

## Psychiatric Features in Neurotic Excoriation Patients: The Role of Childhood Trauma

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### ABSTRACT

**Introduction:** Neurotic excoriation is a psychodermatological disease of primary psychological/psychiatric genesis, responsible for self-induced dermatological disorders. Childhood traumatic events are closely related with self-injurious behaviors. The aim of this study is to evaluate the psychiatric features of neurotic excoriation and to investigate the effect of childhood traumatic events on the disease.

**Methods:** Thirty-eight neurotic excoriation patients who did not receive any psychiatric treatment within the past year and 40 healthy individuals having similar sociodemographic features were included in the study. For clinical evaluation, the Structured Clinical Interview for DSM-IV Axis I Disorders, Beck Depression Inventory, Beck Anxiety Inventory, and Childhood Trauma Questionnaire-Short Form were applied to all the individuals.

**Results:** In this study, we observed that 78.9% of neurotic excoriation patients were diagnosed with at least one Axis I psychiatric disorder; the

most frequent diagnoses of which were major depressive disorders and anxiety disorders. The anxiety and depression levels were significantly higher in the patient group than in the healthy individuals. Regarding the Childhood Trauma Questionnaire, emotional neglect, emotional abuse, and physical abuse subscales and weighted average total scores were found to be significantly higher in the patient group ( $p<.05$ ).

**Conclusion:** Our study has shown a close relationship between neurotic excoriation and childhood traumatic events as well as the accompanying psychiatric problems. We suppose that early interventions by both dermatologists and psychiatrists and especially a detailed investigation of childhood traumatic events by establishing a therapeutic collaboration are highly important and that using psychotherapeutic interventions can result in better treatment outcomes in many patients.

**Keywords:** Neurotic excoriation, psychogenic excoriation, skin picking, childhood trauma, psychodermatology

### INTRODUCTION

The relationship between the mind (psyche) and body (soma) has been a focus of interest and research for physicians since early ages when medical sciences originated. As the common study area of psychiatry and dermatology, psychodermatological studies the relationship between the skin, which is the most visible organ in the body, and mental diseases. Self-inflicted skin diseases occur due to tension-relieving behavior including scratching, picking, squeezing, pulling, sucking, or biting. Although the condition is characterized by dermatological symptoms, psychological factors and stress can give rise to and exacerbate the symptom of itching and the behavior of scratching and picking (1,2,3).

Neurotic excoriation (psychogenic excoriation, skin picking, or dermatillomania) (NE) is a psychodermatological disease characterized by an irresistible urge to scratch and pick healthy skin, which leads to self-inflicted lesions (4). It is one of the two most common types of self-inflicted dermatitis (3). The condition is more frequently observed in middle-aged individuals and females, where the mean age of onset is between 30 and 40 years (5). Psychosocial stress is associated with an aggravation of symptoms in 30–90% of the patients, and the self-mutilative action continues for up to several hours until pain or bleeding develops. Skin-picking behavior develops as an irresistible urge as a result of psychological tension. It is thought to be a way to maintain emotional balance in individuals with anxiety problems (6). While certain authors classify NE within the spectrum of impulse control disorders, other authors associate it with obsessive-compulsive disorders (3). Koo and Lee (7) classified NE among dermatological diseases of primary psychological/psychiatric genesis, which is responsible for self-induced dermatological disorders. Although not included in the previous manuals, NE was added to Obsessive Compulsive and Related Disorders chapter in DSM-V as a new disorder (8).

Individuals who are subjected to inadequate care, neglect, or abuse during childhood have a risk of self-injury and that traumatic events that occur during this period lead to many psychosomatic and psychodermatological disorders. In cases of childhood neglect or abuse



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and chronic post-traumatic stress disorders that occur because of sexual abuse during childhood, in particular, dermatological lesions due to self-mutilation are commonly observed (9). Although there are various case reports and review articles regarding the influence of traumatic childhood events on NE characterized by self-mutilative behavior, the number of the articles directly focusing on this relationship is limited. The aim of the present study is to observe the psychiatric characteristics of NE patients and to investigate the influence of childhood traumatic events on the disease.

## METHODS

Patients who were diagnosed with NE after an examination by two experienced dermatologists and who were treated and followed-up on an outpatient basis at the Istanbul University Cerrahpaşa Faculty of Medicine, Department of Dermatology and Venereology Clinic between October 2011 and January 2013 were enrolled in our study. Because of the fact that psychiatric treatment may affect anxiety and depression levels, the study only included 38 patients who did not receive any psychiatric treatment (psychopharmacological agents, psychotherapy, electroconvulsive therapy, transcranial magnetic stimulation, etc.) within the past year and who gave consent to join the study. Including the 40 healthy individuals in the control group, the study comprised a total of 78 individuals who understood the study protocol and consented to participate in the study. Informed consent forms were completed and signed by all participants. Patients below the age of 18 or over 65 years, illiterate patients, or those whose mental capacity was inadequate to understand the protocol or to answer the questions in the scales were excluded from the study. The study was approved by the Ethics Committee of Istanbul University Cerrahpaşa Faculty of Medicine.

## Materials

### The Sociodemographic Data Form

This form was specifically designed for this study by the investigators and contains questions on the participants' age, sex, marital status, educational status, and the onset and course of the dermatological disease for the patient group.

**Childhood Trauma Questionnaire-Short Form (CTQ-28):** This tool developed as a 70-item scale by Bernstein (10) in 1994 was reduced to 53 items in 1995. The short form comprising 28 questions was adapted to Turkish by Şar (11) in 1996. The validity and reliability of this 28-question short form was also verified by Şar et al. (11). Through this questionnaire, 5 subscales including sexual abuse (SA), physical abuse (PA), emotional abuse (EA), emotional neglect (EN), and physical neglect (PN) and the weighted average total (WAT) score consisting of their combination can be assessed.

**Beck Anxiety Inventory (BAI):** This is a 21-question self-report inventory investigating the frequency of anxiety symptoms. Higher total points indicate a more severe anxiety. The validity and reliability studies of this scale in our country was confirmed by Ulusoy et al. (12).

**Beck Depression Inventory (BDI):** This is a self-report inventory investigating the risk of depression and assessing the level of the depressive symptoms and the changes in their severity. This 21-question scale measures the physical, emotional, cognitive, and motivational symptoms observed in depression. Higher total points indicate a more severe anxiety. The inventory was developed by Beck et al., and its adaptation and validity and reliability studies for the Turkish population were confirmed by Hisli (13).

### Structured Clinical Interview for DSM IV Axis I Disorders, clinical version (SCID-I):

This is a semi-structured clinical interview scale developed for the diagnosis of major DSM-IV-TR (14) Axis I disorders. The Turkish adaptation and reliability study were performed by Ozkurkcuğil et al. (15,16). SCID-I is used to assess if the first axis diagnosis was present at any time (lifelong prevalence) and the presence or absence of disease symptoms within the last month.

## Statistical Analysis

The statistical analysis was performed using the Statistical Package for the Social Sciences 15 Evaluation version software (SPSS Inc., Chicago, IL, USA). The normality of distribution was checked using the Kolmogorov-Smirnov test. The patient and control groups were compared through the analysis of the values within a normal distribution using a parametric method, i.e., Student's t-test, whereas those outside a normal distribution were analyzed using the non-parametric Mann-Whitney U test. Qualitative data such as sex and marital status were compared using the chi-square test. Statistical significance was based on a value of  $p < .05$ .

## RESULTS

Among the 38 patients who participated in the study, 14 (36.8%) were males, whereas 24 (63.2%) were females. In the control group with 40 healthy individuals, 16 (40%) were males and 24 (60%) were females. The age range in the patient group was between 19 and 64 years, and the mean age was  $40.53 \pm 11.90$  years. In the control group, the age range was between 21 and 51 years, and the mean age was  $37.65 \pm 7.87$  years. In the patient group, 29 patients (76.3%) were married, whereas 9 (23.7%) were single or divorced. In the control group, 29 individuals (72.5%) were married and 11 (27.5%) were single or divorced. When the total duration of education was compared to determine the educational level, the mean duration of education in the patient group was  $9 \pm 3.85$  years, whereas it was  $8.40 \pm 3.03$  years in the control group. In terms of the sociodemographic characteristics, no statistically significant difference in terms of age, sex, marital status, or educational level was observed between both groups ( $p > .05$ ). In the patient group, the mean duration of the disease was  $75.71 \pm 90.58$  months. The shortest duration of the disease was 3 months, whereas the longest duration was 348 months (29 years). When the age of onset of the disease was observed, it was found to range between 10 and 63 years, whereas the mean age of onset was  $34.11 \pm 13.66$  years (Table 1).

In terms of the distribution of the lesions, only 6 patients had lesions in a single area, whereas 32 patients had lesions in more than one area. The lesions were most frequently observed on the legs in 17 patients, on the arms in 14 patients, and on the torso in 13 patients. Moreover, patients had lesions on the knees (4), thighs (2), feet (3), and gluteus (1) in the lower body and on the neck (3), face (1), scalp (5), elbow (3), hand (2), and genitals (2) on the upper body (Table 1). In terms of the duration of the disease, 21 patients (55.3%) had NE for less than 5 years, whereas 17 (44.7%) had the condition for 5 years or longer. The mean age of onset was  $37.36 \pm 14.67$  years in the male patients and  $32.21 \pm 12.97$  years in the female patients. No statistically significant difference was observed between the male and female patients regarding the age of onset ( $p = .26$ ).

When the DSM IV-TR axis I psychiatric comorbidities were investigated, it was observed that 8 patients did not receive any psychiatric diagnoses (21.1%). Among the 30 patients (78.9%) who were diagnosed with comorbid psychiatric disorders, 17 (44.8%) had 1 psychiatric diagnosis, whereas 13 (34.2%) had two psychiatric diagnoses. The most common comorbid diagnoses were major depression in 15 patients (39.5%), anxiety disorders in 8 patients (generalized anxiety disorder+panic disorder-

der+social phobia) (21%), and sexual dysfunctions in 7 patients (18.4%). Four patients (10.5%) were diagnosed with somatization disorders, 2 (5.3%) had dissociative disorders, 2 (5.3%) had obsessive-compulsive disorders, 2 (5.3%) had dysthymic disorder, 1 (2.6%) had bipolar disorder, and 1 (2.6%) had delusional parasitosis (delusional disorder). Among the 15 patients who were diagnosed with major depression, which was the most common comorbid diagnosis, 11 (73.3%) received a second psychiatric diagnosis, and the most common comorbid diagnosis was sexual dysfunction. No patient was diagnosed with alcohol or substance abuse or eating disorders (Table 2).

The mean BDI scores were  $18.63 \pm 12.07$  in the patient group (range: 3–44) and  $8.17 \pm 5.36$  in the control group (range: 0–16) ( $p < .001$ ). The mean BAI score in the patient group was  $18.86 \pm 15.44$  (range: 0–60), whereas it was  $6.07 \pm 5.63$  in the control group (range: 0–17). The BDI and BAI scores were observed to be significantly higher in the patient group compared with those in the control group ( $p < .001$  and  $p < .001$ , respectively) (Table 3).

To determine the influence of disease duration on the depression and anxiety levels, patients with NE who had symptoms for less than 5 years were compared with those whose symptoms continued for 5 years or longer. While no difference was observed between both groups in terms of the anxiety levels, the depression levels were significantly higher in those who had the disorder for 5 years or more ( $p = .98$  and  $p = .028$ , respectively).

In the psychiatric interview, to evaluate the impulsive and compulsive characteristics of the excoriation behavior, the patients were asked to describe what they felt before, during, and after the scratching and picking behavior. Thirty-three patients in the patient group (86.8%) described that the scratching and picking behavior was triggered by an itch or a similar disturbing sensation. They also described that they had difficulty in resisting the urge and felt an increasing tension and that they felt a rather strong pleasure during the scratching and picking behavior and a significant relaxation afterwards. However, 5 patients (13.2%) described that they felt a roughness or blister in the areas they touched and tried to smooth out this area through scratching or picking.

When the CTQ-28 scores were evaluated, the EA, PA, and EN subscale scores and the CTQ-28 WAT scores were found to be significantly higher in the patient group than in the healthy individuals. No statistically significant difference was observed in the SA and PN subscale scores (Table 3).

In the patient group, the relationship between the age of onset of NE and the duration of the disease, the depression and anxiety levels, and the CTQ-28 subscale scores and WAT scores was investigated. While a moderately negative correlation was observed between the age of onset and the anxiety and depression levels, a moderately positive correlation was found between the duration of the disease and the CTQ-28 WAT scores. No other significant correlation was observed. When the relationship between the CTQ-28 subscale scores, WAT scores, and BAI and BDI scores was assessed, a positive correlation was found between the BAI scores, and all the CTQ-28 subscale scores except for the SA subscale and the WAT scores. The BDI scores were also observed to be positively correlated with all the CTQ-28 subscale scores except for the PA and SA subscale and the WAT scores (Table 4).

## DISCUSSION

NE is more prevalent among females and middle-aged individuals, and the

thighs, and upper back. Additionally, in our study, the number of females and middle-aged patients was found to be higher, and the patients' legs, arms, and torso were the areas where majority of the lesions were located (5,17).

In the study by Woodruff et al. (18) conducted on 149 patients who were referred to the department of psychiatry after presenting to the dermatology clinic, depression and anxiety disorders were found to be the most frequently observed psychiatric diagnoses at 44% and 35%, respectively. Griesemer (19) developed a scale focusing on the relationship of dermatological diseases with stress and emotions and found this ratio to be 97% in NE. We also observed at least one Axis I psychiatric comorbidity in 30 out of the 38 patients (78.9%) in the patient group in our study. The most common comorbidity in the patient group was major depression (39.5%), followed by anxiety disorders (21%) and sexual dysfunctions (18.4%).

**Table 1.** Sociodemographic data/NE age of onset and duration of the disease

Sociodemographic data	NE group	Control group	t*/z**/χ <sup>2</sup> ***
Gender, n (%)			
Male	14 (36.8)	16 (40)	p=.77***
Female	24 (63.2)	24 (60)	
Marital status, n (%)			
Married	29 (76.3)	29 (72.5)	p=.70***
Single/divorced	9 (23.7)	11 (27.5)	
Duration of education, (years) (Mean±SD)	9±3.85	8.40±3.03	p=.57**
Age (Mean±SD) (years)	40.53±11.90 (19-64)	37.65±7.87 (21-51)	p=.21*
NE age of onset (years) (Mean±SD)	34.11±13.66 (10-63)		
Duration of disease (months) (Mean±SD)	75.71±90.58 (3-348)		

SD: standard deviation; NE: neurotic excoriation

**Table 2.** Comorbid psychiatric diagnoses

Comorbid psychiatric diagnoses	n=38
Not diagnosed	8 (21.1%)
Major depression	4 (10.5%)
Major depression+somatization disorder	4 (10.5%)
Major depression+sexual dysfunctions (SD)	5 (13.6%)
Major depression+obsessive- compulsive disorder	2 (5.3%)
Panic disorder	3 (7.9%)
Generalized anxiety disorder (GAD)	2 (5.3%)
GAD+SD	2 (5.3%)
Social phobia	1 (2.6%)
Dysthymia	2 (5.3%)
Dissociative disorder	1 (2.6%)
SD	2 (5.3%)
Bipolar disorder	1 (2.6%)
Delusional parasitosis (delusional disorder)	1 (2.6%)

When the BDI and BAI scores were compared between both groups, the anxiety and depression scores were found to be significantly higher in the patient group. Although different ratios have been given, psychiatric comorbidity was the most frequently reported comorbidity in the studies conducted on patients with NE (20). In their study conducted on 57 patients, Snorrason et al. (21) demonstrated that all patients with NE are diagnosed with at least one Axis I condition during their lifetime and that depression and anxiety are the most frequently observed comorbidities. Misery et al. (22) also reported that NE is closely associated with major depression and anxiety disorders.

In various dermatological diseases, emotional status may be the cause or trigger factor of the condition. Besides, a dermatological disease that becomes chronic may also affect the quality of life, and cosmetic problems related to body image may also have an impact on the emotional status, leading to comorbid psychiatric problems (23). Therefore, it is thought that a reciprocal relationship exists between psychodermatological diseases, psychiatric problems, and psychiatric comorbidities. Asri et al. (24) reported a significant relationship between dermatological diseases that turn chronic and the scores on the Hamilton Depression Scale (24). In our study, we compared the depression and anxiety levels of the patients who had NE for 5 years or longer with the NE patients whose symptoms continued for less than 5 years. Although we did not observe any difference

between both groups in terms of the BAI scores, we saw that the BDI scores of the patients who had symptoms for longer than 5 years were significantly higher ( $p=.028$ ). On the other hand, when we focused on the relationship between the age of onset of the disease and the depression and anxiety levels, we observed that both the depression and anxiety scores negatively correlated with the age of onset; i.e., the age of onset was earlier in patients with greater anxiety and depression symptoms. Although the obtained data point out that chronic NE may aggravate the depressive symptoms, the fact that the age of onset in the patients with more severe depression and anxiety symptoms was earlier points to a probable reciprocal effect between NE and psychiatric symptoms.

While certain authors classify NE within the spectrum of obsessive-compulsive disorders, other authors associate it with impulse control disorders (3,22). Arnold has suggested a classification based on compulsive, impulsive, and mixed subtypes. Patients with compulsive behavior usually try to scratch and pick the skin lesions to achieve smooth skin, whereas those with impulsive behavior start the skin-picking action because of a strong impulse and feel satisfied and relaxed afterwards. The mixed type includes the characteristics of both types (25). In our study, when we asked the patients with NE to describe their feelings before, during, and after the itch, we observed that the excoriation behavior was impulsive in the majority (86.8%) and that only a smaller group (13.4%) showed compulsive charac-

**Table 3.** The BDI, BAI, CTQ-28 subscales ve weighted average total (WAT) scores

	<b>NE group (n=38)</b>	<b>Control group (n=40)</b>		
	<b>Mean±SD</b>	<b>Mean±SD</b>	<b>t*/z**</b>	<b>p</b>
BDI scores	18.63±12.07 (3-44)	8.17±5.36 (0-16)	-4.339**	<.001
BDI scores	18.86±15.44 (0-60)	6.07±5.63 (0-17)	-4.212**	<.001
EA subscale scores	8.87±5.06	6.05±1.41	-2.258**	.004
PA subscale scores	7.11±4.34	5.43±1.46	-2.140**	.032
SA subscale scores	5.61±2.03	5.30±1.09	-1.024**	.306
EN subscale scores	17.00±7.56	12.30±5.11	3.228*	.002
PN subscale scores	4.58±2.62	3.95±1.31	-.162**	.872
CTQ-28 WAT scores	8.67±3.59	6.72±1.52	-3.149**	.002

SD: standard deviation; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; CTQ-28: Childhood Trauma Questionnaire-Short Form; EA: emotional abuse; PA: physical abuse; SA: sexual abuse; EN: emotional neglect; PN: physical neglect; WAT: weighted average total

**Table 4.** Correlation between the age of NE onset and duration of disease, and BDI, BAI, CTQ-28 subscales, and weighted average total (WAT) scores

		<b>EA</b>	<b>PA</b>	<b>SA</b>	<b>EN</b>	<b>PN ihmal</b>	<b>CTQ-28 WAT</b>	<b>BDI</b>	<b>BAI</b>
Age of disease	r	-.273	-.159	-.313	-.104	-.292	-.277	-.390	-.420
onset	p	.097	.341	.056	.536	.075	.092	.015	.009
Duration of	r	.093	.062	.273	.257	.204	.330	.276	.264
Disease	p	.577	.713	.097	.119	.219	.043	.093	.109
BDI	r	.418	.297	.189	.378	.479	.478		
	p	.009	.070	.255	.019	.002	.002		
BAI	r	.490	.391	.184	.403	.518	.516		
	p	.002	.015	.270	.012	.001	.001		

NE: emotional neglect; BDI: Beck Depression Inventory; BAI: Beck Anxiety Inventory; CTQ-28: Childhood Trauma Questionnaire-Short Form; EA: emotional abuse; PA: physical abuse; SA: sexual abuse; EN: emotional neglect; PN: physical neglect; WAT: weighted average total

teristics. However, we did not have any patient with mixed characteristics. When we look at Axis I psychiatric diagnoses, we saw that only 2 patients (5.3%) were diagnosed with obsessive-compulsive disorder. Arnold et al. (26) have reported in their study that the excoriation behavior in the NE patients was frequently showing impulsive characteristics. Arzeno Ferrao (27) and Misery (22) also reported that patients with NE in their studies did not show obsessive-compulsive characteristics and that their behavior was rather closely related to impulse control disorders. Although included to "Obsessive Compulsive and Related Disorders" chapter in DSM-V, our results are also in line with studies in literature that associate NE with impulse control disorders. Our results are also in line with the studies in literature that associate NE with impulse control disorders.

Mistreatment during childhood and traumatic events during early life are risk factors for all kinds of psychopathologies (28). Exposure to severe stress during the early stages of life is known to affect the glucocorticoid, noradrenergic, and other response systems triggered by stress, and negative childhood experiences are associated with psychiatric disorders such as depression and substance abuse as well as psychosomatic diseases, including irritable bowel syndrome, chronic fatigue syndrome, and fibromyalgia (29,30). Severe childhood trauma and abuse may lead to inappropriate coping strategies against negative emotions, and tension-relieving behavior (e.g., self-inflicted skin diseases) is associated with these diseases (31). Besides easy access, the skin is also frequently the focus of this tension-relieving behavior because of its role in attachment during early life. Even when self-inflicted, such a lesion on the skin, which is the most visible organ, may become the only way to communicate emotional problems to the world at large, especially in individuals with limited psychological insight and a tendency to somatization, and may be seen as a call for help (32,33,34).

In our study, when we compared the CTQ-28 scores in both groups, we found that the EA, PA, and EN subscale scores and the CTQ-28 WAT scores were significantly higher in the patient group. However, we did not observe any statistically significant difference in the SA and PN subscale scores.

In the study by Misery et al. (22) where they aimed to establish diagnostic criteria based on their observations with 10 NE patients, majority of the patients were found to have personal problems before NE started, and 4 patients described abuse during childhood and adolescence.

The high EA, PA, and EN subscale scores and the CTQ-28 WAT scores observed in the patient group point out that a major portion of the patients with NE were subjected to traumatic events during childhood. Therefore, we believe that traumatic events during childhood play an important role in the occurrence of the self-infliction through scratching and picking observed in NE patients and that this may serve as an unconscious call for help because these patients cannot cope with their emotional problems.

An important link was reported between sexual abuse during childhood and self-injurious behavior. Psychodermatology patients frequently have a history of childhood sexual abuse; however, this history can only be obtained during psychiatric consultation or after long-term psychotherapy (9,35). Thus, because of the lack of an adequate therapeutic bond as the study design did not allow for repeated interviews and the fact that CTQ-28 is a self-report scale, we believe that a portion of the patients who participated in our study neglected to report the sexual trauma during their childhood.

Because our literature scan did not yield any other study directly focusing

on traumatic events during the childhood of the patients with NE other than case reports and review articles, we were unable to compare our results with those of other studies. However, there are some studies reporting that traumatic events during childhood are associated with dermatological diseases other than NE that are characterized by self-infliction. In the study by Lochner et al. (36) where they investigated the traumatic childhood events in patients with trichotillomania, which is also a psychodermatological disease characterized by self-infliction, the CTQ-28 WAT scores and the EN and PA scores in the subscales were reported to be significantly higher in the trichotillomania group. In the study by Willemssen et al. (30) conducted on 90 alopecia areata patients, emotional neglect and abuse during childhood were more frequently observed in this patient group than in healthy individuals.

When we observe the relationship of the CTQ-28 WAT scores and subscale scores with the duration of the disease and the age of onset, we detected a moderately positive correlation between the WAT scores and the duration of the disease. This relationship points to the possibility that traumatic events provide basis for chronicity in NE.

Our results also showed that the CTQ-28 WAT scores and the subscale scores in the patient group positively correlated with the levels of anxiety and depression. These results also point out that the traumatic events during childhood may play an important role in the etiology of both NE and the comorbid psychiatric problems. Snorrason reported that treating psychiatric conditions such as depression and anxiety observed in NE does not lead to a significant improvement in the NE symptoms (37). In this respect, when Snorrason's results and the data we obtained from our study are combined together, the traumatic events during childhood seem to play a more important role than the comorbid psychiatric conditions during course of NE.

Our results showed that dermatologists and psychiatrists should definitely investigate the traumatic events of the patients with NE. Thus, patients will be given a chance to talk about these events and start psychotherapy, which is known to be efficient in the treatment of psychodermatological conditions (9,22). Fruensgaard underlined the two most important factors in the treatment of the disease as early presentation and psychotherapeutic/psychosocial interventions (4). We are of the opinion that in suitable patients, psychotherapeutic interventions may lead to better results in the treatment of NE.

The first limitation of our study was the relatively small number of the patients; however, because this issue has not been thoroughly researched yet, we are of the opinion that this limitation does not reduce the importance of the study. We also think that the patient group comprising patients who did not receive any psychiatric treatment within the year preceding the study led to more valuable results in terms of the frequency of the psychiatric comorbidities and the relationship of the age of onset and duration of the disease with the anxiety and depression levels. Another limitation of the study is that the influence of the existing psychiatric comorbidities, anxiety and depression levels, and traumatic childhood events on the course of the disease was not investigated because of the cross-sectional design of the study and that the history of sexual abuse remained unreported in certain patients due to the single assessment interview conducted with them. A third limitation is the absence of a scale to measure the severity of NE with confirmed validity and reliability in the Turkish population, which prevented the investigation of the relationship between the severity of the disease and the existing psychiatric comorbidities, anxiety and depression levels, and most importantly, the traumatic events during childhood.

In conclusion, the importance of psychological and psychiatric factors has been reported in various dermatological conditions. NE has also been

classified among the psychodermatological diseases of psychiatric origin. However, the studies conducted on the etiology and comorbid psychological conditions are limited in number, which renders the understanding of the etiological origins of the disease and the accuracy of psychiatric interventions difficult. Our results demonstrate that NE and the accompanying psychiatric problems are closely associated with the traumatic events during childhood. We are of the opinion that early intervention by dermatologists and psychiatrists and a detailed investigation of the traumatic events, in particular, through a therapeutic collaboration with the patient, and using psychotherapeutic interventions when necessary may lead to better outcomes in the treatment of patients with NE.

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