

Linking Personality to Psychophysiological Responses: An Experimental Approach in Academic Examinations

Kişiliği Psikofizyolojik Tepkilerle İlişkilendirme: Akademik Sınavlarda Deneysel Bir Yaklaşım

*İlker BALIKÇI¹, Serdar TOK², Erdal BİNBÖĞA³, Mert İŞBİLİR⁴

¹ Manisa Celal Bayar Üniversitesi, Spor Bilimleri Fakültesi, Manisa, TÜRKİYE / ilker.balikci@cbu.edu.tr / 0000-0002-6501-4046

² Manisa Celal Bayar Üniversitesi, Spor Bilimleri Fakültesi, Manisa, TÜRKİYE / serdar.tok@cbu.edu.tr / 0000-0003-4961-9202

³ Ege Üniversitesi, Spor Bilimleri Fakültesi, İzmir, TÜRKİYE / erdal.binoğa@ege.edu.tr / 0000-0003-1666-7304

⁴ Department of Physical Education & Sports Science, Democritus University of Thrace, Komutini, GREECE / mert_isbilir@hotmail.com / 0009-0006-5750-4201

* Corresponding author

Abstract: This study investigated the relationships among conscientiousness, narcissism, and psychophysiological responses, measured by skin conductance level (SCL), during an academic examination. Thirty sports science students (14 females), with a mean age of 21 years (SD = 2.1), participated. The experiment included four consecutive four-minute phases: baseline, anticipation, challenge, and recovery. During baseline, participants completed personality assessments, and their SCL was recorded. In anticipation, they read a 750-word essay on sports history. The challenge phase consisted of a 15-question test based on the essay, with SCL continuously recorded during both anticipation and challenge. In recovery, SCL was measured after the exam. Correlation and linear regression analyses were used to determine whether conscientiousness and narcissism predicted variation in SCL scores. Results indicated that these traits accounted for a significant proportion of changes during and after the examination.

Keywords: Conscientiousness, academic examination, narcissism.

Özet: Bu çalışma, akademik bir sınav sırasında vicdanlılık, narsisizm ve deri iletkenlik düzeyi (SCL) ile ölçülen psikofizyolojik tepkiler arasındaki ilişkileri araştırmıştır. Ortalama yaşı 21 olan (SD = 2,1) otuz spor bilimleri öğrencisi (14 kadın) katılmıştır. Deney, dört ardışık dört dakikalık aşamadan oluşmuştur: temel durum, beklenti, meydan okuma ve toparlanma. Temel durumda, katılımcılar kişilik değerlendirmelerini tamamlamış ve SCL'leri kaydedilmiştir. Beklenti aşamasında, spor tarihi üzerine 750 kelimelik bir makale okumuşlardır. Meydan okuma aşaması, makaleye dayalı 15 soruluk bir testten oluşmuş ve hem beklenti hem de meydan okuma sırasında SCL sürekli olarak kaydedilmiştir. Toparlanma aşamasında, sınavdan sonra SCL ölçülmüştür. Öz denetim ve narsisizmin SCL düzeyi ile ilişkisini belirlemek için korelasyon ve söz konusu kişilik özelliklerinin SCL'deki değişim için öngörücü gücünü test etmek için ise doğrusal regresyon analizleri kullanılmıştır. Sonuçlar, bu özelliklerin sınav sırasında ve sonrasında meydana gelen değişikliklerin anlamlı bir bölümünü açıkladığını göstermiştir.

Anahtar Kelimeler: Öz denetim, akademik sınav, narsisizm.

Received: 20.01.2026 / Accepted: 30.04.2026 / Published: 30.04.2026

<https://doi.org/10.22282/tojras.1868129>

Citation: Balıkçı, İ., Tok, S., Binoğa, E., & İşbilir, M. (2026). Linking personality to psychophysiological responses: An experimental approach in academic examinations. *The Online Journal of Recreation and Sports (TOJRAS)*, 15(2), 273-278.

INTRODUCTION

Conscientiousness is a higher-order personality trait within the Big Five model, encompassing competence, achievement orientation, persistence, and self-control (Chamorro-Premuzic & Furnham, 2004; Costa Jr & McCrae, 1992). Educational research consistently identifies conscientiousness as a strong predictor of academic success. For example, Conrad & Patry (2012) found a strong relationship between conscientiousness and students' final grades. Rahafar, Maghsudloo, Farhangnia, Vollmer, & Randler (2016) reported similar results, confirming the positive correlation between conscientiousness and school success. A recent meta-analysis also found that conscientiousness was the strongest predictor of grade point average in school (Vedel, 2014).

Another interesting point concerning conscientiousness is its link with general positive affect. In this regard, considerable empirical evidence supports an association between conscientiousness and general positive affect (Bartley & Roesch, 2011; Gartland, O'Connor, Lawton, & Ferguson, 2014). Furthermore, conscientiousness has been associated with the downregulation of emotions (Javaras et al., 2012a; Jensen-Campbell et al., 2007). In addition to positive affect and emotion regulation, empirical evidence suggested that conscientiousness might also be associated with psychophysiological responses. In this regard, Javaras et al. (2012) found that conscientiousness, as a personality trait, can facilitate electromyographic recovery of the corrugator muscle in response to negative pictures. Also, in another study by Stough, Donaldson, Scarlata, & Ciorciari (2001), conscientiousness was associated with EEG in frontal, occipital-parietal, and central-temporal areas.

Despite these established relationships, few studies have examined whether conscientiousness influences students' psychophysiological responses during academic

examinations. It is also important to investigate whether conscientiousness is associated with students' psychophysiological recovery immediately after an examination.

Narcissism may also predict students' psychophysiological responses during and after academic examinations. We define narcissism as a non-clinical personality trait characterized by a self-centered, entitled, and manipulative interpersonal orientation (Morf & Rhodewalt, 2001), a cognitive and affective preoccupation with the self (Westen, 1990), and a need for admiration. The relationship between narcissism and academic performance remains inconsistent. Although narcissism is linked to academic entitlement (Turnipseed & Cohen, 2015) and self-perceived academic success (Bipp et al., 2020), a meta-analysis by King (2000) found no association with actual academic success. In contrast to conscientiousness, evidence suggests a connection between narcissism and negative affect (Jauk et al., 2017; Kelsey et al., 2001; Miller & Campbell, 2008). Given that academic settings can challenge the grandiose self, examining the links among narcissism, negative affect, and related psychophysiological responses is important. However, whether narcissism is associated with students' psychophysiological responses during and after academic examinations remains unclear and warrants further research.

Skin conductance level (SCL) is a widely used marker of the sympathetic branch of the autonomic nervous system that can represent students' psychophysiological responses to an academic examination. SCL varies depending on the quantity of sweat secreted by the eccrine sweat glands, which are mainly located in the hypodermis of the palmar and plantar regions, and they generate sweat, which is excreted through ducts (Groscurth, 2002). SCL, which stems from the reticular formation centres within the brainstem,

thalamus, motor cortex, anterior and posterior cingulate cortex (Fredrikson et al., 1998; Luria, A. R., & Homskaya, 1970), can reflect central nervous system activity associated with attentional, affective, and motivational processes (Critchley, H., Nagai, 2013). Antecedent studies indicated a possible link between conscientiousness and more stable SCL under stressful circumstances (Binboga et al., 2012; Hidalgo-Muñoz et al., 2021).

The present study investigates the association between personality traits of conscientiousness and narcissism and psychophysiological responses represented by SCL during an experimental academic examination. More importantly, the present study also explores whether conscientiousness and narcissism might be associated with immediate psychophysiological recovery following an academic examination. We hypothesized that conscientiousness should be inversely correlated with SCL measured during and after the examination. Also, narcissism should be positively correlated with SCL measured during examination and recovery following examination.

METHODS

Participants: Thirty undergraduate sports science students (14 female) aged 20 to 25 ($M = 21.7$, $SD = 2.1$) participated in the study. Participants were required to abstain from medications or ergogenic aids that can affect the nervous and cardiovascular system functions, and have no previously existing acute or chronic cardiovascular and psychiatric diseases. The local Ethics Committee approved all experimental procedures, participants signed informed consent before the study, and all data were collected in accordance with the latest version of the Helsinki Declaration.

Measures

Skin Conductance Level Analysis: We recorded SCL in an isolated room with an ambient temperature of 23 °C. We recorded all SCL signals using a Nexus 10 data acquisition system and analysed them offline with the Biotrace software package. Measurements were made using Ag/AgCl electrodes that were placed on the distal pads of the middle and index fingers of the non-dominant hand. The data were sampled at 32 Hz and stored on computer disks for subsequent analysis. Signals were expressed in microsiemens (μS). The tonic component of the SCL was calculated as described by Boucsein (2012).

Personality Measures

Conscientiousness: We used items from the short form of the Five-Factor Personality Inventory (FFPI) developed by Tatar (2005) to assess conscientiousness; this 85-item inventory evaluates the five main personality traits: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Participants responded to the items via a 5-point format. The internal consistency score for the conscientiousness factor was 0.75.

Narcissism: We measured narcissism via the short version of the Narcissistic Personality Inventory (NPI-16) developed by Ames, Rose, and Anderson (2006). The NPI-16 is a 16-item forced-choice measure: one narcissistic and the other non-narcissistic. Narcissistic responses are summed to

calculate an overall narcissistic personality score. Atay (2009) adapted the NPI-16 into Turkish.

Procedure: The first author personally invited individuals to participate in the study and conducted all experiments in a room specifically designed for the study. Participants reported no physical or mental illness at the time of the study. Participants were asked not to consume alcoholic drinks for 48 hours and caffeinated drinks for 2 hours before the experiment. Upon arrival at the laboratory, participants provided informed consent and completed the psychometric measures described in detail earlier in this paper. Then, the participants were seated in a chair, and an SCL sensor was attached to their non-dominant middle and index fingers for psychophysiological recording. The experiment consisted of four consecutive periods, each lasting 4 minutes.

Baseline Period: In the experiment's first period, the participants' baseline SCL was recorded for four minutes while resting. During this period, participants were asked not to talk and move. Anticipation Period

The first author described the experimental procedure and tasks during this period. Accordingly, we instructed participants that there would be a history exam and that individual exam scores would be posted on faculty notice boards, the intranet, and experimenters' social media accounts. Then, we asked participants to choose one of four identical envelopes containing 750-word history essays. We instructed participants to read and understand the 750-word essay in four minutes while their SCL responses were recorded.

Challenge Period: At the end of the anticipation task, the experimenter retrieved the essay and gave the participant a standard examination paper consisting of 15 questions. The experimenter instructed participants to answer all questions within the 4-minute time limit, while their SCL responses were recorded.

Recovery Period: During the last period of the experiment, the experimenter told participants that the exam was over and instructed them to rest for 4 minutes while their SCL responses were measured.

Statistical Analysis: To analyze the obtained dataset, we first calculate Pearson correlation coefficients between SCL measured during the experiment and the personality traits of conscientiousness and narcissism. Then, we tested whether a regression model including conscientiousness and narcissism could explain variation in EDA measured during the experiment

RESULTS

As illustrated in Table 1, Pearson correlation analysis revealed that conscientiousness negatively and significantly correlated to SCL recorded during the baseline ($r = -.39$, $p = .039$), anticipation ($r = -.45$, $p = .012$), challenge ($r = -.44$, $p = .016$), and recovery periods ($r = -.49$, $p = .006$). Narcissism was only significantly and positively correlated with SCL during the baseline ($r = .36$, $p = .049$) and challenge periods ($r = .39$, $p = .034$). However, the relationship between narcissism and SCL recorded during the anticipation ($r = .34$, $p = .062$) and recovery periods ($r = .32$, $p = .085$) was not statistically significant.

Table 1. The association of personality traits with SCL during the entire experiment

	Baseline	Anticipation	Challenge	Recovery
Conscientiousness	-.39*	-.45**	-.44*	-.49**
Narcissism	.36*	.39*	.34	.32

*P<.05, **P<.01

Given the significant correlations between personality traits and SCL, we performed a series of linear regression analyses to determine whether a regression model comprising conscientiousness and narcissism could predict SCL variation across the entire experiment. Before

conducting regression analyses, all assumptions of linear regression were evaluated via Q-Q plots. We also checked Linearity and homoscedasticity through scatterplots of standard residuals. The results of these analyses indicated no major deviations for the linear regression analyses.

Table 2. The ability of conscientiousness and narcissism to predict SCL

		B	Beta	T	R	R ² _{adj}
A Baseline	Constant	4.38		2.75		
	Conscientiousness	-.977	-.378	-2.30*	.524	.22
	Narcissism	.150	.361	2.20*		
B Anticipation	Constant	6.85		3.47		
	Conscientiousness	-1.49	-.451	-2.84*	.568	.27
	Narcissism	.183	.343	-2.16*		
C Challenge	Constant	7.26		3.30		
	Conscientiousness	-1.63	-.435	-2.78*	.583	.29
	Narcissism	.233	.387	2.47*		
D Recovery	Constant	7.53		3.77		
	Conscientiousness	-1.68	-.493	-3.16*	.588	.30
	Narcissism	.175	.318	2.04		

As illustrated in Table 2A, the regression model of conscientiousness and narcissism predicted significant variation in SCL during the baseline period. Tables 2B and 2C show that the same regression model predicted a significant change in SCL during the anticipation and challenge period. Examination of the adjusted R² reported in Table 2A, 2 B, and 2C revealed that the predictive ability of conscientiousness and narcissism was greater during the anticipation and challenge periods than during the baseline period. Lastly, as shown in Table 2D, the regression model explained a significant proportion of the SCL recorded during the recovery period. Only conscientiousness was a significant predictor during the recovery period.

DISCUSSION

The present study aimed to examine whether conscientiousness, together with narcissism, could predict students' psychophysiological responses during an experimental academic examination. The data provided some support for our hypothesis. In this regard, the results indicated that conscientiousness negatively predicted variation in SCL recorded during the challenge, anticipation, and recovery periods. In other words, conscientiousness buffers sympathetic nervous system activity when students face a severe academic stressor. Moreover, conscientiousness facilitated psychophysiological recovery immediately after academic stress.

On the other hand, narcissism was a positive predictor of students' psychophysiological responses represented by SCL during exposure to an experimental academic stressor. In other words, we found narcissism associated with more intense psychophysiological response patterns during the anticipation and challenge periods. However, narcissism was unrelated to SCL during the recovery periods.

The first finding we want to deal with is the negative association between conscientiousness and SCL observed

during the experiment. Formerly, researchers examined conscientiousness predominantly as an antecedent of performance in various fields. Moreover, rather than conscientiousness, researchers primarily considered neuroticism and extraversion as personality traits associated with psychophysiological reactions to stress. However, the present study revealed that conscientiousness may also predict physiological stress reactions in academic settings.

Past research has shown that highly conscientious individuals may better cope with stress (Bartley & Roesch, 2011). The core features of conscientiousness, such as self-regulation, persistence, and impulse control (McCrae & John, 1992), might lead to a reduced SCL response during the experiment and during recovery after the experiment. Conscientiousness is also associated with health-related behaviours (Saklofske, Austin, Galloway, & Davidson, 2007). The association of conscientiousness with stress tolerance (Besser & Shackelford, 2007) also supports the negative association between conscientiousness and psychophysiological responses. Another previous study by Saus, Johnsen, Eid, and Thayer (2012) supports the link between conscientiousness and psychophysiological responses during a stressful task. Accordingly, Saus, Johnsen, Eid, and Thayer (2012) demonstrated that conscientiousness might lead to a more complete and quicker psychophysiological recovery following a stressful flight simulation.

The stress appraisal style of conscientious individuals may provide another theoretical ground for explaining the negative association between sympathetic nervous system activity, as evidenced by reduced SCL in response to experimental academic stress. Consequently, Sesker (2019) conducted a comprehensive study, which found that conscientiousness is linked to problem-focused coping strategies rather than emotion-focused ones. Murphy et al. (2013) reported that students with a high level of

conscientiousness experienced less chronic academic stress, which may stem from conscientious individuals' tendency to engage in problem-focused coping strategies.

Despite the results of the present study and the above-cited studies showing that conscientiousness might suppress both self-reported and objectively measured stress responses, past research has also produced findings indicating the opposite. For example, Dahm et al. (2017) reported a positive association between conscientiousness and salivary cortisol level response to a stressful task in males. Dahm et al. (2017) further demonstrated that conscientiousness is associated with the activation of specific brain regions involved in processing social and emotional information during a stressful task. Therefore, we recommend interpreting results on the link between conscientiousness and psychophysiological responses during and after stressful tasks with caution. Researchers may consider that inconsistent results regarding the link between conscientious and psychophysiological stress responses stem from differences in the types of stressors. In this respect, there is a sound theoretical basis for assuming that conscientiousness may lead to better coping with academic stress.

Conscientiousness not only predicted students' psychophysiological stress, as measured by SCL, but also SCL responses during the recovery period following experimental academic stress. Accordingly, the results indicated that conscientiousness was associated with lower psychophysiological load during recovery. The neural correlates of conscientiousness might provide a theoretical basis for explaining observed results. Hence, a recent study by Kok-Hwee & Meng-Kiat (2024) demonstrated that conscientiousness is associated with activity in the prefrontal cortex, reflecting its role in self-regulation. Also, Javaras et al. (2012) showed that conscientiousness and self-control might predict better recovery following negative emotional stimuli. Moreover, Brouwer et al. (2014) showed that individuals with low conscientiousness experienced a greater heart rate increase following a stressful game.

The data supported only partially our hypothesis concerning the relationship between narcissism and SCL. Contrary to conscientiousness, narcissism positively correlated with SCL, and these correlations reached a significance level only during baseline and challenge periods. Narcissism could also make a significant contribution to the regression model in predicting SCL during baseline, anticipation, and challenge periods. These results suggested that individuals having a higher level of narcissism might be more prone to develop sympathetically mediated responses to even an experimental academic stressor. As narcissistic individuals might be more sensitive to ego-threatening situations, their sense of self might be more unstable and fragile (Geukes et al., 2017; Zeigler-Hill et al., 2010), which eventually gives rise to heightened sympathetic activity during self-view-threatening situations or when the possibility of being evaluated by others arises. The argument by Kelsey et al. (2001) that fight/flight reactivity might contribute to specific characteristics of narcissism, such as competitiveness and

dominance, provides support for our results showing that narcissism might give rise to an enhanced level of SCL before and during an experimental academic stress. Contrary to baseline, anticipation, and challenge periods, narcissism failed to predict SCL responses during the recovery period. This may be an interesting result, indicating that the influence of narcissistic individuals' defence mechanisms on psychophysiological responses after an experimental academic stress. Accordingly, following an ego-threatening academic examination, narcissistic traits might lead to the use of defensive strategies. For example, narcissistic individuals might be more prone to believe that the evaluation technique is not appropriate and that the evaluator is not competent following negative evaluations (Kernis & Sun, 1994; Reinhard et al., 2012).

In summary, the present study demonstrated that personality traits, specifically conscientiousness and narcissism, may influence how individuals respond to academic stress psychophysiological. More specifically, the findings of the present study also indicated a regulatory nature of conscientiousness and a reactive nature in response to academic stress.

Conclusions

This study has several implications for both practitioners and researchers. Therefore, practitioners should recognize that conscientiousness may relate not only to academic achievement but also to reduced academic stress. Conversely, counselors and teachers should consider narcissism as a personality trait that can elicit sympathetic activity in response to academic stress. Further, contrary to conscientiousness, narcissism may not facilitate psychophysiological recovery following academic stress. The results of the present study, together with the above-cited studies, suggest that the link between conscientiousness and psychophysiological responses to stress may vary by stressor type.

The present study has several limitations that may be addressed in future studies. First, in the present study, we employed a unidimensional measure of narcissism. Researchers might find it helpful to employ multidimensional measures of narcissism to gain a clearer understanding of how grandiose and vulnerable narcissistic traits relate to psychophysiological responses to stress. In the present study, we focused only on objective measures of stress, as represented by the SCL. Researchers may find it helpful to consider including self-report measures alongside psychophysiological measures.

Ethics Statement: In the present article, the ethical rules of the journal were followed in the research process in the current article. The responsibility for any violations that may arise regarding the article belongs to the author. The approval of Manisa Celal Bayar University Ethics Committee dated 10.14.2019 and numbered 20.478.486 was obtained.

Conflict of Interest: There is no personal or financial conflict of interest between the authors in the present study.

Author Contribution Rate: In the present study, the contribution rates of all authors are equal.

References

- Bartley, C. E., & Roesch, S. C. (2011). Coping with daily stress: The role of conscientiousness. *Personality and Individual Differences*, 50(1), 79–83.
- Binboga, E., Guven, S., Çatıkkaş, F., Bayazit, O., & Tok, S. (2012). Psychophysiological responses to competition and the big five personality traits. *Journal of Human Kinetics*, 33(1). <https://doi.org/10.2478/v10078-012-0057-x>
- Bipp, T., Kleingeld, A., & Snijders, C. (2020). Aberrant personality tendencies and academic success throughout engineering education. *Journal of Personality*, 88(2), 201–216.
- Boucsein, W. (2012). *Electrodermal activity*. Springer Science & Business Media.
- Brouwer, A.-M., Van Schaik, M. G., Korteling, J. E., van Erp, J. B. F., & Toet, A. (2014). Neuroticism, extraversion, conscientiousness and stress: physiological correlates. *IEEE Transactions on Affective Computing*, 6(2), 109–117.
- Chamorro-Premuzic, T., & Furnham, A. (2004). A possible model for understanding the personality-intelligence interface. *British Journal of Psychology*, 95(2), 249–264.
- Conrad, N., & Patry, M. W. (2012). Conscientiousness and academic performance: a mediational analysis. *International Journal for the Scholarship of Teaching and Learning*, 6(1), n1.
- Costa Jr, P. T., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences*, 13(6), 653–665.
- Critchley, H., & Nagai, Y. (2013). *Electrodermal activity (EDA)*. In J. R. (Eds.) Gellman, M. D., & Turner (Ed.), *Encyclopedia of Behavioral Medicine* (pp. 1303–1304). Springer.
- Fredrikson, M., Furmark, T., Olsson, M. T., Fischer, H., Andersson, J., & Långström, B. (1998). Functional neuroanatomical correlates of electrodermal activity: a positron emission tomographic study. *Psychophysiology*, 35(2), 179–185.
- Gartland, N., O'Connor, D. B., Lawton, R., & Ferguson, E. (2014). Investigating the effects of conscientiousness on daily stress, affect and physical symptom processes: A daily diary study. *British Journal of Health Psychology*, 19(2), 311–328.
- Hidalgo-Muñoz, A. R., Mouratille, D., El-Yagoubi, R., Rouillard, Y., Matton, N., & Causse, M. (2021). Conscientiousness in pilots correlates with electrodermal stability: Study on simulated flights under social stress. *Safety*, 7(2), 49.
- Jauk, E., Benedek, M., Koschutnig, K., Kedia, G., & Neubauer, A. C. (2017). Self-viewing is associated with negative affect rather than reward in highly narcissistic men: an fMRI study. *Scientific Reports*, 7(1), 1–8.
- Javaras, K. N., Schaefer, S. M., Van Reekum, C. M., Lapate, R. C., Greischar, L. L., Bachhuber, D. R., Love, G. D., Ryff, C. D., & Davidson, R. J. (2012a). Conscientiousness predicts greater recovery from negative emotion. *Emotion*, 12(5), 875.
- Jensen-Campbell, L. A., Knack, J. M., Waldrip, A. M., & Campbell, S. D. (2007). Do big five personality traits associated with self-control influence the regulation of anger and aggression? *Journal of Research in Personality*, 41(2), 403–424.
- Kelsey, R. M., Ornduff, S. R., McCann, C. M., & Reiff, S. (2001). Psychophysiological characteristics of narcissism during active and passive coping. *Psychophysiology*, 38(2), 292–303.
- Kernis, M. H., & Sun, C.-R. (1994). Narcissism and reactions to interpersonal feedback. *Journal of Research in Personality*, 28(1), 4–13.
- King, A. R. (2000). Relationships between CATI personality disorder variables and measures of academic performance. *Personality and Individual Differences*, 29(1), 177–190.
- Kok-Hwee, C., & Meng-Kiat, Tan. (2024). Neural Correlates of the Big Five Personality Traits: Understanding the Brain Basis of Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism. *The Asian Educational Therapist*, 2(3), 53–73.
- Luria, A. R., & Homskaya, E. D. (1970). *Frontal lobes and the regulation of arousal processes*. In D. Mostofsky (Ed.), *Attention: Contemporary theory and analysis*. Appleton.
- Miller, J. D., & Campbell, W. K. (2008). Comparing clinical and social-personality conceptualizations of narcissism. *Journal of Personality*, 76(3), 449–476.
- Morf, C. C., & Rhodewalt, F. (2001). Unraveling the paradoxes of narcissism: A dynamic self-regulatory processing model. *Psychological Inquiry*, 12(4), 177–196.
- Murphy, M. L. M., Miller, G. E., & Wrosch, C. (2013). Conscientiousness and stress exposure and reactivity: A prospective study of adolescent females. *Journal of Behavioral Medicine*, 36(2), 153–164.
- Rahafar, A., Maghsudloo, M., Farhangnia, S., Vollmer, C., & Randler, C. (2016). The role of chronotype, gender, test anxiety, and conscientiousness in academic achievement of high school students. *Chronobiology International*, 33(1), 1–9.
- Reinhard, D. A., Konrath, S. H., Lopez, W. D., & Cameron, H. G. (2012). Expensive egos: narcissistic males have higher cortisol. *PloS One*, 7(1), e30858.
- Stough, C., Donaldson, C., Scarlata, B., & Ciorciari, J. (2001). Psychophysiological correlates of the NEO PI-R openness, agreeableness and conscientiousness: preliminary results. *International Journal of Psychophysiology*, 41(1), 87–91.
- Turnipseed, D. L., & Cohen, S. R. (2015). Academic entitlement and socially aversive personalities: Does the Dark Triad predict academic entitlement? *Personality and Individual Differences*, 82, 72–75.
- Vedel, A. (2014). The Big Five and tertiary academic performance: A systematic review and meta-analysis. *Personality and Individual Differences*, 71, 66–76.
- Westen, D. (1990). The Relations Among Narcissism, Egocentrism, Self-Concept, and Self-Esteem: Experimental, Clinical, and Theoretical Considerations. *Psychoanalysis and Contemporary Thought*, 13(2), 183–239.

GENİŞLETİLMİŞ ÖZET

Araştırma problemi ve literatür özeti: Özdenetim, Beş Faktör kişilik modeli içinde yer alan üst düzey bir kişilik

özelligidir ve yeterlik, başarı yönelimi, sebat ve öz-kontrol gibi boyutları kapsar (Chamorro-Premuzic & Furnham,

2004; Costa Jr & McCrae, 1992). Eğitim araştırmaları, özdenetimi akademik başarının güçlü bir yordayıcısı olarak tutarlı biçimde göstermektedir. (Conrad & Patry; 2012; Rahafar ve ark., 2016). Özdenetimle ilgili bir diğer dikkat çekici nokta, genel pozitif duygulanım ile olan bağlantısıdır. (Bartley & Roesch, 2011; Gartland, O'Connor, Lawton, & Ferguson, 2014). Pozitif duygulanım ve duygu düzenlemesine ek olarak, ampirik kanıtlar özdenetimin psikofizyolojik tepkilerle de ilişkili olabileceğini göstermiştir. Değerlenen araştırma bulgularına rağmen, özdenetimin akademik sınavlar sırasında öğrencilerin psikofizyolojik tepkilerini etkileyip etkilemediğini inceleyen çalışma sayısı azdır. Narsisizmin de öğrencilerin akademik sınavlar sırasında ve sonrasında psikofizyolojik tepkileriyle ilişkili olabileceğini varsaymak için kuramsal nedenler mevcuttur. Narsisizm ile akademik performans arasındaki ilişki ise tutarsızdır. Narsisizm, öznel olarak algılanan akademik başarı (Bipp et al., 2020; Turnipseed & Cohen, 2015) ile ilişkili olsa da King'in (2000) meta-analizi narsisizm ile gerçek akademik başarı arasında bir ilişki bulmamıştır. Özdenetimin aksine, araştırma bulguları narsisizm ile negatif duygulanım arasında bir bağlantı olduğunu göstermektedir (Jauk et al., 2017; Kelsey et al., 2001; Miller & Campbell, 2008). Akademik ortamların narsistik benliği zorlayabilmesi nedeniyle, narsisizm, negatif duygulanım ve buna eşlik eden psikofizyolojik tepkiler arasındaki bağlantıların incelenmesi önemlidir. Bununla birlikte, narsisizmin öğrencilerin akademik sınavlar sırasında ve sonrasında ortaya koydukları psikofizyolojik tepkilerle ilişkili olup olmadığı hâlâ net değildir ve daha fazla araştırmayı gerektirmektedir.

Method: Yirmi ile yirmi beş yaşları arasında (Ort. = 21,7, SS = 2,1) 14'ü kadın toplam 30 lisans düzeyindeki spor bilimleri öğrencisi çalışmaya katılmıştır. Tüm deneysel prosedürler yerel Etik Kurul tarafından onaylanmış, katılımcılar çalışmaya başlamadan önce bilgilendirilmiş onam formunu imzalamış ve tüm veriler Helsinki Bildirgesi'nin en güncel sürümüne uygun olarak toplanmıştır.

Özdenetim: Özdenetimi değerlendirmek için Tatar (2005) tarafından geliştirilen Beş Faktör Kişilik Envanteri'nin (BFKE; Five-Factor Personality Inventory, FFPI) kısa formundaki maddeler kullanılmıştır.

Narsisizm: Narsisizm, Ames, Rose ve Anderson (2006) tarafından geliştirilen Narsistik Kişilik Envanteri'nin kısa versiyonu (NPI-16) kullanılarak ölçülmüştür. NPI-16, zorunlu seçim formatında 16 maddeden oluşmaktadır; her maddede bir seçenek narsistik, diğer seçenek ise narsistik olmayan ifadeyi temsil eder.

Prosedür: Katılımcılar psikometrik ölçüm araçlarını tamamladıktan sonra psikofizyolojik kayıt için baskın

olmayan ellerinin orta ve işaret parmaklarına galvanik deri yanıtı (GDY) sensörü bağlanmıştır. Deney, her biri 4 dakika süren ardışık dört dönemden oluşmuştur.

İstirahat: Deneyin bu bölümünde, katılımcılar dinlenme hâlindeyken 4 dakika boyunca temel GDY düzeyleri kaydedilmiştir. Bu süreçte katılımcılardan konuşmamaları ve hareket etmemeleri istenmiştir.

Metin okuma: Katılımcılara bir tarih sınavı yapılacağı ve bireysel sınav puanlarının fakülte duyuru panoları ve deney yürütücülerinin sosyal medya hesapları aracılığıyla ilan edileceği belirtilmiştir. Daha sonra katılımcılardan, her biri 750 kelimelik spor tarihi konuları içeren dört özdeş zarftan birini seçmeleri istenmiştir. Katılımcılara, GDY tepkileri kaydedilirken 4 dakika içinde 750 kelimelik metni okumaları ve anlamaları istenmiştir.

Sınav: Bu aşamada katılımcıya 15 sorudan oluşan standart bir sınav kâğıdı vermiştir. Katılımcılara, GDY tepkileri kaydedilirken kendilerine ayrılan 4 dakika içinde tüm soruları yanıtlamaları söylenmiştir.

Toparlanma : Deneyin son döneminde deney yürütücüsü katılımcılara sınavın bittiğini bildirmiş ve GDY tepkileri ölçülürken 4 dakika boyunca dinlenmeleri istenmiştir.

İstatistiksel Analiz: Elde edilen veri setini analizinde öncelikle deney sırasında ölçülen GDY nin özdenetim ve narsisizm ile ilişkisini incelemek için Pearson korelasyon katsayıları hesaplanmıştır. Daha sonra özdenetim ve narsisizmi içeren bir regresyon modelinin, istirahat, metin okuma, sınav ve toparlanma sırasında ölçülen GDY değişimi için yordayıcı gücü test edilmiştir.

Bulgular: Araştırmadan elde edilen sonuçlar özdenetimin deneyin kaydedilen GDY yanıtları ile negatif yönde, narsisizmin ise pozitif yönde anlamlı düzeyde ilişkili olduğunu göstermiştir. Buna ek olarak, özdenetim ve narsisizm sınav öncesi, sırası ve sonrasında GDY yanıtlarındaki değişimin anlamlı bir yüzdesini açıklayabilmiştir.

Bulgular ve Sonuç: Önceki çalışmalarda araştırmacılar, özdenetimi çoğunlukla çeşitli alanlarda performansın bir öncülü olarak incelemiştir. Ayrıca stres karşısındaki fizyolojik tepkilerle ilişkili kişilik özellikleri olarak, özdenetimden ziyade ağırlıklı biçimde nörotiklik ve dışadönüklük ele alınmıştır. Ancak bu çalışma, özdenetimin akademik ortamlarda fizyolojik stres tepkilerini de yordayabileceğini ortaya koymuştur. Daha spesifik olarak, çalışmanın bulguları özdenetimin düzenleyici bir niteliğe sahip olduğunu ve akademik strese verilen psikofizyolojik tepkilerde önemli bir role sahip olabileceğine dair sonuçlara ulaşılmıştır.