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FACIAL EMOTION RECOGNITION IN BORDERLINE PERSONALITY ORGANIZATION

BY

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ÖZET

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Sınırda Kişilik Örgütlenmesi (SKÖ) terimi, kişinin kendi benlik kavramını ve bu kişiler için önemli olan kişilerin kavramlarını bütünleştirememesinin ortak özelliklerini ifade etmektedir. Bu özellikler, bu durumun ortak bir belirtisi olan Sınırda Kişilik Bozukluğu (SKB) dahil olmak üzere tüm ciddi kişilik bozukluklarında mevcuttur. SKB, sosyal etkileşimlerdeki önemli eksikliklerle karakterize edilir ve bu durum duyguları tanıma ve anlama yeteneğindeki zayıflıklarla bağlantılı olabilir. Sosyal etkileşim açısından, yüzdeki duygu tanımanın, sözsüz sosyal etkileşim ve iletişim için çok önemli olduğu düşünülmektedir. Alanyazında SKB ve yüzden duygu tanıma ile ilgili yapılan çalışmalarda tutarsız sonuçlar mevcut olup, bazı çalışmalarda farklılık bulunurken bazılarında ise bulunamamıştır. Bu çalışma çevrimiçi ve yüz yüze olmak üzere iki bölümden oluşmaktadır. Bu çalışmanın örneklemi gönüllülük esasına dayalı olup, 18-25 yaş aralığındaki Başkent Üniversitesi öğrencilerinden oluşmaktadır. Çevrimiçi kısmının ardından dışlama kriterleri dikkate alınarak toplam 120 katılımcıdan yüz yüze veri toplanmıştır. Ancak analize yalnızca 105 kişi dahil edilmiştir. Araştırmada sınırda kişilik örgütlenmesinde olanlar ve olmayanlar olmak üzere iki farklı grup elde edilmiştir. Katılımcılara altısı duygusal ve bir tanesi nötr olmak üzere yedi farklı duygu içeren yüz fotoğrafları gösterilmiştir. Katılımcılardan yüzlerde gördükleri duyguyu işaretlemeleri ve cevaplarından ne kadar emin olduklarını belirtmeleri istenmiştir. Araştırmanın bulguları doğrultusunda, her bir duygu için iki grup arasında tepki süresi, güven oranı veya doğruluk açısından anlamlı bir fark bulunamamıştır. Araştırmanın güçlü yönleri, sınırlılıkları ve katkıları alanyazınla birlikte tartışılmıştır.

Anahtar Kelimeler: Borderline kişilik organizasyonu, yüzden duygu tanıma, temel duygular, güven

ABSTRACT

Deniz, Merve. Facial Emotion Recognitıon In Borderline Personality Organization. Başkent University, Institute of Social Sciences, Clinical Psychology Master's Program with Thesis, 2024.

The term Borderline Personality Organization (BPO) refers to the shared traits of not integrating one's own self-concept with the concepts of important people. These traits are present in all severe personality disorders, including borderline personality disorder (BPD), which is a common sign of this condition. BPD is characterized by substantial deficits in social interactions, which may be linked to weaknesses in the ability to recognize and understand emotions. In terms of social interaction, facial emotion recognition (FER) is considered crucial for nonverbal social interaction and communication. In the literature, there are inconsistent results in studies conducted on BPD and FER, indicating that some studies found a difference while others did not. This study consists of two parts: online and face-to-face. The sample for this study is voluntary and consists of Başkent University students between the ages of 18 and 25. After the online part, face-to-face data was collected from a total of 120 participants by considering exclusion criteria. However, only 105 people were included in the analysis. There are two different groups in the research: those with BPO and those without. Participants were exposed to photographs containing seven different types of faces, including six emotional and neutral ones. Participants were asked to mark the emotion they saw on their faces and answer how confident they were in their answers. In line with the findings of the study, no significant difference was found in reaction time, confidence rate, or accuracy between the two groups for each emotion. The strengths, limitations, and contributions of the research are discussed together with the literature.

Keywords: Borderline personality organization, face emotion recognition, basic emotions, confidence

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LIST OF ABBREVIATIONS

BAI	Beck Anxiety Inventory
BDI	Beck Depression Inventory
BPD	Borderline Personality Disorder
BPI	Borderline Personality Inventory
BPO	Borderline Personality Organization
DSM	Diagnostic and Statistical Manual
FER	Facial Emotion Recognition
NPD	Narcissistic Personality Disorder
PD	Personality Disorder
PO	Personality Organization
POFA	Pictures of Facial Affect

1. INTRODUCTION

Borderline personality disorder (BPD) generally starts in adolescence, peaks in symptom severity throughout young adulthood, and appears to decrease moderately but slowly over time (Lis & Bohus, 2013). One of the key variables contributing to the phenomenology of this condition is dysfunctional emotion processing. The concern of how effectively BPD patients detect feelings in others has piqued the interest of researchers in the past as a first stage in the emotion processing continuum. BPD is a severe psychological disorder characterized by a persistent pattern of changeability in emotion regulation, controlling impulses, interpersonal communications, and self-perception (Schmahl et al., 2014). Patients afflicted with BPD exhibit a profound fear of abandonment and widespread interpersonal difficulties (Lieb et al., 2004; Lis & Bohus, 2013). According to the psychoanalytical view, Kernberg said that the personality organization (PO) of people who are unable to handle anxiety, want to get rid of it right away by doing something, be inconsistent, and have problems with their ability to be creative is not a temporary state that goes back and forth between neurotic and psychotic POs. Additionally, the ego pathology of this group is different from theirs. Hence, he proposed to define it as the Borderline Personality Organization (BPO) (Kernberg, 1966). Through this PO, there is a tendency toward extreme sensitivity, which can influence how they perceive any social encounter. Specifically, individuals with BPO may see neutral and ordinary actions from others as aggressive and hostile (Smeijers et al., 2017). Although this study does not specifically examine BPD, it is essential to provide a clear definition of this personality disorder (PD) in order to enhance comprehension of BPO. As a result, it is possible to consider that interaction and communication are important and affected elements in both terms.

Facial emotion recognition (FER) is regarded as essential for nonverbal social interaction and communication (Blair, 2003). FER, or the capacity to appropriately estimate the emotional state of others based on their facial expressions, is essential for healthy social functioning. In other words, accurately identifying emotional faces is crucial for effective daily communication (Corden et al., 2006). At the same time, misinterpretations resulting from defective facial expression identification are likely to have a negative impact on social relationships (Unoka et al., 2011). Several studies have examined facial emotion recognition in PDs, primarily focusing on BPD, with inconsistent findings. There are some studies showing improved precision in the identification of emotional expressions in BPD (Lynch et al., 2006). On the other hand, when comparing patients with BPD and controls, some

studies showed no significant difference in the ability to recognize facial expressions of emotion by using static photographs of emotional faces (Dyck et al., 2009; Minzenberg et al., 2006; Wagner & Linehan, 1999).

In the literature, although it has been found that studies have been carried out by comparing FER with BPD-diagnosed individuals and control groups, including healthy people, BPO and FER have not been studied too much. On the other hand, there is only one study comparing FER among BPOs in Turkey (Hagverdiyev, 2022). Therefore, the aim of this study is to examine the accuracy of the answers they give to facial expressions, their confidence in these answers, and their reaction times, depending on their BPO levels, for those who have not received any neurological or psychological diagnosis. Hence, this study aims to contribute to the literature on facial recognition functions by using a Turkish sample depending on BPO levels.

1.1. Borderline Personality Disorder

The word "borderline" was initially introduced by Adolph Stern in 1938 to describe individuals who were perceived to occupy an intermediate position between psychosis and neurosis (Stern, 1938). Despite the fact that this condition was first identified in 1938, it was not accepted as a psychiatric term until 1980 and was not listed in any previous edition of the Diagnostic and Statistical Manual (DSM) III until 1980 (Miller et al., 2008). The diagnostic classification of BPD has been applied for more than three decades to categorize individuals who exhibit traits associated with hopelessness and tend to elicit emotional reactions from therapists. It remains one of the most contentious diagnoses within the field of psychology at present (Al-Alem & Omar, 2008).

BPD is a persistent psychiatric condition characterized by enduring patterns of emotional instability, disruptions in self-image, instability in relationships with other people, pronounced impulsivity, and engagement in suicidal behavior (including ideation and attempts). These symptoms result in substantial impairment and distress in the individual's life (Lieb et al., 2004; Sanislow et al., 2002). The American Psychiatric Association's DSM-5 defines BPD as a diagnosis requiring at least five out of nine specified symptoms, onset in early adolescence. These 9 symptoms are:

1) Desperate attempts to prevent actual or perceived desertion

2) A tendency for people to change dramatically between idealizing and devaluing one another in close relationships

3) Identity disruption is characterized by a self-image or feeling of self that is noticeably and continuously unsettled.

4) Impulsivity in at least two potentially self-damaging areas (such as spending, sexual activity, substance misuse, risky driving, and binge eating, for example).

5. Persistent suicidal conduct, gestures or threats, or behavior that involves self-mutilation.

6. Emotional instability as a result of a high reactivity of mood (for example, acute episodic depression, irritability, or anxiety that typically lasts for a few hours and seldom longer than a few days).

7. Persistent sense of emptiness in the body.

8. wrath that is inappropriately severe or difficult to manage (for example, frequent outbursts of temper, persistent wrath, repeated physical battles).

9. Symptoms of extreme dissociation or fleeting paranoid thoughts that are triggered by stress.

The incidence of BPD in the general population is very low, with a range of 0.5% (Samuels et al., 2002) to 3.9% (Lenzenweger, 2008). However, among patients receiving psychiatric care, the prevalence of BPD is higher, affecting around 30–49% of individuals (Chanen & Kaess, 2012). Additionally, around 10% of people who get treatment for BPD without being hospitalized are diagnosed with the disorder (Zimmerman et al., 2005). As far as is known, there has been a lack of research examining the incidence of BPD in Turkey. Nevertheless, some studies have been undertaken to ascertain the incidence of PDs, providing a particular sample. According to one study, it was shown that out of the 738 patients who were hospitalized, 10.2% of them had BPD (Şenol et al., 1997). Besides the clinical sample, in another study, out of a group of 246 individuals who had not been previously diagnosed with a personality disorder, there was a 5.7% chance of developing BPD (Şenyuva, 2007). Moreover, comorbid conditions associated with BPD include anxiety disorders, affective difficulties, eating disorders, substance dependence, and other issues with personality. It was mentioned that anxiety disorders account for 84.8% of the cases, emotional disorders account for 82.7% of the cases, and alcohol and substance dependence account for 78.2% of the cases (Tomko et al., 2014). As a result, it is understood that the prevalence of this personality disorder is not insignificant both in our country and in the world. Moreover, considering its comorbidity with other psychological disorders, the importance of the disease is once again revealed.

Affective instability has been singled out as a crucial criteria for BPD, as mentioned in the DSM-5 (2013). Individuals with BPD have an underlying vulnerability to emotional

hyperarousal states due to abnormalities in the neurobiological systems subserving emotional regulation and stress responsibility. They are also more likely to be stressed by social and interpersonal situations because of problems in the nervous systems that control social cognition, attachment, and social reward. Patients with BPD have difficulty maintaining emotional stability and returning to their normal emotional responses under stressful conditions. Moreover, hypersensitivity and overreaction to the many sources of social stress have been linked to acts of self-harm and suicide (Brodsky et al., 2006). Yen et al. (2021) noted that BPD was the strongest factor linked to suicide attempts in a longitudinal study of various psychiatric disorders. This association remained significant even after controlling for demographic factors (such as sex and educational level) and clinical variables (including childhood sexual abuse, substance use disorders, etc.). Correspondingly, it is possible to suggest that one of the symptoms of people diagnosed with this personality disorder is trying to survive.

Another fundamental characteristic of BPD is ongoing difficulty in personal and social interactions (Gunderson, 2007). Moreover, Hill et al. (2008) emphasized that persons with BPD report lower functioning throughout the social domains of job or school, friendship, and romantic relationships when they examined role performance by social domain. When people with BPD were compared to those with other personality disorders, only impairment in romantic relationships was shown to be distinctive to BPD. Additionally, individuals diagnosed with BPD exhibit greater levels of impairment in several domains, including occupational functioning, social interactions, and leisure activities, as compared to those diagnosed with other mental illnesses such as severe depression or obsessive-compulsive disorder (Skodol et al., 2002). It was also found that those suffering from BPD had fewer social interactions when compared to healthy subjects. Individuals with BPD reported that their social contacts were more often unpleasant, ambivalent, furious, empty, and melancholy than patients with other forms of personality pathology and patients who did not have any personality disorder. Patients with BPD reported higher levels of anxiety and lower levels of positive affect compared to those who did not have any personality disorder, but this was not the case for patients diagnosed with other forms of personality disorder (Stepp et al., 2009). Therefore, it can be suggested that patients with BPD suffer more from social interactions compared to other personality disorders.

1.2. Borderline Personality Organization

The DSM-5 defines personality disorder as a pattern of behavior and inner life that deviates significantly from social expectations, affecting cognition, affect, interpersonal functioning, and impulse control. This persistent, inflexible pattern spans various situations and can lead to significant distress or dysfunction, affecting both individuals and society (APA, 2013). The DSM used a categorical approach to classify personality disorders. However, recent studies have indicated that other dimensional models could be more suitable (Endler & Kocovski, 2002; Widiger & Simonsen, 2005). In particular, based on a psychodynamic perspective, it is worth considering the potential utility of associating dissociation with a dimensioned, theory-driven, and psychodynamic approach to the pathology of the personality, as exemplified by Kernberg's model of personality "*organization*" (Kernberg, 1984). He proposed that individuals had a distinct personality type in addition to a level of PO. The levels were categorized as neurotic, borderline, and psychotic (Kernberg, 1967; Kernberg & Caligor, 2005), and McWilliams (2013) expanded on this concept by broadly defining defensive mechanisms unique to all three POs.

These categorizations basically depend on three points: identity, defense mechanisms, and reality. According to Kernberg, the most functional level of PO is neurotic PO. Those at this stage have fully developed reality testing, a stable sense of self and others, and effective coping strategies in the face of stress. They discriminate between genuine and unreal events, have a strong awareness of their strengths and imperfections, and have a constant sense of goal and life objectives. They are able to fully connect to people in times of difficulty and see them as they truly are. In a psychotic PO, personalities with this level of chaos have impaired reality testing, an unstable sense of self and others, and a lack of developed defense mechanisms. They lack a distinct sense of self and often blur the border between themselves and others. As a result, it becomes more challenging to tell the difference between imagined and actual sensations. They have inadequate stress management skills and have difficulty interacting with others. A well-organized personality is essential for successful communication and connection with others (Kernberg, 1984).

People with BPO have fractured identities, while neurotics have cohesive identities. They alternate between setting limits and seeking to distinguish themselves. They identify so much with others that they cannot determine where their personality discontinues and others' beginnings. They typically blame others for their problems due to their identity crisis. As an example, a borderline-organized individual who holds the belief that they have

committed a wrongdoing may retrospectively and forward-lookingly project this experience, perceiving themselves not merely as the perpetrator but as an individual deserving of the label "bad". Therefore, people with BPO struggle to find ways to combine their good and bad qualities with a unified identity (Kernberg, 1984). Additionally, those with BPO use primitive defensive strategies with a focus on the splitting process. The notion of "splitting" refers to the perception of the world in dichotomous terms as entirely good or entirely bad without any cognizance of the complexities that exist in reality. Since their knowledge of others can change quickly depending on their latest interactions with others, this defense makes it hard for them to make and keep close relationships with other people. Splitting makes controlling emotions harder, which causes chaos and instability in relationships. It is the main defense of BPO, although people with it also use projection and projective identification (Kernberg, 1967).

Moreover, reality testing for individuals at the BPO is largely intact. Most of the time, they are able to accurately distinguish themselves from others, internal from external. However, there are times when individuals in the borderline range can have their ability to test reality fail, leading to brief psychotic episodes. Nevertheless, individuals with BPO have access to a functional system of reality testing. They have a strong sense of self-awareness and are able to effectively differentiate between themselves and other people. However, the ability to assess reality might fail in those in the borderline range, sometimes resulting in brief episodes of psychosis (Kernberg, 1967). In contrast to those with psychotic PO, these people do not experience delusions or hallucinations, and their symptoms are not triggered by specific events; in contrast to those with neurosis, they endure more pain and remain constantly unsteady (McWilliams, 2013).

As a result, through this categorization, he aimed to provide a comprehensive and evolving explanation of the symptoms, structures, and developments that characterize individuals with BPO. He asserted the existence of a significant set of psychopathological clusters characterized by a distinct and enduring pathological ego structure. He emphasized that the ego pathology observed in this group differs from that observed in neurosis and psychosis. Furthermore, he emphasized that the personality organization of these patients is not a short-term condition fluctuating between neurosis and psychosis. He suggested defining these individuals as patients exhibiting BPO (Kernberg, 1966).

1.2.1. Etiology of borderline personality organization

There are some approaches to making sense of the etiological dimension of BPO. Kernberg brings up the period that Klein (1946) examines as the schizo-paranoid position in order to understand the foundations of BPO. After the child has formed a separate perception of themselves apart from their mother, they enter into what is known as the schizo-paranoid position, which occurs as a result of splitting. According to Kernberg, the unification of object designs that the division mechanism has classified as good and bad will result in the realization of a healthy personality organization. The healthy personality is a PO that is capable of depressive states. Kernberg thinks that BPO can arise from the inability to overcome the paranoid-schizoid position. According to Kernberg, the failure to integrate self and object representations makes it impossible for the emergence of a holistic perception of self and object (Kernberg, 1995). Hence, it can be considered that the mother-child relationship is one of the important reasons for BPO.

In addition to the explanation made with Klein's Object Relations Theory, other theories based on the mother-child relationship have also been established. Kernberg expanded and diversified his approaches with the theory of Mahler et al. (1975). According to this, individuals with BPO pass the symbiotic phase without significant disruption but are fixed in the period of separation and individualization. During this period, they experience deep anxiety about finding their mother or caregiver, alerting them against abandonment. Adults with BPO are sensitive to abandonment and lack object permanence. Kernberg emphasized the importance of environmental experiences in the formation of this organization but also suggested that pregenital dynamics and disruptions in the late oral period can impact psychopathology dynamics (Kernberg, 1975). Similarly, McWilliams (2013) noted the process of separation and individualization in people's childhood. The mothers of these people either did not allow the separation because they were discouraged at the beginning, or they disappeared after the separation occurred at a certain level and they felt the need to regress. Furthermore, Kernberg has another hypothesis, which is "*intensive aggression*" (1967). According to him, a newborn who experiences difficulties throughout the early stages of development experiences intense anger. The tremendous anger experienced might be either heavily repressed or openly expressed. This powerful emotion is aimed at either one's own malevolent nature or against another malevolent individual. Hence, BPO refers to a clinical presentation in which there are blurred lines between the person and others, leading to unstable interactions and a tendency to swing between extremes

of passivity and aggression, as well as an unstable sense of who they are. In addition, it is known that depending on what type and how much trauma the person experienced in their childhood plays a role in the severity of BPO symptoms (Baryshnikov et al., 2016). Thus, it can be concluded that what a person is exposed to since the newborn state may have an impact on the formation of BPO.

Besides Kernberg, Linehan (1993) has proposed an alternative explanation for the development of BPO. According to this view, the challenges of managing emotions lead to behavioral and interpersonal issues in individuals with BPO. It was highlighted that the challenge of managing emotions might stem from a neurobiological deficit. Another theory concerned with the origins of BPO is the inaffective mentalization theory of Fonagy and Luyten (2009). This idea posits that a child's inability to comprehend and identify with the thoughts, feelings, and motivations of others, as well as his or her own, may be traced back to deficits in early parenting. Furthermore, after Linehan, Gunderson (2008) both examined the hereditary component of interpersonal hypersensitivity and highlighted that people with BPO struggle with becoming independent. In other words, individuals with BPO are dependent on others for their existence. However, their extreme sensitivity makes it exceedingly difficult to build and sustain relationships. In conclusion, there is no single reason why a person can have a BPO. In line with these approaches, it can be concluded that a person can suffer from BPO.

1.3. Facial Emotion Recognition

Emotions have important roles in discerning and evaluating events, activating decision-making abilities, generating behavioral responses, and facilitating communication with the social environment (Gross et al., 2014). Additionally, it has been proposed that emotions fulfill important functions in human existence and in driving their actions (Matsumoto et al., 2013). Considering the representation of these emotions, emotional expressions convey knowledge about others' intentions, interpersonal relationships, elicit reactions, and motivate actions (Keltner & Kring, 1998). It was known that there are several methods by which people can express their emotions. The majority of experimental investigations on the demonstration of emotion have concentrated their attention either on vocal expressions (Schröder, 2003) or facial expressions (Ekman, 1999). People all over the world can consistently identify at least six fundamental emotions (Ekman & Friesen, 1971; Ekman et al., 1987). The fundamental emotions consist of "*happiness, sadness, fear,*

surprise, disgust, and anger" as well as being associated with explicit facial expressions (Ekman, 1999).

Darwin contended that facial expressions, including emptions, which developed by the process of natural selection, are vital for the existence of humans (1872). Emotions on the face are important for communicating with others and have direct effects on behavior because they are a result of evolution (Keltner & Kring, 1998). The face shows a variety of emotions through its expressions (Keltner et al., 2003). Ekman (1993) emphasizes that the ability to read the feelings of other people based on their facial expressions is referred to as FER. It has been suggested that impaired social perception is a key mechanism behind interpersonal dysfunctions, as it could negatively affect a person's ability to develop and maintain meaningful connections with others (Flechsenhar et al., 2022).

Emotion recognition is the process of recognizing an emotional trigger without naming the emotional state, and this is an important part of communicating without words (Schulze et al., 2013). Both the presence and the identity of an emotion must be detected and labeled in order to complete the process of FER (Daros et al., 2014). Facial emotion detection is a crucial skill for effectively deducing the emotional condition of individuals based on their facial expressions. Since it has a major impact on maintaining effective social interactions, impaired facial expression identification can lead to misinterpretations, which in turn can negatively affect social relationships (Unoka et al., 2011). Furthermore, expressions on one's face play a significant role not just in interpersonal relationships but also in therapeutic settings. In the field of psychotherapy research, the importance of nonverbal communication has also been extensively studied (Ekman & Friesen, 1968). It was suggested that nonverbal interaction accounts for 60–80% of all communications through therapy sessions (Burgoon et al., 2016; Rasting & Beutel, 2005). Researchers found that clients' expressions of emotion during therapy sessions were a reliable predictor of progress with effective therapies (Merten and Krause, 2003). In spite of this, a significant amount of mimicry is both expressed and received unconsciously (Gebhardt et al., 2016; Merten, 2005). Consequently, it can be understood that FER has an important place in human interactions, both in everyday and therapeutic relationships. Therefore, when the literature is reviewed, it is concluded that it is the subject of many studies.

When considering clinical settings, it can be found that FER is examined especially in patients with neurological and psychological disorders (Adolphs, 2002a; Kohler et al., 2004; Phillips & David, 2003). A decline in the ability to detect facial emotions has been observed in people with frontotemporal dementia (Keane et al., 2002; Rosen et al., 2004), Alzheimer’s

disease (Hargrave et al., 2002; Spoletini et al., 2008), early-onset right mesial temporal lobe epilepsy (Meletti et al., 2003), idiopathic generalized epilepsy (Gomez-Ibañez et al., 2014), Parkinson's disease (Ariatti et al., 2008), Multiple Sclerosis (Prochnow et al., 2011), Williams syndrome (Lacroix et al., 2009) and Turner syndrome (Lawrence et al., 2003). Moreover, regarding psychological disorders, some studies have shown that people with depression are less able to read emotions on the faces of other individuals (Bourke et al., 2010; Csukly et al., 2009). Other studies, however, have found that people with depression are not different from emotionally stable people when it comes to their ability to read facial expressions (Kan et al., 2009; Ridout et al., 2007). In addition to this, it has been revealed that people suffering from anxiety disorders or severe depression exhibit a deficiency in perceiving facial expressions of emotions. Furthermore, this deficiency is more prominent in individuals with major depression compared to those with anxiety (Demenescu et al., 2010). Additionally, another study discovered that people with euthymic bipolar disorder have trouble correctly recognizing and perceiving disgust and fear. On the other hand, people with manic bipolar disorder had trouble recognizing sad and scared facial expressions (Rocca et al., 2009). People who had a mood disorder or schizophrenia also had problems with FER impairment (Addington et al., 2006; Schneider et al., 2006), especially when it came to negative emotions (Comparelli et al., 2014). Similarly, people who are addicted to drugs or alcohol (Kornreich et al., 2003), have post-traumatic stress disorder (PTSD) (Shin et al., 2005), have autism spectrum disorders (Celani et al., 1999; Harms et al., 2010), have Asperger syndrome (Domes et al., 2014), or have Attention-Deficit/Hyperactivity Disorder (Rapport et al., 2002; Uekermann et al., 2010) can also have problems with FER. As a result, several studies have been undertaken in the literature on the topic of FER, specifically focusing on individuals with identified neurological and psychological disorders. Besides these studies, there are also studies on personality disorders and FER (Marsh & Blair, 2008).

In one recent study, it was found that individuals with BPD, narcissistic personality disorder (NPD), and histrionic personality disorder had notably worse performance in comparison to subjects without any psychological disorders (Ritzl et al., 2018). Likewise, in another study, it was also noted that people with NPD had an inability to perform FER tasks (Marissen et al., 2012). Moreover, in another study, it was noted that people with antisocial personality disorder (APD) also had an inability to recognize fearful expressions and a diminished capacity for face processing (Dawel et al., 2012). Additionally, individuals with APD display more reaction time to fear emotions compared to the non-clinical group (Schönenberg et al., 2016). Similarly, people with ASPD were less able to identify fear and

happy facial expressions than healthy subjects (Timmerman et al., 2017). Moreover, individuals with schizotypal personality disorder exhibited reduced speed and accuracy in recognizing facial emotions compared to the control group (Dickey et al., 2011). Consequently, there have been various empirical investigations of FER in personality disorders. Most of these studies on BPD evaluate FER and have found inconsistent results (Ritzl et al., 2018).

1.4. Borderline Personality Disorder and Facial Emotion Recognition

Since emotion dysregulation is often regarded as the main clinical characteristic of BPD, it has been suggested that the challenges in interpreting others' facial emotions may play a role in the emotion control issues that individuals with BPD have during social interactions (Daros et al., 2013). Moreover, significant theoretical and empirical evidence suggests that mistakes or impairments in FER can play a crucial role in social cognition in individuals with BPD (Brück et al., 2017; Lazarus et al., 2014). The challenges in seeing and understanding the emotional states of individuals are also associated with difficulty in establishing and maintaining interpersonal connections, a key characteristic of BPD that is persistent and devastating (Gunderson et al., 2011). Particularly in the literature, it can be seen that most studies examining perceptual biases in BPD have focused on two specific components of emotion recognition: *identification* and *sensitivity*. Emotion identification necessitates that individuals examine faces displaying prototypical emotional expressions, which are portrayed with complete emotional intensity, and subsequently assign a verbal label to the corresponding emotion (such as happy and sad). Emotion sensitivity refers to the ability to accurately identify an emotion in a face that is gradually changing from a neutral face to a typical emotional expression (Daros et al., 2014). Considering the components of FER, instead of emotion sensitivity, emotion identification was examined in this research.

In one previous study, FER was discovered to be less accurate among patients with BPD compared to controls without BPD (Levine, 1992). While certain studies have discovered that individuals with BPD exhibit heightened sensitivity to facial expressions, as evidenced by their improved accuracy and speed in recognizing them (Fertuck et al., 2009; Lynch et al., 2006; Rosenthal et al., 2008). On the other hand, other studies have found no discernible differences in emotion recognition between individuals with BPD and those without the disorder (Domes et al., 2008; Matzke et al., 2014). Consequently, in the literature, there are many inconsistent results about FER, including six emotions and neutral faces among individuals with BPD.

1.4.1. Negative facial expression

In the literature, when the BPD and FER studies are examined, generally, the negative emotions are sadness, anger, fear, and disgust (Daros et al., 2013). The majority of the initial researches on emotion recognition in BPD documented impairments in accurately identifying emotions, especially in the recognition of negative emotions (Bland et al., 2004; Guitart-Masip et al., 2009; Koenigsberg et al., 2002; Levine et al., 1997; Merkl et al., 2010; Unoka et al., 2011). For instance, Levine et al. (1997) found that in a sample mostly consisting of females, individuals with BPD had a decreased accuracy rate in identifying facial expressions of anger, fear, and disgust compared to a control group without psychiatric conditions, although they had similar demographical features in terms of age and academic degree. Similarly, in another study, it was shown that women diagnosed with BPD had reduced accuracy in recognizing facial expressions of fear, anger, and sadness (Bland et al., 2004). For instance, Wagner and Linehan (1999) questioned the participants by asking them verbally to characterize the emotional state of the individual who was being presented. They assessed the ability to recognize emotional facial expressions between a group of women diagnosed with BPD, a group of women diagnosed with histories of sexual abuse in childhood, and a group of women who had neither a history of sexual abuse nor a diagnosis of BPD. In contrast to the previous research, this one indicated that people with BPD were good at recognizing different emotions, but that they had a considerably increased sensitivity when it came to the recognition of fear. However, in another study, although there was no discernible difference in performance between healthy controls and individuals with BPD when processing time was unlimited, some studies have documented a negative bias in the rapid emotion discrimination of facial expressions, including fear and anger, compared to healthy subjects (Dyck et al., 2009). Furthermore, according to a recent study including static facial emotional expressions, the findings revealed that individuals with BPD had higher performance compared to the control group in identifying emotions of disgust, fear, and sadness. The healthy group exhibited a much enhanced ability compared to the BPD group in identifying the face of anger emotion (Alimadadi et al., 2022). Consequently, it can be concluded that various results have been obtained against static negative facial expressions within the scope of emotional identification.

In addition to static FER, several investigations that used continually morphing visuals, which refers to altering from neutral to a complete emotional display, reported no differences in the identification threshold across groups (Matzke et al., 2014; Domes et al.,

2008); however, one study found increased mistake rates for the emotions of surprise and fear (Domes et al., 2011). Similarly, in another study using morphing visuals, it was reported that individuals diagnosed with BPD have a tendency to perceive anger facial expressions at a lower threshold of intensity (Lynch et al., 2006). Likewise, BPD symptoms were also found to be a significant predictor of the misinterpretation of anger in male faces as morphing visuals that did not display any indications of anger. According to the findings, people with BPD have a propensity to perceive males' anger, and this propensity is unaffected by their experience of abuse (Veague & Hooley, 2014). Similarly, another study including morphing images indicates that patients with BPD have lower thresholds for perceiving anger face expression (Hidalgo et al., 2016). As a result, it can be concluded that the anger facial expression is recognized more quickly, in line with the emotion sensitivity examined in these studies. In this study, it is aimed at performing emotion identification with static face emotion.

Furthermore, the meta-analysis indicates that BPD patients have a specific deficit in recognizing disgust and anger, not all negative emotions (Daros et al., 2013). One of the suggestions with these findings against negative facial emotions was that anger and disgust may be of special importance in BPD because these emotional expressions communicate social danger and rejection, for which patients with BPD have been proven to be more sensitive. Specifically, the authors proposed that this phenomenon might occur due to the fact that anger and disgust serve as indicators of social threat and rejection. (Berenson et al., 2009; Domsalla et al., 2014; Renneberg et al., 2012; Staebler et al., 2011). Additionally, individuals with BPD exhibit a deficit in accurately recognizing emotional facial expressions, particularly disgust, which is significantly linked to childhood trauma (Nicol et al., 2014). This distorted perception is linked to changes in early visual processing as well as impaired structural and category processing of faces. Such results provide an explanation for the negative impression of others, which can be linked to the patients' deficiencies in interpersonal functioning (Hidalgo et al., 2016).

1.4.2. Happy facial expression

One meta-analysis showed that when the BPD and FER studies are examined, generally, the positive emotions are only happy (Daros et al., 2013). The findings indicated that individuals diagnosed with BPD had lower levels of accuracy compared to the control group when it came to identifying emotions, namely negative emotions. However, their ability to recognize happy facial expressions was not affected (Unoka et al., 2011). Similarly,

one meta-analysis suggests that people with BPD do not struggle with distinguishing static happy facial expressions (Daros et al., 2013). Catalan et al. (2016) found that in regards to attributing negative emotions to happy expression, there was a substantial difference between groups that are healthy, people with BPD, and people with first-episode psychosis. In comparison to the healthy group, those with BPD and the first-episode psychosis group were significantly more likely to identify positive faces as negatives. Moreover, in a study conducted in recent years using static stimuli,it was found that no statistically significant differences were found in the reporting of happiness between BPD and the control group (Alimadadi et al., 2022). Additional research has identified a negative bias in the evaluation of positive faces (Kleindienst et al., 2019), as well as deficiencies in the ability to distinguish happiness and delayed reaction times to these faces (Ferreira et al., 2018; Hidalgo et al., 2016; Schneider et al., 2018). On the other hand, in comparison to the healthy controls, the participants with BPD demonstrated a statistically significant improvement in their ability to identify positive and negative facial expressions (Schulze et al., 2012). In a study conducted in Turkey, it was found that the BPO and neurotic groups did not differ significantly in their ability to recognize happy faces; however, there are significant differences for neutral faces and other expressions (Hagverdiyev, 2022).

Moreover, patients with BPD evaluated the intensity of satisfaction in happy faces lower than controls, although there were no differences in the evaluation or rating of anger or ambiguous facial cues. They reported less confidence about their rating in their own assessments (Thome et al., 2016). In another study, it was shown that individuals with BPD had a tendency to recognize happiness at a lower threshold of intensity (Lynch et al., 2006). Patients with BPD were more likely than controls to classify predominantly happy faces as angry (Hidalgo et al., 2016). The decrease in happiness rating was associated with increased state anger, while the decrease in confidence in assessing happy faces was correlated with heightened emotions of loneliness and anticipation of social rejection (Thome et al., 2016).

1.4.3. Surprised facial expression

In addition to all emotions, surprise wasn't included in either of the two valence groups because a surprised expression could be taken as either positive or negative. This ambiguity couldn't be cleared up without more information about the context (Kim et al., 2003). Similarly, in one study about BPD and FER, it was mentioned that surprised facial expressions can be construed as either positive, negative, or even neutral. It was found that there is no significant difference in sensitivity about the recognition of surprising FER

compared to patients with BPD and the healthy group (Lynch et al., 2006). Likewise, it was found that there is no difference in reaction time between BPD and the healthy group (Merkl et al. 2010). Moreover, it was also noted that people with BPD were less able to correctly identify surprises compared to the control group (Ferreira et al., 2018; Nicol et al., 2014). On the other hand, another study showed that people with BPD may be better at recognizing surprised facial expressions than people without BPD (Unoka et al. 2011). Furthermore, in some studies, surprise was not included as an emotion (Thome et al., 2016; Schulze et al., 2012; Veague & Hooley, 2014). Therefore, in the literature, although there are inconsistent results for surprised facial expression in patients with BPD, there is limited information about this emotional facial expression.

1.4.4. Neutral facial expression

In addition to these six emotions, various findings were obtained when neutral facial expressions included no emotion. In one study, it was revealed that individuals diagnosed with BPD had a high level of accuracy in identifying human facial expressions, with the exception of neutral faces. Particularly in the case of neutral faces, BPD patients are more likely to make mistakes and attribute negative emotions to them (Wagner & Linehan, 1999). It has also been demonstrated that people with BPD tend to interpret neutral faces as indicating a negative feeling (Scott et al., 2011). Other research has suggested that the FER in individuals with BPD is not statistically different from the control group; nonetheless, individuals with BPD may demonstrate a negative bias in the evaluation of faces that are neutral or ambiguous (Domes et al., 2008; Meyer et al., 2004; Murphy, 2006). On the other hand, some researchers have discovered a negative bias in BPD patients' quick emotion detection of neutral expressions when compared to healthy subjects, while no significant difference was identified compared to healthy controls when processing time was unrestricted (Dyck et al., 2009). According to the meta-analysis, individuals diagnosed with BPD exhibit a general decrease in the accuracy of recognition, even when impartial and fundamental emotions are accounted for in the analysis. Nevertheless, it is noteworthy that the most significant deficiency was discovered in the recognition of neutral faces. This finding implies that individuals with BPD have a tendency to incorrectly ascribe emotions to features that do not indicate any emotion (Daros et al., 2013). Similarly, another meta-analysis noted that individuals with BPD may misinterpret neutral facial expressions as indicating negative feelings (Mitchell et al., 2014). Moreover, Minzenberg et al. (2006) conducted different research in which they compared patients diagnosed with BPD receiving

outpatient therapy to a control group. The comparison was conducted by evaluating their capacity to identify and comprehend emotions in activities that employed both visual with facial expressions and auditory inputs, as well as a combination of the two. Individuals diagnosed with BPD showed a typical capacity to identify individual facial or vocal emotions but exhibited difficulties in recognizing emotions when presented with combined facial and vocal cues. Additionally, they had a decreased ability to differentiate non-emotional facial characteristics. Impaired perception of combined emotional stimuli in individuals with BPD was associated with interpersonal hostility, including suspicion and aggression. Consequently, it can be concluded that people with BPD showed inconsistent findings not only towards emotional faces but also towards neutral facial expressions.

1.4.5. The methodological differences

It is still uncertain if individuals with BPD have a changed ability to detect ambiguous inputs using static and dynamic emotional facial expressions or if they have problems accurately identifying specific emotions with regard to methodological differences (Domes et al., 2009). Hence, there can be some different and important points to make in order to explain these inconsistent results. First of all, there are variations in the methods of many of the studies in asking about the emotion associated with the facial expressions shown. For example, they employed a multiple-choice format, requiring participants to select an answer from a list of alternatives (Bland et al., 2004; Catalan et al., 2016; Ferreira et al., 2018; Hidalgo et al., 2016; Levine et al., 1997; Minzenberg et al., 2006; Unoka et al., 2011). On the other hand, Wagner and Linehan (1999) used a different method by asking participants to characterize the emotional state of a person verbally rather than choosing among multiple options. In this study, this methodological difference was interpreted as reflecting a negative bias in BPD when evaluating ambiguous facial expressions.

Furthermore, another methodological difference is the set of facial expressions used. For instance, Japanese and Caucasian Facial Expressions of Emotion created by Matsumato and Ekman (1988) were used in the study of Wagner and Linehan (1999). Moreover, Pictures of Facial Affect (POFA), created by Ekman and Friesen (1976), was used in most of the studies (Alimadadi et al., 2022; Bland et al., 2004; Catalan et al., 2016; Domes et al., 2008; Ferreira et al., 2018; Hidalgo et al., 2016; Levine et al., 1997; Lynch et al., 2006; Minzenberg et al., 2006; Unoka et al., 2011; Veague & Hooley, 2014). It can be said that these data sets are old, and they include only black and white. Hence, it can be said that this is related to a lack of ecological validity. However, in recent years, the NimStim set of facial expressions

(2009) was created, and some studies preferred to use this set (Matzke et al., 2014; Kleindienst et al., 2019; Thome et al., 2016). This set includes colorful and modern faces; hence, participants were exposed to suitable faces for today and daily life.

1.5. The Aims of the Study

Interaction does not only occur through language; it can also be established through facial expressions without speaking. However, it is debatable to what extent a person should evaluate and recognize these facial expressions. One reason for this is that individuals cannot functionally have the FER process, whether or not it is somehow tied to a particular disease or diagnosis. Looking at the literature, FER has been investigated, especially in people with neurological and psychological disorders. In particular, studies have been conducted with people diagnosed with BPD. At this point, considering that not every person who sees each other on the street or every client who comes to therapy has a diagnosis of BPD, curiosity arose about what might happen with these people. In other words, it was questioned about the FER findings of people with the BPO. Therefore, in this study, individuals were divided according to their BPO, and their FER abilities were examined. Moreover, there is only one study on FER and BPO. Therefore, this study is aimed at contributing to both international and national literature. Additionally, this study aims to contribute findings to the literature regarding therapeutic relationships, considering nonverbal communication during the therapy process of people with BPO.

1.6. Hypotheses

Based on the aim of the study, the hypotheses are:

Hypothesis 1: People with BPO will have lower accuracy, more confidence and shorter reaction times to anger face than people with non-BPO.

Hypothesis 2: People with BPO will have lower accuracy, more confidence and longer reaction times to sad, disgusted, and neutral face than people with non-BPO.

Hypothesis 3: People with BPO will have lower accuracy, lower confidence and longer reaction times to happy and surprised face than people with non-BPO.

Hypothesis 4: People with BPO will have more accuracy, more confidence and shorter reaction times to fear face than people with non-BPO.

2. METHOD

2.1. Participants

The G-Power Software 3.1 was used to decide the ideal sample size for this study. Therefore, this software was run with the parameters of the global effect MANOVA as a statistical test: the effect size of 0.06, the power of 0.85, the number of groups 2, and the number of responsible variables 3. Based on calculations made by G-Power Software, the total sample size should be approximately 202.

Başkent University students who are between 18 and 25 years old were accepted as volunteer participants in this experiment. Participants with any visual impairment were asked to bring their prescription glasses or contact lenses. In addition, it was intended that only participants whose mother tongue is Turkish participate in this study.

Furthermore, in this study, exclusion criteria are having severe depression depending on the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) results, diagnosis of psychological disorders and/or neurological diseases, using medication for these diseases, and being a 3rd or 4th psychology student.

Following the established criteria, a total of 362 individuals were surveyed using an online questionnaire. Furthermore, a total of 57 individuals were excluded from the study due to their failure to fulfill the study requirements. The 34 participants were removed from the study due to their age and the fact that they were either third- or fourth-year psychology students. Likewise, 59 participants were removed due to their diagnoses and adherence to medication criteria. In addition, 7 individuals provided an incorrect response to a particular attentiveness question, resulting in their exclusion. Finally, 26 participants were removed due to their extreme depression and anxiety (non-BPO). Consequently, the study was conducted with a total of 179 individuals. However, only 120 of these people attended the face-to-face part.

2.2. Materials

2.2.1. Informed consent form

This study consists of two parts; therefore, two informed consents were prepared and provided for both the online and laboratory sessions. Essentially, these two informed consent forms included confidentiality of data received from participants, rights of participants, purpose, process, benefits, and risks of the research (Appendices 1 and 2).

2.2.2. Demographic information form

The demographic information form given before the scales in the online section included some personal information questions about age, gender, education level, whether there were any psychiatric and/or neurological diagnoses, and related medication use (Appendix 3).

2.2.3. Beck depression inventory

The Beck Depression Inventory (BDI) (Appendix 4) is a self-report scale developed by Beck et al. (1961). The aim of the scale is to analyze the risk for depression and to measure the level, and demonstrate the severity of depressive symptoms. The main purpose of this scale is to evaluate the symptoms of depression; however, it also allows the evaluation of cognitive symptoms of depression.

This inventory includes 21 items with a self-reported Likert-type, and the response of each item on the scale corresponds to scores in the 0–3 range (0: Not at all, 3: Severely). Depending on this calculation, the minimum score obtained from the scale is 0, and the maximum is 63. Moreover, scores are evaluated from 0 to 9 as minimal, 10 to 16 as mild, 17 to 29 as moderate, and 30 to 63 as severe depression. It will take approximately five to ten minutes to complete the scale. Besides, Hisli (1989) conducted the Turkish standardization study of the BDI. The results demonstrate that the internal consistency coefficient was .80 and the two-half test correlation was r =.74.

2.2.4. Beck anxiety inventory

Beck et al. (1988) created the Beck Anxiety Inventory (BAI) (Appendix 5) to ascertain how frequently a person experiences anxiety symptoms. This scale has a 21-item, self-reported Likert scale with a 0–3 rating scale (0: Not at all, 3: Severely). Scores can vary from 0 to 63. The result of the scale, which is the person's score, reveals the degree of anxiety; a higher score implies a high degree of anxiety. There are four categories for anxiety levels: low (0–7), mild (8–15), moderate (16–25), and high (26–63). The scale will take about five minutes to finish. Besides, Ulusoy et al. made the Turkish translation of the scale (1993). Test-retest reliability for the Turkish version was.57, item-total correlation coefficients ranged from.46 to.71, and Cronbach's alpha internal consistency coefficient was.93.

2.2.5. Borderline personality inventory

The Borderline Personality Inventory (BPI) was developed by Leichsenring (1999) to measure the level of organization at the border. This inventory includes 53 items and the answers to the last two questions do not add to the analysis. The items created as true/false. Each "true" response given to the first 51 questions answered as true/false is evaluated as 1 point; each "false" response is evaluated as 0 points, and the total score of the test is calculated to be equal to the number of questions with "true" answers. BPI was created depending on Kernberg's (1984) theory of personality organizations. Accordingly, the inventory consists of 4 sub-dimensions: identity confusion, use of primitive defense mechanisms, distortions in the assessment of reality, and fear of intimacy.

BPI was standardized into Turkish by Aydemir et al. (2006). In the reliability analysis of the Turkish version, the Cronbach alpha values of the scale applied to all participants were found to be .92, and the Cronbach's alpha values of the scale to the participants diagnosed with borderline personality disorder were found to be .84. The analyses indicate that the psychometric properties of the scale are at a satisfactory level. The cut-off point in the Turkish version of the inventory was 15 or 16 points (Aydemir et al., 2006) (Appendix 6). The necessary permission to use the scale was received via e-mail (Appendix 7)

2.2.6. NimStim set of facial expressions

In this study, the NimStim set of facial expressions will be used. This database includes 672 images. These expressions were posed by 43 professional actors (18 female, 25 male; 21–30 years old) in New York City. There were 10 African-American, 6 Asian, 25 European, and 2 Latino-American actors. Eight facial expressions—happy, sad, angry, fearful, surprised, disgusted, neutral, and calm—were required of the actors. Each expression had an open-mouth and closed-mouth variation with the exception of surprise, which was only posed with an open mouth (Tottenham et al., 2009). Access to the database was provided by Nim Tottenham providing the necessary permissions via email (Appendix 8).

As manipulation materials for this experiment, 7 emotional faces (anger, sad, surprised, disgusted,happy, neutral, fear) will be demonstrated to participants. 3 male and 3 female models were chosen depending on rating for emotion recognition and caring taken to select faces similar to Turkish culture. Since the facial photographs in the photo data set are not allowed to be published, the facial photographs used in this study cannot be shared.

2.3. Procedure

Before collecting data ethical permission was obtained from the Social Sciences and Humanities Scientific Research and Publication Ethics Committee of Başkent University (Appendix 10). This study includes online and laboratory sessions. Moreover, bonus points were given to every student who participated in the online part, but no bonus points were given to those who did not attend the laboratory after the online part. In the online session of this study, the questionnaire was given using Qualtrics, and Qualtrics links were uploaded to the system that students used during the semester. This link included an informed consent form, demographic information form, BDI, BAI, and BPI. Moreover, after getting confirmation of participation in this study, participants can achieve BDI, BAI, and BPI. Individuals with a diagnosis of psychological disorders and neurological diseases, as well as those using medication for such kinds of diseases, were excluded from the sample. Depending on the results of the BDI, individuals with severe depression were not invited to the face-to-face part of the study. Similarly, depending on the results of the BAI, individuals with high anxiety scores were not included in the laboratory part of the study. Moreover, based on BPI, participants were separated into two groups: BPO and non-BPO.

Furthermore, the second part of this study was conducted in laboratory conditions. After applying the inclusion and exclusion criteria, eligible participants were invited to the laboratory. Then, the second informed consent form was given to them. After this process, participants were placed in previously prepared seats with a distance of 53 cm from the screen. Participants were exposed to the 42 NimStim Set of Facial Expressions photographs (Tottenham et al., 2009). Before starting, participants were asked to recognize the emotion and chose on the name of the emotion, then, the reaction time (RT) was measured. Participants were asked to make a forced choice among the six emotions and neutral; thus, the accuracy of the response was measured. Lastly, for this part, participants were asked to point out their confidence in their response on a 5-point Likert scale from 1 (not certain at all) to 5 (very certain) (Appendix 9).

2.4. Design

There are two independent variables and three dependent variables in this study. The independent variables of the research are groups (BPO and non-BPO) and type of emotion (anger, sad, surprised, disgusted, happy, neutral and fear). The dependent variables are reaction time (RT), confidence level, and accuracy of response. Based on this information,

the study has a 2x7 factorial design. The statistical analysis as a repeated measure multivariate analysis of covariance (MANCOVA) was conducted by using SPSS.

3. RESULTS

3.1. Descriptive Statistics

In this study, 120 young adults participated; however, after assumption testing was conducted, extreme outliers were detected. There were 10 univariate extreme outliers as assessed by the examination of the boxplot; these 10 participants were excluded. Moreover, to assess multivariate outliers, Mahalanobis distance analysis was used, and 5 participants were excluded as they fell into the category of multivariate outliers. After excluding outliers, the study included 105 participants. Hence, it was concluded that the study met the assumption of a normal distribution. The demographic information for all participants is demonstrated in Table 3.1. Descriptive statistics of age, BDI, and BAI are shown in Table 3.2 and descriptive statistics for variables are in Table 3.3.

Table 3. 1

Frequencies of Demographic Variables (N=105)

	n	%
Gender		
Female	102	97.1
Male	3	2.9
Department		
Psychology	37	35.2
Sociology	12	11.4
Molecular Biology and Genetic	4	3.8
Nutrition and Diatetic	27	25.7
Audiology	17	16.2
Physical Therapy and Rehabilitation	4	3.8
American Culture and Literature	2	1.9
Law	1	1.0
Social Service	1	1.0

Note, N=Sample Size, *n*= Frequency; %=Percent

Table 3. 2

Descriptives of Age and Exlusion Criterias for Groups

	Groups					
	Non-BPO (n=52)		BPO (n=53)		Total (n=105)	
	M	SD	M	SD	M	SD
Age	20.21	1.59	19.66	1.285	19.93	1.46
BDI	10.37	6.35	20.74	6.205	15.60	8.13
BAI	11.31	6.91	25.62	10.03	18.53	11.20

Note. BDI= Beck Depression Inventory Scores, *BAI*= Beck Anxiety Inventory Scores, *BPO*= Borderline Personality Organization, *Non-BPO*=No-Borderline Personality Organization, *M*=Mean, *SD*=Standard Deviation

Table 3. 3

Descriptive Statistics for Between and Within-Subject Variables

	Groups	*M*	*SD*	Skewness	Kurtosis	Min	Max
Anger							
RT	Non-BPO	5.30	1.92	.672	.304	2.27	11.12
	BPO	5.39	1.86	1.244	3.265	2.36	12.70
CF	Non-BPO	4.04	.45	.147	-.884	3.17	5.00
	BPO	4.09	.54	-.895	.927	2.33	5.00
ACC	Non-BPO	4.62	.91	-.438	.224	2.00	6.00
	BPO	4.66	.98	-.151	-.950	3.00	6.00
Disgusted							
RT	Non-BPO	3.46	1.16	.927	.951	1.62	7.29
	BPO	3.61	1.39	1.424	2.149	1.60	8.07
CF	Non-BPO	4.41	0.39	-.309	-1.097	3.67	5.00
	BPO	4.37	0.39	-.012	-.884	3.67	5.00
ACC	Non-BPO	5.40	.80	-1.114	.327	3.00	6.00
	BPO	5.34	.73	-.636	-.858	4.00	6.00
Fear							
RT	Non-BPO	4.93	1.72	.759	.410	2.06	10.04
	BPO	4.69	1.22	.884	1.533	2.66	8.90
CF	Non-BPO	4.04	.48	-.438	.954	2.50	5.00
	BPO	4.06	.46	-.249	-.527	3.00	4.83
ACC	Non-BPO	1.87	1.16	.193	-.690	0.00	4.00
	BPO	2.06	1.20	.235	-.086	0.00	5.00
Happiness							
RT	Non-BPO	3.03	1.31	.991	.095	1.51	6.39
	BPO	3.25	1.62	1.612	2.559	1.45	8.48
CF	Non-BPO	4.55	.40	-.587	-.714	3.67	5.00
	BPO	4.42	.49	-.737	.181	3.00	5.00
ACC	Non-BPO	5.69	.58	-1.760	2.176	4.00	6.00
	BPO	5.64	.76	-2.263	4.569	3.00	6.00
Neutral							
RT	Non-BPO	3.64	1.36	1.268	1.991	1.70	8.12
	BPO	4.12	1.51	.335	-.548	1.39	7.97
CF	Non-BPO	4.12	.56	-.306	-.877	3.00	5.00
	BPO	4.16	.43	.016	-.800	3.33	5.00
ACC	Non-BPO	4.84	1.21	-1.003	.752	1.00	6.00
	BPO	4.64	1.11	-.722	.015	2.00	6.00
Sadness							
RT	Non-BPO	4.48	1.53	.614	-.068	2.14	8.37
	BPO	4.74	1.68	.481	-.563	1.95	8.82
CF	Non-BPO	4.07	.45	.187	-.804	3.17	5.00
	BPO	4.04	.44	-.638	1.436	2.50	4.83
ACC	Non-BPO	3.81	1.21	-.593	.039	1.00	6.00
	BPO	3.74	1.18	-.484	.073	1.00	6.00
Surprised							
RT	Non-BPO	3.51	1.44	1.081	1.293	1.64	8.41
	BPO	3.60	1.20	1.205	2.699	1.70	8.20
CF	Non-BPO	4.35	.51	-.364	-.83	3.17	5.00
	BPO	4.24	.42	.006	-.476	3.33	5.00
ACC	Non-BPO	4.92	1.27	-.937	-.275	2.00	6.00
	BPO	4.89	1.14	-1.235	1.733	1.00	6.00

Note. RT=Reaction Time (as seconds), *CF= Confidence Rate, ACC*= Accuracy, *BPO*= Borderline Personality Organization, *Non-BPO*=No-Borderline Personality Organization, *M*=Mean, *SD*= Standard Deviation

3.2. Inferential Statistic

According to the exclusion criteria of this study, participants who had severe depression and anxiety scores (only for non-BPO) did not participate in this study. Nevertheless, before the main analysis, a one-way multivariate analysis of variance (MANOVA) was conducted to analyze differences in depression and anxiety depending on borderline personality organization groups. In this regard, it was found that, in terms of depression scores, there is a significant difference between non-BPO (M=10.37) and BPO (M=20.74) groups (F (1, 103) = 71.678, p = <.001). Similarly, considering anxiety scores, there is a significant difference between non-BPO (M=10.37) and BPO (M=20.74) groups (F (1, 103) = 72.328, p = <.001).

After this result, the MANCOVA was carried out in order to assess the effect of borderline personality organization (non-BPO vs. BPO) and face emotion type (anger, disgusted, fear, happy, neutral, sad, and surprised) on participants' reaction time, confidence, and accuracy in controlling for depression and anxiety scores. The assumption of homogeneity of variance-covariance is tenable based on the results of Box's test: M = 308.673, F (231, 32343.288) = 1.048, p =.295.

According to the 2x7 repeated measures MANCOVA, there was no statistically significant difference between the borderline personality organization groups on the combined dependent variables after controlling for depression (Λ =.996, F (3,99) =.141, p = 0.935, partial η^2 = .004) and anxiety (Λ =.992, F (3,99) =.267, p = 0.813, partial η^2 = .008). Similarly, there is no main effect of borderline organization on reaction time, confidence, and accuracy; F (1, 101) = 0.890 , p =.297; F (1, 101) = 0.308, p =.580; and F (1, 101) = 0.007, p=.034, respectively. On the other hand, significant differences in mean were found among the emotion types across the three dependent variables: reaction time, confidence, and accuracy Λ =.266, F (18,84) = 12.851, p < 0.001, partial η^2 = .734. There are no significant differences in mean among the interactions between borderline organization and face emotion types across the three dependent variables, which are reaction time, confidence, and accuracy Λ = .776, F (18,85) = 1.350, p = 0.180, and partial η^2 = 0.224.

In conclusion, although there are no significant differences between groups that are non-BPO and BPO on reaction time, confidence, and accuracy, the emotion types (anger, disgusted, fear, happiness, neutral, sad, and surprised) have an effect on reaction time, confidence, and accuracy among non-BPO and BPO. In order to understand and show

differences, the result of repeated MANCOVA reported for each face emotion type depends on univariate ANOVAs.

3.2.1. Anger facial expression

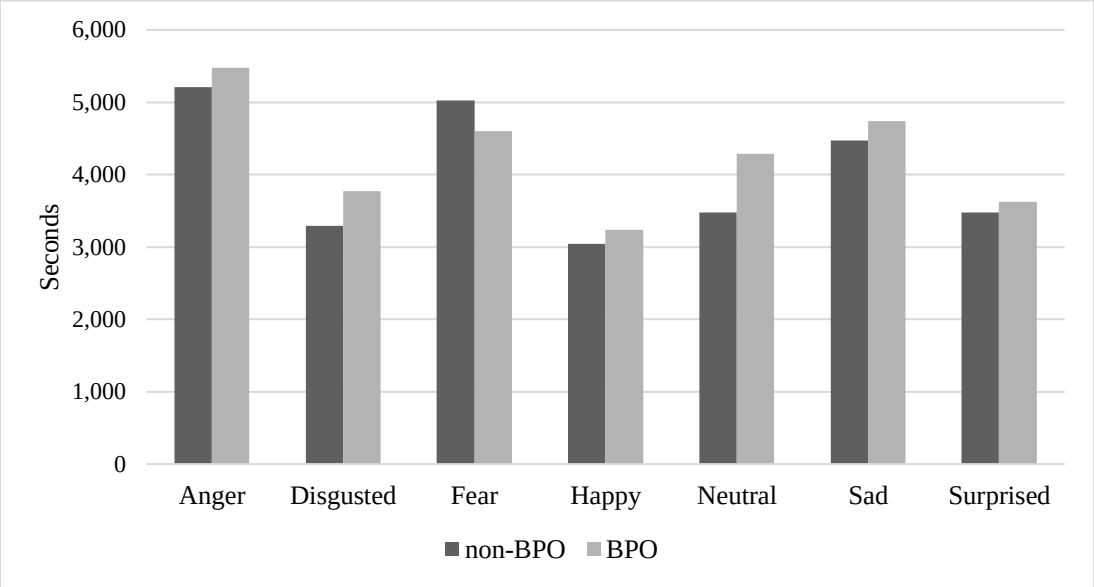
According to reaction time scores of anger faces, Levene's test met the homogeneity assumption: F (1, 103) = 0.414, p =.521. Moreover, there was not a significant difference in reaction time for anger-face emotion between the non-BPO and BPO groups (F (1, 101) = 0.658, p = 0.419, η^2 =.006). Furthermore, Levene's test of the confidence rate, met the homogeneity assumption: F (1, 103) = 1.214, p =.273. There was not a significant difference in the confidence rate of anger-face emotion between non-BPO and BPO groups (F (1, 101) =0.226, p =.635, η^2 =.002). The last result of anger is accuracy and Levene's test met the homogeneity assumption: F (1, 103) = 1.439, p =.233. There was not a significant difference in the accuracy of anger-face emotion between non-BPO and BPO groups, F (1, 101) = 3.373, p = 0.069, η^2 = .032. Accordingly, Hypothesis 1, which states that BPOs will have shorter reaction times, more confidence and lower accuracy than non-BPOs, was not verified. The mean differences in RT, confidence and accuracy rate are shown in Figure 3.1, 3.2 and 3.3.

3.2.2. Disgusted facial expression

Considering the reaction time scores of disgusted faces, Levene's test met the homogeneity assumption, F (1, 103) = 0.708, p = .402. Moreover, there was not a significant difference in reaction time for disgusted face emotion between non-BPO and BPO groups, F(1, 101) = 1.532 p = 0.219, η^2 = .015. Additionally, the confidence rate of Levene's test met the homogeneity assumption, F (1, 103) = 0.112, p = .738. There was not a significant difference in the confidence rate of disgusted face emotion between the non-BPO and BPO groups, F (1, 101) = 0.481, p = .490, η^2 = .005. Hence, the second assumption of Hypothesis 2, which stated that the BPO will have more confidence in comparison to non-BPO, was not supported. For the last result for disgusted faces about accuracy, Levene's test met the homogeneity assumption, F (1, 103) = 1.217, p = .272. There was not a significant difference in the accuracy of disgusted face emotion between non-BPO and BPO groups, F(1, 101) = 0.151, p = .699, η^2 = .001. Consequently, the one condition of Hypothesis 2 that the BPO will have longer RT, more confidence and lower accuracy to disgusted faces compared to non-BPO was not supported. The mean differences of RT, confidence rate and accuracy are shown in Figure 3.1, 3.2 and 3.3.

Figure 3. 1

The mean of reaction times of groups for each emotion type

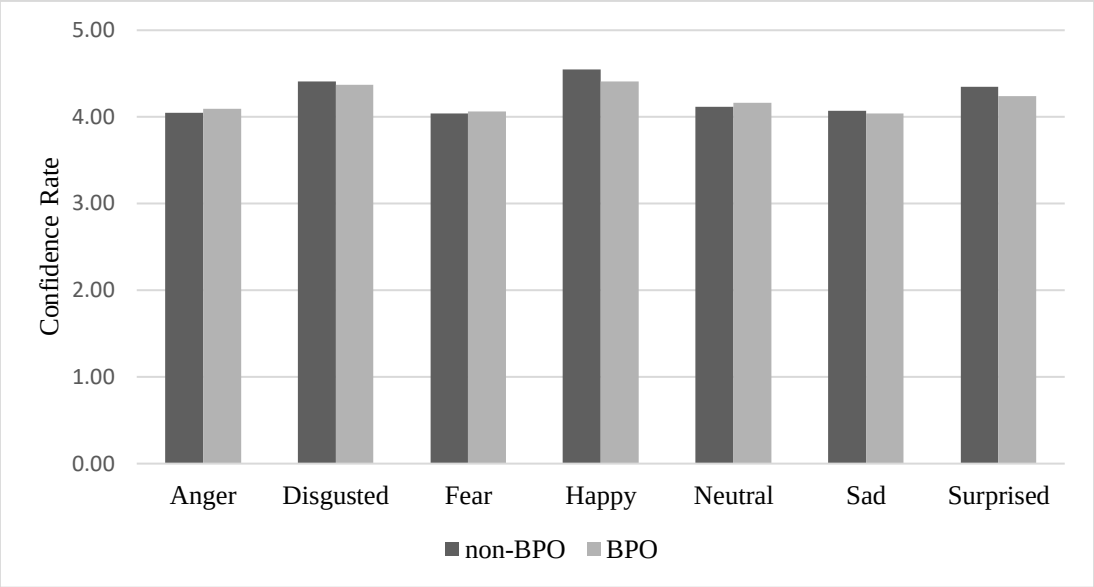


3.2.3. Fear facial expression

Regarding to reaction time scores of fear emotional faces, Levene's test met the homogeneity assumption, F (1, 103) = 4.390, p = .039. Moreover, there was not a significant difference for reaction time of fear face emotion between non-BPO and BPO groups, F (1, 101) = 2.676, p = .105, η^2 = .026. Besides, Levene's test met the homogeneity assumption for the confidence rate, F (1, 103) = 0.001, p = .979. There was not a significant difference for confidence rate of fear face emotion between non-BPO and BPO groups, F(1, 101) = 0.018, p = .894, η^2 = .000. Moreover, the Levene's test for accuracy met the homogeneity assumption, F (1, 103) = 0.394, p = .532. There was not a significant difference in accuracy of fear face emotion between non-BPO and BPO groups, F (1, 101) = 0.004, p = .950, η^2 = .000. As a result, the one condition of Hypothesis 4 that the BPO will have longer RT, more confidence and more accuracy to fear faces compared to non-BPO was not verified. The mean differences of RT, confidence rate and accuracy are shown in Figure 3.1, 3.2 and 3.3.

Figure 3. 2

The mean of confidence rate of groups for each emotion type



3.2.4. Happy facial expression

According to reaction time scores of happy faces, Levene's test met the homogeneity assumption, F (1, 103) = 1.184, p = .279. Moreover, there was not a significant difference for reaction time of happy face emotion between non-BPO and BPO groups, $F($1, 101) = 0.034, p = .854, η^2 = .000. Furthermore, Levene's test for confidence rate met the homogeneity assumption, F (1, 103) = 1.940, p = .167. There was not a significant difference for confidence rate of happy face emotion between non-BPO and BPO groups, $F($1, 101) = 1.424, p = .236, η^2 = .014. Additionally, Levene's test met the homogeneity assumption, F (1, 103) = 1.028, p = .313. There was not a significant difference in accuracy for happy face emotion between non-BPO and BPO groups, F(1, 101) = 1.603, p = .208, η^2 = .016. Accordingly, the some conditions of Hypothesis 3 the BPO will have longer RT, lower confidence and lower accuracy to happy faces compared to non-BPO was not confirmed. The mean differences of RT, confidence rate and accuracy are shown in Figure 3.1, 3.2 and 3.3.

3.2.5. Neutral facial expression

Depending on reaction time scores of happy faces, Levene's test met the homogeneity assumption, F (1, 103) = 2.054, p = .155. Moreover, there was not a significant difference in reaction time of neutral face emotion between non-BPO and BPO groups, F(1, 101) = 3.845, p = .053, η^2 = .046. Moreover, Levene's test for confidence rate met the homogeneity

assumption, F (1, 103) = 4.277, p = .041. There was not a significant difference in the confidence rate for neutral face emotion between non-BPO and BPO groups, F (1, 101) = 0.127, p = .722, η^2 = .001. Additionally, Levene's test for accuracy met the homogeneity assumption, F (1, 103) = 1.129, p = .290. There was not a significant difference in accuracy for neutral face emotion between non-BPO and BPO groups, F(1, 101) = .230, p = .632, η^2 = .002. In that sense, the some assumptions of Hypothesis 2 that the BPO will have longer RT, more confidence and lower accuracy to neutral faces compared to non-BPO was not supported. The mean differences of RT, confidence rate and accuracy are shown in Figure 3.1, 3.2 and 3.3.

3.2.6. Sad facial expression

Levene's test for reaction time met the homogeneity assumption, F (1, 103) = 0.852, p = .358. Moreover, there was not a significant difference for reaction time of sad face emotion between low and high borderline organization groups, F(1, 101) = 0.968, p = .327, η2 = .009. Likewise, according to the results of confidence rate to sad faces Levene's test met the homogeneity assumption, F (1, 103) = 0.648, p = .423. There was not a significant difference in confidence rate for sad face emotion between non-BPO and BPO groups, F(1, 101) = .119, p = .731, η^2 = .001. Moreover, Levene's test for accuracy met the homogeneity assumption, F (1, 103) = 0.043, p = .836. There was not a significant difference in accuracy for sad face emotion between non-BPO and BPO groups, F(1, 101) = .169, p = .682, η^2 = .002. Accordingly, the some conditions of Hypothesis 2 that the BPO will have longer RT, more confidence and lower accuracy, to sad faces compared to non-BPO was not verified. The mean differences of RT, confidence rate and accuracy are shown in Figure 3.1, 3.2 and 3.3.

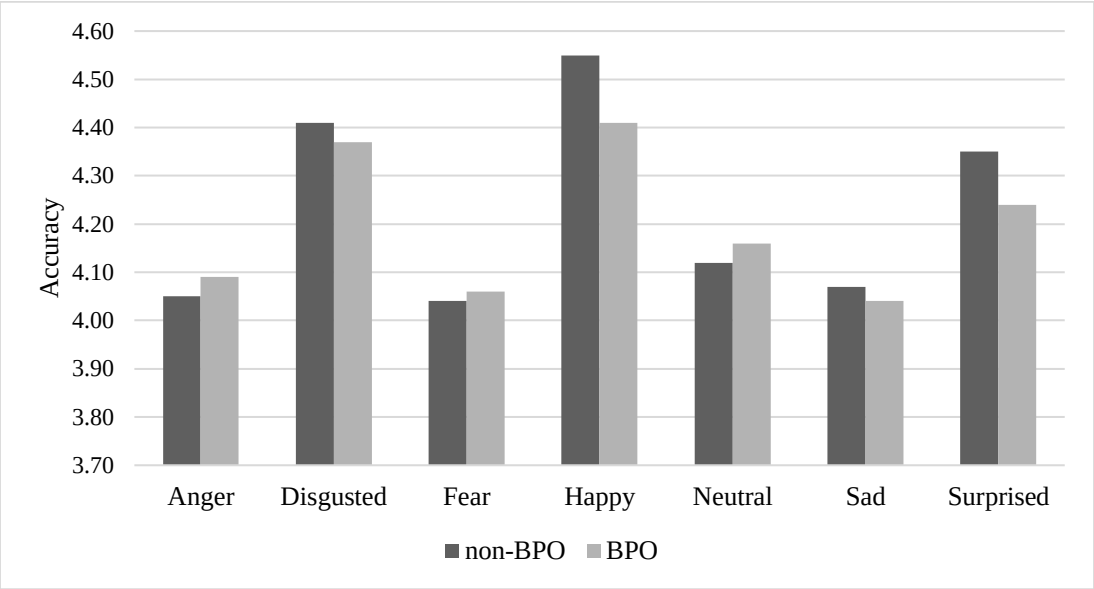
3.2.7. Surprised facial expression

Considering to reaction time scores of surprised faces, Levene's test met the homogeneity assumption, F (1, 103) = 1.937, p = .167. Moreover, there was not a significant difference for reaction time of surprised face emotion between non-BPO and BPO groups, F(1, 101) = 0.407, p = .525, η^2= .004. Also, Levene's test for confidence rate met the homogeneity assumption, F (1, 103) = 4.628, p = .034. There was not a significant difference for confidence rate of surprised face emotion between non-BPO and BPO groups, F (1, 101) = 3.172, p = .078, η^2 = .030. Lastly, Levene's test for accuracy met the homogeneity assumption, F (1, 103) = 1.023, p = .314. There was not a significant difference in the accuracy for surprised face emotion between non-BPO and BPO groups, F (1, 101) = 1.845,

p = .177, η^2 = .018. Thus, the all assumptions of surprised faces in Hypothesis 3 that the BPO will have longer RT, lower confidence and lower accuracy compared to non-BPO was not confirmed. The mean differences of RT, confidence rate and accuracy are shown in Figure 3.1, 3.2 and 3.3.

Figure 3. 3

The mean of accuracy of groups for each emotion type



4. DISCUSSION

This study was designed to measure face emotion recognition (FER) between people with and without borderline personality organization. For these purposes, this study includes online and laboratory sessions. In the online session of this study, besides depression and anxiety scales, a borderline personality inventory (BPI) questionnaire was given to volunteer Başkent University students. Depending on the BPI scores, participants were separated into two groups: those in borderline organization (BPO) and those not in borderline organization (BPO). Additionally, the second part of this study was carried out under controlled laboratory circumstances. Following the application of the admission and exclusion criteria, those who met the requirements were invited to the laboratory. Participants were presented with the 42 NimStim Set of Facial Expressions images. Before beginning, participants were instructed to identify the feeling and select the corresponding emotion label. Participants were instructed to select one of the six (anger, sad, surprised, disgusted, happy and fear) emotions and neutral faces, and the accuracy of their responses was then evaluated. Finally, in this section, participants were requested to indicate their level of confidence in their answer. A total of 120 people participated in the study in the laboratory, but 105 people were included in the study. The purpose of this study was to include significant differences in reaction time, confidence, and accuracy between groups with and without the BPO, which were shown through neutral expressions and six distinct emotions.

However, the findings of the study show that there is no significant difference in reaction time, confidence rate, or accuracy values between these groups. There are similar findings in the literature in studies comparing patients with BPD and healthy groups (Dyck et al., 2009; Minzenberg et al., 2006; Wagner & Linehan, 1999). Particularly, Minzenberg et al. (2006) found no differences in accuracy and reaction time between BPD and the healthy group. In another study, results showed that there is no indication of different sensitivity to certain emotions in women with BPD when compared to healthy individuals (Domes et al., 2008). The findings of a recent study also show that surprise and happiness are not significantly different (Alimadadi et al., 2022). Although there are studies in the literature that are similar to the findings of this study, possible reasons for the no significant difference between the two groups (non-BPO vs. BPO) in this study will be discussed in this section.

4.1. Relationship of Variables with Sample Characteristic

4.1.1. Relationship with FER and gender

The majority of the participants in this study are women. Therefore, the menstrual cycle is considered to be a factor that may affect this result. One study suggested that an increased capacity for social engagement during the menstrual period of a woman's life is associated with heightened neuroendocrine state, activation of the amygdala, and emotion detection performance (Derntl et al., 2008). Moreover, depending on the cycle phase, it was found that while neutral and happy expressions elicited the quickest reactions, negative emotions elicited slower reactions. Similarly, the accuracy of FER can be affected depending on the cycle phase. The accuracy of neutral and joyful expressions was nearly perfect, whereas negative emotions were considerably less accurate (Pletzer & Noachtar, 2023). Consequently, FER can be influenced by the menstrual cycle. There may have been women in various cycle phases in the non-BPO and BPO groups, and this was not controlled in this study, and no significant difference may have been found.

4.1.2. Relationship with FER and education

Another possible reason for no significant results between two groups can be the education levels of participants. The participants of this study were university undergraduate students. For this reason, although the two groups are very close to each other in terms of education level, this can be result two very strong groups were formed when cognitive capacity and functions were taken into account. One previous study revealed that individuals diagnosed with BPD and possessing higher levels of education demonstrated a more proficient capacity for emotion recognition when compared to those with lower levels of education (Bland et al., 2004). Moreover, in one meta-analysis, it was found that there was a positive correlation between the number of years of schooling and the accuracy of fear, happiness, and sadness faces among the adult population (Kessels et al., 2014). Considering the age and educational status of the participants in this study, it can be concluded that the participants have received education for at least twelve years. Hence, when this situation is considered from different perspectives, this can be associated with the impact of social learning during college or university time, when social contact becomes more intense, rather than focusing on the beneficial influence of the process of education on learning and memory. It emphasizes the importance of interpreting social cues in this context. Thus, the social cognitive abilities of these people may have improved. Additionally, it is assumed that an individual's capacity to perceive faces is linked to their social-emotional intelligence

(Wilhelm et al., 2010). Likewise, one previous study found a correlation between FER and emotional intelligence scores, indicating a link between emotional intelligence and social cognitive ability (Chen, 2014). As a result, the two non-clinical groups may have almost similar social learning capacity and cognitive ability through education, and they can respond to faces depending on these factors. This can be a possible reason for the no significant difference between non-BPO and BPO.

4.1.3. Relation with age and borderline personality organization

The participants in this study were between the ages of 18 and 25. This age range can be associated with the fact that they are in a period corresponding to late adolescence and young adulthood. In this study, before the face-to-face part, participants were divided into two groups: those with non-BPO and those with BPO. Initially, participants were asked to fill out the BPI as a self-report to make this distinction. The scale has only two options: true and false. It is possible that the participants found these two alternatives excessively severe, leading them to provide responses that did not accurately reflect their true feelings. Additionally, they could have attempted to enhance their image as a result of their youthful age. Moreover, considering the confidence rate, the insignificant difference between the groups may not be related to whether they have a borderline personality organization or what emotion they are exposed to, but may be related to the overconfidence of the young adulthood participants.

In addition, considering that the participants were in late adolescence and young adulthood, it was thought that their being in a period when their identity was not fully established could be a possible reason that could affect the results. Identity diffusion is one structure for borderline personality organization. Identity facilitates self-reflection, autonomy, and productive social interactions; it also ensures consistency and predictability of behavior within an individual (Kernberg et al., 2000). Identity and identity disruption, which are widely discussed in psychoanalytic theory, have a parallel place with mental representation and self-concept in social cognitive theory (Akhtar & Samuel, 1996). Likewise, FER is closely linked to comprehending the perspectives of others. At this point, the majority of studies examining BPD's external feature-based mentalization have relied on the method of FER (Daros et al., 2013; Domes et al., 2009; Lowyck et al., 2009). In line with this information, we had a sample that was in identity confusion maybe in crisis, depending on the age group, and we did not know at what stage of the identity development process. Participants may have given manipulative answers in line with this confusion while solving

the BPI. This can be because they are two groups with similar identity diffusion based on very close young age groups, there was no significant difference in any hypothesis regarding FER between the two groups depending on their mentalization development.

4.1.4. Relationship with FER and exclusion criteria

Another possible reason for no difference in RT, confidence rate to response, or accuracy between the non-BPO and BPO towards neutral expressions and six different emotions can be related to the measurement of depression and anxiety. Although we worked with a non-clinical sample throughout this study, we did not include people with a history of depression and anxiety diagnoses as the exclusion criteria. Moreover, we also aimed to control people in terms of mood situation without any diagnosis with the depression and anxiety scales used. This is because anxiety and depression are further linked to impairments in FER (Kohler &Turner, 2003). For instance, depression has been linked to a specific impairment in FER, particularly in response to happy facial expressions. (Sloan et al., 2002). In one previous study, individuals with BPD, including those with higher levels of depression, had superior performance in recognizing negative facial expressions (Lynch et al., 2006). Moreover, in one study that compared the results of depressive disorders and healthy groups, the groups had comparable performance in recognizing emotional faces and did not display any disparity in terms of confidence ratings. A negative correlation was seen between self-reported depression levels and the rate of confidence in responses (Fieker et al., 2016). Patients with BPD with a co-occurring mood disorder were more confident compared with those without (Thome et al., 2016). According to the various information in the literature, it can be said that these measurements are important for FER. However, the scales we used asked questions covering the last one week. We do not have any data about what happened during the period when participants were invited to the face-to-face part after the scales were applied. As a result, the mood situation of participants that we cannot control may have affected the time and responses they gave to the faces they saw.

4.1.5. Methodological issues

In this study, participants had unlimited time to answer the questions. In a previous study, they instructed both healthy individuals and patients with BPD to quickly determine whether a target face displayed anger, fear, or neutrality. Participants with BPD performed much less than the control group in detecting neutral faces while under time constraints, sometimes misinterpreting them as negative instead. Nevertheless, when given an unrestricted emotional identification test, they exhibited comparable proficiency to the

control group in identifying pleasure, fear, sadness, anger, or neutral expressions in static face images (Dyck et al., 2009). Moreover, when a stimulus is shown for longer than three seconds, the observer has to divide their attention between the emotions it evokes and the secondary associations it has with those emotions, which means that the brain regions responsible for attention mediation are involved for longer presentation times (Geday et al., 2007). In a study conducted in Turkey, it was concluded that the borderline personality organization group spent more time looking at faces when there was no time restriction; however, it was also found that it did not affect the emotion recognition process at a statistically significant level (Hagverdiyev, 2022). There was also unlimited time in this study, and this may have had an unforeseen effect on the participants' attention and may have affected their performance, especially in terms of reaction time and accuracy. Therefore, one of the possible reasons for the lack of significant differences between the two groups may be unlimited time.

In addition to unlimited time, another methodological effect may be that the photographs used are static, that is, images that do not contain any movement. The process of recognizing static and dynamic facial emotional stimuli seems to rely on partially distinct neural networks (Adolphs et al., 2003; Kilts et al., 2003). Moreover, recognition of emotions relies upon anatomically separable brain regions, depending on whether the stimuli were static or dynamic displays of facial affect, and there is evidence that different types of knowledge about emotions may draw upon different neural systems (Adolphs, 2002b; Adolphs et al., 2003). The processing of dynamic facial expressions, in contrast to static facial expressions, appears to more reliably recruit neural networks of emotion processing such as the amygdala (Kilts et al., 2003; LaBar et al., 2003). Temporal and limbic-related cortices may be important in retrieving information about emotions signaled by static stimuli, while parietal and frontal lobe areas may be more involved in retrieving knowledge about emotions signaled through dynamic movement (Adolphs et al., 2003). In line with this information, when previous studies were examined, various results were found between BPD and healthy groups. For instance, a previous study utilizing dynamic features showed no statistically significant distinctions between healthy and BPD groups; nevertheless, the study is concerned with the overall outcomes of emotions as measured by reaction time and confidence rate (Lowyck et al., 2016). However, a recent study utilizing static photos found that there was no statistically significant distinction in levels of surprise and happiness, but this was not the case for other emotions (Alimadadi et al., 2022). As a result, in line with

this information and results, it is thought that the static nature of the photograph used in the study may have affected the results between the two groups.

4.2. Contribution, Limitations and Future Studies

Although the hypothesis that there was a significant difference between the two groups was not confirmed in this study, this study has some strengths. Initially, in this study, a more recent and colorful photo data set was used, apart from the photo sets frequently used in BPD studies to date. In addition, BPD and control groups have generally been used in studies conducted to date. It is not possible to eliminate comorbid disorders in the BPD group. For this reason, obtaining findings by including people who are not on medication and who are not diagnosed can be a strong part of this study. In addition, the fact that the second part of the study was implemented in a laboratory environment with the same conditions for each participant suggests that this is another strength of the study. In this way, environmental confounding factors were eliminated, and we had a process to ensure that each participant was exposed to the photographs.

Some limitations of this study should be noted. Firstly, as mentioned before, as our exclusion criteria were not having a concurrent psychiatric and/or neurological disorder, not taking medication for these diseases, and having a serious depression and anxiety score (except for the BPO group), the sample size of our study was limited. For this reason, future studies can be conducted with a larger sample size. Additionally, because most of the participants included in the study were only female, it is not possible to generalize the results to men. Besides gender, the participants were all young adult college students. The high level of education can be considered a limiting aspect of our study in terms of generalizing the results to society. Within the scope of these, future studies may aim to include an equal sample of men and women to meet these limitations, and especially the level of education to be more generalizable to society.

One of the exclusion criteria in this study was that the person had a psychological diagnosis. It was observed that the majority of the participants were diagnosed with depression, anxiety, eating disorders, and bipolar disorders. For example, no participant with a personality disorder was encountered. Since only the borderline personality organization distinction was made in this study, the lack of information on other personality disorders or patterns can be considered a shortcoming of this study. Additionally, there are studies in the literature that relate childhood traumas and FER (Nicol et al., 2014). However, there are no measurements regarding childhood trauma in this study. Therefore, within the scope of

future studies, data on personality and childhood trauma can be collected, and a more controlled study can be conducted.

On the other hand, considering that facial emotion recognition and personality traits affect each other in a complex process, making comparisons after controlling confounding factors such as IQ, memory, attention, and face recognition with appropriate tests will provide important support to reach more definitive results. Considering that the stimuli that were utilized were static, it can be observed whether or not the same findings are obtained using dynamic stimuli, which may be more ecologically suitable.

The focus of this study was on basic emotions; it did not address other, more complicated feelings, such as shame, guilt, or mixed feelings, which might be the subject of more research in the future. Additionally, future research might use brain imaging tools (such as f-MRI) to evaluate arousal, which has been shown to be a significant variable in elucidating the changes in emotional facial processing in a non-clinical population.

5. CONCLUSION

Face emotion recognition (FER) is a subject that has been studied in many areas. In addition to neurological diseases, psychological disorders have also been extensively studied and contributed to the literature with various results. Considering the studies on psychological disorders, especially personality, it can be noted that borderline personality disorder (BPD) is mostly studied. In addition, most of the studies were conducted with clinical samples, which aroused curiosity about what kind of conclusions would be reached with non-clinical samples. It is known that borderline personality organization (BPO) is not a clinical diagnosis but includes borderline personality disorder. For this reason, this study was completed in a non-clinical sample to compare the reaction time, confidence rate, and accuracy of university students with and without a borderline personality organization to the faces they saw. Looking at the findings of the study, no significant difference was found between the two groups for any emotion. In the discussion section, possible reasons for no significant difference between the two groups are discussed. One of these is considered to be due to gender inequality in the sample. As a result of the large number of women in this study and the findings regarding the effect of the menstrual cycle on the face recognition process, it was thought that this may have affected the results. Furthermore, two groups with similar education levels may have been formed because all of the participants were university students and educated individuals. Moreover, identity diffusion, one of the BPO characteristics, may have been overlooked due to the sample consisting of young adults. Likewise, it is thought that perhaps two similar groups may have been formed. Besides, participants who have severe depression and anxiety scores based on self-report scales were excluded. Therefore, this can also lead to two similar groups. Lastly, methodological issues can affect the results of this study. During this study, participants have unlimited time. Depending on some previous studies, unlimited time can affect the performance of individuals. Consequently, there are some possible reasons for this result; therefore, future studies can overcome these situations.

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APPENDICES

APPENDIX 1: INFORMED CONSENT FORM

Bu çalışma, Başkent Üniversitesi Psikoloji Bölümü Klinik Psikoloji Yüksek Lisans öğrencisi Psk. Merve Deniz tarafından, Doç. Dr. Elvin Doğutepe danışmanlığında yüksek lisans tezi kapsamında yürütülmektedir.

Araştırma **iki** aşamadan oluşmaktadır. Bu aşamada bireylerin genel **duygu durumlarının belirlenmesi** ve **bazı demografik bilgilerin** alınması hedeflenmektedir. Ölçekler tamamlandıktan sonra e-posta adresiniz üzerinden sizinle iletişime geçilecektir.

Çalışmanın ikinci aşaması Başkent Üniversitesi'nde **yüz yüze** laboratuvar ortamında gerçekleştirilecektir. Cevaplarınız tamamen gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Çalışma sırasında doldurulması talep edilecek ölçekler, genel olarak kişisel rahatsızlık verecek herhangi bir ayrıntı içermemektedir.

Bu araştırmaya gönüllülük temelinde katıldığınız için söz konusu araştırmadan istediğiniz zaman ayrılma hakkına sahipsiniz.

Çalışmaya katılabilmek için 18 yaşından büyük olmanız ve psikoloji 3. & 4.sınıf öğrencisi olmamanız gerekmektedir.

Birazdan cevaplandıracağınız sorular için yaklaşık **20 dakika** süre yeterli olacaktır.

Çalışmaya yönelik sorularınızı Merve Deniz'e iletebilirsiniz.

İletişim için:

Katılımcının beyanı

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman katılımı sonlandırabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum.

- ***Okudum ve kabul ediyorum***
- ***Kabul Etmiyorum***

APPENDIX 2: INFORMED CONSENT FORM 2

Bu çalışma, Başkent Üniversitesi Psikoloji Bölümü Klinik Psikoloji Tezli Yüksek Lisans öğrencisi Psk. Merve Deniz tarafından, Doç. Dr. Elvin Doğutepe danışmanlığında yüksek lisans tezi kapsamında yürütülmektedir ve öncesinde katılmış olduğunuz araştırmanın devamı niteliğindedir.

Bu aşamada katılımcılara laboratuvar ortamında bazı fotoğraflar gösterilecektir ve bazı soruların cevaplandırılması istenecektir. Cevaplarınız tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. **Çalışma esnasında bazı fotoğraflar gösterilecek olup ve bazı sorulara da cevap vermeniz beklenmektedir.** Fotoğraflar ve sorular genel olarak kişisel rahatsızlık verecek herhangi bir ayrıntı içermemektedir.

Bu araştırmaya **gönüllülük** temelinde katıldığınız için söz konusu araştırmadan istediğiniz zaman ayrılma hakkına sahipsiniz. Fakat bu durumda bonus puanı almanız mümkün olmayacaktır. Katılmaya karar verdiğiniz takdirde sizden yaklaşık 20 dakika boyunca bazı sorulara cevap vermeniz istenecektir. Söz konusu cevaplarda yer alan bilgiler hiçbir şekilde başka kişiler ile paylaşılmayacak ve vermiş olduğunuz cevaplar yalnızca bilimsel amaçlar doğrultusunda kullanılacaktır.

Çalışmaya yönelik sorularınızı Merve Deniz'e iletebilirsiniz.

İletişim için:

Katılım ve katkınız için teşekkür ederiz.

Katılımcının beyanı

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman katılımı sonlandırabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum.

- ***Okudum ve kabul ediyorum***
- ***Kabul Etmiyorum***

APPENDIX 3: DEMOGRAPHIC INFORMATION FORM

1. En sık kullandığınız e-posta adresiniz?

_____

2. Biyolojik cinsiyetiniz?

Kadın
Erkek

3. Yaşınız?

_____

4. Eğitim durumunuz?

Ön Lisans
Lisans
Lisansüstü
Yüksek Lisans
Doktora

5. Bölümünüz

_____

6. Sınıfınız

_____

7. Herhangi bir ilaç kullanıyor musunuz?

- Evet
- Hayır

Evet ise belirtiniz:

_____

6. Daha önce psikolojik/nörolojik bozukluklarla ilişkili herhangi bir tanı aldınız mı?

Evet
Hayır

Evet ise belirtiniz:

_____

APPENDIX 4: BECK DEPRESSION INVENTORY (BDI)

Sayın katılımcı, aşağıda gruplar halinde cümleler yer almaktadır. Her grupta yer alan cümleleri dikkatle okuyarak, bugün dahil son bir hafta içinde kendinizi nasıl hissettiğinizi en iyi anlatan cümleyi daire içine alarak işaretleyiniz.

Soruları vereceğiniz samimi ve dürüst cevaplar araştırmanın bilimsel niteliği açısından son derece önemlidir.

1. 0. Kendimi üzüntülü ve sıkıntılı hissetmiyorum.
    1. Kendimi üzüntülü ve sıkıntılı hissediyorum.
    2. Hep üzüntülü ve sıkıntılıyım. Bundan kurtulamıyorum.
    3. O kadar üzüntülü ve sıkıntılıyım ki artık dayanamıyorum.
2. 0. Gelecek hakkında mutsuz ve karamsar değilim.
    1. Gelecek hakkında karamsarım.
    2. Gelecekten beklediğim hiçbir şey yok.
    3. Geleceğim hakkında umutsuzum ve sanki hiçbir şey düzelmeyecekmiş gibi geliyor.
3. 0. Kendimi başarısız bir insan olarak görmüyorum.
    1. Çevremdeki birçok kişiden daha çok başarısızlıklarım olmuş gibi hissediyorum.
    2. Geçmişe baktığımda başarısızlıklarla dolu olduğunu görüyorum.
    3. Kendimi tümüyle başarısız biri olarak görüyorum.
4. 0. Birçok şeyden eskisi kadar zevk alıyorum.
    1. Eskiden olduğu gibi her şeyden hoşlanmıyorum.
    2. Artık hiçbir şey bana tam anlamıyla zevk vermiyor.
    3. Her şeyden sıkılıyorum.
5. 0. Kendimi herhangi bir şekilde suçlu hissetmiyorum.
    1. Kendimi zaman zaman suçlu hissediyorum.
    2. Çoğu zaman kendimi suçlu hissediyorum.
    3. Kendimi her zaman suçlu hissediyorum.
6. 0. Bana cezalandırılmışım gibi geliyor.
    1. Cezalandırılabileceğimi hissediyorum.
    2. Cezalandırılmayı bekliyorum.
    3. Cezalandırıldığımı hissediyorum.
7. 0. Kendimden memnunum.

1. Kendi kendimden pek memnun değilim.
2. Kendime çok kızıyorum.
3. Kendimden nefret ediyorum.

8. 0. Başkalarından daha kötü olduğumu sanmıyorum.
    1. Zayıf yanların veya hatalarım için kendi kendimi eleştiririm.
    2. Hatalarımdan dolayı ve her zaman kendimi kabahatli bulurum.
    3. Her aksilik karşısında kendimi hatalı bulurum.
9. 0. Kendimi öldürmek gibi düşüncelerim yok.
    1. Zaman zaman kendimi öldürmeyi düşündüğüm olur. Fakat yapmıyorum.
    2. Kendimi öldürmek isterdim.
    3. Fırsatını bulsam kendimi öldürürdüm.
10. 0. Her zamankinden fazla içimden ağlamak gelmiyor.
    1. Zaman zaman içinden ağlamak geliyor.
    2. Çoğu zaman ağlıyorum.
    3. Eskiden ağlayabilirdim şimdi istesem de ağlayamıyorum.
11. 0. Şimdi her zaman olduğumdan daha sinirli değilim.
    1. Eskisine kıyasla daha kolay kızıyor ya da sinirleniyorum.
    2. Şimdi hep sinirliyim.
    3. Bir zamanlar beni sinirlendiren şeyler şimdi hiç sinirlendirmiyor.
12. 0. Başkaları ile görüşmek, konuşmak isteğimi kaybetmedim.
    1. Başkaları ile eskiden daha az konuşmak, görüşmek istiyorum.
    2. Başkaları ile konuşma ve görüşme isteğimi kaybetmedim.
    3. Hiç kimseyle konuşmak görüşmek istemiyorum.
13. 0. Başkaları ile görüşmek, konuşmak isteğimi kaybetmedim.
    1. Başkaları ile eskiden daha az konuşmak, görüşmek istiyorum.
    2. Başkaları ile konuşma ve görüşme isteğimi kaybetmedim.
    3. Hiç kimseyle konuşmak görüşmek istemiyorum.
14. 0. Aynada kendime baktığımda değişiklik görmüyorum.
    1. Daha yaşlanmış ve çirkinleşmişim gibi geliyor.
    2. Görünüşümün çok değiştiğini ve çirkinleştiğimi hissediyorum.
    3. Kendimi çok çirkin buluyorum.
15. 0. Eskisi kadar iyi çalışabiliyorum.
    1. Bir şeyler yapabilmek için gayret göstermem gerekiyor.
    2. Herhangi bir şeyi yapabilmek için kendimi çok zorlamam gerekiyor.

3. Hiçbir şey yapamıyorum.

16. 0. Her zamanki gibi iyi uyuyabiliyorum.
    1. Eskiden olduğu gibi iyi uyuyamıyorum.
    2. Her zamankinden 1-2 saat daha erken uyanıyorum ve tekrar uyuyamıyorum.
    3. Her zamankinden çok daha erken uyanıyor ve tekrar uyuyamıyorum.
17. 0. Her zamankinden daha çabuk yorulmuyorum.
    1. Her zamankinden daha çabuk yoruluyorum.
    2. Yaptığım her şey beni yoruyor.
    3. Kendimi hemen hiçbir şey yapamayacak kadar yorgun hissediyorum.
18. 0. İştahım her zamanki gibi.
    1. İştahım her zamanki kadar iyi değil.
    2. İştahım çok azaldı.
    3. Artık hiç iştahım yok.
19. 0. Son zamanlarda kilo vermedim.
    1. İki kilodan fazla kilo verdim.
    2. Dört kilodan fazla kilo verdim.
    3. Altı kilodan fazla kilo vermeye çalışıyorum.
20. 0. Sağlığım beni fazla endişelendirmiyor.
    1. Ağrı, sancı, mide bozukluğu veya kabızlık gibi rahatsızlıklar beni endişelendirmiyor.
    2. Sağlığım beni endişelendirdiği için başka şeyleri düşünmek zorlaşıyor.
    3. Sağlığım hakkında o kadar endişeliyim ki başka hiçbir şey düşünemiyorum.
21. 0. Son zamanlarda cinsel konulara olan ilgimde bir değişme fark etmedim.
    1. Cinsel konularla eskisinden daha az ilgiliyim.
    2. Cinsel konularla şimdi çok daha az ilgiliyim.
    3. Cinsel konular olan ilgimi tamamen kaybettim.

APPENDIX 5: BECK ANXIETY INVENTORY (BAI)

Aşağıda insanların kaygılı ya da endişeli oldukları zamanlarda yaşadıkları bazı belirtiler verilmiştir. Lütfen her maddeyi dikkatle okuyunuz. Daha sonra, her maddedeki belirtinin bugün dahil son bir haftadır sizi ne kadar rahatsız ettiğini yandakine uygun yeri işaretleyerek belirtiniz.

	Hiç	Hafif düzeyde	Orta düzeyde	Ciddi düzeyde
1. Bedeninizin herhangi bir yerinde uyuşma veya karıncalanma				
2. Sıcak/ ateş basmaları				
3. Bacaklarda halsizlik, titreme				
4. Gevşeyememe				
5. Çok kötü şeyler olacak Korkusu				
6. Baş dönmesi veya sersemlik				
7. Kalp çarpıntısı				
8. Dengeyi kaybetme duygusu				
9. Dehşete kapılma				
10. Sinirlilik				
11. Boğuluyormuş gibi olma duygusu				
12. Ellerde titreme				
13. Titreklik				
14. Kontrolü kaybetme korkusu				
15. Nefes almada güçlük				
16. Ölüm korkusu				
17. Korkuya kapılma				
18. Midede hazımsızlık ya da rahatsızlıkhissi 19. Baygınlık				
20. Yüzün kızarması				
21. Terleme (sıcaklığa bağlı olmayan)				

APPENDIX 6: BORDERLINE PERSONALITY INVENTORY SCALE

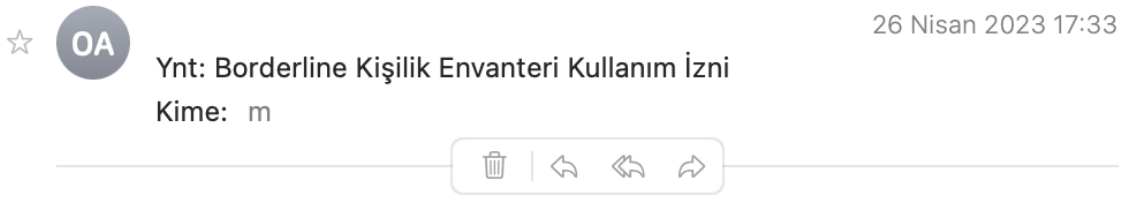
Aşağıdaki cümlelerden size uygun olanlarını işaretleyiniz.

1. Sık sık panik nöbetleri geçiririm.	**DOĞRU**	**YANLIŞ**
2. Son zamanlarda beni duygusal olarak etkileyen hiçbir şey olmadı.	**DOĞRU**	**YANLIŞ**
3. Çoğu kez gerçekte kim olduğumu merak ederim.	**DOĞRU**	**YANLIŞ**
4. Çoğu kez başıma iş açacak risklere girerim.	**DOĞRU**	**YANLIŞ**
5. Başkaları bana yoğun ilgi gösterdikleri zaman kendimi boğulmuş hissederim.	**DOĞRU**	**YANLIŞ**
6. Bazen içimde bana ait olmayan başka bir kişi ortaya çıkar.	**DOĞRU**	**YANLIŞ**
7. Gerçekte olmadığı halde acayip şekiller veya görüntüler gördüğüm oldu.	**DOĞRU**	**YANLIŞ**
8. Bazen çevremdeki insanlar ve nesnelerin gerçek olmadığını hissederim.	**DOĞRU**	**YANLIŞ**
9. Başkalarına yönelik duygularım bir uçtan bir uca çok hızlı değişir (Ör. Sevgi ve beğeniden nefret ve hayal kırıklığına).	**DOĞRU**	**YANLIŞ**
10. Çoğu kez değersizlik ya da umutsuzluk duygusuna kapılırım.	**DOĞRU**	**YANLIŞ**
11. Çoğu kez paramı çarçur ederim ya da kumarda kaybederim.	**DOĞRU**	**YANLIŞ**
12. Gerçekte kimse olmadığı halde hakkımda konuşan sesler duyduğum oldu.	**DOĞRU**	**YANLIŞ**
13. Eğer 12. maddeye "evet" dediyseniz aşağıdaki cümlelerden sizin için uygun olanını seçiniz: a. Bu sesler benim dışımdan gelmiştir. b. Bu sesler içimden gelmiştir.	**DOĞRU**	**YANLIŞ**
14. Yakın ilişkilerde hep incinirim.	**DOĞRU**	**YANLIŞ**
15. Bana uymayan biçimde hissettiğim ya da davrandığım oldu.	**DOĞRU**	**YANLIŞ**
16. Bir kukla gibi dışarıdan yönetiliyormuş ve yönlendiriliyormuş gibi hissettiğim oldu.	**DOĞRU**	**YANLIŞ**

17. Herhangi birine fiziksel olarak saldırıda bulunduğum oldu.	**DOĞRU**	**YANLIŞ**
18. Düşüncelerim başkaları tarafından okunuyormuş gibi hissettiğim oldu.	**DOĞRU**	**YANLIŞ**
19. Bazen gerçekte suç işlemediğim halde, sanki işlemişim gibi suçluluk hissederim.	**DOĞRU**	**YANLIŞ**
20. Bilerek kendime bedensel zarar verdiğim oldu.	**DOĞRU**	**YANLIŞ**
21. Bazen gerçekte olmadığı halde insanların ve nesnelerin görünümlerinin değiştiği hissine kapılırım.	**DOĞRU**	**YANLIŞ**
22. Yoğun dini uğraşlarım olmuştur.	**DOĞRU**	**YANLIŞ**
23. Duygusal ilişkilerimde çoğunlukla ne tür bir ilişki istediğimden emin olamam.	**DOĞRU**	**YANLIŞ**
24. Bazen bir kahin gibi gelecekle ilgili özel hislerim olur.	**DOĞRU**	**YANLIŞ**
25. Bir ilişki ilerledikçe kendimi kapana kısılmış gibi hissederim.	**DOĞRU**	**YANLIŞ**
26. Gerçekte kimse olmadığı halde bir başka insanın varlığını hissettiğim oldu.	**DOĞRU**	**YANLIŞ**
27. Bazen bedenim ya da bedenimin bir kısmı bana acayip veya değişmiş gibi görünür.	**DOĞRU**	**YANLIŞ**
28. İlişkiler çok ilerlerse, çoğunlukla koparma gereksinimi duyarım.	**DOĞRU**	**YANLIŞ**
29. Bazen birilerinin peşimde olduğu hissine kapılırım.	**DOĞRU**	**YANLIŞ**
30. Sık sık uyuşturucu kullanırım (esrar, hap gibi).	**DOĞRU**	**YANLIŞ**
31. Başkalarını kontrol altında tutmaktan hoşlanırım.	**DOĞRU**	**YANLIŞ**
32. Bazen özel biri olduğumu hissederim.	**DOĞRU**	**YANLIŞ**
33. Bazen dağılıyormuşum gibi hissederim.	**DOĞRU**	**YANLIŞ**
34. Bazen bana bir şeyin gerçekte mi yoksa yalnızca hayalimde mi olduğunu ayırt etmek zor gelir.	**DOĞRU**	**YANLIŞ**
35. Çoğu kez sonuçlarını düşünmeden içimden geldiği gibi davranırım.	**DOĞRU**	**YANLIŞ**
36. Bazen gerçek olmadığım duygusuna kapılırım.	**DOĞRU**	**YANLIŞ**

37. Bazen bedenim yokmuş ya da bir kısmı eksikmiş hissine kapılırım.	**DOĞRU**	**YANLIŞ**
38. Çoğu kez kabus görürüm.	**DOĞRU**	**YANLIŞ**
39. Çoğu kez başkaları bana gülüyormuş ya da hakkımda konuşuyormuş hissine kapılırım.	**DOĞRU**	**YANLIŞ**
40. Çoğu kez insanlar bana düşmanmış gibi gelir.	**DOĞRU**	**YANLIŞ**
41. İnsanların kendi düşüncelerini benim zihnime soktuklarını hissettiğim oldu.	**DOĞRU**	**YANLIŞ**
42. Çoğu kez gerçekten ne istediğimi bilmem.	**DOĞRU**	**YANLIŞ**
43. Geçmişte intihar girişiminde bulundum.	**DOĞRU**	**YANLIŞ**
44. Bazen ciddi bir hastalığım olduğuna inanırım.	**DOĞRU**	**YANLIŞ**
45. "Alkol, uyuşturucu ya da hap alışkanlığım vardır". Eğer yanıtınız "evet" ise aşağıdakilerden uygun olanlarını işaretleyiniz. a. Alkol b. Uyuşturucu c. Hap	**DOĞRU**	**YANLIŞ**
46. Bazen bir rüyada yaşıyormuş ya da yaşamım bir film şeridi gibi gözümün önünden geçiyormuş.	**DOĞRU**	**YANLIŞ**
47. Çoğu kez bir şeyler çalarım.	**DOĞRU**	**YANLIŞ**
48. Bazen öyle açlık nöbetlerim olur ki önüme gelen her şeyi silip süpürürüm.	**DOĞRU**	**YANLIŞ**
49. Aşağıdaki konularla ilgili sorulan sorularda çoğu kez kendimi rahatsız hissederim. a.Politika b.Din c.Ahlak (iyi-kötü)	**DOĞRU**	**YANLIŞ**
50. Bazen aklımdan birilerini öldürme düşüncesi geçer.	**DOĞRU**	**YANLIŞ**
51. Yasalarla başımın derde girdiği oldu.	**DOĞRU**	**YANLIŞ**
52. Yukarıdaki maddelerde anılan yaşantılardan herhangi birini ilaç etkisi altında yaşadığınız oldu mu? Eğer yanıtınız "evet" ise ilgili maddelerin numaralarını yazınız: (.....)	**DOĞRU**	**YANLIŞ**
53. Yukarıdaki maddelerde anılan yaşantılardan herhangi psikoterapi sırasında yaşadığınız oldu mu? Eğer yanıtınız "evet" ise ilgili maddelerin numaralarını yazınız: (.....)	**DOĞRU**	**YANLIŞ**

APPENDIX 7: THE PERMISSION OF BORDERLINE PERSONALITY INVENTORY SCALE



Sayın Merve Deniz,
Araştırmanızda Borderline Kişilik Envanterini kullanmanızdan memnuniyet duyarım.
Kolaylıklar diliyorum
Prof Dr Ömer Aydemir
Manisa Celal Bayar Üniversitesi

APPENDIX 8: THE PERMISSION OF NIMSTIM SET

NT ni
Ynt: NimStim Set Permission
Kime: m

4 Aralık 2022 01:04

Thanks for the information.

Here is the information you requested.

PLEASE READ CAREFULLY -

By downloading the set, you and members of your lab agree to use the images for research purposes only and agree to the following terms (it is worth considering whether these regulations will conflict with the journal that you ultimately publish in):

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APPENDIX 9: QUESTIONS IN THE LABORATORY

1- Görmüş olduğunuz yüz ifadesi hangi duyguya aittir?

Öfke	**Korku**	**Şaşkınlık**	**Üzüntü**	**Mutluluk**	**Tiksinme**	**Nötr**

2- Bu verdiğiniz cevaptan ne kadar eminsiniz?

1 Hiç emin değilim	**2** Emin değilim	**3** Kararsızım	**4** Eminim	**5** Kesinlikle eminim

APPENDIX 10: ETHICS COMMITTEE APPROVAL

Evrak Tarih ve Sayısı: 07.04.2023-222483

1993
BAŞKENT ÜNİVERSİTESİ
Akademik Değerlendirme Koordinatörlüğü

Sayı : E-62310886-605.99-222483
Konu : Merve Deniz'in Etik Onay Başvurusu Hk. 07.04.2023

SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi : 23.03.2023 tarih ve 217047 sayılı yazınız.

Enstitünüz Klinik Psikoloji Tezli Yüksek Lisans Programı öğrencisi Merve Deniz'in, Doç. Dr. Elvin Doğutepe'nin danışmanlığında yürüteceği "Facial Emotion Recognıtıon In Borderline Personality Features: Turkish Sample" başlıklı tez çalışması değerlendirilmiş ve bilgilerinize ekte sunulmuştur.

Prof. Dr. M. Abdülkadir VAROĞLU
Kurul Başkanı

Ek: Değerlendirme Formu

Sayı : 17162298.600-89
Konu : Tez Çalışması

4 NİSAN 2023

İlgili Makama

Üniversitemiz Sosyal Bilimler Enstitüsü Klinik Psikoloji Tezli Yüksek Lisans Programı öğrencisi Merve Deniz'in, Doç. Dr. Elvin Doğutepe'nin danışmanlığında yürüteceği "Facial Emotion Recognitıon In Borderline Personality Features: Turkish Sample" başlıklı tez çalışması değerlendirilmiş ve yapılmasında bir sakınca olmadığı tespit edilmiştir.
Bilgilerinize saygılarımızla sunarız.

Başkent Üniversitesi Sosyal ve Beşeri Bilimler ve Sanat Araştırma Kurulu

Ad, Soyad	Değerlendirme	İmza
Prof. Dr. M. Abdülkadir Varoğlu	Olumlu/~~Olumsuz~~	
Prof. Dr. Gözen Güner Aktaş	Olumlu/Olumsuz	
Prof. Dr. Sadegül Akbaba Altun	Olumlu/~~Olumsuz~~	
Prof. Dr. Hasan Tahsin Fendoğlu	Olumlu/Olumsuz	
Prof. Dr. Filiz Kalelioğlu	Olumlu/~~Olumsuz~~	
Prof. Dr. Hidayet Hale Künüçen	Olumlu/~~Olumsuz~~	
Prof. Dr. Özcan Yağcı	Olumlu/~~O~~lumsuz	