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# THE EFFECTS OF NEUROTICISM ON APPROACH-AVOIDANCE-RELATED MOTOR BEHAVIOR

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**Abstract**

In the present study, we aimed to investigate whether positive emotional stimuli may affect high and low neuroticism individuals' maximal voluntary contraction (MVC) level of the biceps brachii muscle, which is considered a motor representation of approach behavior. The sample consisted of 36 right-handed individuals (12 females) ranging in age from 18 to 27 (M= 23.516 [2.120]). Participants completed items from the Big Five Factor Personality Inventory concerning Neuroticism. After completing the psychometric test, we exposed participants to the high valance low arousal pictures selected from the International Affective Picture System (IAPS) via Biotrace+ software during the execution of arm flexions. Participants made 2 MVC attempts for each experimental condition lasting 6 seconds and rested 3 minutes between MVC attempts to eliminate the effect of fatigue. Results of Pearson correlation analysis revealed that the percent change of MVC was positively associated with neuroticism (r= .368, p< .05). The results also showed that the percent change of MVC of the high neuroticism group was significantly greater than the percent change of the low neuroticism group [t(36)= -2.449, p= .020]. Results provided some support for our hypothesis. Hence the data demonstrated that positive emotional stimuli

decreased the MVC of the biceps brachii muscle in individuals with low neuroticism. On the contrary, MVC levels of high neuroticism individuals remained almost stable in response to positive emotional stimuli.

**Keywords:** Neuroticism, approach-avoidance motivation, MVC.

## INTRODUCTION

Movement scientists have focused mainly on physical and morphological factors to gain a more in-depth insight into human movement. However, even though emotional and motivational factors can play an essential role in the direction, accuracy, and power of motor behavior, these factors were ignored by movement scientists. In this respect, well-established scientific theories argue that positive and negatively valenced emotional stimuli might potentially elicit certain types of motor behavior in a particular direction, speed, and power (Elliot, 2008).

Approach and avoidance motivation (Elliot, 2006) might be the most influential theoretical perspective explaining human movement's speed, direction, and power. "Approach motivation represents energization by and/or physical or psychological direction toward an incentive or reward (i.e., an appetitive object, event, possibility), whereas avoidance motivation represents energization by and/or physical or psychological direction away from a threat or punishment (i.e., an aversive object, event, possibility)" (Elliot, 2006; p.112). The authors also suggested that certain motor behaviors can represent approach and avoidance motivation. In this regard, the contraction of arm flexors is often accepted as a motor behavior that is closely associated with approach motivation (Önal-Hartmann et al., 2012; Razpurker-Apfeld & Shamoa-Nir, 2021; Rotteveel & Phaf, 2004). On the other hand, the contraction of arm extensors is often regarded as a motor behavior closely related to avoidance motivation (Aubé et al., 2019; Önal-Hartmann et al., 2012).

Previous experimental studies provided robust evidence that approach and avoidance motivation elicited by positive or negative emotional stimuli may influence the speed or direction of simple motor behavior. For example, Puca et al. (2006) found that highly avoidance-motivated individuals produced more robust arm extension responses to aversive stimuli (negative words). Similarly, Cacioppo et al. (1993) found muscle extension to be associated with the perception of aversive stimuli, whereas muscle flexion was related to the perception of appetitive stimuli.

Another important point that deserves careful examination is the link between approach-avoidance motivation and personality. The theoretical logic to assume a connection between approach-avoidance motivation and personality is the argument by Elliot and Thrash (2002) that relates extraversion to positive affectivity, perceptual, and behavioral approach to desirable or positive stimuli. Elliot and Thrash (2002) further claimed that neuroticism might represent negative affectivity avoidance from undesirable or aversive stimuli. The authors proposed to label these two personality constructs as approach and avoidance temperaments.

A wealth of studies tested whether personality traits may lead to a particular pattern in the processing and responding to emotional information processing. In these studies, researchers generally found an association between neuroticism and negatively valenced emotional information. For example, Gomez et al. (2002) revealed that neuroticism is associated with negative information processing measured by word fragmentation, word recognition, and word recall tasks. Sočan and Bucik (1998) also provided evidence for neuroticism's influence on negative emotional information processing.

Despite the traditional tendency to recognize neuroticism as an antecedent of processing and responding to negative emotional stimuli, a theoretical ground exists to assume that neuroticism may facilitate processing and respond to positive emotional stimuli. Accordingly, a previous study by Ng (2009) yielded that neuroticism might be associated with positive emotionality depending on the circumstances. Moreover, Tok et al. (2010) found a positive path coefficient between neuroticism and ratings to the high valance / low arousal pictures from the International Affective Picture System. In addition to psychometrical data, Britton et al. (2007) provided a biological base for the relationship between positive emotional stimuli and neural activation patterns in neurotics.

Considering the above-cited studies, it seems reasonable to assume that individuals having a higher level of neuroticism may be sensitive to a positive emotional stimulus in addition to negative stimuli. Therefore, in the present study, we aimed to investigate whether positive emotional stimuli may affect high and low-neuroticism individuals' MVC levels of the biceps brachii muscle, which is considered a motor representation of approach behavior. In light of the literature mentioned above, we predicted that low arousal-high valance visual stimuli should increase the MVC level of the biceps brachii muscle. We also anticipated that the same visual stimuli should not affect low neuroticism individuals' MVC levels of the biceps brachii muscle.

## METHODS

### Research Model

To determine the Maximal Voluntary Contraction levels (MVC), the raw EMGs from all the MVC attempts were full-wave rectified and smoothed (rsEMG), and we also measured the peak-to-peak amplitudes. We named the highest peak rsEMG values from the two experimental conditions as ‘‘neutral condition’’ and ‘‘positive condition’’ MVCs and utilized them in later analyses. As the muscular activity might not be suitable for between-group comparisons, we decided to normalize and express it in terms of a reference value based on the recommendations of (Burden, 2010; Burden & Bartlett, 1999; De Luca, 1997). Therefore, we used the peak rsEMG value from the neutral condition as a normalization reference value and defined it as 100% MVC. Afterward, peak rsEMG values of both high- and low-neuroticism groups' from the positive condition were divided by this normalization reference value and multiplied by 100. Hence, during the positive condition, the peak rsEMG value was expressed as a percentage of the reference value (% neutral condition MVC). Finally, we used this value as

the dependent variable to examine whether there was a significant difference between the low and high neuroticism groups regarding the muscular activity (percentage change of MVC during the positive condition) of the biceps brachii muscle group.

**Participants**

The sample consisted of 35 right-handed individuals (12 females) ranging in age from 18 to 27 (M= 23.516 [2.120]). All participants were recruited from the Faculty of Sport Sciences of Manisa Celal Bayar University. Participants were required to abstain from medications or commercial ergogenic aids that could influence the nervous system and have no acute or chronic neuromuscular disease. The local ethics committee approved the experimental procedure, and we collected all data following the latest ethical standards of the Helsinki Declaration. All participants provided informed consent approved by the local ethics committee.

**Measures**

***Personality Measures***

The Short Form of the Five-Factor Personality Inventory developed by Tatar (2005) was used to assess neuroticism; this is an 85-item personality inventory designed to evaluate the five main personality traits: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Item responses are made using a 5-point scale. This study used only the neuroticism subscale of the five-factor personality inventory. The internal consistency score for the neuroticism factor was 0.83.

***EMG Measurement***

To record raw electromyography (EMG) activity from the biceps brachii muscle, two Ag/AgCl surface electrodes were placed on the surface medial biceps brachii. The ground electrode was placed on the right clavicle bone. Raw EMG signals were recorded using a Nexus 10 data acquisition system and BioTrace + software. Raw EMG data were recorded with a total of 1000 amplification gain and 2048 Hz sampling rate and were filtered with a 20 to 500 Hz band-pass filter. EMG voltages were calculated and expressed in microvolts.

**Procedures**

Upon arrival at the laboratory, we informed the participants regarding the experimental procedure and the task. However, participants were unaware of the exact purpose of the study. Afterward, participants completed items from the Big Five Factor Personality Inventory concerning Neuroticism. After completing the psychometric test, we prepared participants to measure MVC. We designed an apparatus to measure participants' MVC levels of the biceps brachii muscle. We used this apparatus to fix the participants' elbows at 90°. A strap was also used to stabilize the elbow in the exact position required. Participants were seated on a chair, and their upper arm was placed horizontally on the platform of the apparatus. The participants' forearm was supinated vertically, and

they grasped a metal bar at the level of their hand. The experimenter adjusted the metal bar's height according to the forearm length of the participants. The participant's task was to pull the metal bar as hard as possible for 6 seconds to generate an isometric maximal voluntary contraction. Participants executed the same task in the absence (neutral condition) and the presence of a positive emotional stimulus (positive condition). In the neutral condition, participants executed only the task described above at full force and received no verbal encouragement or feedback regarding their performance. In the presence of positive emotional stimuli, we exposed participants to the high valance low arousal pictures selected from the International Affective Picture System (IAPS) (Lang et al., 1997) via Biotrace+ software during the execution of arm flexions. Participants made 2 MVC attempts for each experimental condition lasting 6 seconds and rested for 3 minutes between MVC attempts to eliminate the effect of fatigue.

**Statistical Analysis**

In order to analyze the obtained data set, we first calculated the Pearson correlation coefficient between neuroticism scores and the percent change of MVC. Then we tested whether neuroticism may have an account for predicting the percent change of MVC employing linear regression analysis. Then we grouped the participants as high and low neuroticism based on a median split of the neuroticism score. Lastly, we employed an independent sample t-test to explore whether the percent change of MVC differed significantly between the high and low neuroticism groups.

**RESULTS**

Results of Pearson correlation analysis revealed that the percent change of MVC was positively associated with neuroticism ($r= .368$, $p< .05$). As illustrated in Table 1, the results of the regression analysis demonstrated that neuroticism could explain a small but yet significant amount of variation in the percent change of MVC.

**Table 1:** Predictive abilities of neuroticism for percent MVC

| Model | B | Std. error | Beta | t | Sig. | $R^2_{adj.}$ |
|---|---|---|---|---|---|---|
| **Constant** | 51.114 | 16.822 | | 3.038 | .005 | |
| **Neuroticism** | 15.348 | 6.650 | .368 | 2.308 | .027 | |

Based on the significant association between neuroticism and the percent change of MVC, we also decided to examine whether the percent change of MVC may differ as a result of neuroticism. For this purpose, we grouped participants with high and low neuroticism based on a median split of the neuroticism score. The median value of the neuroticism score was 2.5. Therefore, we grouped individuals having a neuroticism score equal to or higher than 2.5 as low neuroticism. On the other hand, individuals with neuroticism scores higher than 2.5 were grouped as high neuroticism.

**Table 2:** Independent sample T-Test

| | Mean | Std. deviation | T | Sig. (2-tailed) |
|---|---|---|---|---|
| **Low Neuroticism** | 79.133 | 21.543 | -2.449 | **.020*** |
| **High Neuroticism** | 98.530 | 25.795 | | |

***p < .05**

Afterward, we conducted an independent sample t-test. The results showed that the percent change of MVC of the low neuroticism group was significantly greater than the percent change of the high neuroticism group [t(36)= -2.449, p= .020]. The examination of the descriptive statistics concerning the percent change of MVC indicated that while there was a 20.867 % decrease in the low neuroticism group, there was only a 1.47 % decrease in the high neuroticism group.

**DISCUSSION**

The present study aimed to explore whether the strength of the approach related to motor behavior (arm flexion) in response to positive emotional stimuli may vary as a result of neuroticism. Results provided some support for our hypothesis. Hence the data demonstrated that positive emotional stimuli decreased the MVC of the biceps brachii muscle in individuals with low neuroticism. On the contrary, MVC levels of high neuroticism individuals remained almost stable in response to positive emotional stimuli.

The data illustrated that positive emotional stimuli led to a decrease in low neuroticism individuals' MVC level of the biceps brachii muscle. On the contrary, positive emotional stimuli did not change the MVC level of the biceps brachii muscle in individuals with high neuroticism. In other words, positive emotional stimuli served as a distracter that decreased MVC in low neuroticism individuals.

Generally, previous findings indicated that neuroticism is mainly related to sensitivity to negative emotional stimuli (Canli et al., 2001; Gomez et al., 2002). Moreover, a former meta-analysis by Servaas et al., (2013) revealed neuroticism is positively correlated to the activation of specific brain regions during fear conditioning and processing of aversive stimuli. Also, the same meta-analysis (Servaas et al., 2013) indicated a link between neuroticism and avoidance motivation as a means of coping with stress. Therefore, there seems to be a general tendency in the literature to examine neuroticism in terms of processing negative emotional information and avoidance motivation. However, whether neuroticism might be associated with positive emotionality and approach to positive emotional stimuli remains unclear.

Our findings showed that positive emotional visual stimuli did not lead to a decrease in high neuroticism individuals. In other words, neuroticism led to a stronger approach-related motor behavior to high valance low arousal visual stimuli. There may be a theoretical ground for the observed results in the present study. Hence, due to the low arousability threshold of neurotic individuals' limbic system, these individuals may prefer to face low arousal-high valence stimuli (Eysenck, 1967). Similar results were observed in previous studies. For example, Tok et al. (2010) asked participants to rate pictures selected from IAPS regarding valance and arousal. Results

demonstrated an association between neuroticism and pictures having low arousal and high valance. Further, Ng (2009) indicated that the strength and direction of the neuroticism positive emotion association depend on circumstances, and high-neuroticism individuals can feel as many positive emotions as low-neuroticism individuals under specific, but not all, circumstances.

Results of a previous fMRI study by Cunningham et al. (2010) might also provide some theoretical support to the results demonstrated in the present study. Accordingly, by pressing a button, Cunningham et al. (2010) asked participants to approach or avoid positive, negative, and neutral images. They revealed that anxiety and depression subfactors of neuroticism predicted the approach-related behavior regardless of the stimulus valence. These findings led us to think that the relationship between neuroticism and approach-related motor behavior might depend on sub-facets of neuroticism.

Taken together, individuals high in neuroticism might intentionally prefer high-valance, low-arousal stimuli and environments to cope with negative emotions. In this respect, engaging certain goal-directed activities, such as exercising in nature, art, and practicing mindfulness, might help high-neuroticism individuals to improve their mood.

Despite the results observed in the present study illustrating that neuroticism might be positively correlated to the strength of approach-related behavior, readers should bear in mind that the nature of the relationship between neuroticism and approach motivation might be complex and problematic. In future studies, we strongly recommend that researchers study factors that alter the association of neuroticism with approach motivation.

In contrast to high neuroticism individuals, low neuroticism individuals may have a relatively higher limbic system arousability threshold. Therefore, low neuroticism and high valence emotional stimuli did not trigger an approach motivation. Further, these emotional stimuli may be a distraction for individuals with low neuroticism. Accordingly, under limited information processing capacity theory, emotional stimuli presented during the experimental task may put some extra load on low neuroticism individuals' attentional capacity. They may lead to a decrease in MVC.

**CONCLUSIONS**

The present study may have some implications for future researchers and practitioners. In this respect, neuroticism should not be associated with aversive emotional stimuli in all circumstances. Further, individuals scoring high on neuroticism may also be predisposed to perceive and respond to positive emotional stimuli, especially when the arousal level is low. Another critical point is that personality traits may affect motor responses to emotional stimuli.

This study includes some limitations. First, due to pandemic circumstances, our sample size remained limited. In future studies, researchers should study the same topic with larger samples. In the current study, we did not

implement sub-facets of neuroticism as antecedents of approach-related motor behavior. However, as mentioned earlier in this paper, sub-facets of neuroticism might give rise to variations in the relationship between neuroticism and approach motivation. We recognize only neuroticism as a predictor of approach-related motor behavior. Future may examine the effects of other personality traits within the big five model.

***Ethics***

In this article, during the research process, journal writing rules, publication principles, research and publication ethics rules, and journal ethics rules were followed. Responsibility for any violations that may arise regarding the article belongs to the author. University Ethics Decision Number 20478486 – 202

***Conflict of Interest:*** The authors state no conflict of interest.

***Author Contributions:*** While the contribution rate of the first author in this study is 50%, the total contribution rate of the other authors is 50%.

**REFERENCES**

Aubé, B., Rougier, M., Muller, D., Ric, F., & Yzerbyt, V. (2019). The online-VAAST: A short and online tool to measure spontaneous approach and avoidance tendencies. *Acta Psychologica*, *201*(2019), 1-10. https://doi.org/10.1016/j.actpsy.2019.102942

Britton, J. C., Ho, S.-H., Taylor, S. F., & Liberzon, I. (2007). Neuroticism associated with neural activation patterns to positive stimuli. *Psychiatry Research: Neuroimaging*, *156*(3), 263–267. https://doi.org/10.1016/j.pscychresns.2007.06.003

Burden, A. (2010). How should we normalize electromyograms obtained from healthy participants? What we have learned from over 25 years of research. *Journal of Electromyography and Kinesiology*, *20*(6), 1023–1035. https://doi.org/10.1016/j.jelekin.2010.07.004

Burden, A., & Bartlett, R. (1999). Normalisation of EMG amplitude: An evaluation and comparison of old and new methods. *Medical Engineering & Physics*, *21*(4), 247–257. https://doi.org/10.1016/S1350-4533(99)00054-5

Cacioppo, J. T., Priester, J. R., & Berntson, G. G. (1993). Rudimentary determinants of attitudes: II. Arm flexion and extension have differential effects on attitudes. *Journal of Personality and Social Psychology*, *65*(1), 5-17. https://doi.org/10.1037/0022-3514.65.1.5

Canli, T., Zhao, Z., Desmond, J. E., Kang, E., Gross, J., & Gabrieli, J. (2001). An fMRI study of personality influences on brain reactivity to emotional stimuli. Behavioral Neuroscience, *115*(1), 33–42. https://doi.org/10.1037/0735-7044.115.1.33

Cunningham, W. A., Arbuckle, N. L., Jahn, A., Mowrer, S. M., & Abduljalil, A. M. (2010). Aspects of neuroticism and the amygdala: chronic tuning from motivational styles. *Neuropsychologia*, *48*(12), 3399–3404. https://doi.org/10.1016/j.neuropsychologia.2010.06.026

De Luca, C. J. (1997). The use of surface electromyography in biomechanics. *Journal of Applied Biomechanics*, *13*(2), 135–163. https://doi.org/10.1123/jab.13.2.135

Elliot, A. J. (2006). The hierarchical model of approach-avoidance motivation. *Motivation and Emotion*, *30*(2), 111–116. https://doi.org/10.1007/s11031-006-9028-7

Elliot, A. J. (2008). *Handbook of approach and avoidance motivation.* New York: Psychology Press.

Elliot, A. J., & Thrash, T. M. (2002). Approach-avoidance motivation in personality: Approach and avoidance temperaments and goals. *Journal of Personality and Social Psychology*, *82*(5), 804-818. https://doi.org/10.1037/0022-3514.82.5.804

Eysenck, H. J. (1967). The biological basis of personality. Springfield, IL: Thomas.

Gomez, R., Gomez, A., & Cooper, A. (2002). Neuroticism and extraversion as predictors of negative and positive emotional information processing: Comparing Eysenck's, Gray's, and Newman's theories. *European Journal of Personality*, *16*(5), 333–350. https://doi.org/10.1002/per.459

Lang, P. J., Bradley, M. M., & Cuthbert, B. N. (1997). International affective picture system (IAPS): Technical manual and affective ratings. *NIMH Center for the Study of Emotion and Attention*, *1*(3), 39–58.

Ng, W. (2009). Clarifying the relation between neuroticism and positive emotions. *Personality and Individual Differences*, *47*(1), 69–72. https://doi.org/10.1016/j.paid.2009.01.049

Önal-Hartmann, C., Pauli, P., Ocklenburg, S., & Güntürkün, O. (2012). The motor side of emotions: investigating the relationship between hemispheres, motor reactions and emotional stimuli. *Psychological Research*, *76*(3), 311–316. https://doi.org/10.1007/s00426-011-0337-4

Puca, R. M., Rinkenauer, G., & Breidenstein, C. (2006). Individual differences in approach and avoidance movements: How the avoidance motive influences response force. *Journal of Personality*, *74*(4), 979–1014. https://doi.org/10.1111/j.1467-6494.2006.00400.x

Razpurker-Apfeld, I., & Shamoa-Nir, L. (2021). Is an outgroup welcome with open arms? Approach and avoidance motor activations and outgroup prejudice. *Journal of Experimental Psychology: Applied*, *27*(2), 417-429. https://doi.org/10.1037/xap0000334

Rotteveel, M., & Phaf, R. H. (2004). Automatic affective evaluation does not automatically predispose for arm flexion and extension. *Emotion*, *4*(2), 156-172. https://doi.org/10.1037/1528-3542.4.2.156

Servaas, M. N., Van Der Velde, J., Costafreda, S. G., Horton, P., Ormel, J., Riese, H., & Aleman, A. (2013). Neuroticism and the brain: a quantitative meta-analysis of neuroimaging studies investigating emotion processing. *Neuroscience & Biobehavioral Reviews*, *37*(8), 1518–1529. https://doi.org/10.1016/j.neubiorev.2013.05.005

Sočan, G., & Bucik, V. (1998). Relationship between speed of information-processing and two major personality dimensions-extraversion and neuroticism. *Personality and Individual Differences*, *25*(1), 35–48. https://doi.org/10.1016/S0191-8869(98)00031-2

Tatar, A. (2016). The development of short-form five factor personality inventory. *Anatolian Journal of Psychiatry*, *17*(1), 14-23. https://doi.org/10.5455/apd.202977

Tok, S., Koyuncu, M., Dural, S., & Catikkas, F. (2010). Evaluation of International Affective Picture System (IAPS) ratings in an athlete population and its relations to personality. *Personality and Individual Differences*, *49*(5), 461–466**.** https://doi.org/10.1016/j.paid.2010.04.020

## Genişletilmiş Özet

**Çalışmanın Amacı:** Bu çalışmada, pozitif duygusal uyaranların, yüksek ve düşük duygusal tutarsızlığa sahip bireylerde yaklaşma davranışının motor temsili olarak kabul edilen biceps brachii kasının maksimal istemli kasılma (MİK) düzeyini etkileyip etkilemediğini araştırmak amaçlanmıştır.

**Araştırma Soruları :** Düşük uyarılma-yüksek valanslı görsel uyaranlar biceps brachii kasının MİK seviyesini arttır mı? Düşük uyarılma-yüksek valanslı görsel uyaranlar duygusal tutarsızlık kişilik özelliği baskın bireylerde biceps brachii kasının MİK seviyesini etkiler mi?

**Literatur Araştırması:** Önceki deneysel çalışmalar, olumlu veya olumsuz duygusal uyaranlar tarafından ortaya çıkan yaklaşma ve kaçınma motivasyonunun basit motor davranışın hızını veya yönünü etkileyebileceğine dair sağlam kanıtlar sağlamıştır. Örneğin, Puca ve ark. (2006), yüksek düzeyde kaçınma motivasyonuna sahip bireylerin, caydırıcı uyaranlara (olumsuz kelimeler) karşı daha güçlü kol uzatma tepkileri ürettiklerini bulmuştur. Benzer şekilde, Cacioppo ve ark. (1993), kas ekstansiyonunun itici uyaranların algılanmasıyla ilişkili olduğunu, kas fleksiyonunun ise iştah açıcı uyaranların algılanmasıyla ilişkili olduğunu bulmuşlardır. Dikkatle incelenmesi gereken bir diğer önemli nokta da yaklaşma-kaçınma motivasyonu ile kişilik arasındaki bağlantıdır. Yaklaşma-kaçınma motivasyonu ile kişilik arasında bir bağlantı olduğunu varsaymanın teorik mantığı, Elliot ve Thrash'in (2002) dışadönüklüğü olumlu duygulanımla, algısal ve davranışsal yaklaşımı arzu edilen veya olumlu uyaranlarla ilişkilendiren argümanıdır. Elliot ve Thrash (2002) ayrıca, duygusal tutarsızlığın istenmeyen veya itici uyaranlardan olumsuz duygulanımdan kaçınmayı temsil edebileceğini iddia etmiştir. Kişilik özelliklerinin, duygusal bilgi işleme sürecinde ve buna yanıt vermede belirli bir modele yol açıp açmayacağını test eden çok sayıda çalışma vardır. Bu çalışmalarda, araştırmacılar genellikle duygusal tutarsızlık ile negatif değerli duygusal bilgi arasında bir ilişki bulmuşlardır. Örneğin, Gomez ve ark. (2002), nevrotikliğin kelime parçalama, kelime tanıma ve kelime hatırlama görevleriyle ölçülen olumsuz bilgi işleme ile ilişkili olduğunu ortaya koymuştur. Sočan ve Bucik (1998) ise duygusal tutarsızlığın olumsuz duygusal bilgi işleme üzerindeki etkisine dair kanıt sağlamıştır.

**Yöntem:** Örneklem, yaşları 18 ile 27 arasında değişen (Ort= 23.516 [2.120]) 36 sağ elini kullanan bireyden (12 kadın) oluşmaktadır. Katılımcılar ilk olarak, duygusal tutarsızlık alt boyutu ile ilgili Beş Büyük Faktör Kişilik Envanteri'ndeki maddeleri cevapladılar. Psikometrik testi tamamladıktan sonra, kol fleksiyonlarının yürütülmesi sırasında katılımcıları Biotrace+ yazılımı aracılığıyla Uluslararası Duygusal Resim Sisteminden (UDRS) seçilen yüksek valanslı düşük uyarılmış resimlere maruz bıraktık. Katılımcılar, yorgunluğun etkisini ortadan kaldırmak için her deney koşulu için 6 saniye süren 2 MİK denemesi yaptılar ve MİK denemeleri arasında 3 dakika dinlendiler.

**Sonuç ve Değerlendirme:** Pearson korelasyon analizi sonuçları, MİK'deki değişim yüzdesinin duygusal tutarsızlık ile pozitif ilişkili olduğunu ortaya koymuştur ($r= .368$, $p< .05$). Sonuçlar ayrıca, yüksek duygusal tutarsızlığa sahip grubunun MİK yüzdesindeki değişimin, düşük duygusal tutarsızlığa sahip grubun yüzdesindeki değişimden önemli ölçüde daha fazla olduğunu göstermiştir [$t(36)= -2.449$, $p= .020$]. Sonuçlar, hipotezimiz için bir miktar destek sağlamıştır. Dolayısıyla veriler, pozitif duygusal uyaranların, düşük duygusal tutarsızlığa sahip bireylerde biceps

brachii kasının MİK seviyesini azalttığını göstermiştir. Bununla birlikte, yüksek duygusal tutarsızlığa sahip bireylerin MİK seviyeleri, olumlu duygusal uyaranlara tepki olarak neredeyse sabit kalmıştır. Bulgularımız, olumlu duygusal görsel uyaranların duygusal tutarsızlığı yüksek bireylerde bir azalmaya yol açmadığını göstermiştir. Başka bir deyişle, duygusal tutarsızlık, yüksek valans-düşük uyarılma görsel uyaranlara yaklaşmayla ilgili daha güçlü bir motor davranışa yol açmıştır. Bu çalışmada gözlemlenen sonuçların teorik bir zemini olabilir. Dolayısıyla, duygusal tutarsızlık kişilik özelliği baskın bireylerin limbik sisteminin uyarılabilirlik eşiğinin düşük olması nedeniyle, bu kişiler düşük uyarılma-yüksek valans uyaranlarla karşılaşmayı tercih ediyor olabilirler. Bu çalışmanın gelecekteki araştırmacılar ve uygulayıcılar için bazı çıkarımları olabilir. Bu bakımdan, duygusal tutarsızlık her koşulda itici duygusal uyaranlarla ilişkilendirilmemelidir. Ayrıca, duygusal tutarsızlıktan yüksek puan alan bireyler, özellikle uyarılma düzeyi düşük olduğunda, olumlu duygusal uyaranları algılamaya ve bunlara yanıt vermeye yatkın olabilirler. Diğer bir kritik nokta, kişilik özelliklerinin duygusal uyaranlara verilen motor tepkileri etkileyebileceğidir.