DEPRESSION, ANXIETY AND STRESS AS DETERMINANTS OF PROCRASTINATION IN JUNIOR KARATEKAS

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Abstract
The aim of the conducted research was to examine the contribution of predictor variables (depression, anxiety and stress) in predicting the criterion procrastination. The pertinent sample of adolescents (N =126) included junior karatekas age 16 to 18 (M = 17.5, SD = .83). Two measuring instruments were used: General Procrastination Scale (Lay, 1986) and Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995).Correlation analysis has determined that there are statistically significant and positive linear connections between the dimensions of psychological distress. The model of hierarchical regression has revealed that the predictor group of variables (depression, anxiety and stress) accounts for 12% of the total criterion variance of procrastination. Only the determinant depression (ß = .41, p ≤ .01) had the maximum positive and statistically relevant partial contribution in predicting the variability of procrastination. The calculated beta coefficient indicates that a higher degree of depression in adolescent karatekas intensifies their procrastination. On the other hand, regression has shown that the independent variables anxiety and stress do not significantly interact with the criterion, and therefore cannot statistically significantly predict the dependent variable procrastination in adolescent karatekas. The obtained results of the constructs examined in this research have theoretical and practical implications in explaining procrastination in adolescent karatekas.
Key words: psychological distress, karate, procrastination, adolescent, athletes

INTRODUCTION

Adolescence is a period between puberty and adulthood, and is characterized by intense physical, mental and emotional individual changes (Maglica, 2021). Procrastination is most often defined as postponing or neglecting tasks, goals or resolutions (Gendron, 2011, Živčić-Bećirević, Smojver-Ažić i Dorčić, 2015). The aforementioned authors believe that a person who intends to work suddenly because of the one or more options changes mind. Procrastinating or postponing commitments without valid reason is a relatively common phenomenon especially during adolescence (Chen, Sun & Wang, 2018; Ивановић, М., & Ивановић, У. 2015). Empirical studies (Ellingson et al., 2019, Ivanović, 2009; Renee-Renda et al., 2018) have shown that the variables depression – feeling dystrophy, hopelessness and self-deprecation, anxiety – subjective feeling of dread and helplessness, and stress – state of high awareness of organism which generates intensive emotions, correlate to procrastination. The research authors (Garinger et al., 2018; González-Hernández et al., 2018; Han et al., 2020; M. Ivanović & U. Ivanović, 2022; Reardon et al., 2019; Schinke et al., 2018) view depression, anxiety

and stress and the dimensions of psychological distress which correlates to procrastination. They believe that the linear correlation is largely determined by the psychological inflexibility, which means that the more intense general psychological distress intensifies psychological inflexibility which causes higher level of procrastination.

The studies (Laborde & Allen, 2016; Ivanović & Ivanović, 2021) have determined that adolescents with high level of procrastination express higher levels of anxiety when compared to the group of their peers who had low level of procrastination. The authors (Gustafsson, Sagar & Stenling, 2017; Ivanović & Ivanović, 2021) claim that anxiety and stress are the chronic generators of procrastination because delaying tasks causes temporary relaxation despite the negative results of such actions. The research authors (Maraba & ve Bulut, 2022; Ivanović, 2019) have found that there is moderate positive interaction between the variables depression, anxiety and procrastination, but noted that the direction of the linear correlations between the examined subscales and procrastination has not been determined. In addition, the studies (Yamaguchi et

al., 2022, Ivanović & Ivanović, 2018) have shown the complexity of the differentiation of procrastination due to the consequence of depression or anxiety or when procrastination functions as the reinforcement of those dimensions. In the research (Beutel et al., 2016; Ivanović, M. Milosavljević & Ivanović, U. 2015), gender dependent procrastination in adolescence was examined, and it has been determined that younger participants tend to procrastinate since they haven't developed study habits, and that male participants generally procrastinate more than females. Male adolescents act more aggressively than female adolescents because girls procrastinate less because they trust and accept that their parents control their behavior. In addition, the girls are significantly more oriented towards house work. On the other hand, parents allow adolescents more autonomy and motivate them to be active outside and therefore achieve better social status. These are likely the reasons for gender differentiation in procrastination, since female participants have more trust in parental influence that they do not delay their tasks but do them on time (Tibbett & Ferrari, 2019; Ивановић & Ивановић, 2015). Additionally, the authors Carratalá-Bellod ет ал., 2022; Çelikkaleli & Demir, 2022; Daaloul et al., 2019; Ивановић, М., Милосављевић & Ивановић, У. 2016; Ivanović, 2009); Khalfallah et al., 2021; Livazović & Kuzmanović, 2022; Nunes et al., 2021) have pointed out that, unlike with male adolescents, with female adolescents procrastination in in correlation to low self-esteem and depression. Conscientiousness is also a more relevant negative determinant with female adolescents, while emotional instability is a relevant positive determinant of procrastination.

Lately, the authors (Ivanović, M., & Ivanović, U. 2021; Josefsson et al., 2019; Kosar-Altinyelken et al., 2020; Mahmood et al, 2019) have been emphasizing the importance of identifying the complex relationships between depression, anxiety and stress which overlap in various ways. Seeing how no similar research that includes measuring the aforementioned constructs has been conducted in our country, the outline of the research has been created and from that the aim of this research has been formulated: examining depression, anxiety, stress and procrastination in mid-adolescent karatekas.

In accordance with the research subject, the aim of this empirical research has been formulated, which is to examine the influence of depression, anxiety and stress (as predictors) in predicting the variability of the criterion variable procrastination on the sample of junior karatekas. Keeping in mind the results of the aforementioned studies, as well as the aim of the conducted quantitative research, two hypotheses have been tested:

H_1 – statistically significant and positive correlation between general procrastination and the dimensions depression, anxiety and stress is expected.

H_2 – the assumption is that psychological distress (depression) is statistically significant and positive determinant of procrastination in adolescent karatekas.

Seeing how there is a deficit of research on the subject matter, especially research concerning athletes, as well as the variety of results, this study is expected to contribute to more clear insight and better understanding of the relations between depression, anxiety, and stress, and procrastination in junior karatekas.

RESEARCH METHODOLOGY

Participants and research process

The method of transverse cross-section included 126 karatekas. The average age of participants was 17.5 years of age (SD = .83). The pertinent sample consisted of karatekas from three clubs from Valjevo, Kolubara district: KC „Šodan", KC „014 Valjevo" and KC „Kizame". All participants had continuous training for minimum two years, three times a week. The research was conducted during the month of May, 2023. The participants and their parents were informed about the aim of the research and agreed to participate. The research was conducted in accordance with the postulates of the Serbian Academy of Innovation Sciences' science committee. Right before the anonymous testing, the instructions were read to the participants, and it was emphasized that the data would be used only for research purposes, and that they can quit without consequences at any time during research.

Measuring instruments

General Procrastination Scale – GPS (Lay, 1986)
GPS consists of 20 items and it measures the tendency to delay and avoid tasks, wasting time, and the tendency to have difficulties to realize a task, with the possibility of avoiding unpleasant activities. The

participants assess on a 5-point Likert scale how they have been feeling lately, and chooses one of the offered answers (from 1 – does not refer to me at all, to 5 – refers to me completely). Example of an item: "The tasks that I have a deadline for, I leave until the last minute". Total score for each participant is presented as a simple linear combination of the selected values. Higher the score on the scale means higher tendency to delay tasks, to procrastinate. In this research, the General procrastination Scale had the acceptable reliability, and the Cronbach's alpha coefficient was (α = 82).

Depression, Anxiety and Stress Scale – DASS-21 (Lovibond & Lovibond, 1995)

DASS-21 contains 21 items which assess three domains of psychological distress: depression, anxiety and stress. Each dimension is presented through seven items. The subscale depression measures dysphoria, hopelessness, devaluation of life, self-regulation, lack of interest/involvement in events, anhedonia and inertia (for example, "I felt like I had nothing to hope for"). The subscale anxiety measures the reaction of the autonomic nervous system, skeletal muscles, situational anxiety and subjective experience of anxiety affect (for example, "I felt afraid for no reason"). The subscale stress refers to high alert of the organism and negative emotions created as a consequence of unpleasant or threatening events (for example, "I noticed that I get worked up"). Scores for each subscale ranged from 0 to 21. The participants had the task to assess on a 4-point Likert scale (from 0 – does not refer to me at all, to 3 – refers to me completely) how they felt about what the claim suggests in the last seven days. On out sample, the Cronbach's alpha coefficient showed

satisfactory internal consistency and was .90 for the subscale depression, .79 for the subscale anxiety, and .78 for the subscale stress.

Statistical methods of data procession

Descriptive parameters of central tendency were calculated for all variables used in the analysis: arithmetic mean, standard deviation, standard error of the mean, skewness and kurtosis. The Pearson correlation coefficient and multiple regression analysis were used to check the formulated hypotheses. Statistically significant result was based on the probability level *(p ≤ .05 или p ≤ .01)*. The 28.0 version of the software IBM SPSS *Statistics* was used for data processing.

RESEARCH RESULTS

Table 1. shows the descriptive statistics for the manifested variables used in this research. s clear that procrastination has the highest arithmetic mean, which means that procrastination is important for depression, anxiety and stress of participants. The obtained mean values and the variability on the aforementioned scales suggest that participants manifest the state of general psychological distress, which is likely generated by the circumstances in which the research was conducted or was caused by the specificity of the sample. The calculated coefficients of the vertical and horizontal deviation from the normal distribution range within acceptable values +/- 1. It means that the participants' responses are arranged in accordance with the Gaussian distribution which further means that the results are suitable for conducting the parametric statistical analysis (Tabachnik & Fidell, 2013).

Table 1. Descriptive statistics of the used scales

Skale	Min	Max	M	SD	Sk	Ku
Procrastination	18	.89	.49	9.15	.48	.26
Depression	.00	.19	8.05	4.90	.36	.44
Anxiety	.00	.19	6.23	4.22	.95	.57
Stress	.00	.19	13.01	4.36	.10	.13

Legend. Min = minimum value; Max = maximum value; M = arithmetic mean; СD = standard deviation; Sк = standardized skewness; Кu = standardized kurtosis. Value of standard error (SE) of skewness (Sк = .22) и kurtosis (Кu = .17).

The correlation analysis was conducted with the aim of determining the connection between the variables included in the research (Table 2). The table shows that the subscales which examine DASS-21 are statistically significant and mutually dependent. Linear dependency within the correlation matrix ranges from -.15 between procrastination and stress to .73 between anxiety and stress. The obtained

results show that there is correlation of moderate intensity and positive direction between the dimensions of general psychological distress (stress, anxiety and depression). Additionally, the calculated Pearson correlation coefficients point to the existence of the mutual basis for these measuring variables. This means that with the increase of the value of the Pearson correlation coefficient in one of

the aforementioned variables the experiencing of the other two increases and vice versa, with the decrease of the value of the Pearson correlation coefficient in one of the subscales, the intensity level of the remaining two decreases as well.

Table 2. Intercorrelations between the measuring variables

Variables	Depression	Anxiety	Stress
Depression	-		
Anxiety	.59**	-	
Stress	.68**	.73**	-
Procrastination	.18*	.32**	.15*

Annotation. * $p \leq .05$; ** $p \leq .01$.

Table 3. Variables depression, anxiety and stress as predictors of procrastination

Predictors	R^2	β
Depression		.51**
Anxiety	.18**	.09
Stress		-.11

Legend: β = standardized regression coefficient; R^2 = coefficient of multiple determination; ** $p \leq 0.01$

The multiple regression analysis was conducted after calculating the correlations between the predictor variables which had the aim to examine the prediction of the three domains of psychological distress: depression, anxiety and stress (Table 3).

The coefficient of multiple determination showed, with 99% of the reliability, that the group of predictor variables used accounted for 18% of the variance proportion of the criterion procrastination, where subscale depression (β = .51, $p \leq .01$) turned out to be statistically significant predictor of procrastination. The obtained findings indicate that the more expressed level of depression in participants the effect on the assessment of procrastination grows, and similarly the lower level of depression points to the decrease of the assessment level of procrastination. The results of the conducted research have proven, with the risk level of 5% or 1%, the tested hypotheses about the statistical significance and positive correlation between general procrastination and the dimensions depression, anxiety and stress (H₁), and that the psychological distress (depression) is statistically significant and positive determinant of procrastination in junior karatekas (H₂).

DISCUSSION AND CONCLUSION

The aim of this quantitative research was to check the contribution of the DASS-21 items (depression, anxiety and stress) as predictors of the variance of criterion variable procrastination in junior karatekas.

Taking into account the linear correlation, statistically significant and positive correlation between the variables of psychological distress and the variable procrastination was determined on our sample, and is in accordance with the findings (Maraba & ve Bulut, 2022; Mesquiti, 2022; Minichiello, 2022; Ivanović. M., Ivanović, U. 2022).

That points that the correlates deprecation of self and life in general, feeling of hopelessness and procrastination increase and decrease simultaneously. Therefore, the obtained results show that adolescent athletes who possess higher levels of emotional stability, meaning positive mood, manifest higher level of procrastination. The aforementioned findings are connected as they represent a generator of procrastination in adolescence rooted in lack of motivation (Coudevylle et al., 2020; Ivanović, M., Milosavljević & Ivanović, U. (2015). That implies the following: 1) if athletes lack faith in their competence, that they can successfully complete tasks, they can complete them, then their level of procrastination is lower; 2) if athletes find many flaws and shortcomings in the goals then their reward for achieving those goals is lower, and procrastination is higher; and 3) if the due date for achieving a goal is far away, procrastination in karatekas is higher. The dimension depression, assuming lack of faith in one's own competences, and perceiving individual goals as less recommendable or timely, are the experiences that incite procrastination which is then realized as the switch of unpleasant activities with other activities that are pleasant and make up for negative results (Bloom, 1995; Steel, 2007; Ivanović, M., Ivanović, U.,

& Milosavljević, 2014). Reconciling bad results with procrastination can cause long term perception of failure and lack of self-value, which further generates procrastination making the position one finds oneself in hopeless (Pop & Marian, 2022; Ivanović. M., Ivanović, U. 2021).

Keeping in mind the research on gender differences (Butler, 2019; Eagly et al., 2020; Herrmann, Koeppen & Kessels, 2019; Ivanović, M., & Ivanović, U. 2018), unlike male adolescents, female adolescents have more intimate communication with individuals, most often parents, friends and romantic partners. The aforementioned authors believe that decrease in the intensity of support in communication with close people affects the intensity of the correlation between depression or procrastination. That gives room for the assumption that support can reduce social isolation and other unpleasant situations. On our sample, the regression of the variable anxiety and stress in junior karatekas did not show these psychological distresses as statistically relevant determinants of the criterion procrastination. The obtained results are also in accordance with the studies (Carratalá-Bellod et al., 2022; Çelikkaleli & Demir, 2022; Ивановић, М., Милосављевић & Ивановић, У. 2016; Ivanović, 2009); Livazović & Kuzmanović, 2022).

This cross-section study has a few methodological limitations which should be analyzed while interpreting the obtained results. Firstly, the sample was pertinent and relatively insufficiently representative when taking into account geographic area, so it is not possible to generalize the findings to include entire population of adolescent karatekas. Therefore, we suggest that future research include greater number of adolescent karatekas of various age, both genders, and from entire Serbia. The second limitation has to do with the chosen method of self-assessment and because of that methodological variance and the problem of self-perception can occur. In addition, it is likely that certain participants gave dishonest and socially desirable answers which could be influenced by the sitting arrangements since the participants sat close to one another while filling in the questionnaires.

However, despite these methodological limitations, our transverse research offers relevant results ad solid basis for further research, and therefore also has important practical implications. It shows that psychological distress depression accounts for a significant part of the proportion of the dependent variable procrastination in junior karatekas, which can serve as a guideline for future research of this subject matter.

Keeping in mind the relatively small percentage of the explained variability of procrastination which can be attributed to chosen predictor variables of psychological distress, as well as to the relatively big part of the residual unexplained variance, future research must include other variables such as peer and parent assessment in order to obtain more realistic indicators of the criterion variable. However, other relevant variables should be examined as well, but in a specific situation in sport, for example pro-social behavior and emotional intelligence, which could have a significant function in predicting procrastination in junior karatekas. Future research should also test the differences between depression anxiety and stress in both male and female participants, as well as the contribution of coach to their procrastination. Finally, future studies should be longitudinal or experimental because that will enable fuller understanding of the complex relations between the variables.

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