



Childhood trauma and emotion regulation in psoriasis

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Abstract

Aim: The present study aimed to determine if there is any relationship between childhood traumas, emotion regulation, depression, and anxiety with psoriasis severity; it also attempted to find out whether these factors affect the development of psoriasis.

Materials and Methods: This study enrolled 100 patients with psoriasis aged 18-65 years and 100 healthy volunteers free of any form of psychiatric treatment, active psychiatric symptoms, and dermatological diseases. Sociodemographic Data Form, Childhood Traumas Scale (CTS), Difficulties in Emotion Regulation Scale (DERS), Hamilton Anxiety Scale (HAM-A), and Hamilton Depression Scale (HAM-D) were filled by the study subjects.

Results: The patients and controls were compared with respect to HAM-D, HAM-A, CTS, and DERS scales. The patients had higher HAM-D, HAM-A, CTS Physical abuse, CTS Physical neglect, CTS Emotional neglect, CTS Sexual abuse, CTS Total, DERS Clarity, DERS Impulse scores than the controls (Table 2) ($p < 0.001$, $p = 0.011$, $p = 0.021$, $p = 0.005$, $p < 0.001$, $p = 0.045$, $p < 0.001$, $p < 0.001$, respectively).

Conclusion: Psoriasis should be treated in collaboration of dermatology, psychiatry, immunology, rheumatology, and even medical pharmacology departments.



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Introduction

Skin is a marker of health conditions, emotions and attitudes, self-image, and self-esteem; therefore, it plays an important role in an individual's socialisation. Thus, dermatological conditions negatively impact a person's skin and overall health, giving birth to social and emotional difficulties [1]. Psoriasis is a long-standing dermatological disease, the hallmarks of inflammation and overproliferation. Its lesions are typically skin plaques that are symmetrical and localized and appear with erythema, scales, and radiance [2]. Although previous studies on the disease were based on the fact that it originates from epidermal keratinocytes, new data show that the immune system is very important in its development [3,4]. An additional psychiatric comorbidity was detected in approximately one-third of the patients who applied to dermatology outpatient clinics. Depression, anxiety, Obsessive Compulsive Disorder (OCD), social phobia, somatization disorder, eating disorders, and schizophrenia are reportedly the most common psychiatric disorders coexisting with psoriasis [5].

The etiopathogenesis of psoriasis, which is a psychosomatic disease, is multifactorial. Although stress is involved in its etiology, it is a factor that can cause relapse and increase its severity. It also contributes to social isolation, stigmatization, and deterioration of body image, decreased functionality, decreased anxiety and depression, and progresses in a vicious cycle because the lesions are clear and visible, and society's misconceptions about the disease are that the disease is contagious [6]. Patients with psoriasis suffer moderate-to-severe depression and anxiety during disease exacerbation, remission periods, and when arthritis is developed [7]. Childhood neglect and abuse, as negative and positive life events, are also effective [8].

A traumatic life history, such as neglect and abuse, is one of the adverse childhood experiences detected more than in the average population of psoriasis patients. In their study, Simonić et al. showed that negative experiences in childhood are more common in psoriasis patients in all developmental stages. The most common contributing factors are sexual abuse, emotional abuse, physical abuse, and neglect; depression reportedly coexists with the disease frequently [9]. In a systematic review and meta-analysis, the link between emotional childhood trauma and depression was studied by Norman et al. Others have shown that

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emotional child abuse is more relevant to major depression later in adulthood than other childhood abuse types [10]. When the literature was reviewed, it was found that psoriasis patients have difficulties in defining and distinguishing emotions, avoiding their emotions because they have difficulty coping with the disease, and limiting their experiences and emotions [11]. Patients with difficulties of emotion regulation try to regulate their emotions by using the emotional suppression mechanism. By this way, emotional responses are not expressed. This strategy is more commonly used by patients with depression [12]. It was shown that people with emotional regulation difficulties have high anxiety sensitivity, which may cause depression [13]. Reiss reported that patients with psoriasis have a higher incidence of anxiety sensitivity, also known as the sense of fear of anxiety symptoms, than the general public [14]. Anxiety sensitivity increases even more in patients with long-term exposure to the disease and high disease severity. Psychological resilience was low in psoriasis patients, considered a defence and protective factor for chronic diseases playing important roles in preventing diseases and improving health. As the severity of the disease increased, psychological resilience decreased further [15].

We aimed to determine the correlation between psoriasis severity and childhood traumas, emotion regulation, depression, and anxiety, as well as these factors impact the development of psoriasis.

Materials and Methods

Sample

This study enrolled patients with psoriasis who attended follow-up visits in the Dermatology Department of a university hospital. There were 100 patients with psoriasis aged 18-65 years, free of mental retardation, neurologic disease, or any active comorbidity. Patients with cognitive disabilities precluding communicative skills as well as patients with psychiatric or medical conditions contradicting study aims were not enrolled. The Control Group consisted of 100 healthy volunteers with no history of psychiatric treatment, active psychiatric complaints or dermatological disorders. Among patients diagnosed with psoriasis at the Dermatology Outpatient Clinic, those who fulfilled the inclusion criteria were randomized into the patient group. Healthy subjects without dermatological disease who fulfilled the inclusion criteria were randomly enrolled in the control group. The patients received standard evaluation and treatment from the expert dermatologist and were verbally informed about the study's aim and protocol. DSM-5 Diagnostic Criteria was used for a semi-structured psychiatric interview, and the Socio-demographic Data Form was filled by both groups with the help of the psychiatrist. The psychiatrist provided the patients with information about psoriasis, risk factors, the relationship of psoriasis with psychiatric status, and the aim and protocol of the study. Patients who agreed to participate in the study by providing the written informed consent form were included. The Scientific Research and Publication Ethics Committee of Inonu University approved the study (approval number: 2021/2040).

Sample size

Sample size; 200 (100 in each group) were found using the G*power 3.1 program, with an effect size of 0.467, an error rate of 0.05, a confidence level of 0.95, and a power of 0.95 [16].

Data collection tools

Socio-Demographic Information Form

The patients were questioned about their age, sex, marital status, height, weight, educational status, number of children they have, employment status, comorbidities, previous or current psychiatric disease, and smoking/alcohol/substance abuse. At the same time, the dermatologist used a 22-item semi-structured questionnaire with added questions about PASI score, psoriasis subtypes, site of active lesions, disease duration, and the status of joint involvement.

Psoriasis Area Severity Index (PASI)

PASI was developed by Fredriksson et al. in 1978 and is a widely used scale in the follow-up of the disease and in examining the response to the treatment [17]. Psoriatic skin lesions are evaluated in the index regarding erythema, desquamation and infiltration. The PASI is a measurement tool that examines all lesions in the body in all their anatomical localizations, with scores ranging from 0-4 according to severity, and grades the percentages of involvement of the localizations [18,19].

Childhood Traumas Scale (CTS)

Childhood Traumas Scale is a self-assessment scale developed by Bernstein et al. to examine abuse in childhood and adolescence [20]. Whereas it originally included 53 items, it was reduced to 28 items by Bernstein et al. It involves five sub-dimensions [21]. Its Cronbach's Alpha Internal Consistency Coefficients were reported to be 0.64 - 0.87 [22].

Difficulties in Emotion Regulation Scale (DERS)

This scale aims to rate difficulties in emotion regulation; its initial form was a self-report scale of 36 items developed by Gratz and Roemer in 2004 [23]. Its revised form was developed by Rugancı and Gençöz in 2010 and is still used. It has an internal consistency reliability coefficient of 0.94, with its subscales having corresponding figures ranging from 0.75 to 0.90 [24].

Hamilton Anxiety Scale (HAM-A)

Devised by Hamilton in 1959, this scale can rate anxiety levels, determine the spectrum of symptoms, and monitor symptom severity over time. Its items are scored 0-4 points to yield the total score. It was adapted to the Turkish language by Yazici et al. (1998), who also tested its validity and reliability in Turkish and found that it has a Cronbach alpha value of 0.94 and a Spearman-Brown reliability coefficient of 0.67 $p < 0.01$ [25].

Hamilton Depression Scale (HAM-D)

Devised by Hamilton M. and structured by Williams B. W. (1978), this scale included 17 questions. Administered by a clinician, its primary objective is to indicate depression level and change the severity of symptoms of depression over time [26]. In 1996, it was adapted to Turkish and its validity-reliability was tested by Akdemir et al. The Version in the Turkish language correlates 0.85, a Cronbach alpha value of 0.75, and a Spearman-Brown reliability coefficient of 0.76, while Inter-rater reliability coefficients range from 0.87 to 0.98 [27].

Statistical analysis

Study data were analyzed with the SPSS version 17.0 software package. The normality of data was tested with Histogram Graphics and Kolmogorov-Smirnov Test. Since normal distribution and homogeneity could not be achieved, the analysis continued with non-parametric test methods. Pearson Chi-Square test was used to compare categorical values, the Mann-Whitney U Test to compare variables with non-normal distribution between paired groups, and the Kruskal Wallis Test to compare more than two groups. The analysis of data comparison was carried out with the Spearman Correlation Test. Factors affecting the HAM-D and HAM-A scores were sought using Linear Regression Analysis. Binary Logistic Regression Analysis was employed to determine the effect of the scales on the risk of psoriasis development. Statistical significance was set at $p < 0.005$.

Results

This study enrolled 200 subjects (100 (50%) patients and 100 (50%) healthy individuals) in total. There were 60 women and 40 men in the patient group and 54 women and 46 men in the control group. The mean age was 39.78 ± 13.40 for the patient group and 33.38 ± 11.11 for the control group. The Patient Group and the Control Group significantly differed about age, marital status, educational status, and joint involvement ($p < 0.001$, $p < 0.001$, $p < 0.001$, $p < 0.001$, $p < 0.001$, respectively); the two groups were similar in terms of gender, place of residence, job, and chronic disease, ($p: 0.391$, $p: 0.008$, $p: 0.064$, $p: 0.220$, $p: 0.043$, respectively) (Table 1).

The patient group was found to have higher HAM-D, HAM-A, CTS Physical abuse, CTS Physical neglect, CTS Emotional neglect, CTS Sexual abuse, CTS Total, DERS Clarity, DERS Impulse scores than the control group (Table 2) ($p < 0.001$, $p: 0.011$, $p: 0.021$, $p: 0.005$, $p < 0.001$, $p: 0.045$, $p < 0.001$, $p < 0.001$, respectively).

Table 3 demonstrates the correlation between the PASI score and time from the diagnosis of psoriasis, the HAM-D, CTS, and DERS scales. PASI score was significantly correlated to HAM-D, HAM-A, CTS Emotional abuse, CTS Physical abuse, CTS Physical neglect, CTS Emotional neglect, CTS Sexual abuse, CTS Total, DERS Clarity, DERS Impulse, and DERS Strategies scores ($p < 0.001$, $p: 0.003$, $p: 0.013$, $p: 0.002$, $p: 0.001$, $p < 0.001$, $p: 0.002$, $p < 0.001$, $p < 0.001$, $p < 0.001$, $p: 0.049$, respectively).

Time from the first diagnosis of psoriasis was also significantly correlated to the HAM-D, HAM-A, CTS Physical

abuse, CTS Physical neglect, CTS Emotional neglect, CTS Total, DERS Clarity, DERS Impulse, and DERS Strategies scores ($p < 0.001$, $p: 0.007$, $p: 0.005$, $p: 0.026$, $p < 0.001$, $p < 0.001$, $p < 0.001$, $p: 0.001$, $p: 0.039$, respectively).

A comparison of the joint involvement and HAM-D, HAM-A, CTS, and DERS scales revealed that patients with the joint participation had significantly higher PASI, HAM-D, HAM-A, CTS Emotional abuse, CTS Physical abuse, CTS Physical neglect, CTS Emotional neglect, CTS Sexual abuse, CTS Total, DERS Clarity, DERS Refusal, DERS Impulse, and DERS Strategies subscale scores than patients without joint involvement (Table 4) ($p < 0.001$, $p: 0.001$, $p: 0.003$, $p: 0.018$, $p: 0.012$, $p < 0.001$, $p: 0.001$, $p < 0.001$, $p: 0.033$, $p < 0.001$, $p: 0.002$, $p: 0.013$, respectively).

Table 5 compares patients with mild psoriasis with a PASI score < 10 vs. severe psoriasis with a PASI score ≥ 10 points concerning HAM-D, HAM-A, CTS, and DERS scales.

The patients who had severe psoriasis HAM-D (mean ± 9.78), HAM-A (mean ± 12.65), CTS Emotional abuse (mean ± 9.48), CTS Physical abuse (mean ± 8.09), CTS Physical neglect (mean ± 9.13), CTS Emotional neglect (mean ± 13.57), CTS Sexual abuse (mean ± 6.43), CTS Total (mean ± 46.70), DERS Clarity (mean ± 16.7), DERS Impulse (mean ± 14.13) scores were higher than the patient group with mild psoriasis.

Discussion

Psoriasis is a systemic disease characterized by immune-mediated inflammation, which is accompanied by a variety of disorders. As a psychosomatic disease, it was repeatedly reported to be induced by psychological factors; however, this subject needs further research. Herein, we aimed to compare 100 patients with psoriasis and healthy controls with respect to depression, anxiety, emotion regulation, and childhood traumas.

There was a significant difference between the two groups regarding mean age (39.78 ± 13.40 years vs 33.38 ± 11.11 years). Whereas psoriasis affects all age groups, two age ranges have been reported to be most involved, 15-20 years and 55-60 years.

The percentage of females was 57% and the males 43%. Although there are slight differences in studies, psoriasis is detected equally in both genders [4]. When the education levels were examined, it was found that the literate population was mostly included in the study, those with high school-university graduates constituted 43.5%, those with high school constituted 31%, primary education-literate constituted 22.5%, and illiterate constituted 3%. Mahé et al. (2017) reported an inverse relationship between educational level and psoriasis severity, with the disease becoming more severe in patients with lower academic levels [28]. Involvement of joints modifies disease course and severity, and our study found that it affected 21% of patients with psoriasis. Previous studies reported 6% to 42% rates of inflammatory arthritis of psoriasis [29].

In investigations on PASI, one of the robust measures for rating the severity of psoriasis, contradictory results have been obtained. Tekin et al. found the mean disease severity in 275 psoriasis patients to be 6.5, and Akolu's median

Table 1. The sociodemographic data of the patient group and control group.

		Patient		Control		p**
		n	%	n	%	
Gender	Female	60	(60.00)	54	(54.00)	0.391
	Male	40	(40.00)	46	(46.00)	
Marital status	Married	73	(73.00)	47	(47.00)	<0.001
	Single	17	(17.00)	46	(46.00)	
	Divorced	8	(8.00)	4	(4.00)	
	Lives apart from spouse	1	(1.00)	2	(2.00)	
	Widow	1	(1.00)	1	(1.00)	
Education level	Primary school	35	(35.00)	3	(3.00)	<0.001
	High school	30	(30.00)	32	(32.00)	
	College-university	25	(25.00)	62	(62.00)	
	Illiterate	5	(5.00)	1	(1.00)	
	Literate	5	(5.00)	2	(2.00)	
Residence	Village	8	(8.00)	0	(.00)	0.008
	Town	7	(7.00)	4	(4.00)	
	City	83	(83.00)	96	(96.00)	
	Other	2	(2.00)	0	(.00)	
Work	Yes	49	(49.00)	62	(62.00)	0.064
	No	51	(51.00)	38	(38.00)	
Chronic disease	Yes	24	(24.00)	17	(17.00)	0.220
	No	76	(76.00)	83	(83.00)	
Joint involvement	Yes	42	(42.00)	0	(.00)	<0.001
	No	58	(58.00)	100	(100.00)	

**Pearson Chi-Square, Fisher’s Exact, or Fisher Freeman Halton tests were used.

Table 2. Comparison of HAM-A, HAM-D, ADI-3, CTS, DERS, and CD-RISC scale scores of the Patient and Control Groups.

	Patient		Healthy		p*
	Mean ± SD	Median (Q1-Q3)	Mean ± SD	Median (Q1-Q3)	
HAM-D	5.83 ± 7.7	3.5(0-8)	1.8 ± 3.98	0(0-2.75)	<0.001
HAM-A	9.06 ± 11.39	5(0-14)	4.59 ± 6.84	2(0-7)	0.011
CTS Emotional abuse	7.55 ± 4.28	5(5-8.75)	6.06 ± 1.9	5(5-6)	0.207
CTS Physical abuse	6.51 ± 3.89	5(5-5)	5.21 ± 0.66	5(5-5)	0.021
CTS Physical neglect	7.87 ± 3.22	7(5-10)	6.44 ± 1.99	6(5-7)	0.005
CTS Emotional neglect	11.97 ± 5.22	11(8-15.75)	8.81 ± 3.31	8(6-11)	<0.001
CTS Sexual abuse	5.7 ± 2.46	5(5-5)	5.12 ± 0.54	5(5-5)	0.045
CTS Total	39.6 ± 14.73	34(30-45)	31.64 ± 6.6	30(27-34)	<0.001
DERS Awareness	20.91 ± 4.87	205(17-24)	20.57 ± 3.35	21(18-23)	0.959
DERS Clarity	14.03 ± 2.04	14(13-15)	12.97 ± 1.37	13(12-13.75)	<0.001
DERS denial	13.12 ± 6.03	11(9-17)	11.18 ± 3.95	11(8-12)	0.101
DERS Impulse	14.39 ± 4.77	13(10-18)	12.19 ± 2.72	11(10-13)	0.001
DERS Objectives	14.28 ± 3.71	13.5(11.25-17)	13.77 ± 3.14	13(11-16)	0.425
DERS Strategies	18.53 ± 7.05	16(14-22)	16.24 ± 4.34	15(14-18)	0.046

*Mann-Whitney U test was used.

PASI score in 203 psoriasis patients to be 3.6 [30, 31]. In our study, the median PASI score was found to be 6.1.

When the literature was reviewed, the association of psoriasis with mental diseases was investigated by clinicians for a long time. Previous studies reported that the prevalence of psychiatric comorbidity varies between 10% and

90%. It was determined that stress plays important role in the emergence, exacerbation, and frequency of attacks of psoriasis, which is considered a psychosomatic disease, and depression and anxiety levels are seen at high rates in psoriasis patients [32].

The HAM-D scale was used to evaluate depression as one

Table 3. The Relationship between PASI, psoriasis disease duration (years), treatment duration (years), age, and HAM, CTS, DERS scale scores.

		PASI	Psoriasis duration (years)
HAM-D	r	0.324	0.334
	p	<0.001	<0.001
HAM-A	r	0.209	0.190
	p	0.003	0.007
CTS Emotional abuse	r	0.175	0.100
	p	0.013	0.159
CTS Physical abuse	r	0.219	0.197
	p	0.002	0.005
CTS Physical neglect	r	0.231	0.157
	p	0.001	0.026
CTS Emotional neglect	r	0.344	0.321
	p	<0.001	<0.001
CTS Sexual abuse	r	0.219	0.134
	p	0.002	0.059
CTS Total	r	0.353	0.309
	p	<0.001	<0.001
DERS Awareness	r	-0.042	-0.014
	p	0.558	0.842
DERS Clarity	r	0.313	0.354
	p	<0.001	<0.001
DERS denial	r	0.134	0.104
	p	0.059	0.141
DERS Impulse	r	0.246	0.242
	p	<0.001	0.001
DERS Objectives	r	0.110	0.068
	p	0.122	0.339
DERS Strategies	r	0.140	0.146
	p	0.049	0.039

*Prepared by using Spearman's RHO correlation coefficient.

of the common comorbidities in psoriasis patients in our study, and a strong, same-sided relationship was detected between the HAM-D score and PASI ($p < 0.001$). This association between psoriasis severity and depression may be the result of a common cause such as inflammatory cytokines, which are claimed to be involved in the etiopathogenesis of depression, as well as non-specific stress (e.g., the coping capacity, negative perceptions of body image, stigmatized thoughts, feelings of shame, or having a chronic recurrent illness of individuals) [33]. Patients with depression diagnosed with psoriasis generally cannot adapt to social life. A literature review indicated that the results of studies looking into the association between psoriasis disease severity and depressed symptom severity are conflicting, and studies reveal that depression is common in psoriasis patients. In a study, psoriasis symptom severity and depression levels were compared and it was reported that there was no strong relationship between them [34]. In another study, no correlation was detected between the

severity of psoriasis and depression symptoms [35]. These differences in studies might have occurred because of other factors that affect the levels of depressive symptoms, such as age distribution, gender, and social support.

Highly morbid psoriasis cases cause an elevated anxiety level. Additionally, anxiety is reportedly more common in psoriasis than other dermatological conditions [36]. Although anxiety symptoms are detected at high rates, up to 8.8% in psoriasis patients, GAD and OCD are seen more frequently and specifically. We found a higher HAM-A total score in the patient group than in the control group. Patients with psoriasis had a positive correlation between the HAM-A total score ($p = 0.003$) and the PASI score. As expected, patients with a history of early diagnosis and long-term treatment had higher HAM-A scores. Likewise, Kösger et al. (2014) reported that disease severity was strongly correlated to Hamilton Anxiety Scale and the severity of psoriasis [33].

Early-life emotional and psychological stresses are thought to be triggers and exacerbations of psoriasis, a chronic inflammatory disease with genetic components [37]. Recent research reveals that patients with traumatic childhood experiences may be more prone to developing depression, which increases their risk of developing psoriasis. According to the view of Simoni et al., psoriasis represents a physical reflection of traumatic events occurring in childhood in patients who also have a genetic tendency for the disease; nevertheless, studies investigating the impact of childhood traumas on psoriasis have been very recently begun, and additional research is needed [38].

Our study showed that the CTS total score and emotional neglect subscale score were more important in the patient group than the healthy control group. Close to a third of patients with psoriasis develop the disease approximately at the age of 15 years, with patients having negative childhood experiences during late childhood and adolescence and emotional immaturity having a tendency to contract the disease at an earlier stage of life [9, 39]. As Erfanian et al. (2018) indicated greater emotional, physical, sexual abuse with added emotional neglect worsens psoriasis; furthermore, patients with psoriasis who suffered major depression had more aggressive childhood trauma subtypes [40]. Although not many studies are conducted on the etiopathogenesis and triggering risk factors of childhood traumas, which have an important place in psoriasis, the existence of data confirming this possibility shows the importance of childhood traumas.

Psychological stress has negative effects on psoriasis, which is difficult to interrupt, self-perpetuating, and causing a vicious circle. Emotional reactivity and emotion regulation become particularly important in such a mechanism [41]. Emotional regulation involves awareness, understanding, and acceptance of emotions [42]. More importantly, how emotions are experienced and regulated strictly depends on distinguishing them from other bodily sensations, so a deficiency in such areas can deteriorate the affective experience of psoriasis patients [41].

Patients with psoriasis had significantly higher DERS clarity subscale scores ($p < 0.001$) and impulse control subscale scores ($p = 0.001$) than the controls. PASI score of the "Clarity" subscale, which is defined as the lack of under-

Table 4. The comparison of joint involvement and PASI, HAM, CTS, DERS scale scores.

	Joint involvement				p*
	Yes		Yes		
	Mean ± SD	Median (Q1-Q3)	Mean ± SD	Median (Q1-Q3)	
HAM-D	7.69 ± 8.81	5(0-11.25)	2.78 ± 5.21	0(0-4)	<0.001
HAM-A	12.26 ± 12.37	8(0-21)	5.38 ± 8.23	2(0-8)	0.001
CTS Emotional abuse	8.76 ± 4.81	6.5(5-13)	6.28 ± 2.68	5(5-6.25)	0.003
CTS Physical abuse	7.17 ± 4.69	5(5-6)	5.51 ± 2.01	5(5-5)	0.018
CTS Physical neglect	8.38 ± 3.18	9(5-11)	6.83 ± 2.55	6(5-8)	0.012
CTS Emotional neglect	13.71 ± 5.71	13.5(9-17.25)	9.51 ± 3.87	9(7-11.25)	<0.001
CTS Sexual abuse	6.38 ± 3.57	5(5-5)	5.15 ± 0.68	5(5-5)	0.001
CTS Total	44.4 ± 16.27	39.5(32-51.75)	33.28 ± 9.45	31(27.75-35)	<0.001
DERS Awareness	20.4 ± 5.48	20(16-25.25)	20.83 ± 3.77	21(18-23.25)	0.316
DERS Clarity	13.93 ± 2.21	14(13-15)	13.39 ± 1.68	13(12-14)	0.033
DERS denial	15.17 ± 6.11	14.5(9.75-21)	11.35 ± 4.59	11(8-12)	<0.001
DERS Impulse	15.07 ± 4.9	14(10.75-19.25)	12.82 ± 3.63	11(10-14)	0.002
DERS Objectives	14.67 ± 3.77	15(12-17)	13.85 ± 3.34	13(11-16)	0.173
DERS Strategies	19.93 ± 8.13	17.5(14-23)	16.71 ± 5.05	15(14-18)	0.013

*Mann-Whitney U test was used.

Table 5. The comparison of mild and severe psoriasis groups and HAM,CTS, DERS scale scores.

	PASI group				p*
	<10 points		<10 points		
	Mean ± SD	Median (Q1-Q3)	Mean ± SD	Median (Q1-Q3)	
HAM-D	3.04 ± 5.26	0(0-4)	9.78 ± 10.57	6(1-14)	<0.001
HAM-A	6.07 ± 8.72	2(0-9)	12.65 ± 13.83	10(0-21)	0.016
CTS Emotional abuse	6.46 ± 2.9	5(5-7)	9.48 ± 5.3	7(5-14)	0.003
CTS Physical abuse	5.57 ± 2.17	5(5-5)	8.09 ± 5.51	5(5-8)	<0.001
CTS Physical neglect	6.9 ± 2.51	6(5-8.5)	9.13 ± 3.75	9(5-11)	0.004
CTS Emotional neglect	9.98 ± 4.37	9(7-12)	13.57 ± 5.43	11(9-19)	0.002
CTS Sexual abuse	5.28 ± 1.46	5(5-5)	6.43 ± 3.31	5(5-5)	0.017
CTS Total	34.18 ± 10.07	31(28-37.5)	46.7 ± 19	37(33-64)	<0.001
DERS Awareness	20.84 ± 4.01	21(18-24)	19.96 ± 5.32	20(15-24)	0.184
DERS Clarity	13.37 ± 1.69	13(12-14)	14.52 ± 2.33	14(13-17)	0.004
DERS denial	11.8 ± 4.82	11(8-14)	14.83 ± 6.88	15(8-22)	0.079
DERS Impulse	12.85 ± 3.64	12(10-14)	16.7 ± 5.19	17(11-22)	0.003
DERS Objectives	13.85 ± 3.3	13(11-16)	15.39 ± 4.21	16(12-19)	0.089
DERS Strategies	17.07 ± 5.66	15(14-19)	19.83 ± 7.59	18(13-27)	0.19

*Mann-Whitney U test was used.

standing of emotional reactions in DERS, how long the disease was ongoing, and how long the treatment was received ($p < 0.001$), was significantly correlated. The subscale of “Impulse Control”, which is defined as difficulty in impulse control when negative emotions are felt, had a significant correlation to PASI score ($p < 0.001$). The literature review showed that patients had difficulty describing emotions and distinguishing between emotions and bodily sensations. Our study also indicated that psoriasis patients exhibited more severe negative emotional reactions towards social self-protection than the Control Group [11]. Almeida et al. reported that subjects with greater difficulty in emotional regulation had higher disease severity ($p < 0.05$) and disability perception ($p < 0.05$), and their functionality was more impaired. They also reported that

impulse control was the strongest predictor of disability in psoriasis [42].

Limitations

Our study had some limitations. As a first limitation, the PASI score, which gauges the severity of psoriatic symptoms, may yield varying results between two physicians or even between two occasions when performed by the same physician. As a second limitation, the subjects in the control group may have had difficulty focusing when being questioned according to the scales, thus exhibiting frank emotions because of a high number and length of the scales used in the study. Finally, some questions in the Childhood Traumatic Experiences scale, which was applied to the participants, may need help remembering, which may

have caused them to answer incorrectly.

Conclusion

Mental factors have an important place in psoriasis, which is a psychosomatic disease. Psychiatric diseases and stress worsen patients' quality of life by exacerbating and affecting the disease course. Separating physical, chemical, and biochemical parameters from mental mechanisms will cause additional comorbidities of the disorders to be missed and treatments to be left unfinished, especially in psychosomatic diseases. For this reason, it is essential to perform the therapy together with dermatology, psychiatry, immunology, rheumatology, and even medical pharmacology departments to treat psoriasis.

Ethical approval

Ethical approval was received for this study from Inonu University Health Sciences Non-Interventional Clinical Research Ethics Committee (approval number: 2021/2040).

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