesnost kao negativan korelat. Niti jedna od dimenzija negativnog afektiviteta (anksioznost, depresivnost i stres) nije se parcijalno pokazala kao značajan prediktor. **Zaključak.** Nedostatak savesnosti se može smatrati suštinom prokrastinacije, dok neuroticizam, odnosno pojedine njegove facete, poput anksioznosti, mogu biti podsticaj za izbegavanje zadataka. Rezultati se mogu upotrebiti u svrhu davanja preporuka psihološkim službama u školama o tome koji su faktori značajni u sagledavanju problema prokrastinacije kod učenika.

Ključne reči:
anksioznost; ličnost, procena; aktivnost, odlaganje; studenti; ankete i upitnici.

Introduction

Procrastination or intentional delay is a form of behavior that involves delayed decision-making or/and completing tasks, leaving them for later despite the fact that such behavior can lead to negative consequences. It is one of the more important factors affecting the academic achievement of students. Burka and Yuen [1] believe that the protection of self-

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esteem might be a potential reason for procrastination. Namely, self-esteem depends on the ability assessment, and based on the tasks performed. When the completion of tasks is delayed, it is not easy to assess one's abilities, neither by others nor by oneself, thus the individual's self-esteem is undermined.

Solomon and Rothblum [2] define procrastination as the intentional delay of starting or finishing a task. When we talk about procrastination, the context in which procrastination occurs must also be taken into account. According to one study [3], students who procrastinate at university do not necessarily delay their daily tasks. In this sense, procrastination would entail postponing important and necessary tasks by doing something else which is of lower priority and less essential. Poor time-management, as well as poor self-control and self-reinforcement can be some of the reasons for such behavior [4]. Another possible cause, especially among the students, may be the fear of social exclusion, that is, the need to spend time with peers in order to be accepted by them [3].

Rothblum et al. [5] have defined academic procrastination as a tendency to always or almost always delay academic assignments, and always or almost always experience the anxiety associated with this delay. A positive statistically significant correlation was revealed between academic procrastination and personal anxiety and situational anxiety which is in accordance with the theoretical propositions that procrastination always leads to negative consequences, and is accompanied by negative feelings and anxiety in the learning process [6].

The studies that have analyzed procrastination show a high prevalence of procrastination in university students, although the negative consequences of this behavior are being widely discussed and efforts are being made to reduce it [7]. Steel [8] believes that procrastination is a problematic behavior because around 50% of people who procrastinate experience the negative consequences of such behavior. The data on postponing important tasks by university students say that the frequency of procrastination ranges between 50% and 90% [9].

When examining personality traits, a series of studies have consistently confirmed the association of low conscientiousness and, to some extent, elevated neuroticism with procrastination as a trait [10, 11]. The correlations between conscientiousness and procrastination are often so high that they suggest that procrastination is only one of the facets of conscientiousness [11]. However, despite the relatively high negative correlations between conscientiousness and procrastination, the researchers agreed that these were two separate constructs, with conscientiousness being a higher-order factor and explaining 24% of the variance of procrastination [12].

Procrastination is often linked to an individual's emotional functioning. The authors who report on a positive relationship between anxiety and procrastination point out that procrastinators often emphasize their fear of failure. People prone to procrastination show a greater degree of anxiety than those not prone to procrastination. Some researchers consider anxiety to be the primary motive for chronic procrastination [10]. Lay [13] links procrastination to negative affective outcomes such as high levels of depression and anxiety and low levels of self-esteem. Van Eerde [11] reports a moderate relationship between procrastination and depression. The abovementioned author suggests that there is not enough clear empirical evidence regarding the direction of causality between procrastination and mood variables: whether procrastination is a consequence of depression and/or anxiety, or procrastination itself plays a role in stimulating these conditions. Either way, avoidance behavior is a central component in the conceptualization and treatment of depressive and anxiety disorders.

Studies on procrastination in our country and region indicate the average level of procrastination among the students [14, 15] and a low but statistically significant relationship between procrastination and anxiety [16], as well as the negative correlation with average grade point as the quantitative measure of academic success.

By conducting an analysis on a random sample of students (n = 240) attending the University of Rijeka, the authors found that students who repeat the year procrastinate more than students who complete their studies on time [3]. According to the same research, there is a positive correlation between procrastination and the symptoms of depression, and a negative correlation between procrastination and life satisfaction, self-satisfaction as a student and the average grade during studies.

This study tended to identify some of the determinants of procrastination in order to shed light on this topic, without going into the microanalysis of the cause and effect relationships of individual correlates. Particular emphasis was placed on personality traits and negative affectivity dimensions as some of the correlates of procrastination analyzed so far.

The overall aim of the study was to examine the relationships between personality traits (neuroticism,extraversion, openness to experience, agreeableness and conscientiousness), dimensions of negative affectivity (depression, anxiety and stress) and procrastination in a sample of high school students. More specifically, the study examined the possibility of predicting procrastination based on personality traits and negative affectivity in the sample. To be more precise, this study intended to establish the possibility of procrastination prediction based on personality traits as well as negative affectivity on the aforementioned sample. In addition to that, differences in the level of procrastination expressiveness with regards to the gender and class of the examinees were examined.

Methods

Sample

The sample consisted of 900 students from 9 high schools in Niš. The call for participation was sent to all high schools in Niš. Nine schools responded, and their principles provided their consent for research realization. Third-grade and fourth-grade high school students were examined. The schools surveyed were: four grammar schools (400 students in total); High School of Economics (100 students); School

of Catering and Tourism (100 students); Trading School (100 students); Food Processing and Chemistry School (100 students); Medical School (100 students). Quota sampling was used. The quotas were based on the number of respondents by school and grade attended (100 students from each school and 50 students from each grade, that is, 450 students from each grade in total). Gender-wise, the sample included 332 boys and 568 girls.

Survey procedure

The students were surveyed during the class, and they were previously explained the purpose of the research, as well as the anonymity of the data. All students agreed to participate in the survey. The survey was conducted during the 2017/18 school year. The research was conducted within the project "Help and Support in Creating a Professional Profile – Choose the Right Path" financed by the City of Niš, organized by the Students Psychological Counseling within the Students Cultural Center and Center for Students Support within the University of Niš. The University of Niš and the Faculty of Philosophy in Niš provided their support as well as consent for the research realization. Particular consents for research conducting within the examined schools have been signed by the principles of all schools participating in the research.

Research variables and instruments

Personality traits (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) were operationalized with scores from the Big Five Personality Inventory subscales (Big Five Inventory – BFI) [17]. This instrument represents the operationalization of the Big Five personality traits. It contains 44 items used to evaluate five dimensions. All subscales have a satisfactory level of reliability: in a sample of 599 members of the general population (348 females) between 16 and 72 years of age, the Cronbach's alpha is 0.69 for extraversion, 0.70 for agreeableness, 0.66 for conscientiousness, 0.65 for neuroticism, and 0.81 for openness to experience [18]. The scale is available for use. In a sample of 900 high school students, the Cronbach's alpha was as follows: 0.67 for extraversion, 0.73 for agreeableness, 0.70 for conscientiousness, 0.81 for neuroticism, and 0.78 for openness to experience.

Depression, anxiety, and stress – these variables were operationalized with scores from the Depression, Anxiety, and Stress Scale subscales (DASS-21) [19]. The scale consists of three subscales: Depression (e.g., "I felt I had nothing to hope for"), Anxiety (e.g., "I felt scared for no reason"), and Stress (e.g., "I noticed I was getting annoyed"). The respondents gave the responses by using the 4-level Likert-type scale (from 0 – not at all, to 3 – mostly or almost always), in order to say how they had felt in the past week. The study used the official translation of the DASS-21 scale into Serbian [19]. The reliability of the entire scale expressed by the Cronbach's alpha is high and amounts to 0.92. The reliability of the scale for the tested sample was 0.91.

Procrastination was operationalized with the score from the Procrastination Scale [20]. It was designed to assess the tendency to procrastinate in general across a range of tasks. It contains twenty statements, twelve of which relate to obligation delay and eight to non-avoidance behavior. The scale is the five-level Likert type, with a range from 1 – extremely uncharacteristic to 5 – extremely characteristic. Adding up all the items gives a sum whose higher value indicates a greater tendency to procrastinate. The Cronbach's alpha is 0.82 which indicates the scale is reliable. The authors of this paper obtained permission to use the scale for research purposes. After obtaining permission to use the scale, a reverse translation was performed and the scale was used in a sample of high school students in Niš. The reliability of the scale on the sample tested was 0.78.

Questionnaire on sociodemographic data designed for the purposes of this research contained the questions regarding student gender, grade, high school attending, and parents' education level.

Data analysis

In order to examine the possibility of procrastination prediction based on personality traits as well as negative affectivity dimensions, descriptive statistics technique and technique of hierarchy linear regression were used.

Results

Table 1 shows the descriptive parameters related to the procrastination.

During the first set of correlation analysis, the relationship between personality traits, negative affectivity dimensions and procrastination were examined (Table 2). As for the results relevant to this research, significant relationship between neuroticism, extraversion and conscientiousness on the one hand, and procrastination on the other were identified. Namely, the findings showed that neuroticism had a positive correlation with procrastination, while the remaining four personality dimensions had a negative correlation with the phenomenon in question. With respect to the correlation between anxiety, depression and stress, they were also significant and positive, that is, the higher the values of a person's negative affectivity dimensions, a person is more likely to procrastinate.

Intercorrelation values among the dimensions of the

Table 1

Descriptive indicators of high school students' procrastination

Variable	Min–Max	Mean ± SD	Variance	Skewness	S.E	Kurtosis	S.E
Procrastination	22.00–98.00	55.45 ± 11.39	129.72	0.04	0.09	0.45	0.17

Min – minimum; Max – maximum; SD – standard deviation; S.E. – standard error.

Five-Factor Model ranged from 0.024 ($p > 0.05$) between neuroticism and extraversion, to 0.266 ($p < 0.01$) between agreeableness and conscientiousness. With regard to the intercorrelation between the different negative affectivity dimensions, the results indicated that the highest correlation exists between stress and anxiety ($r = 0.671$, $p < 0.01$), while the lowest correlation observed was between stress and depression ($r = 0.605$, $p < 0.01$).

Hierarchical regression analysis was used to identify the significant effects of personality traits and negative affectivity dimensions on the level of procrastination. Procrastination was the criterion variable. In order to control the effect of personality traits on procrastination, the extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience were introduced as predictors in the first step, while the affectivity dimensions were added in the second step. Table 3 presents the data related to the possibility of procrastination prediction based on certain psychological variables (including personality traits, as well as negative affectivity traits).

Table 3 clearly showed that both prediction models were statistically significant. In the first model, personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) were a statistically significant predictors of procrastination, and their predictive power was medium in size – it explained 32.7% of the criterion variance. The common variance of personality traits and negative affectivity dimensions were 33.6%, while the change in the percentage of explained variance, after anxiety, depression and stress were introduced to the model, were significant. After introducing the dimensions of negative affectivity into the analysis, extraversion, as a personality trait, lost its statistical significance, while other traits identified as significant predictors were neuroticism, which had a positive correlation with procrastination, and conscientiousness which had a negative correlation with procrastination. None of the dimensions of negative affectivity (anxiety, depression, and stress) were shown to be a significant predictor in the second model.

The independent samples *t*-test was used to verify the significance of differences in procrastination rate in relation to the respondents' gender and grade they attended.

In regard to the gender of the respondents, no statistically significant difference was found between male high school students [mean (M) = 54.90, standard deviation (SD) = 10.72) and female high school students (M = 55.75, SD = 12.06) in terms of procrastination rate ($t = -1.015$; df = 898; $p > 0.05$). The results were similar with regard to the grade the respondents attended. Namely, there was no significant difference found ($t = 1.208$, df = 898, $p > 0.05$) in procrastination between 3rd grade high school students (M = 55.94, SD = 11.48) and 4th grade high school students (M = 54.97, SD = 11.28)

With regards to differences in procrastination expressiveness between the students enrolled in different schools, the research was shown that the highest rate of procrastina-

Table 2

Intercorrelation between personality traits, negative affectivity dimensions and procrastination

Variables	Stress	Anxiety	Depression	Procrastination
Extraversion	0.003	-0.067*	-0.182**	-0.135**
Agreeableness	-0.178**	-0.184**	-0.262**	-0.182**
Conscientiousness	-0.210**	-0.253**	-0.318**	-0.542**
Neuroticism	0.580**	0.474**	0.403**	0.300**
Openness to experience	0.033	-0.039	-0.055	-0.010
Procrastination	0.236**	0.280**	0.311**	–

***Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed).**

Table 3

The results of hierarchical regression analysis

Model	Predictors	Model summary	Independent contribution of predictors (ß ; *p*)
1	Extraversion	R = 0.572; R^2 = 0.327; ΔR^2 = 0.324 $F_{(5,894)}$ = 87.003; $p < 0.01$	-0.069 ; < 0.05
	Agreeableness		-0.029 ; > 0.05
	Conscientiousness		-0.485 ; < 0.01
	Neuroticism		-0.169 ; < 0.05
	Openness to experience		-0.058 ; > 0.05
2	Extraversion	R = 0.580; R^2 = 0.336; ΔR^2 = 0.330 $F_{(8,891)}$ = 56.469; $p < 0.001$ Change to R^2 = 0.009; $p < 0.01$	-0.054 ; > 0.05
	Agreeableness		-0.015 ; > 0.05
	Conscientiousness		-0.467 ; < 0.01
	Neuroticism		-0.133 ; < 0.01
	Openness to experience		-0.060 ; > 0.05
	Stress		-0.035 ; > 0.05
	Anxiety		-0.069 ; > 0.05
	Depression		-0.075 ; > 0.0

R – the coefficient of multiple correlation; R^2 – the coefficient of determination; ΔR^2 – the adjusted coefficient of determination; ß – standardized regression coefficient.

tion value was observed in medical school students (M = 58.4, SD = 11.24), while the lowest procrastination rate was recorded in Food Processing and Chemistry School (M = 52.39, SD = 10.90).

The statistical significance of differences in procrastination rate with regard to the school attended by respondents was verified by using the Brown–Forsythe test (Table 4), since Levene's test for homogeneity of variance (Levene's test result was 3.014, $p < 0.01$) showed that it was not statistically justified to use the F-test value because there was no homogeneity of variance across groups.

Based on the results shown in Table 4, we concluded that there were no statistically significant differences in the level of procrastination among students attending different schools.

Table 4

The statistical significance of differences in procrastination rate with regard to the school attended by respondents (Robust Test of Equality of Means)

Test	Statistic[a]	df1	df2	*p*
Brown-Forsythe	1.768	8	718.400	0.08

a – Asymptotically F distributed.

Discussion

It is almost impossible that any of us has not at least once delayed an obligation even though there was no rational reason for it. Although almost all age groups are familiar with the procrastination phenomenon, the majority of authors have devoted their research attention to procrastination among the high school and university students [21]. When it comes to the dominant reasons why procrastination occurs in high school students, authors such as Özer [22], as well as by Ebadi and Shakoorzadeh [23] indicate that more than half of high school students choose to procrastinate for reasons such as fear of failure, difficulty in decision making, laziness and fear of risk-taking. In addition to that, as additional procrastination factors in high school students, Asri et al. [24] listed the following: too burdensome, and difficult to work, insufficient knowledge, too perfectionist, bad management of learning, lack of self-regulation, stress and fatigue, lack of social support and indiscipline teachers. Academic procrastination, most importantly, leads to low learning achievement [24].

With regards to procrastination expressiveness on the examined sample of 900 high school students of both genders, average values (AS = 55.45) were below the theoretical average values (AS = 60), taking into consideration the examined scale.

Our main findings were related to examine the possibility of procrastination prediction based on knowledge of the values of personality traits and dimensions of negative affectivity. The results confirmed the possibility of predicting the level of procrastination based on a set of predictor variables consisting of personality traits such as extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience, as well as on the negative affectivity dimensions (stress, anxiety, and depression). Neuroticism and conscientiousness stand out as significant predictors of procrastination as well: respondents with higher values of neuroticism and lower values of conscientiousness delay their obligations more often, which fully coincides with some foreign studies [5]. Many studies have confirmed a positive relationship between neuroticism and procrastination [8, 10, 12, 13, 25]. Individuals who score high on neuroticism tend to procrastinate more. People with higher negative emotion had weak adaptation rate and low impulse control. Anxiety management training for neurotic persons may result in increase in educational motivation and then decrease in educational procrastination [26]. A study conducted by Johnson and Bloom [25] confirmed the significant predictor role of neuroticism in predicting procrastination. This particularly relates to the facets of impulsivity and vulnerability.

The same situation is observed concerning the conscientiousness dimension. There are also many foreign studies that confirm and support the negative relationship between conscientiousness and procrastination [8, 10, 12, 27]. According to the study which examined academic procrastination among international graduate students, conscientiousness was the only factor that made a unique contribution to the prediction of academic procrastination. Extraversion, neuroticism, openness and agreeableness did not make significantly unique contributions to the prediction of academic procrastination [28]. By emphasizing the general theoretical agreement among most authors on the strong negative relationship between procrastination and conscientiousness, Steel [8] suggests that procrastination should be conceptually defined as poor conscientiousness and self-regulation failure. Conscientiousness, agreeableness, and intellect also showed an indirect effect on reducing academic procrastination, mediated through the strategy of environmental control [29].

Although theoretically and conceptually procrastination is "diametrically opposed" to conscientiousness (especially its aspects such as – responsibility, commitment to hard work, self-discipline), the relationship between these two psychological variables is not so simple and straightforward. This relationship becomes particularly interesting when observed in the broader context of the intercorrelation between the particular dimensions of the Five-Factor Model, which have proven to be significant predictors of procrastination. For example, an interesting model for examining the relationship between neuroticism, conscientiousness, and procrastination is suggested by Lee et al. [12]. Namely, the aforementioned authors conducted a research in a sample of 354 students at the Midwestern University (USA), and received the empirical confirmation of their model, which predicts that conscientiousness is, in fact, a mediating variable between procrastination and neuroticism. However, since this paper was focused solely on the predictor role of personality dimensions in relation to the procrastination, we will not analyze in detail the interrelationship between the variables mentioned in the previous model.

With regard to the relationship between procrastination and certain sociodemographic variables, there were no significant differences in procrastination rates between the re-

spondents of different gender, age, or between those attending different high schools.

The data showing no significant differences in procrastination rate between male and female respondents is not consistent with some studies conducted in the region [16]. Considering that men and women have equal rights in our country in this modern age, and therefore the social expectations of women and men are quite the same, the results obtained showing the lack of differences in procrastination between male and female respondents are not surprising. The absence of differences in procrastination between male and female subjects is consistent with the results of some foreign studies [2].

Considering the structure of the sample, that is, the fact that the sample included the high school students attending the 3rd and 4th grade, the fact that there was no statistically significant difference in procrastination between the students attending different high school grades was expected and logical.

A large number of studies indicated the importance and pervasiveness of the procrastination, especially among college students and high school students [30, 31], and at the same time, they indicated the need to approach this phenomenon in a systematic, empirical manner with the clear intention of minimizing the negative effects of procrastination while, at the same time, acting preventatively in order to further reduced task delays and preserved mental health.

The main limitation of this study could be the sample, which only consisted of the high school students from Niš. In order to produce more generalizable results, high school students from other parts of Serbia should be included as well, since the local environment may be one of the factors directly or indirectly affecting procrastination. Furthermore, it would be useful to include some other important variables that may affect procrastination, such as self-esteem, self-efficacy, and factors related to academic achievement and school environment, etc. Finally, maybe some future studies should consider the interrelationship of the variables studied as well as the possible mediator and/or mediation model in order to identify the direction of influence of the different variables on procrastination.

Conclusion

The results confirmed the possibility to predict procrastination based on the values of personality traits obtained by the Five-Factor Model, as well as based on the values of negative affectivity states. From the aspect of personality traits, neuroticism and conscientiousness were identified as partially significant predictors, where neuroticism had a positive correlation and conscientiousness had a negative correlation with procrastination.

Depression, anxiety, and stress combined with personality traits did not turned out to be significant predictors of procrastination, although all these three concepts had a positive correlation with procrastination. Gender, grade, as well as the high school students attended did not prove to be significant factors that affect procrastination.

Obtained results may be used as suggestions to psychological institutions in schools which factors are significant for perceiving procrastination problems with students. In addition to that, this research might be beneficial to institutions in charge of offering psychological support to students within the University, as the results could be used for preparing prevention programs (recognizing, facing and overcoming early signs of procrastination) for final-year high school students planning to continue their education and become academic workers.

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