

# Is there any association between childhood trauma and chronic dermatological diseases? A case-control study

## Çocukluk çağı travması ile kronik dermatolojik hastalıklar arasında ilişki var mı? Bir vaka kontrol çalışması

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### Abstract

**Aim:** It is known that traumatic experiences in childhood cause many psychosomatic and psychodermatological diseases. Common dermatological diseases bring about not only dermatological but also psychosocial problems. In our study, we aimed to investigate association of depression, anxiety and childhood trauma with chronic dermatological diseases.

**Methods:** After power analysis, 76 patients with chronic dermatological diseases (study group) and 75 healthy volunteers (control group) were included in this study. Beck Anxiety Inventory, Beck Depression Inventory and Childhood Trauma Scale (CTQ 28) were administered to these individuals.

**Results:** The anxiety ( $P=0.001$ ) and depression ( $P<0.001$ ) levels were higher in the study group than control group. However, there was no difference with CTQ 28 total ( $P=0.22$ ) and subscales scores ( $P=0.16$ ,  $P=0.98$ ,  $P=0.90$ ,  $P=0.23$  and  $P=0.27$ , respectively) between groups. Physical neglect scores differed significantly according to educational status in the patient group ( $F=3.643$ ,  $P=0.03$ ). Emotional neglect and total CTQ 28 scores were higher in patients with lichen simplex chronicus ( $P=0.23$ ).

**Conclusion:** In our study, unlike previous studies, dermatological diseases such as lichen planus, Behçet's disease, chronic urticaria and vitiligo were included in the study. This group of diseases should be considered because they adversely affect every aspect of patients' lives in almost. Patients should be carefully evaluated for psychiatric support. We think that the detailed investigation of traumatic experiences from both dermatologists and psychiatrists can lead to better results in the treatment of chronic patients by using psychotherapeutic interventions.

**Keywords:** Depression, Anxiety, Childhood trauma, Psychodermatology

### Öz

**Amaç:** Çocukluk döneminde meydana gelen travmatik yaşantıların birçok psikosomatik ve psikodermatolojik hastalığın oluşmasına neden olduğu bilinmektedir. Sık görülen kronik dermatolojik hastalıklar sadece dermatolojik değil çeşitli psikososyal sorunları da beraberinde getirmektedir. Çalışmamızda kronik dermatolojik hastalıklar ile depresyon, anksiyete ve çocukluk çağı travması ilişkisini incelemeyi amaçladık.

**Yöntemler:** Güç analizinden sonra, kronik dermatolojik hastalıkları olan 76 hasta (çalışma grubu) ve 75 sağlıklı gönüllü (kontrol grubu) çalışmaya dahil edildi. Bu kişilere Beck Anksiyete Ölçeği, Beck Depresyon Ölçeği ve Çocukluk Çağı Travmaları Ölçeği (CTQ 28) uygulanmıştır.

**Bulgular:** Anksiyete ( $P=0.001$ ) ve depresyon ( $P<0.001$ ) düzeyleri çalışma grubunda kontrol grubuna göre anlamlı derecede yüksekti. Ancak, CTQ 28 total ( $P=0.22$ ) ve alt ölçek puanlarında ( $P=0.16$ ,  $P=0.98$ ,  $P=0.90$ ,  $P=0.23$ ,  $P=0.27$ ) gruplar arasında fark yoktu. Fiziksel ihmal skorları hasta grubundaki eğitim durumuna göre anlamlı farklılık gösterdi ( $F=3.643$ ,  $P=0.03$ ). Duygusal ihmal ve toplam CTQ 28 skorları liken simpleks kronikusu olan hastalarda anlamlı olarak yüksekti ( $P=0.23$ ).

**Sonuç:** Çalışmamızda daha önceki çalışmalardan farklı olarak liken planus, behçet hastalığı, ürtiker, vitiligo gibi dermatolojik hastalıklar da dahil edilmiştir. Bu hastalık grupları hastaların yaşamlarını hemen her açıdan olumsuz yönde etkilediği için önemsenmesi gereken bir gruptur. Psikiyatrik destek gerekliliği açısından hastalar dikkatle değerlendirilmelidir. Hem dermatologların hem de psikiyatristlerin hastaların travmatik yaşantılarını detaylı araştırmasının, psikoterapötik girişimler kullanarak kronik hastaların tedavisinde daha iyi sonuçlara yol açabileceğini düşünüyoruz.

**Anahtar kelimeler:** Depresyon, Anksiyete, Çocukluk çağı travmaları, Psikodermatoloji

## Introduction

Many factors are effective in the formation of diseases and their consequences. As a result of physical illnesses, psychological problems can be experienced, and as well as psychological problems may also appear as physical illnesses [1]. Psychodermatology is a common field of psychiatry and dermatology examines the relationship between the most visibly visible skin and mental disorders [2]. The development of psychodermatology as a working discipline based on the interaction and relationship between the brain, nerves and the skin that develops from the same germ leaf as the embryology has reached its present form through the stages of maturation very similar to the development of a child and has gone in parallel with the development of psychosomatic medicine [3,4].

Skin is the most important communication tool between the outer world and the inner universe of the person and is the source of the most important sensory tactile perception [5]. Every disease that disrupts the functioning of the skin can lead to serious psychiatric problems and may impair quality of life [1]. Psychodermatologic diseases are classified into three groups: (1) Psychophysiological disorders: A skin condition is exacerbated by emotional stress, (2) Primary psychiatric disorders; there is no primary skin disease, (3) Secondary psychiatric disorders: As a result of having a skin disorder the patient develops psychiatric disorder [6]. The pathogenetic mechanisms that play a role in the relationship of these diseases with psychological stress have been clarified in recent years with the contributions of psychoneuroendocrinology and psychoimmunology study disciplines. Especially in the field of psychodermatology studies, psychophysiological skin diseases, dermatological treatment alone cannot be sufficient and emphasizes the importance of approaches in the axis of psychological treatment [7].

Dermatological diseases at least 25-30% have a psychiatric disease or psychosocial factors [8]. The most common diagnoses were depression with 44% and anxiety disorder with 55% [9]. Epidemiological and clinical studies have also consistently focused on the impact of stress-related environmental risk factors, including childhood trauma (CT) or childhood adversity (including physical abuse, physical neglect, emotional abuse, emotional neglect and sexual abuse) in the development of psychosis [10]. It is thought that there is a bidirectional relationship between psychodermatologic diseases, psychological problems and psychiatric comorbidity [11]. There are a small number of studies demonstrating the relationship between CT and dermatological disease. The aim of this study was to determine the association between childhood trauma with anxiety and depression in chronic dermatologic diseases and sociodemographic data.

## Materials and methods

This study was approved by the Institutional Review Board (No: 2018/17), and informed consent was obtained from all participants. After power analysis, 76 patients with consecutive manner in outpatient clinic examination diagnosed with chronic dermatologic diseases and 75 healthy controls were included in the study. Patients diagnosed with psychiatric and neurological disorders or receiving any psychiatric treatment at

the time of the study, abnormal intelligence level were excluded from the study. Healthy volunteers included subjects with no other dermatological or additional diseases, between 20-65 years of age and similar sociodemographic characteristics like patients. The interviews were held in the private interview room, with the patient not taking care of someone else. The purpose of the study and the absolute confidentiality of personal information were explained to the patients, and they were asked whether they wanted to participate in the study. The demographic features of all subjects like age, gender, education, marital status were recorded. The diagnosis of chronic dermatological disease was made by the dermatologist.

Data were collected on each of the participants, including the Childhood Trauma Questionnaire (CTQ 28), Beck Depression Inventory and Beck Anxiety Inventory.

Childhood Trauma Questionnaire (CTQ-28): Childhood trauma was examined using the Turkish short version of the CTQ [12]. CTQ is a self-administered questionnaire for screening retrospective Childhood Sexual Abuse, Physical Abuse, Emotional Abuse, Emotional Neglect and Physical Neglect. It measures several dimensions of maltreatment experiences, including the severity, frequency, and duration, consisting of 28 items. The severity of each childhood trauma subscales includes "mild", "moderate", "severe" and "extreme". These five sub points and their combined weighted total average score are obtained.

Beck Depression Inventory (BDI): It was developed by Beck et al. [13] and was conducted with adaptation, validity and reliability for Turkish society by Hisli [14]. This scale includes 21 questions, measures physical, emotional, cognitive and motivational symptoms seen in depression.

Beck Anxiety Inventory (BAI): It was used to assess anxiety symptom severity and features 21 items with 4-point scales (0-3). Responses are summed to arrive at a single score ranging from 0 to 63, with scores  $\geq 8$  indicating clinically significant levels of anxiety [15].

### Statistical Analysis

The data were analyzed using SPSS (Statistical Package for The Social Sciences) version 22 for Windows. Number, percentage and mean (standard deviation) were used as descriptive statistical methods for evaluating the data. The power of the test was calculated with the G \* Power 3.1 program. In order to determine the power of the study to exceed 80%; 5% significance level and 0.8 effect size, a total of 42 people, 21 of them are required to be reached ( $df=40$ ;  $t=1.684$ ). The t test was used to compare the quantitative continuous data between the two independent groups and the one way (One way) Anova test was used to compare quantitative continuous data between more than two independent groups. Scheffe test was used as complementary post-hoc analysis to determine the differences after the Anova test. Pearson correlation analysis was applied to the continuous variables of the study.

## Results

The study evaluated 76 patients with chronic dermatological diseases and 75 healthy controls. The groups are distributed homogeneously according to the gender ( $P=0.23$ ) and the marital status ( $P=0.08$ ). Gender, marital status, education and

type of dermatological disease are presented in Table 1. There was no significance between the groups and age ( $P=0.45$ ). The mean age of the study group was 36.4 (10.9) years; the mean age of the control group was 35.1 (10.3) years.

When CTQ 28 scores were evaluated; emotional abuse, physical abuse, physical neglect, emotional neglect, sexual abuse and total average score did not differ significantly according to the group variable ( $P>0.05$ ). According to the Beck Anxiety Inventory, the patient's anxiety scores (14.2 (10)) were higher than the anxiety scores of the control group (9.4 (7.6)) ( $P=0.001$ ). BDI scores also showed significant differences with respect to groups ( $t_{(149)}=4.174$ ;  $P<0.001$ ). The depression scores of the patients (14.9 (9.5)) were higher than those of the control group (9 (7.8)) ( $P<0.001$ ) (Table 2).

The correlation analysis of CTQ 28 subscales, total score and BDI and BAI scores in patient group can be seen in Table 3.

Table 1: Distribution of descriptive properties by groups

		Study group		Control group		P-value
		n	%	n	%	
Gender	Female	49	64.5	43	57.3	$X^2=0.808$ $P=0.23$
	Male	27	35.5	32	42.7	
Marital status	Married	51	67.1	41	54.7	$X^2=2.453$ $P=0.08$
	Single	25	32.9	34	45.3	
Education	Basic training	33	43.4	8	10.7	$X^2=26.548$ $P<0.001$
	High school	21	27.6	17	22.7	
	University	22	28.9	50	66.7	
Type of dermatological disease	Vitiligo	8	10.5			
	Chronic urticaria	17	22.4			
	Psoriasis	14	18.4			
	Lichen simplex chronicus	13	17.1			
	Lichen planus	8	10.5			
	Behçet's disease	4	5.3			
	Alopecia areata	12	15.8			

Table 2: Independent Groups T-Test. CTQ 28 subscales, total scores, BAI scores and BDI scores differentiation status by groups.

Groups	Patients (n=76)		Controls (n=75)		t	SD	P-value
	Mean	SD	Mean	SD			
Emotional abuse	6.340	1.957	5.950	1.442	1.412	149	0.16
Physical abuse	5.390	0.981	5.400	1.197	-0.030	149	0.98
Physical neglect	7.210	2.473	7.160	2.579	0.123	149	0.90
Emotional neglect	10.530	4.765	9.600	4.753	1.196	149	0.23
Sexual abuse	5.280	1.001	5.590	2.194	-1.121	149	0.27
CTQ 28 total scores	35.890	7.418	34.320	8.164	1.241	149	0.22
BAI scores	14.180	9.906	9.360	7.587	3.357	149	0.001
BDI scores	14.880	9.504	8.960	7.839	4.174	149	<0.001

SD: Standard deviation

Table 3: The correlation analysis between age, CTQ 28 subscales and total scores, anxiety and depression points in the study group

	Age	Emotional abuse	Physical abuse	Physical neglect	Emotional neglect	Sexual abuse	CTQ 28 total	BAI	BDI
Age	r	1.000							
	p	0.000							
Emotional abuse	r	0.060	1.000						
	p	0.608	0.000						
Physical abuse	r	0.084	0.255*	1.000					
	p	0.473	0.026	0.000					
Physical neglect	r	0.206	0.183	0.108	1.000				
	p	0.075	0.113	0.352	0.000				
Emotional neglect	r	0.235*	0.314**	0.175	0.483**	1.000			
	p	0.041	0.006	0.131	0.000	0.000			
Sexual abuse	r	-0.052	0.155	0.105	-0.002	-0.101	1.000		
	p	0.654	0.180	0.368	0.984	0.387	0.000		
CTQ 28 total	r	0.228*	0.555**	0.414**	0.689**	0.857**	0.146	1.000	
	p	0.047	0.000	0.000	0.000	0.000	0.209	0.000	
BAI	r	0.060	0.420**	0.157	0.279*	0.349**	0.280*	0.481**	1.000
	p	0.608	0.000	0.175	0.015	0.002	0.014	0.000	0.000
BDI	r	-0.077	0.397**	0.220	0.313**	0.420**	0.173	0.525**	0.635**
	p	0.506	0.000	0.057	0.006	0.000	0.135	0.000	0.000

\*<0.05; \*\*<0.01

CTQ 28 subscales, total score, BDI and BAI scores according to descriptive properties in patient group are as follows: 1-Emotional abuse, physical abuse, physical neglect, emotional neglect, sexual abuse, CTQ 28 total, anxiety, depression scores did not differ significantly from gender and marital status variable ( $P>0.05$ ). 2-Physical neglect scores differed significantly according to educational status ( $F=3.643$ ;  $P=0.03$ ); when education increased, physical neglect scores were decreased ( $P<0.05$ ). Also total CTQ-28 scores showed a similar decrease. Emotional abuse, physical abuse, emotional neglect, sexual abuse, anxiety and depression scores of patients did not differ significantly according to educational status ( $P>0.05$ ). 3- Emotional neglect scores of the patients ( $F=3.088$ ;  $P=0.01$ ) and total CTQ 28 scores ( $F=2.465$ ;  $P=0.03$ ) differed significantly according to the type of disease ( $F=3.088$ ;  $P=0.01$ ); the emotional neglect scores (15.6 (5)) and total CTQ 28 scores (40.9 (7)) of the patients with lichen simplex chronicus were higher than the other disease groups ( $P=0.01$ ), total CTQ 28 scores of the patients with lichen planus (40.3 (8.4)) were higher than vitiligo and alopecia areata ( $P=0.03$ ). 4- The other parameters like emotional abuse, physical abuse, physical neglect, sexual abuse, anxiety and depression scores of the patients did not differ significantly according to the type of disease ( $P=0.28$ ,  $P=0.31$ ,  $P=0.26$ ,  $P=0.49$ ,  $P=0.14$  and  $P=0.15$ , respectively) (Table 4).

### Discussion

The purpose of this study was to reach and discuss findings on relationships between chronic dermatological diseases and CT, anxiety and depression. Significantly reduced anxiety and depression scores was observed in patients with dermatological diseases as well as controls. But there was no significantly relationship between CT and study group other than controls. Physical neglect and total scores of CTQ 28 was associated with educational status in study group. Emotional neglect and CT was observed significantly higher in patients with lichen simplex chronicus.

Table 4: The differentiation of CTQ 28 subscales, total scores, BAI, BDI scores by descriptive characteristics in the study group.

Demographic features	n	Emotional abuse	Physical abuse	Physical neglect	Emotional neglect	Sexual abuse	CTQ 28 total	BAI	BDI
Gender		Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)
Females	49	6.530(2.199)	5.240(0.693)	7.100(2.510)	10.630(5.302)	5.160(0.624)	35.760(8.102)	15.310(9.115)	16.040(9.635)
Males	27	6.000(1.387)	5.670(1.330)	7.410(2.438)	10.330(3.679)	5.480(1.451)	36.150(6.119)	12.150(11.090)	12.780(9.057)
t=		1.134	-1.822	-0.513	0.260	-1.333	-0.220	1.337	1.443
P=		0.261	0.134	0.610	0.795	0.286	0.827	0.185	0.153
Marital status		Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)
Married	51	6.270(1.919)	5.350(0.976)	7.350(2.536)	10.370(4.745)	5.250(1.017)	35.800(7.563)	14.710(10.456)	15.160(9.569)
Single	25	6.480(2.064)	5.480(1.005)	6.920(2.361)	10.840(4.888)	5.320(0.988)	36.080(7.262)	13.120(8.781)	14.320(9.538)
t=		-0.428	-0.528	0.715	-0.400	-0.265	-0.151	0.653	0.359
P=		0.670	0.599	0.477	0.691	0.792	0.880	0.516	0.721
Education		Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)
Basic training	33	6.520(2.252)	5.330(0.854)	7.480(2.612)	11.610(5.651)	5.090(0.522)	37.090(8.338)	13.000(7.886)	14.640(9.003)
High school	21	6.480(1.940)	5.570(1.207)	7.950(2.872)	10.620(4.141)	5.520(1.436)	37.570(7.500)	13.120(8.781)	14.320(9.538)
University	22	5.950(1.463)	5.320(0.945)	6.090(1.269)	8.820(3.347)	5.320(1.041)	32.500(4.459)	12.360(10.280)	12.270(9.228)
F=		0.604	0.466	3.643	2.346	1.234	3.486	2.194	2.024
P=		0.550	0.630	0.031	0.103	0.297	0.036	0.119	0.139
Post-Hoc=				1 > 3, 2 > 3 (P<0.05)			1 > 3, 2 > 3 (P<0.05)		
Type of disease		Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)
Vitiligo	8	5.500(1.069)	5.500(1.414)	6.120(1.458)	9.120(3.044)	5.000(0.000)	32.380(3.583)	8.880(8.790)	11.500(8.586)
Chronic urticaria	17	6.060(1.600)	5.000(0.000)	7.060(2.410)	10.000(4.330)	5.350(0.996)	34.470(6.226)	12.940(8.181)	11.760(7.005)
Psoriasis	14	6.430(1.869)	5.790(1.424)	6.790(2.326)	8.790(4.353)	5.570(1.284)	35.210(8.903)	12.860(9.478)	14.930(9.872)
Lichen simplex chronicus	13	6.770(2.242)	5.540(0.967)	8.150(2.154)	14.620(4.925)	5.080(0.277)	40.920(7.017)	17.540(9.726)	17.380(8.827)
Lichen planus	8	7.380(2.669)	5.000(0.000)	8.620(3.662)	12.620(6.093)	5.750(2.121)	40.250(8.396)	19.880(11.789)	21.250(13.339)
Behçet's disease	4	7.500(3.317)	5.750(1.500)	7.750(3.202)	8.000(4.761)	5.000(0.000)	35.250(10.720)	20.750(14.930)	20.500(12.477)
Alopecia areata	12	5.670(1.371)	5.420(0.793)	6.500(2.195)	9.250(3.194)	5.000(0.000)	32.920(4.562)	11.420(8.826)	12.670(8.038)
F=		1.286	1.217	1.317	3.088	0.901	2.465	1.697	1.645
P=		0.275	0.308	0.261	0.010	0.499	0.032	0.135	0.148
Post-Hoc=				4 > 1, 4 > 2, 4 > 3, 4 > 6, 4 > 7 (P<0.05)			4 > 1, 5 > 1, 4 > 2, 4 > 3, 4 > 7, 5 > 7 (P<0.05)		

Consistent with the literature the prevalence rates of anxiety and depression were higher in study group than in the control group. Woodruff et al. [16] reported that the most common psychiatric diagnoses were depression with 44% and anxiety with 35% in patients who shipped psychiatry after referring to the dermatology clinic. Yalçın et al. [11] found depression with %39.5 and anxiety with %21 in patients with neurotic excoriation and significantly higher BDI and BAI scores in study group. In another studies, Snorrason et al. [17] and Misery et al. [18] observed closely related to depression and anxiety disorders in patients with neurotic excoriation.

Childhood maltreatment and traumatic events in the first years of life pose a risk for all types of psychopathology [19]. Severe stress experienced in early life affects the stress-induced glucocorticoid, noradrenergic and other response systems; adverse childhood experiences can be associated with many psychosomatic diseases such as irritable bowel disease, chronic fatigue syndrome and fibromyalgia [20-21]. In dermatology; Yalçın et al. [11] reported higher CTQ 28 scores in both groups emotional abuse, physical abuse, emotional neglect and the CTQ 28 scale total score in patients with neurotic excoriation. On the other hand, they did not observe a statistically significant difference in sexual abuse and physical neglect scores.

In our study, we found higher emotional neglect and total CTQ scores in patients with lichen simplex chronicus other than diseases, too. Misery et al reported in their study of 10 patients with neurotic excoriation that the majority of patients had personal problems before the onset and 4 patients described abuse during childhood and adolescence [18]. Again, Sesliokuyucu et al. [22] observed higher CTQ 28 scores in patients with psoriasis (74.07 (10.58)) than controls (66.9 (8.13)) in their study. Willemsen et al. [21] found life-long and childhood trauma in adult alopecia areata patients significantly higher than the control group. However, there are limited numbers of studies related to dermatological diseases. In our study, CT was investigated by including many dermatological diseases, not just 1 disease group.

We did not find significance with CTQ total scores and subscales between the study and control groups. But we found a positive correlation between CTQ scores and BAI and BDI scores in study group. This situation implies that traumatic childhood experiences may also play an important role in the etiology of both dermatological disease and accompanying psychiatric problems. An important relationship was reported with sexual abuse and self-harm behavior in the childhood. It is known that history of sexual abuse in childhood is frequently seen in psychodermatology patients, but this history is usually obtained at the end of a psychiatric consultation or long term psychotherapy period [23,24]. Therefore, we believe that some of the patients who participated in the study may not have experienced sexual trauma in their childhood due to the nature of the study and the CTQ 28 was a self-report scale.

In our study, there was a significant relationship between education status and childhood trauma and physical neglect. As the education level increased, these scores decreased. In previous studies, we have not found any studies showing this relationship with the educational status and so we couldn't find the possibility comparing the results.

Our findings had shown that dermatologists and psychiatrists should always query traumatic experiences in patients with chronic dermatological diseases like psoriasis, lichen simplex chronicus, alopecia areata, vitiligo, lichen planus and Behçet's disease. Thus, patients may be given the opportunity to start talking about psychotherapy and to start psychotherapy with known psychodermatologic diseases [18-23].

The present study has some limitations. First, the small sample size of patients at a single clinic and controls does not reflect the general population. A second limitation is the possibility that some patients did not report their experience with sexual abuse due to the cross-sectional nature of the study, current psychiatric comorbidity, anxiety and depression levels, and the effect of childhood traumatic experiences on the course of the disease, and the fact that a single evaluation interview could be conducted with patients. Finally, to our best knowledge, this is the first study of investigate the relationship of CT in

chronic dermatological diseases and for this reason, the results cannot be compared with another research.

### Conclusion

Dermatological diseases are a group of disease which should be considered because of their effect on patients' lives in almost every way. For these reasons, only skin lesions of patients should not be considered; depression, anxiety, mental traumatic life and life quality should be carefully evaluated and determined the need for psychiatric support. These measures can reduce the severity of the disease as well as patient compliance and it is thought to make them more at peace with life.

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