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Dissociative Symptoms In Generalized Anxiety Disorder and Panic Disorder and Its Relationship with Temperament-Character Features

Yaygın Anksiyete Bozukluğu ve Panik Bozukluğunda Dissosiyatif Belirtiler ve Bunun Mizaç-Karakter Özellikleri ile İlişkisi

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Abstract	
Aim	The relationship between anxiety and dissociative symptoms is frequently mentioned, but dissociative symptoms are not seen in all patients with anxiety disorder. The aim of this study is to investigate the relationship between dissociative symptoms and temperament-character features in patients with anxiety disorders.
Material and Method	The study sample consisted of 75 patients diagnosed with generalized anxiety disorder (GAD) and panic disorder (PD) according to DSM-5 and 75 healthy individuals for the control group (HC). The severity of their complaints were assessed using Hamilton Anxiety and Depression Rating Scales (HAM-A, HAM-D). Sociodemographic data form, Dissociative Experiences Scale (DES), Dissociation Scale (DIS-Q) and Temperament-Character Inventory (TCI) were filled for every participant.
Results	There was a significant difference between the groups in terms of HAM-A, HAM-D, DES and DIS-Q scores (PD> GAD> HC). The factors affecting DES and DIS-Q scores were high HAM-A scores, diagnosis, low self-directedness(SD) and high self-transcendence(ST) scores, and when the diagnosis was checked, DES and DIS-Q scores continued to be affected by HAM-A, SD and ST scores.
Conclusion	The high prevalence of dissociative symptoms was confirmed in patients with anxiety disorder. It was observed that character traits of low SD and high ST may be predisposing for the development of dissociative symptoms, while temperament traits were not influential on dissociative symptoms. These results may suggest that dissociation is not only related to trauma.
Keywords	Anxiety, dissociation, temperament, character

Özet	
Amaç	Anksiyete ve dissosiyatif semptomlar arasındaki ilişki sıklıkla belirtilir, ancak anksiyete bozukluğu olan tüm hastalarda dissosiyatif semptomlar görülmez. Bu çalışmanın amacı anksiyete bozukluğu olan hastalarda görülen dissosiyatif belirtilerin mizaç-karakter özellikleriyle ilişkisini araştırmaktır.
Gereç ve Yöntem	Çalışmanın örneklemini DSM-5'e göre yaygın anksiyete bozukluğu (YAB) ve panik bozukluğu (PB) tanısı alan 75 hasta ve kontrol grubu (KG) için 75 sağlıklı birey oluşturmuştur. Şikayetlerinin şiddeti Hamilton Anksiyete ve Depresyon Derecelendirme Ölçekleri (HAM-A, HAM-D) kullanılarak değerlendirildi. Her katılımcı için sosyodemografik veri formu, Disosiyatif Yaşantılar Ölçeği (DES), Disosiyasyon Ölçeği (DIS-Q) ve Mizaç-Karakter Envanteri (TCI) dolduruldu.
Sonuçlar	Gruplar arasında HAM-A, HAM-D, DES ve DIS-Q skorları (PB> YAB> KG) açısından anlamlı fark vardı. DES ve DIS-Q skorlarını etkileyen faktörler; yüksek HAM-A skorları, tanı, düşük kendini yönetme(KY) ve yüksek kendini aşma(KA) skorlarıdır ve tanı kontrol edildiğinde DES ve DIS-Q skorları HAM-A'dan, KY ve KA skorlarından etkilenmeye devam etmiştir.
Sonuç	Anksiyete bozukluğu olan hastalarda dissosiyatif semptomların yüksek prevalansı doğrulandı. Düşük KY ve yüksek KA karakter özelliklerinin dissosiyatif semptomların gelişimine yatkınlık oluşturabileceği, mizaç özelliklerinin dissosiyatif semptomlar üzerinde etkili olmadığı gözlenmiştir. Bu sonuçlar, dissosiyasyonun sadece travma ile ilgili olmayabileceğini düşündürmektedir.
Anahtar Kelimeler	Anksiyete, dissosiyasyon, mizaç, karakter

INTRODUCTION

Dissociation is defined as"disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior". According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) dissociative symptoms can potentially disrupt all aspects of psychological functioning.[1] Dissociative experiences can occur during a wide spectrum of phenomena ranging from imagination, forgetfulness to dissociative identity disorder. Depersonalization and derealization might be experienced temporarily in case of fatigue and hypnosis.[2] Previous studies have shown that patients with anxiety disorder experience more dissociation than those without anxiety disorders.[3] Depersonalization and derealization in anxiety disorders are symptoms that can be easily observed, especially during panic attacks. It is reported that 7-69% of patients with a panic disorder experience depersonalization and derealization during panic attacks.[4,5] Segui et al. reported that 24,1% of patients with a panic disorder also suffer from depersonalization¸ frequency of dissociative symptoms vary according to culture. The rate of this frequency, however, is not less than 10%.[5]

There is a well established relationship between dissociative disorders and trauma. However, dissociative symptoms in individuals who have been exposed to similar trauma may vary. Only 25% of individuals suffering from developed post traumatic stress disorder (PTSD) and the proportion of those with dissociative disorder remained unknown. Therefore, a stress-diathesis model has been proposed for both PTSD and dissociative disorders. Although the risk factors for PTSD are well defined, there are few known risk factors that may predispose to dissociative symptoms except for high hypnotizability.[6] In a study examining the relationship between personality and dissociation in general psychiatric patients and healthy individuals, dissociation scores were found to be associated with low self-directedness (SD) and high self-transcendence (ST) character traits.[7] In a community study of psychological defense styles, mature defenses were associated with low dissociation scores.[8] Some reports have also found that dissociative experiences were observed more frequently in those with B cluster personality traits[9] and there is literature on low SD in character traits in cluster B personality disorders.[10] İt is important to understand whether the dissociative symptoms seen in anxiety patients are caused by the disease itself or by the temperament-character characteristics of the patient.

The aim of this study is to investigate the relationship between dissociative symptoms and temperament-character features in patients with anxiety disorders. According to the statistical (regression analysis) results of our study, anxiety could be a contributing factor to dissociation when SD is controlled from the characteristics of dissociative symptoms in patients with anxiety disorder.

METHODS
Study sample

Patients with anxiety disorder who were consecutively admitted to Xxxxxxxxx University Medical Faculty Hospital Psychiatry Outpatient Clinic between July 2018 and December 2018 and known to be in remission for six months were included in the study. 200 participants were included in the study together with the patient and healthy control group. Semi-structured psychiatric interview was held face to face with the participants. The diagnoses were made according to DSM-5. Hamilton Depression / Anxiety Scales were completed as a baseline assessment. The control group completed a standardized Symptom Checklist-90-R (SCL-90-R) questionnaire. Participants were also asked to complete their Sociodemographic Data, Dissociative Experiences Scale (DES), Dissociation Scale (DIS-Q), Temperament and Character Inventory (TCI).

44 participants who did not complete the scales were excluded from the study. In addition, since there were only 6 patients from the anxiety disorder group other than the generalized anxiety disorder and panic disorder, these pa-

tients were excluded from the study considering that their representation power would be weak. 75 patients with anxiety disorder(45 of them were General Anxiety Disorder-GAD, 30 of them were Panic Disorder-PD) aged 18-65 and 75 healthy volunteers were included in the study. Statistical analyzes were made by dividing the participants into three groups: generalized anxiety disorder (45 patients), panic disorder (30 patients) and healthy control group (75 healthy volunteers).

Those who did not have cognitive competence to fill the scales (delirium, dementia, mental retardation ..) were not included in the study. Except for major depressive disorder those with comorbid psychiatric diseases and those with a significant increase in any of the SCL-90-R subscales used in the healthy control group were excluded. The study was conducted following the approval of Xxxxxxxxx University Clinical Research Ethics Committee. All participants gave written informed consent.

MATERIALS
Sociodemographic Data Form
A sociodemographic data form was used to obtain information from each participant on age, sex, marital status, employment status, educational status, duration of illness, most recently used treatment items, economic situation according to the participant's own assessment, alcohol and substance abuse.

The Symptom Checklist-90-Revised (SCL-90-R)
It is a 90-item self-report symptom inventory developed by Leonard R. Derogatis in the mid-1970s to measure psychological symptoms and psychological distress.

Hamilton Anxiety Rating Scale (HAM-A)
The Hamilton Anxiety Rating Scale (HAM-A) is a semi-structured scale which was developed by Hamilton in 1959 to determine the severity of anxiety neuroses. It consists of 14 items to evaluate the physical and psychic symptoms of anxiety. Yazıcı et al. conducted the Turkish reliability and validity of the scale.[11]

Hamilton Depression Rating Scale (HAM-D)
The Hamilton Depression Rating Scale (HAM-D) is widely used to measure the degree of depression, was developed by Hamilton in 1960. It consists of 17 items for evaluating the symptoms of depression in the last week. Items question the difficulty of falling asleep, waking up at midnight, waking up early in the morning, somatic symptoms, genital symptoms, attenuation and insight. The validity and reliability of the scale's Turkish version was studied by Akdemir et al.[12]

Dissociative Experiences Scale-DES
Currently, the Dissociative Experiences Scale (DES) is the most widely used psychometric tool for evaluating dissociative experiences. DES is a self-assessment tool consisting of 28 items based on the assumption that dissociative continuity range from mild-normative to severe pathological dissociation. Amnesia, depersonalization, derealization and absorption scans of each item in the scale ranging between 0–100 are presented by 10-point increments. The overall DES score is the average score every item, it ranges from 0 to 100. Scoring 30 and above is an important pathological sign of dissociation[13]. Reliability and validity of this scala in Turkey was studied by Şar et al in 1995.[14]

Dissociation Scale (DIS-Q)
The Dissociation Scale(DIS-Q) is the first European dissociation scale[15,16]. DIS-Q is a questionnaire that is filled out by the participants themselves; it consists of 63 questions and each question is scored between 1-5. It scans more symptoms than DES and includes symptoms of eating disorders. Reliability and validity of the scale in Turkey was studied by Şar et al.[16]

Temperament and Character Inventory (TCI)
The inventory consists of 240 items in total. Each item is answered as either right or / wrong, it was developed by Cloninger et al(1994).[17] The TCI-R is designed to measure

4 temperaments, Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD), and Persistence (PS), and three characters, Self-directedness (SD), Cooperativeness (CO), and Self-transcendence (ST). The items in the inventory are listed in random order and grouped into different facets. Approximately half of the items are reverse scored. Validity and reliability and standardization studies have been done in Turkish.[17,18]

Statistical analysis

The data obtained from the sample were analyzed with IBM SPSS 20 software. Chi-square test was used to compare categorical variables between groups. Whether numerical variables are normally distributed was determined by Shapiro-Wilk test. In comparison of the normally distributed numerical values, Student-t test was used between the two groups and the one-way analysis of variance (ANOVA) test was applied between the multiple groups. In all ANOVA tests, post hoc analysis was performed with Bonferroni correction. Mann Whitney-U test and Kruskal-Wallis one-way analysis of variance were applied for numerical values that did not show normal distribution.

Linear dependent regression analysis was used to understand the effect of diagnosis and temperament-character on dissociation symptom severity. DES and DIS-Q are dependent variables. All analyzes were bidirectional and the statistical significance level was accepted as p <0.05.

RESULTS

150 participants in total, (75 patients and 75 healthy controls), were included in the study. 45 patients had a GAD and 30 patients had PD. There was no significant difference between the three groups in terms of gender, marital status, employment status, economic status, distribution of alcohol use and distribution of drug use or / non-use status of the patient group (Table 1) (all p values respectively; p = 0.63, p = 0.452, p = 0.58, p = 0.271, p = 0.278, p = 0.154). When the age and year of education of the groups were compared with one-way ANOVA, a significant difference was found in terms of both age and duration of education. Post-hoc Bonferroni correction presented a significant difference in terms of the length of education of the subjects. Hence, the length of education of the healthy control group was found to be higher than the patient group. There was no significant difference between the two patient groups (GAD and PD) in terms of education. Although there was a difference between the groups according to ANOVA in terms of age, the significance of age disappeared in post hoc Bonferroni correction. The comparison of the groups in terms of age and length education is given in Table 2.

In the comparison of patient groups according to Student t-test in terms of disease duration (in months); the mean duration for GAD groups was 19.16 months (SD: 23.14) and the mean duration for PD group was 22.47 months (SD: 28.11) and there was no significant difference (p = 0.58).

There was a significant difference between the three groups in terms of clinical assessment scales (HAM-A, HAM-D, DES, DIS-Q) in one-way ANOVA. The comparison of the groups in terms of clinical assessment scale scores is shown in Table 3. This significant difference was due to the PD group having higher scores in all clinical assessment scales than the GAD group, and the HC group had lower scores in all scales than the two patient groups.

One-way ANOVA was used to compare the 3 groups (HC, GAD and PD) in terms of TCI sub-scale scores. Significant differences were obtained in temperament sub-scales concerning HA score and in character sub-scales concerning, SD and ST scores. The comparison of the participants in terms of TCI sub-scale scores is presented in Table 4. The significant difference observed in HA scores was due to HA scores being significantly lower in HC group than the other two patient groups; no significant difference was found between the patient groups. It was observed that the significant difference in SD scores was due to the higher SD scores in the control group compared to the two pa-

tient groups, no significant difference was found between the patient groups. It was seen that the significant difference in ST scores was caused by the difference between the PD group and the HC group. There was no significant difference between the HC and GAD groups.

Age, education, HAM-A, HAM-D were found to be different between the groups. In the one-way ANOVA, the difference between the groups was determined as HA, SD, ST as the covariate. Linear regression analysis was also performed (DES scores dependent variable, HA, SD, ST, HAM-A, HAM-D, education, age and diagnosis independent variable). The factors determining DES scores were found to be SD, ST and HAM-A. Similar results were observed when DIS-q was taken as the dependent variable instead of DES (Table 5). The results showed that dissociation was associated with diagnosis, HAM-A, and character subscales (self-directedness and self-transcendence). The effect of anxiety on dissociation continued even when the diagnosis was controlled.

Table 1: The comparison of the groups in terms of gender, marital status, working status, economic status, alcohol-substance use and treatment use / non-use distributions

	HC	GAD	PD	p
Sex				
Female	45	25	20	0.63
Male	30	20	10	
Marital Status				
Married	30	21	10	
Single	43	22	17	0.452
Widow	2	2	3	
Employment Status				
Working	31	14	5	
Unemployed	15	16	13	0.58
Student	29	15	12	
Economical Status				
Bad	0	2	2	
Middle	57	35	23	0.271
Good	18	8	5	
Alcohol Use				
No	64	39	29	0.278
Social Drinker	11	6	1	
Drugs				
No		22	15	
SSRI		18	15	0.154
SNRI		5	0	

HC: Healthy Control; **GAD:** General Anxiety Disorder; **PD:** Panic Disorder; **SSRI:** Selective Serotonin Reuptake Inhibitor; **SNRI:** Serotonin–Norepinephrine Reuptake Inhibitor

Table 2: Comparison of the groups in terms of age and length of education						95% Confidence Interval for Mean					
		N	Mean	Std. Deviation	Std.Error	Lower Bound	Upper Bound	Min.	Max.	F	P
Education (year)	HC*	75	15.40	4.08	0.47	14.46	16.34	5.00	22.00	12.66	0.01
	GAD	45	12.82	3.98	0.59	11.63	14.02	5.00	20.00		
	PD	30	11.40	3.91	0.71	9.94	12.86	4.00	17.00		
Age	HC	75	32.63	11.71	1.35	29.93	35.32	19.00	63.00	3.67	0.028
	GAD	45	28.69	8.89	1.32	26.02	31.36	19.00	48.00		
	PD	30	27.33	8.53	1.56	24.15	30.52	18.00	45.00		

*: The group that makes a significant difference compared to post hoc Bonferroni
HC: Healthy Control; GAD: General Anxiety Disorder; PD: Panic Disorder.

Table 3: The comparison of the groups in terms of clinical scale scores						95% Confidence Interval for Mean					
		N	Mean	Std. Deviation	Std.Error	Lower Bound	Upper Bound	Min.	Max.	F	P
HAM-A	HC*	75	4.39	2.24	0.26	3.87	4.90	0.00	9.00	329.19	0.000
	GAD	45	19.06	5.25	0.78	17.49	20.65	9.00	33.00		
	PD	30	25.80	6.22	1.14	23.48	28.12	6.00	39.00		
HAM-D	HC *	75	3.54	2.17	0.25	3.05	4.05	0.00	9.00	89.45	0.000
	GAD	45	10.02	4.37	0.65	8.70	11.34	3.00	20.00		
	PD	30	12.67	4.78	0.87	10.89	14.46	4.00	25.00		
DES**	HC	75	6.08	4.78	0.55	4.98	7.18	0.00	27.80	57.87	0.000
	GAD	45	13.30	11.20	1.67	9.94	16.67	0.00	52.50		
	PD	30	28.96	15.60	2.85	23.14	34.79	0.00	58.90		
DIS-Q**	HC	75	1.51	0.30	.034	1.44	1.58	1.03	2.25	39.36	0.000
	GAD	45	1.89	0.57	0.09	1.72	2.06	1.03	3.31		
	PD	30	2.41	0.65	0.12	2.16	2.65	1.12	3.73		

*: This is a group that differs from Post hoc Bonferroni. **: Significant differences in post hoc Bonferroni between the three groups. HC: Healthy Control; GAD: General Anxiety Disorder; PD: Panic Disorder; HAM-A: Hamilton Anxiety Rating Scale; HAM-D: Hamilton Depression Rating Scale; DES: Dissociative Experiences Scale; DIS-Q: Dissociation Scale.

Table 4: Comparison of the TCI sub-scale scores of the groups										
		N	Mean	Std. Deviation	Std.Error	95% Confidence Interval for Mean		Min.	Max.	F	P
						Lower Bound	Upper Bound				
Novelty Seeking	HC	75	18.39	5.08	0.59	17.21	19.56	9.00	33.00	0.02	0.97
	GAD	45	18.40	4.66	0.70	16.00	19.80	11.00	30.00		
	PD	30	18.17	6.02	1.09	15.91	20.42	5.00	30.00		
Harm Avoid-an-ce(HA)	HC *	75	18.25	5.59	0.65	16.97	19.54	5.00	33.00	26.34	**0.000**
	GAD	45	24.42	5.62	0.84	22.73	26.11	6.00	33.00		
	PD	30	25.10	4.77	0.87	23.31	26.88	14.00	34.00		
Reward Dep-en-dence	HC	75	13.64	3.48	0.40	12.83	14.44	7.00	22.00	0.33	0.72
	GAD	45	14.13	3.39	0.50	13.11	15.15	8.00	21.00		
	PD	30	14.00	3.04	0.56	12.87	15.14	8.00	20.00		
Persistence	HC	75	4.88	1.74	0.20	4.48	5.28	1.00	8.00	1.44	0.24
	GAD	45	4.33	1.80	0.27	3.80	4.87	0.00	7.00		
	PD	30	4.57	1.63	0.30	3.96	5.17	1.00	7.00		
Self-directed-ness(SD)	HC *	75	31.36	6.40	0.74	29.89	32.83	17.00	44.00	22.79	**0.000**
	GAD	45	24.96	7.21	1.07	22.79	27.12	8.00	38.00		
	PD	30	22.50	7.48	1.37	19.71	25.29	11.00	38.00		
Cooperative-ness	HC	75	29.44	6.09	0.70	28.04	30.84	18.00	40.00	3.04	0.051
	GAD	45	26.67	5.83	0.87	24.91	28.41	12.00	37.00		
	PD	30	27.87	6.28	1.14	25.52	30.21	12.00	39.00		
Self-tran-scend-ence**(ST)	HC	75	14.32	5.64	0.65	13.02	15.62	2.00	30.00	5.75	**0.004**
	GAD	45	15.64	5.01	0.74	14.14	17.15	5.00	24.00		
	PD	30	18.43	6.38	1.16	16.05	20.81	7.00	30.00		

*: Post hoc Bonferroni' significant difference is due to the HC group. **: Post hoc Bonferroni showed a significant difference between the HC and PD group.
HC: Healthy Control; GAD: General Anxiety Disorder; PD: Panic Disorder; TCI :Temperament and Character Inventory.

Table 5: Linear regression analysis where DES / DIS-q scores are dependent variables										
Novelty Seeking	DES						DIS-q			
	B	Std. Error	Beta	t	P		B	Std. Error	Beta	t	p
Diagnosis	2.634	2.170	0.158	1.214	0.227		-0.063	0.093	-0.084	-0.671	0.504
Age	0.036	0.077	0.029	0.460	0.646		-0.001	0.003	-0.024	-0.396	0.693
Education	0.024	0.202	0.008	0.121	0.904		0.002	0.009	0.016	0.249	0.804
Harm Avoid-an-ce(HA)	-0.143	0.139	-0.069	-1.025	0.307		0.001	0.006	0.008	0.117	0.907
Self-Directed-ness(SD)	-0.368	0.121	-0.220	-3.034	**0.003**		-0.022	0.005	-0.290	-4.145	**0.000**
Self –Transcend-ence(ST)	0.401	0.141	0.177	2.842	**0.005**		0.025	0.006	0.247	4.100	**0.000**
HAM-A	0.662	0.213	0.505	3.112	**0.002**		0.039	0.009	0.676	4.310	**0.000**
HAM-D	-0.229	0.264	-0.092	-0.869	0.386		-0.020	0.011	-0.183	-1.785	0.076

HAM-A: Hamilton Anxiety Rating Scale; HAM-D: Hamilton Depression Rating Scale; DES: Dissociative Experiences Scale; DIS-Q: Disso-ciation Scale.

DISCUSSION

150 participants in total, (75 patients and 75 healthy controls), were included in the study. 45 patients had a GAD and 30 patients had PD. There was no significant difference between the three groups in terms of gender, marital status, employment status, economic status, distribution of alcohol use and distribution of drug use or / non-use status of the patient group. The length of education of the healthy control group was found to be higher than the patient group. The most common anxiety disorder in patients applying to primary healthcare is the generalized anxiety disorder. In women, both GAD and PD are twice as much as men.19 Although it was not statistically significant in our study, both the number of GAD patients were higher than the number of PD and the number of female patients compared to the number of male patients.

In the literature, it is reported that patients with anxiety disorder experience more dissociation than healthy individuals.[3] Our study as also produced similar results (see Table 3). There are other studies in the literature reporting that 7-69% of patients with panic disorder experience depersonalization and derealization during panic attacks.[4,5] The relationship between depersonalization and anxiety is reported to have a higher rate in patients with a panic disorder compared to patients with other anxiety disorders or psychiatric disorders documented in the literatüre.[20] According to our knowledge, a study in the literature examining the relationship between GAD and dissociative experiences, suggests that there is a relationship between GAD and dissociative symptoms.[21]

HA scores are reported to be high in major depressive disorder, GAD and PD, whereas SD, ST, and CO scores are reported to be low in the literatüre.[22] It was reported that the relationship between depression and anxiety symptoms and high HA scores and low SD scores persisted when variables such as age, gender and education were controlled. High HA and low SD profile has been repeatedly shown in clinical groups with various anxiety disorders and in many non-clinical samples.[23] In our study, we also obtained consistent result with the literature (see Table 4). Considering high HA and low SD scores; it can be said that these are the most common temperament-character traits in anxiety disorders.

In a study conducted with 53 patients with depersonalization disorder and 22 healthy controls and examining the relationship between dissociation and personality factors, various personality factors were associated with pathological dissociation; specifically, harm avoidance and immature defenses were found to be quantitatively associated with dissociation and the severity of dissociation.[24] However, in this study, Cloninger's 3-dimensional personality questionnaire was used the investigation; temperament and character dimensions were taken into consideration. In a study examining the relationship between personality and dissociation in both psychiatric patients and healthy individuals, it was observed that dissociation scores were associated with low SD and high ST characteristics and were not affected by temperament characteristics.[7] In our study, ST scores were found to be higher in PD than in GAD and HC groups, but no significant difference was found between the HC and GAD groups. In a study of depersonalization and personality in PD, both subgroups of patients with depersonalization (during panic attacks and depersonalization disorder) also had a significantly lower score on SD and a higher score on ST. Depersonalization symptom or depersonalization disorder was not associated with temperament dimensions.[4]

SD is generally a dimension that is highly associated with personality disorders[10] and is also associated with panic disorder.[25] In a study investigating the relationship between PD subtypes and temperament and character dimensions, Somato-dissociative subtype was found to show negative correlation with SD.[26] Low SD explains the typical difficulties of people with personality disorders in accepting responsibility, having persistent low self-esteem, and disagreement with one's self. Usually, these people are also

less likely to cooperate. SD correlates with schizotypal symptoms (explaining the magical thinking and rich imagination in patients with personality disorders), narcissistic, and borderline (describing dissociative tendencies in patients with personality disorders) personalities. ST is a high TCI dimension over time test-retest correlation[27], but recent research has shown that modification of neural activity in temporoparietal areas can lead to rapid modulation of this personality trait. Urgisi et al. showed that temporoparietal region gliomas increased significantly after the operation.[28] These brain regions have been associated with depersonalization in both seizure-related disorders[29] and personality disorders.[30] Those who score high in ST may experience extra-sensorial perceptions and thoughts similar to those induced by certain drugs such as cannabinoids, hallucinogens, and ecstasy or ketamine.[31,32] These findings in addition to our own suggest that there is a high tendency of dissociation in GAD, although not at the same severity as panic disorders, that self-transcendent character and dissociative experience of anxiety may originate more from common neuroanatomic centers rather than similar clinical courses. It can also be interpreted that a feature that should be consistent over time as a dimension of personality (- when it comes to self-transcendence) may be associated with the fact that the tendency for dissociative symptoms increases as anxiety increases.

This study is important, because it is the first study according to our knowledge that examines dissociative symptoms in anxiety disorders and their relationship with temperament-character traits. Aligned with the literature, our findings showed that dissociation was associated with diagnosis, HAM-A, SD, and ST from the character subscales. We observed that HA subscale did not affect dissociative symptoms when anxiety was controlled. This finding shows us that HA sub-scale is a factor that affects dissociation via affecting anxiety rather than a direct affecting dissociation.

The study does have some limitations. Including more par-

ticipants in the study may increase the power of the study. Another limitation of our study is that the control group and the patient group could not be matched in terms of age and duration of education.

CONCLUSION

Even if it is not possible to define a category of patients with a higher risk of developing dissociative symptoms, early identification of potentially susceptible personality traits might be clinically useful. Additionally, the presence of personality traits that are potentially prone to develop dissociative symptoms may contribute to discussions claiming that dissociation is mainly due to traumatic experiences. Further prospective studies are necessary to establish.

The research was started after getting approval from the local ethics committee.

Conflict of Interest

No conflict of interest was declared by the authors.

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Author Contributions

Concept - MS, OMK; Design - MS, OMK; Supervision - OMK, ŞBN; Resource - MS; Materials - MS; Data Collection and/ or Processing - MS, OMK; Analysis and/or Interpretation - MS, OMK; Literature Search - MS, ŞBN; Writing - MS; Critical Reviews – ŞBN, OMK.

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