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RESEARCH

Mediatory effect of alexythymia on the relationship between cyberchondria and somatosensory amplification in psoriasis patients

Psoriasis hastalarında siberkondri ve somatosensoriyel amplifikasyon arasındaki ilişkide aleksitiminin aracı etkisi

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Abstract

Purpose: We hypothesized that the level of cyberchondria may be related to exaggeration of bodily sensations in patients diagnosed with psoriasis and that the level of alexithymia may have a mediating effect on this relationship.

Materials and Methods: Our research sample consists of 101 patients diagnosed with Psoriasis and 89 healthy controls. Psoriasis Area and Severity Index (PASI) was applied to patients diagnosed with psoriasis. All participants completed the Sociodemographic Data Form, Cyberchondria Severity Scale (CCS), Toronto Alexithymia Scale (TAS), Beck Depression Inventory (BDI), Beck AnxietyInventory (BAI) and Somatosensory Amplification Scale (SSAS).

Results: SCÖ F1, F2 subscale and total scores in the control group; f5 scores were statistically significantly higher in the psoriasis group. SSAS total scores in the psoriasis group were statistically significantly higher than in the control group. A significant, positive and low level correlation was found between PASI and SCS f1, BD and ssas scores in psoriasis patients. There is a significant, positive and significant difference between PASI and BA scores. A moderate correlation was found. The mediating effect of alexithymia in the relationship between cyberchondria and exaggeration of bodily sensations. In the mediation analysis examined, alexithymia was found to be a partial mediator. Both the direct and indirect (mediating effect) effects of cyberchondria on alexithymia are significant.

Conclusion: Alexithymia has a mediating effect on the relationship between cyberchondria and exaggeration of bodily sensations in patients with psoriasis. In clinical

Öz

Amaç: Psöriazis tanılı hastalarda siberkondri düzeyinin bedensel duyumları abartma ile ilişkili olabileceğini ve aleksitimi düzeyinin de bu ilişkiye aracı etkide bulunabileceğini varsaydık.

Gereç ve Yöntem: Araştırmamız örneklemi Psoriasis tanılı 101 hasta ve, 89 sağlıklı kontrolden oluşmakatadır. Psoriasis tanılı hastalar Psöriazis Alan ve Şiddet İndeksi (PASİ) uygulanmıştır. Tüm katılımcılara Sosyodemografik Veri Formu, Siberkondri Ciddiyet Ölçeği (SCÖ), Toronto Aleksitimi Ölçeği (TAÖ), Beck Depresyon Ölçeği (BD), Beck Anksiyete Ölçeği (BA) ve Bedensel Duyumları Abartma Ölçeği (BDAÖ) doldurulmuştur.

Bulgular: SCÖ F1, F2 alt boyutu ve toplam puanları kontrol grubunda; f5 puanları psöriyazis grubunda istatistiksel açıdan anlamlı olarak daha yüksekti. Psöriyazis grubunda SSAS toplam puanları, kontrol grubuna göre, istatistiksel açıdan anlamlı olarak daha yüksekti. Psöriyazis hastalarında PASİ ile SCÖ f1, BD ve SSAS puanları arasında anlamlı, pozitif yönde ve düşük düzeyde korelasyon bulundu. PASİ ile BA puanları arasında ise anlamlı, pozitif yönde ve orta düzeyde korelasyon bulundu. Aleksitiminin siberkondri ve bedensel duyumları abartma arasındaki ilişkide aracı etkisinin incelendiği mediasyon analizinde aleksitiminin kısmi mediatör olduğu bulunmuştur. Siberkondrinin aleksitimi üzerindeki hem direkt hem de indrekt (aracı etki) etkisinin önemli olduğu olduğu bulunmuştur.

Sonuç: Psöriazis hastalarında aleksitiminin, siberkondri ile bedensel duyumları abartma arasındaki ilişkiye aracı etkisinin bulunduğu tespit edilmiştir. Klinik pratikte, bedensel duyumları abartma ve aleksitimi düzeyini değerlendirmenin, Psöriazis gibi kronik hastalıktan

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practice, assessing the level of exaggeration of bodily sensations and alexithymia may be predictive to determine the pathological level of health information seeking behavior in people suffering from chronic diseases such as psoriasis.
Keywords:. Cyberchondria, alexythymia, somatosensory amplification, psoriasis

muzdarip kişilerde sağlık bilgisi arama davranışının patolojik düzeyini belirlemek için ön gördürücü olabilir.

Anahtar kelimeler: Siberkondri, aleksitimi, somatosensoriyel amplifikasyon, sedef hastalığı

INTRODUCTION

Psoriasis is a chronic, inflammatory and hyperproliferative skin disease characterised by localised, erythematous, scaly, symmetrical and pearl-coloured plaques[1]. Global disease prevalence is between 0.2% and 4.8%[1]. Stress plays an important role in the development of symptoms at every stage of the disease, leading psoriasis to be described as a psychosomatic disease[2].

Alexithymia that reflects the absence of emotional experiences and expressions was initially associated with psychosomatic diseases[3]. It was suggested that the development of functional somatic symptoms could be associated with alexithymia[4]. Some studies reported the presence of high levels of alexithymic features in patients with psoriasis[5]. It is thought that alexithymia may affect the course of psoriasis and also the quality of life. However, the prevalence of alexithymia in psoriasis patients varies between studies[6]. As alexithymia patients have difficulty in reporting their physical and emotional difficulties, doctors incompletely assess patients' conditions and prescribe adequate treatment[7].

The concept of somatosensory amplification describes a tendency to exaggerate certain normal somatic sensations (like heat and touch) as intense, harmful or disturbing[8]. It was reported that individuals with alexithymia experience difficulties in the perception and expression of the psychological stress underlying their emotions, and they focus on physical sensations rather than emotions. It was reported that the increase in alexithymia level would lead to an increase in the somatosensory amplification[9]. Although the relationship between psychosomatic status and somatosensory amplification was examined before, the review of the literature revealed only one study examining somatosensory amplification in psoriasis, where it was reported to be higher in psoriasis patients, although it was not related to the severity of psoriasis and the need for examining this relationship was suggested[10].

The increase in internet access due to technological advances led to the utilisation of the internet as a primary source of medical information[11] consequently with the introduction of the concept of cyberchondria in the medical jargon[12]. In the current approach, cyberchondria is thought to have a syndrome-like and multidimensional structure. It is described as a repetitive behaviour that entails searching for medical information on the internet, accompanied by increasing health anxiety and concerns[13]. It is emphasised that cyberchondria has both anxiety and compulsive elements. In this context, cyberchondria includes various components like repetitive and time-consuming online health information-seeking behaviour leading to distress, negative emotional states like anxiety, or interruption of other daily activities, and consequently consulting a physician, often for reassurance, in response to increased distress and/or anxiety[4]. Individuals with alexithymia are reported more likely to be affected by their physical reactions and emotional experiences, which in turn increase online surfing about medical subjects and lead to cyberchondriac symptoms, therefore alexithymia is considered as a predictor of cyberchondria[14]. Furthermore, it is claimed that somatic symptoms significantly predict cyberchondriac behaviour[15]. An increase in bodily sensations can increase anxiety, leading to a cyberchondriac tendency to find a way to cope with this anxiety. A study reported that anxiety induced by exaggeration and misinterpretation of bodily sensations could be an underlying factor for cyberchondria[16]. However, as far as we have examined, although there are studies on the relationship between cyberchondria and somatosensory amplification in the general population, it has not been examined in patients diagnosed with psoriasis. It has been stated in the literature that there is a relationship between cyberchondria and alexithymia and somatosensory amplification. However, since it is a current definition, we think that there is not enough research examining cyberchondria in psychosomatic diseases.

In light of all these data, it could be suggested that the high level of somatosensory amplification could increase cyberchondriac behaviour in patients with psoriasis, and the fact that these individuals could experience difficulties in recognising and expressing emotions could contribute to cyberchondriac behaviour. Thus, we hypothesised that cyberchondria level was associated with somatosensory amplification in psoriasis and alexithymia could have a mediating effect on this correlation. Although the level of somatosensory amplification and alexithymia has been previously examined in patients diagnosed with psoriasis, its relationship with the level of cyberchondria in patients diagnosed with psoriasis still needs further investigation.

MATERIALS AND METHODS

Sample

The study sample included patients who presented to Malatya Training and Research Hospital, Dermatology Outpatient Clinic, Türkiye and were diagnosed with psoriasis by a dermatologist, and healthy volunteers of similar age and sex. The inclusion criteria in the study were being between the ages of 18-65, having an education at least at the literacy level and having internet access, while the exclusion criteria were not being able to fill out the questionnaires, not having internet access, being diagnosed with a serious active psychiatric disorder, and not being in remission despite using psychotropic medication. Additionally, patients with additional chronic physical diseases (oncological, neurological or metabolic disorders) other than psoriasis were not included in the study. Volunteering participants signed an informed consent form.

We calculated the effect size based on the Toronto Alexithymia Scale (TAS) scores mean group and reported that 83 participants in the psoriasis group and 89 participants in the control group should be adequate with a two-tailed test, 90% power and at .05 significance level. We calculated the effect size based on the study by Yılmaz et al [17]. Based on our inclusion and exclusion criteria, 105 patients diagnosed with psoriasis and 89 healthy controls were enrolled in our study, among them four participants from the patient group were not included in the study because they left blank some items in the scales. The study was conducted with 190 participants, including 101 patients with psoriasis and 89 healthy controls.

Ethical approval for our research was received from the Non-Invasive Clinical Research Ethics Committee of Malatya Turgut Özal University, Türkiye (at session 9, dated 26.05.2022, with decree No. 2022/110).

Procedure

The research was conducted in the Dermatology and Psychiatry outpatient clinics of the Health Ministry of Türkiye Malatya Training and Research Hospital, Malatya, Türkiye. After the sociodemographic data of patients were recorded, a dermatologist performed dermatological examinations to determine disease severity, while a psychiatrist evaluated the mental status and absence of any current psychopathology. Evaluation of patients in terms of Psoriasis Area and Severity Index (PASI) was made by a dermatologist. The participants were referred to psychiatric evaluation and to complete the Cyberchondria Severity Scale (CSS), Toronto Alexithymia Scale (TAS), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI) and Somatosensory Amplification Scale (SSAS). The control group included healthcare professionals and patients' relatives.

Measures

Sociodemographic data form

A semi-structured form was developed by the authors to investigate the psychiatric and psoriasis history of the patients, in addition to age, sex, marital status, level of education, smoking and alcohol use data.

Psoriasis Area and Severity Index (PASI)

PASI is the most common scale employed to determine the prevalence and severity of psoriasis. PASI is a measurement method based on physical lesions (erythema, desquamation, and infiltration) and their anatomical locations. It scores between 0 and 4 based on severity, and the involvement rate of the localization. In the PASI scale, a score between 0 and 5 is considered mild, a score between 5 and 14 is considered moderate, and 15 and above is considered severe[19].

Cyberchondria Severity Scale (CSS)

It is a psychometric scale developed by McElroy and Shevlin in 2014 to measure cyberchondria, defined as a form of anxiety characterised by excessive medical searches on the internet[20]. It includes questions to

characterise medical internet searches conducted by individuals, the degree of anxiety induced by the search, and its impact on daily life activities. CSS is a 5-point Likert-type scale that includes 33 items (1-Never, 2-Rarely, 3-Occasionally, 4-Frequently, and 5-Always) and 5 subscales: Compulsion (F1), Extreme Anxiety (F2), Excessiveness (F3), Confidence (F4), and Distrust of Medical Doctors (F5). The total cyberchondria score is calculated by adding the item scores. A higher score reflects a higher level of cyberchondria. The validity and reliability of the scale in Turkish was determined by Uzun ve et al.[21]. the Cronbach alpha coefficients of the subscales varied between 0.75 and 0.95 (Cronbach alpha coefficient of the whole scale was 0.94)[21].

Toronto Alexithymia Scale (TAS)

This 20-item scale developed by Bagby et al. in 1994 [22,23] was adapted to Turkish by Güleç et al. (2009)[24]. It is a 5-point Likert type scale (1 = Never to 5 = Always). The participant marks the extent each item describes him/herself. The scale includes three alexithymia sub-dimensions: "difficulty to recognize emotions (TAS-A)", "difficulty to express emotions (TAS-B)", and "extraverted thinking (TAS-C)". Certain scale items are scored in reverse. The total Cronbach alpha coefficient of the scale was determined as 0.78[24].

Somatosensory Amplification Scale (SSAS)

This 10-item scale was developed by Barsky et al. in 1990[25] and each item is scored between 1 and 5. Most items include a range of unpleasant bodily sensations that do not indicate a disease. The total somatosensory amplification score equals to the sum of item scores. The validity and reliability of the Turkish version was performed by Sayar et al. in 2003[26].

Beck Depression Inventory (BDI)

This self-report scale was developed to determine an individual's depression risk, and to measure the level and severity of depression symptoms. The original scale was published by Beck et al. The validity and reliability of the Turkish version were studied by Tein in and Hisli in 1988. The Cronbach alpha coefficient of the scale is 0.86[27].

Beck Anxiety Inventory (BAI):

This self-report, 21-item scale was developed by Beck et al. in 1988 and the validity and reliability of the Turkish version was performed by Ulusoy et al. in 1988. The scale determines the frequency of anxiety symptoms in an individual. Each item is scored between 0 and 3, and the total scale score varies between 0 and 63. A high score indicates higher anxiety. Cronbach's alpha coefficient of the scale was reported as 0.93[28].

Statistical analysis

The study data were analysed with SPSS 25 (IBM, Armonk, NY, USA). In descriptive analyses, frequencies were presented as counts and percentages, while quantitative data as mean ± standard deviations or medians (interquartile range). Kolmogorov-Smirnov test was conducted to test for conformity to normal distribution. In the analysis of continuous variables in independent groups, t-tests and Mann-Whitney U tests were used. Spearman correlation analysis was performed for analysing the relationship between continuous but non-normally distributed data. Chi-square and Fisher's Exact tests were used for the analysis of categorical nominal data. Mediator variable analysis was conducted to determine the direct effect of the exaggeration of bodily sensations on cyberchondria and the mediating effect of alexithymia. In the mediation analysis, variables without multicollinearity were included in the model (VIF < 3). A $p<0.05$ was considered statistically significant.

RESULTS

Participant demographics and clinical findings were presented in Table 1. There was no statistically significant difference for the age and sex between the patient and control groups. The median psoriasis history was 5 years. Among patients 41.6% reported that the exacerbation of symptoms was associated with a psychic stressor, 33.7% were under medication for psoriasis, and 18.8% had a family history of psoriasis. PASI scores revealed that the disease was severe in 15.8%, moderate in 44.4%, and mild in 39.9% of the patients (Table 1).

The mean CSS, TAS, SSAS, BAI, and BDI scores in the patient and control groups were presented in Table 2. F1 (Compulsion) and F2 (Extreme Anxiety) subscales and total scores of CSS were statistically significantly higher in the control group. In contrast, the F5 (Distrust of Medical Doctors) subscale score was statistically significantly higher in the psoriasis group. No significant difference was found in the TAS, BAI, and BDI scores between the groups. The

total SSAS score was statistically significantly higher in the psoriasis group when compared to the control group (Table 2). The correlations between the PASI and other scale scores were analysed in psoriasis patients. The PASI score showed significant, positive and low-grade correlations with F1 (Compulsion) subscale of CSS, BDI, and SSAS scores. A significant, positive and moderate correlation was determined between the PASI and BAI scores. There was no significant difference correlation between the other scale and subscale scores and the PASI score (Table 3).

Table 1. Participants' demographic characteristics and clinical findings

Variables		**Control Group**	**Psoriasis Group**	***P***
Age[a]		29 (19)	36 (13)	.106*
Sex[b]	Male	35 (39.3)	53 (52.5)	.051**
	Female	54 (60.7)	48 (54.8)	
Marital status[b]	Unmarried	33 (37.1)	33 (32.7)	.525**
	Married	56 (62.9)	68 (67.3)	
Education[b]	Secondary or lower	11 (12.4)	64 (63.4)	**<.001****
	Tertiary	78 (87.6)	37 (36.6)	
Habits[b]	None	53 (59.6)	25 (24.8)	**<.001****
	Smoking	26 (29.2)	73 (72.3)	
	Alcohol	10 (11.2)	3 (3.0)	
Psychiatric disorder history in the family[b]	Yes	13 (14.6)	11 (10.9)	.582**
	No	76 (85.4)	90 (89.1)	
Psychiatric comorbidity[b]	Yes	0 (0.0)	2 (2.0)	.499***
	No	89 (100.0)	99 (98.0)	
Psychotropic medication[b]	Yes	0 (0.0)	2 (2.0)	.499***
	No	91 (100.0)	99 (98.0)	
Psychiatric disorder history[b]	Yes	9 (10.1)	8 (7.9)	.785**
	No	80 (89.9)	93 (92.1)	
Family history of psoriasis[b]	Yes		19 (18.8)	
	No		82 (81.2)	
Psoriasis duration (years)[a]			5 (6)	
Psoriasis medication[b]	Yes		34 (33.7)	
	No		67 (66.3)	
Disease exacerbators	None		59 (58.4)	
	Stress		42 (41.6)	
PASI score[a]			8 (8)	
Psoriasis severity[b]	Mild		40 (39.6)	
	Moderate		45 (44.6)	
	Severe		16 (15.8)	

[a]Median (IQR); [b]frequency (%); *, Mann-Whitney U Test; **, Chi-square Test; ***, Fisher Exact Test; PASI, Psoriasis Area and Severity Index; p values in bold indicate statistical significance.

The mediation analysis where the mediating effect of alexithymia was analysed in the correlation between cyberchondria and somatosensory amplification demonstrated that alexithymia was a partial mediator. Both the direct and indirect (mediating) effects of cyberchondria on alexithymia were significant (Table 4).

Table 2. Subscale and total scale scores of the groups

	Subscales	Control Group	Psoriasis Group	P
CSSa	F1 (Compulsion)	25 (25)	8 (5)	<.001*
	F2 (Extreme Anxiety)	18 (7)	13 (10)	<.001*
	F3 (Excessiveness)	20 (11)	19 (14)	.257*
	F4 (Confidence)	13 (7)	12 (10)	.277*
	F5 (Distrust of MDs)	7 (7)	8 (5)	.001*
	Total	88 (30)	64 (28)	<.001*
TASa	TAS-A (difficulty to recognize emotions)	14 (10)	13 (10)	.073*
	TAS-B (difficulty to express emotions)	13 (5)	11 (6)	.076*
	TAS-C (extraverted thinking)	21 (5)	23 (4)	.004*
	Total	50 (15.5)	47 (16)	.310*
BAIa		9 (12)	7 (10)	.339*
BDIa		9 (13)	11 (17)	.423*
SSASb		23.7±7.5	29.1±8.5	<.001**

[a]Median (IQR); [b]Mean±Standard Deviation; *Mann-Whitney U Test; **t-test in independent groups; BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; CSS, Cyberchondria Severity Scale; PASI, Psoriasis Area and Severity Index; TAS, Toronto Alexithymia Scale (TAS); SSAS, Somatosensory Amplification Scale

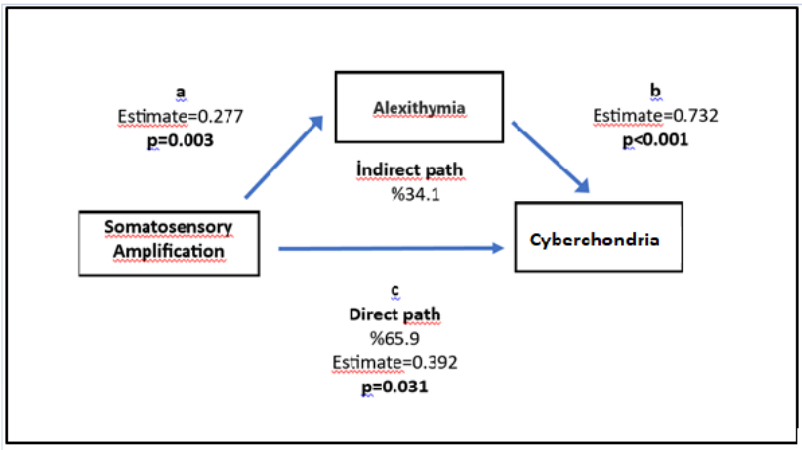

Figure 1. Path Estimates between scale scores

Table 3. The correlations between the PASI and other scale scores in psoriasis patients

Variables		PASI
CSS	F1 (Compulsion)	0.223*
	F2 (Extreme Anxiety)	0.100
	F3 (Excessiveness)	0.073
	F4 (Confidence)	0.135
	F5 (Distrust of MDs)	-0.067
	Total	0.158
TAS	TAS-A (difficulty to recognize emotions)	0.193
	TAS-B (difficulty to express emotions)	0.137
	TAS-C (extraverted thinking)	-0.056
	Total	0.146
BAI		0.357**
BDI		0.261**
SASS		0.227*

Spearman Correlation *, < .05; **, < .01; BAI, Beck Anxiety Inventory; BDI, Beck Depression Inventory; CSS, Cyberchondria Severity Scale; PASI, Psoriasis Area and Severity Index; TAS, Toronto Alexithymia Scale; SSAS, Somatosensory Amplification Scale

Table 4. The mediating effect of alexithymia in the effect of exaggerating bodily sensations on cyberchondria in patients

					95% Confidence Interval				
Effect	Label	Estimate	SE	Lower	Upper	Z	P	% Mediation	
Indirect	a × b	0.203	0.0780	0.0499	0.356	2.60	0.009	34.1	
Direct	C	0.392	0.1818	0.0361	0.749	2.16	0.031	65.9	
Total	c + a × b	0.595	0.1908	0.2214	0.969	3.12	0.002	100.0	

DISCUSSION

The determination of the mediating effect of alexithymia on the correlation between cyberchondria and the amplification of bodily sensations in psoriasis patients was the most significant finding in the present study. Studies conducted on the general population demonstrated a correlation between exaggeration of bodily sensations and cyberchondriac behaviour, and amplification of bodily sensations predicted the cyberchondria level[17]. Medical use of the internet led to pathological issues such as health anxiety, obsessive-compulsive symptoms, and intolerance of uncertainty (among other psychopathologies); however, even when all these domains were controlled, only "the severity of somatic symptoms" independently predicted medical internet use. Thus, it was reported that the exaggeration of bodily sensations contributed to the initiation and maintenance of medical internet use[29]. The studies on the correlation between alexithymia and cyberchondria concluded that alexithymia was a positive predictor of cyberchondria, and alexithymia would exacerbate the correlation between stress and cyberchondria[14]. In the present study, the correlation between exaggeration of bodily sensations and alexithymia was consistent with the results of similar researches in patients with psoriasis. The findings suggested that psoriasis patients, who tended to exaggerate bodily sensations, had a higher level of cyberchondria in cases when they had alexithymia personality traits.

As far as we have reviewed the literature, there is no research investigating the level of cyberchondria in psoriasis patients. The present study has the novelty of demonstrating that the total cyberchondria score was higher in the control group when compared to the patient group. This could be due to the difference in the educational level between the patient and control groups, being lower in the patient group. In the literature, it was reported that cyberchondria level varied with educational level and cyberchondria level was higher in individuals with higher levels of education[30,31]. Since internet use and health literacy could increase in parallel with the increase in education level, this could explain the lower cyberchondria score in the patient group[32]. In a recent study that investigated health anxiety in psoriasis patients, –a concept closely associated with cyberchondria– reported that health anxiety was higher in patients with psoriasis when compared to healthy controls, while there was no correlation between health anxiety and disease severity[10]. A study on the cyberchondria levels of psychosomatic fibromyalgia patients reported that the cyberchondria level was higher among the patients[33]. However, other studies reported that individuals without chronic comorbidity had higher cyberchondria levels when compared to those with chronic comorbidities[31, 34]. These different findings could be related to the differences between the variables associated with cyberchondria such as age, educational level and digital literacy. Furthermore, distrust of medical doctors, a sub-dimension of cyberchondria–, was found to be higher in the patient group when compared to the control group in the present study. This could be due to the inclusion of healthcare professionals, who have direct access to physicians, in the control group. It was also determined that psoriasis severity correlated with cyberchondria compulsion sub-dimension. This could suggest that medical searches on the internet negatively affected the daily lives of the patients, and it was associated with the disease severity.

The somatosensory amplification was significantly higher in patients with psoriasis when compared to healthy controls, and it was associated with psoriasis severity. A recent study on bodily sensations in patients with psoriasis reported that exaggeration of bodily sensations was higher in the patient group, but it was not associated with the severity of the disease. The involvement of visible body parts such as the scalp and face was also associated with bodily sensations[10]. It was suggested that the level of somatosensory amplification was important in

psychosomatic diseases and clinicians should consider the level of exaggeration of bodily sensations in cases where the current clinical outlook and psychiatric conditions do not match[35]. This finding emphasised that exaggeration of physical sensations was closely associated with disease severity in psoriasis, as a psychosomatic disease.

Although there were no significant differences in the anxiety, depression symptoms and alexithymia between the patient and control groups, a low-moderate positive correlation was determined between the severity of the disease and anxiety, and depression symptoms, while no correlation was observed related to alexithymia levels. Güleç et al. did not observe any significant difference in the anxiety or alexithymia levels between patients with psoriasis and healthy controls, and the level of depression symptoms was reported to be significantly higher in patients with psoriasis [36]. A recent study reported that the anxiety levels were not different in patients with psoriasis and healthy controls, while the depression levels were higher in the former[10]. Yilmaz et al. reported the absence of any significant difference in the depression or anxiety scores between patient and control groups, but alexithymia was higher in psoriasis patients[37] Namdar et al. reported that both anxiety and depression symptoms were higher in patients with psoriasis, and there was no correlation between psoriasis severity and depression or anxiety levels[38]. Ozguven et al. reported a correlation between psoriasis severity and depression, but not the anxiety level[39]. Kilic et al. demonstrated that both anxiety and depression were not associated with psoriasis severity[40]. The findings reported in studies on alexithymia in patients with psoriasis were inconsistent. Consistent with the present study findings, certain studies reported that the alexithymia levels did not differ significantly between patient and healthy control groups[38, 41]. Certain studies that analysed the correlation between disease severity and alexithymia reported a correlation, while others reported no correlation, similar to the present study[1, 2, 36-38]. A previous study suggested that alexithymia, as a personality trait, was closely associated with depression and anxiety[42]. This could explain lower anxiety, depression, and alexithymia levels in our patient group. Since the patients included in our study had psoriasis for a relatively long time (i.e., 5 years) in dermatological follow-up, they could have developed adaptive mechanisms, leading to lower depression and anxiety levels. However, it could be deduced that higher disease severity affected the depressive symptoms and anxiety levels of the patients.

Most previous research on cyberchondria was conducted online and in the general population[31]. Thus, it could be suggested that face-to-face evaluation of cyberchondria, involving a specific disease group which was psoriasis, was one of the strengths of the present study. The main limitations of the study included its cross-sectional nature and the fact that psychometric evaluations were conducted with self-report scales. Additionally, our limitations included the fact that the variables we examined according to the skin area involved in psoriasis were not evaluated in the patient groups and that the educational level differed between the patient and control groups.

In conclusion, it was determined that alexithymia had a mediating effect on the correlation between cyberchondria and somatosensory amplification in patients with psoriasis. In the present study, it was determined that the cyberchondria levels were higher in the control group when compared to the patient group, which could be explained by the higher educational levels in the control group. It could be suggested that the present study findings on cyberchondria were important for future studies. In clinical practice, the assessment of somatosensory amplification and alexithymia can predict the pathological level of medical internet search behaviour in individuals with chronic diseases such as psoriasis. In patients who tend to exaggerate bodily sensations, the high level of alexithymia causes an increase in cyberchondriac behaviour, which may lead to access to health information from unreliable sources and to the impeding of compliance with treatment. Therefore, it may be suggested to periodically check the cyberchondria status and related variables in these patients and to include psychiatric consultation in the treatment of the patients.

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