Original Article / Özgün Makale

Psychological Flexibility, Stigma, and Quality of Life in Psoriasis Patients

Burcu Bakar Kahraman,[1] Hasan Turan Karatepe,[2] Ayşe Serap Karadağ,[3] Serhat Çıtak[4]

[1]Department of Psychiatry, İstanbul Sultan 2. Abdülhamid Khan Sample Training and Research Hospital, İstanbul, Türkiye
[2]Department of Psychiatry, İstanbul Medeniyet University, Prof. Dr. Süleyman Yalçın City Hospital, İstanbul, Türkiye
[3]Department of Dermatology, Memorial Ataşehir Hospital, İstanbul, Türkiye
[4]Department of Psychiatry, Medistate Kavacık Hospital, İstanbul, Türkiye

ABSTRACT

Psoriasis is a disease that negatively affects the quality of life and is commonly seen together with depression and anxiety. In this study, the relationships between the psychological flexibility levels, psoriasis severity, depression, anxiety, and quality of life of patients with psoriasis were examined. For this purpose, 118 patients with psoriasis and 118 healthy controls were evaluated with the Sociodemographic and Clinical Data Form, Freiburg Mindfulness Inventory, Acceptance and Action Questionnaire-II, and Cognitive Fusion Questionnaire. Moreover, patient groups were applied the Hamilton Depression Rating Scale, Hamilton Anxiety Rating Scale, Psoriasis Area Severity Index, Psoriasis Internalized Stigma Scale, and Dermatology Life Quality Index. The psychological flexibility levels of patients with psoriasis were observed to be lower than those of healthy controls. Psoriasis patients with low psychological flexibility had higher depression, anxiety, and internalized stigma scores. No correlation between the severity of psoriasis and depression, anxiety, and stigma was found. Stigma and HAM-D scores were found to be independent risk factors for reduced quality of life. Our findings emphasize the necessity of psychological evaluation in patients with psoriasis and show that psychological treatments will positively contribute to the person's quality of life. The results of our study show that awareness, acceptance, and cognitive decomposition interventions aimed at increasing psychological flexibility may be useful in this population.

Keywords: Anxiety, depression, internalized stigma, quality of life, psoriasis, psychological flexibility.

ÖZ

Sedef Hastalarında Psikolojik Esneklik, Damgalanma ve Yaşam Kalitesi

Sedef hastalığı yaşam kalitesini olumsuz etkileyen, sıklıkla depresyon ve anksiyete ile birlikte görülen bir hastalıktır. Çalışmamızda sedef hastalarının psikolojik esneklik düzeyleri, sedef hastalığı şiddeti, depresyon, anksiyete ve yaşam kalitesi arasındaki ilişkiler araştırıldı. Bu amaçla 118 sedef hastası ve 118 sağlıklı kontrol Sosyodemografik ve Klinik Veri Formu, Freiburg Farkındalık Envanteri, Kabul ve Eylem Anketi-II, Bilişsel Füzyon Anketi ile değerlendirildi. Ayrıca hasta grubuna Hamilton Depresyon Derecelendirme Ölçeği, Hamilton Anksiyete Derecelendirme Ölçeği, Psöriyazis Alan Şiddet İndeksi, Psöriyazis İçselleştirilmiş Damgalanma Ölçeği ve Dermatoloji Yaşam Kalitesi İndeksi uygulandı. Yapılan değerlendirmede sedef hastalarının psikolojik esneklik düzeylerinin sağlıklı kontrollere göre daha düşük olduğu görüldü. Psikolojik esnekliği düşük olan sedef hastalarında depresyon, anksiyete ve içselleştirilmiş damgalanma puanları daha yüksekti. Sedef hastalığının şiddeti ile depresyon, anksiyete ve damgalanma arasında bir ilişki yoktu. Stigma ve HAM-D skorlarının yaşam kalitesinin azalmasında bağımsız risk faktörleri olduğu belirlendi. Bulgularımız psöriyazis hastalarında psikolojik değerlendirmenin gerekliliğini vurgulamakta ve psikolojik tedavilerin kişinin yaşam kalitesine olumlu katkı sağlayacağını göstermektedir. Çalışmamızın sonuçlarına göre psikolojik esnekliği artırmaya yönelik farkındalık, kabul ve bilişsel ayrıştırma müdahaleleri bu popülasyonda faydalı olabilir.

Anahtar Kelimeler: Anksiyete, depresyon, içselleştirilmiş damgalama, psikolojik esneklik, sedef hastalığı, yaşam kalitesi.

Bakar Kahraman et al. Psychological Flexibility in Psoriasis Patients

J Cogn Behav Psychother Res 2024;13(1):1–10

INTRODUCTION

Psoriasis is a chronic, relapsing, inflammatory, multisystemic skin disease that affects 2%–3% of the general population (Damiani et al., 2021). Together with skin and joint involvement, metabolic syndrome, diabetes, cardiovascular diseases, malignancy, inflammatory bowel diseases, and psychiatric diseases are common comorbid conditions. Diagnosis is often made by examining the skin lesions; 80%–90% of patients with psoriasis have chronic plaque-type lesions. Guttate, inverse, erythrodermic, and pustular psoriasis are other clinical subtypes. When determining the treatment, the most important criterion is the severity of the disease. Although the affected body surface area gives an idea regarding the severity of the disease, the Psoriasis Area and Severity Index (PASI), which is obtained by a dermatologist by evaluating the symptoms of the lesions such as erythema, desquamation, and induration and grading them according to their anatomical localization, is the most frequently used and accepted severity assessment tool. PASI scores below 5 are considered mild, scores between 5 and 10 are considered moderate, and scores above 10 are considered severe psoriasis (Hoffmann & Enk, 2022). Additionally, quality of life scales that evaluate severity according to the level of impact on the person's social life and functionality are also employed, and the Dermatology Life Quality Index (DLQI) is a frequently preferred self-report scale for this purpose. In the treatment of skin lesions, topical treatment, phototherapy, and/or systemic treatment methods are preferred, depending on the severity of the disease. In the evaluation of treatment effectiveness, a 50% decrease in the initial PASI score and a decrease of at least 5 points in the DLQI score are considered to be the minimum treatment target (Alper et al., 2012). Treatment of psoriasis along with all comorbid conditions requires a multidisciplinary approach. Previous literature has shown that the prevalence of depression and anxiety in psoriasis is higher than the population mean and that those with skin disease have negative beliefs about body image and feel stigmatized (Vasiliou et al., 2023). Although all studies agree that the quality of life decreases in patients with psoriasis, there are publications reporting different results regarding the effects of many factors such as age, gender, affected body area, disease duration, severity, and presence of arthritis (Alper et al., 2012). Some publications mentioned a significant relationship between the deterioration in the quality of life and disease severity and the area affected by a disease (Ahmad Fuat et al., 2022). Nevertheless, based on some recent studies, contrary to expectations, disease severity (PASI) is not the main factor determining the quality of life, and there is no clear evidence that any affected body part has a more detrimental effect on the quality of life than the other (Koryürek et al., 2015; Nabieva & Vender, 2023). These studies suggest that the most powerful factor that affects the quality of life is patients' perceptions and feelings regarding themselves and that interventions such as psychotherapy and patient support groups may help improve the quality of life (Koryürek et al., 2015; Nabieva & Vender, 2023). It has been found that cognitive behavioral therapy (CBT) interviews utilizing mindfulness, awareness, and acceptance techniques provide improvement in the body image problems experienced by patients with psoriasis and are beneficial in having better interpersonal interactions and living a satisfactory life (Esmalian Khamseh et al., 2020).

The third wave of CBT explains psychopathologies with the decrease in psychological flexibility, namely, the psychological rigidity model. Based on this model, psychological flexibility is the ability to accept undesirable experiences, focus on the moment, and maintain value-directed action (Hayes et al., 2006). Conversely, psychological rigidity is the inability to focus on the present moment, merged with undesirable thoughts, unclear values, and the inability to maintain value-directed behaviors (Yavuz, 2015). Psychological inflexibility was determined to be related to many psychopathologies such as depression, anxiety disorders, obsessive–compulsive disorder, alcohol, and substance use disorder, and eating disorder; and it is shown that interventions that increase psychological flexibility are effective for treatment in these disorders (Ruiz, 2010).

Our study aims to further examine parameters that affect quality of life by evaluating various previously discussed sociodemographic, dermatological, and psychological factors together in one study. For this purpose, all patients with psoriasis were evaluated by a dermatologist and a psychiatrist. Patients' age, gender, psoriasis type, disease duration, disease severity, affected body area, presence of psoriatic arthritis, stigmatization, depression, and anxiety findings were questioned.

To understand why patients with psoriasis have more depression and anxiety than the population average, we compared the psychological flexibility of patients with psoriasis with the control group that has no dermatological disease and tried to interpret it based on the psychological rigidity model. It was investigated whether patients with psoriasis whose quality of life is affected more and who have more depression and anxiety symptoms have more severe psoriasis or whether they have low psychological flexibility and feel stigmatized. Clarifying the factors affecting the quality of life in these patients is important in understanding the necessity of psychosocial evaluation. Understanding these psychopathological mechanisms will be a guide in improving the person's well-being, and thus, a positive contribution can be made both to the course of the disease and the quality of life.

METHOD

Our sample included 118 patients with psoriasis, who were followed up from the dermatology outpatient clinic with the diagnosis of psoriasis (59 females, 50%; mean age, 45.3±14.3), and 118 volunteers, who have no dermatological disease and agreed to participate in the study as a control group (62 females, 53%; mean age, 35.3±13.2). Inclusion criteria were determined as being over 18 years of age, under 70 years of age, being literate, agreeing to participate in the study, and being diagnosed with psoriasis histologically and/or clinically for the patient group. The exclusion criteria were illiteracy, psychotic disorders, bipolar disorder, autism spectrum disorder, mental retardation, psychiatric and neurological diseases with cognitive impairment, and being under the age of 18 and over the age of 70, for the control having no dermatological disease and for the patient group having no other dermatological disease except psoriasis. All participants filled out the Sociodemographic and Clinical Data Form. Freiburg Mindfulness Inventory (FMI), Acceptance and Action Questionnaire-II (AAQ-II), and Cognitive Fusion Questionnaire (CFQ) were used to compare the psychological flexibility levels of the patient and control groups. The dermatologist determined the type of psoriasis and estimated the severity of psoriasis according to PASI, which takes the surface areas of the affected area into account.

Additionally, the psychiatrist evaluated depression and anxiety symptoms in the patient group with the Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Rating Scale (HAM-D). Finally, two self-rating scales, DLQI, and Psoriasis Internalized Stigma Scale (PISS), were administered to the patients with psoriasis. Ethics committee approval was obtained for the study, and all procedures were in accordance with the Declaration of Helsinki. Written consent was obtained from all participants before starting the study.

Measures

Sociodemographic and Clinical Data Form: The Sociodemographic and Clinical Data Form provides information about the age, gender, marital status, educational status, and employment status and includes questions about the dermatological diseases of the participants.

Hamilton Depression Rating Scale: HAM-D is a depression rating scale developed by Hamilton (1960). The scale, consisting of a total of 17 questions, in which depressive symptoms in the previous week are questioned, is administered by a clinician. Higher scores indicate more severe depression, and the highest possible score is 53: 0–7 points indicate no depression, 8–15 points mild depression, 16–28 points moderate depression, and 29 and over points indicate severe depression (Williams, 1988). The Turkish version has been shown to be valid and reliable (Akdemir et al., 1996).

Hamilton Anxiety Rating Scale: It was developed by Hamilton to measure the severity of the psychological and physical symptoms of anxiety (Hamilton, 1959). The scale consists of 14 items and is scored by the clinician: 0–7 points, no/minimal anxiety; 8–14 points, mild anxiety; 15–23 points, moderate anxiety; and 24 and over points, severe anxiety (Matza et al., 2010). A Turkish validity and reliability study was conducted (Yazıcı et al., 1998).

Freiburg Mindfulness Inventory: FMI is a self-report scale and a widely used, valid, and reliable questionnaire for measuring the level of mindfulness. It comprises 14 items scored from 1 to 4, and higher scores indicate higher levels of conscious awareness (Walach et al., 2006). The validity and reliability of the Turkish version were conducted, and Cronbach's alpha coefficient was 0.823 (Karatepe & Yavuz, 2019).

Acceptance and Action Questionnaire II: It was developed to measure psychological flexibility and acceptance. AAQ-II was first designed as a 10-item scale; afterward, in 2011, it was reduced to a seven-item scale (Bond et al., 2011). It is one of the most commonly used self-reporting scales to assess the effectiveness of Acceptance and Commitment Therapy (ACT) interventions. AAQ-II includes questions regarding the ability to accept unwanted thoughts and feelings and to perform value-directed actions in the presence of negative thoughts. Participants score each question from 1 to 7. High scores on the scale indicate psychological rigidity and experiential avoidance. Cronbach's alpha coefficient was 0.84, and the Turkish version is valid and reliable (Yavuz et al., 2016).

Cognitive Fusion Questionnaire: The cognitive fusion questionnaire is a brief, self-reporting measure of cognitive fusion, an important element in the psychopathology of ACT developed by Gillanders et al. (2014). The CFQ started as a 42-item questionnaire; furthermore, it was refined into a 28-item, then into 13-item, and finally into seven-item, fusion-only scale. Each item is scored from 1 to 7, and high scores indicate an excess of cognitive fusion. The CFQ is positively correlated with ruminations, negative thoughts, experiential avoidance, depression, and anxiety symptoms. Conversely, it is negatively associated with mindfulness, value-based behaviors, and psychological flexibility (Flynn et al., 2018; Gillanders et al., 2014). Cronbach's alpha coefficient of the Turkish version was found 0.82 (Esen, 2017).

Dermatology Life Quality Index: DLQI is the first life quality scale developed for skin and venereal diseases. The scale consists of 10 questions and ranges from 0 to 30. High scores indicate the disease's negative effect on the person's daily, work, school life, free time activities, and interpersonal relationships (Finlay & Khan, 1994). It has been shown that DLQI is a valid and reliable scale for assessing the quality of life of psoriasis in Turkey (Öztürkcan et al., 2006).

Bakar Kahraman et al. Psychological Flexibility in Psoriasis Patients

J Cogn Behav Psychother Res 2024;13(1):1–10

Table 1. Sociodemographic characteristics of the study population

	Psoriasis		Healthy control		p
	n	%	n	%	
Age, Mean±SD	45.3±14.3		35.3±13.2		**0.000***
Gender					
Female	59	50.0	62	52.5	0.696
Male	59	50.0	56	47.5	
Marital status					
Single	20	16.9	51	43.2	**0.000***
Married	92	78.0	62	52.5	
Divorced	4	3.4	4	3.4	
Widowed	2	1.7	1	0.8	
Educational status					
Elementary school	44	37.3	16	13.6	**0.000***
Middle school	23	19.5	16	13.6	
High school	32	27.1	41	34.7	
University	19	16.1	45	38.1	
Substance					
Cigarettes	51	43.2	37	31.4	0.059
Alcohol	13	11.0	26	22.0	**0.023***
Psychiatric history					
Personal history	45	38.1	14	11.9	**0.000***
Family history	27	22.9	28	23.7	0.827

SD: Standard deviation; *: Significant difference between groups. Chi-squared test was used for the comparison of categorical variables.

Psoriasis Internalized Stigma Scale: This 29-item self-report scale used to assess internalized stigma was developed by Ritsher, et al. (2003). There are five subscales: alienation, stereotype endorsement, perceived discrimination, social withdrawal, and stigma resistance. Each item is scored from 1 to 4, and the stigma resistance subscale is scored inversely to that. High scores indicate more internalized stigma. The validity and reliability study of the Internalized Stigma Scale adapted for Turkish patients with psoriasis was conducted by Alpsoy et al. (2015).

Psoriasis Area and Severity Index: PASI is an index used to express the severity of psoriasis. It is a scale that combines the disease involvement percentages of the head, upper extremity, trunk, and lower extremity regions and the grading of three typical findings of psoriatic plaques, erythema, infiltration, and desquamation, with scores ranging from 0 to 4 depending on increasing severity (Finlay et al., 1990; Fredriksson & Pettersson, 1978). The higher the total PASI value, the more severe the psoriasis; the maximum possible score is 72.

Statistical Analysis

The data were obtained by using the SPSS version 21.0 program. The conformity of the variables to normal distribution was examined using visual (histogram and probability graphs) and analytical methods (Kolmogorov–Smirnov and Shapiro–Wilk tests). We used the chi-square test to compare categorical variables and the Mann–Whitney U test with quantitative variables. We used analysis of variance to determine whether there are any statistically significant differences between the means of more than two groups. Considering that the variables did not follow a normal distribution, correlations between variables were tested using the Spearman correlation coefficients. To determine independent predictors of DLQI, logistic regression analysis was employed. To assess model fit, Hosmer–Lemeshow goodness of fit statistics was employed. A value of $p<0.05$ was considered statistically significant.

J Cogn Behav Psychother Res 2024;13(1):1–10

Bakar Kahraman et al. Psychological Flexibility in Psoriasis Patients

RESULTS

Sociodemographic Characteristics of the Sample

In the study, 118 patients with psoriasis and 118 healthy controls were included. The mean age was 45.3±14.3 in the group of patients with psoriasis and 35.3±13.2 in the group of healthy control. The mean age of the patient group was statistically higher than the control group (p=0.000). There was no statistically significant difference between the study and control group in terms of gender (p=0.696); 78.0% of the participants with psoriasis, and 52.5% of the participants in the control group were married. The education level of patients with psoriasis was lower than the control group. Smoking habits in patients with psoriasis were similar to the control group but alcohol use was higher in the control group. Although the two groups were similar in terms of family history of psychiatric disease, 38.1% of patients with psoriasis had a past psychiatric history, which was statistically significantly different from the control group (Table 1).

Clinical features of Patients with Psoriasis

Most patients had chronic plaque psoriasis; 61% of the patients with psoriasis had longer than 10 years of disease duration. The most common involvement sites were upper extremity, trunk, hip, and scalp. According to PASI scores evaluated by the dermatologist, 27.1% of patients had moderate and 28.0% had serious psoriasis disease. According to the DLQI scored by the patients, 27.1% of the patients stated that their quality of life was moderately affected due to psoriasis and 28% stated that it was severely affected. According to HAM-D and HAM-A scores, 55.1% of patients had mild or moderate depression and 57.6% had mild-moderate or severe anxiety (Table 2).

Comparison of HAM-D, HAM-A, DLQI, and PISS Concerning the Severity of Patients with Psoriasis

Depression and anxiety levels were similar in patients with mild-moderate or severe psoriasis disease. It was found that the quality of life was affected more as the severity of the illness increased. Patients with mild and moderate psoriasis had similar stigma scores, but patients with severe psoriasis reported higher stigma scores (Table 3).

Comparison of Psychological Flexibility Levels Between Patient and Healthy Control Groups

A Mann–Whitney U test was conducted to compare the psychological flexibility levels of the patients with psoriasis group and the control group. The results revealed that AAQ-II (p=0.000) and CFQ (p=0.000) scales' scores were significantly higher in the psoriasis group, and the FMI (p=0.001) score was significantly lower in the psoriasis group. These findings show

Table 2. Clinical characteristics of patients with psoriasis

Variables	Frequency (n)	Percentage (%)
Psoriasis lesions type		
Chronic plaque	106	89.8
Palmoplantar	7	5.9
Guttate	5	4.2
Psoriasis duration		
<5 years	32	27.1
5–10 years	14	11.9
>10 years	72	61
Psoriasis involvement		
Upper extremity	95	80.5
Trunk	77	65.3
Hip	47	39.8
Scalp	40	33.9
Palms and soles	22	18.6
Genital	16	13.6
Nails	5	4.2
Severity of psoriasis based on PASI		
Mild	44	39.3
Moderate	38	33.9
Severe	30	26.8
DLQI severity score		
Mild	53	44.9
Moderate	32	27.1
Severe	33	28
HAM-D		
No depression	53	44.9
Mild	42	35.6
Moderate	23	19.5
Severe	0	0
HAM-A		
No anxiety	50	42.4
Mild	39	33.1
Moderate	26	22.0
Severe	3	2.5

PASI: Psoriasis Area and Severity Index; DLQI: Dermatology Life Quality Index; HAM-D: Hamilton Depression Rating Scale; HAM-A: Hamilton Anxiety Rating Scale.

that the acceptance, cognitive defusion, and mindfulness levels of patients with psoriasis are lower than healthy participants, that is, lower levels of psychological flexibility (Table 4).

Table 3. Comparison of HAM-D, HAM-A, DLQI, and PISS concerning PASI groups in patients with psoriasis

	PASI-mild Mean±SD (n=44)	PASI-moderate Mean±SD (n=38)	PASI-serious Mean±SD (n=30)	F; p
HAM-D	8.39±5.731	8.76±5.621	9.97±7.341	0.609; 0.546
HAM-A	9.68±5.295	9.24±5.772	10.93±7.917	0.649; 0.524
DLQI	6.48±5.462	8.79±7.286	12.03±9.313	**5.209; 0.007***
PISS	31.64±14.210	30.34±11.865	38.47±16.090	**3.175; 0.046***

Analysis of variance test was used for statistical analysis. *: Significant difference between groups; SD: Standard deviation; PASI: Psoriasis Area and Severity Index; HAM-D: Hamilton Depression Rating Scale; HAM-A: Hamilton Anxiety Rating Scale; DLQI: Dermatology Life Quality Index; PISS: Psoriasis Internalized Stigma Scale.

Table 4. Comparison of psychological flexibilities of sample groups

Measure	Psoriasis group Mean±SD	Control group Mean±SD	U	z	p
AAQ-II	23.76±9.866	18.36±9.202	4640.500	-4.431	**0.000***
FMI	35.50±8.326	38.88±7.908	8747.000	3.406	**0.001***
CFQ	27.4±11.321	19.80±9.817	4245.000	-5.184	**0.000***

Mann–Whitney U test was used for statistical analysis. *: Significant difference between groups; SD: Standard deviation; AAQ-II: Acceptance and Action Questionnaire-II; FMI: Freiburg Mindfulness Inventory; CFQ: Cognitive Fusion Questionnaire.

Table 5. Relationship between AAQ-II, FMI, CFQ, PASI, PISS and HAM-D, HAM-A, DLQI, and PISS

	HAM-D (r; p)	HAM-A (r; p)	DLQI (r; p)	PISS (r; p)
AAQ-II	**0.593; 0.000***	**0.576; 0.000***	**0.213; 0.021***	**0.472; 0.000***
FMI	**-0.258; 0.005***	**-0.289; 0.002***	-0.159; 0.085	**-0.327; 0.000***
CFQ	**0.459; 0.000***	**0.494; 0.000***	**0.204; 0.026***	**0.423; 0.000***
PASI	0.098; 0.303	0.056; 0.555	**0.324; 0.000***	0.146; 0.125
PISS	**0.427; 0.000***	**0.403; 0.000***	**0.416; 0.000***	–

Spearman correlation test was used for statistical analyses. *: P values <0.05 were considered statistically significant. HAM-D: Hamilton Depression Rating Scale; HAM-A: Hamilton Anxiety Rating Scale; DLQI: Dermatology Life Quality Index; PISS: Psoriasis Internalized Stigma Scale; AAQ-II: Acceptance and Action Questionnaire-II; FMI: Freiburg Mindfulness Inventory; CFQ: Cognitive Fusion Questionnaire; PASI: Psoriasis Area and Severity Index.

Correlations Coefficients among AAQ-II, FMI, CFQ, PASI, PISS, HAM-D, HAM-A, and DLQI

Depression had a moderate positive correlation with AAQ-II (r=0.593), CFQ (r=0.459), and PISS (r=0.427). Similarly, anxiety had a moderate positive correlation with AAQ-II (r=0.576), CFQ (r=0.494), and PISS (r=0.403). Depression and anxiety have no statistically significant relationships with PASI. However, DLQI had a weak positive correlation with PASI (r=0.324) (Evans, 1996) (Table 5).

The strongest correlation with DLQI was found to be with PISS (r=0.416). Although the strongest relationship between quality of life

and stigma was determined, no statistically significant relationship was found between stigma and psoriasis severity (Table 5).

Logistic Regression Analysis of DLQI

A logistic regression analysis was performed to study the effect of sociodemographic and clinical variables on impaired quality of life. For this purpose, age, gender, marital status, presence of psoriasis joint involvement, PASI, stigma scores, Freiburg, CFQ, and AAQ-II, and depression and anxiety scores were included in the analysis. The backward stepwise method was applied. The proportion of variance explained was Nagelkerke

Table 6. Results of logistic regression analysis of DLQI (n=112)

	DLQI (≥10) OR (95% CI)	p
Marital status	2.27 (0.75–6.89)	0.147
Psoriatic arthritis	2.52 (0.78–8.09)	0.120
PASI	1.04 (0.96–1.14)	0.314
Stigmatization	1.06 (1.02–1.11)	**0.004***
AAQ-II	0.93 (0.86–1.02)	0.113
CFQ	1.04 (0.98–1.10)	0.226
HAM-D	1.16 (1.04–1.29)	**0.006***

OR: Odds ratio; CI: Confidence interval; DLQI: Dermatology Life Quality Index; PASI: Psoriasis Area and Severity Index; AAQ-II: Acceptance and Action Questionnaire-II; CFQ: Cognitive Fusion Questionnaire; HAM-D: Hamilton Depression Rating Scale.

$R^2=0.416$ and Cox and Snell $R^2=0.300$. The fit of the model was tested using the Hosmer and Lemeshow test ($\chi^2=7.64$, df=8, p=0.47). Stigma (p=0.004) and HAM-D score (p=0.006) were found to be positive independent risk factors of impaired quality of life (Table 6).

DISCUSSION

Psychological comorbidities are common in dermatological diseases, and the relationship between the quality of life and the severity of skin disease is unclear (Gelfand et al., 2004; Koryürek et al., 2015). Studies show that depression and anxiety are frequent in patients with psoriasis (Fabrazzo et al., 2022; Liu et al., 2023). The current study aimed to explore why anxiety and depression are common in patients with psoriasis. With this purpose in mind, we compared the psychological flexibility levels of patients with psoriasis to healthy controls and investigated the relationship between quality of life, internalized stigma, and disease severity.

In this study, 55% of patients with psoriasis had mild or moderate depressive symptoms and 57.6% had anxiety symptoms. Additionally, the psychological flexibility levels of patients with psoriasis were significantly lower than healthy controls. It was found that patients with psoriasis are more tangled up in negative thoughts, have higher experiential avoidance, and are caught in the past and the future, which all indicates psychological inflexibility. The findings of this study support that decreased psychological flexibility is associated with psychological distress (Kashdan & Rottenberg, 2010). Some studies report higher depression ratings in patients having more severe psoriasis (Tribó et al., 2019). According to other studies, however, perceived stress associated with psoriasis is influenced by the individual's intrapsychic factors

rather than objective measures evaluating disease severity (Gupta et al., 1988). It was found that the visible physical symptoms of the disease negatively affected the cognitive fusion related to negative body image and mediated the decrease in the quality of life (Kouris et al., 2017). Additionally, it was observed that the cognitive fusion related to body image was positively related to depression and anxiety (Flynn et al., 2018). For this reason, it is an expected result that mental disorders are more common in young or female patients with psoriasis who give more importance to body image.

The relationship and interaction between psoriasis severity and depression and anxiety levels is highly controversial. It is argued that psychogenic stress can cause exacerbation in psoriasis by causing HPA axis activation, and it becomes unclear whether mental disorders are seen because of more severe psoriasis or psoriasis exacerbated as a result of mental disorders (Ferreira et al., 2016). According to our study, the severity of psoriasis is not correlated with the level of depression and anxiety and patients with psoriasis with lower levels of psychological flexibility have higher depression and anxiety scores. Due to all conflicting findings, some researchers focused on the psychic effects of feeling stigmatized by visible skin lesions. Psoriasis is often misunderstood and feared as contagious in the community. This causes stigma, especially in patients with psoriasis lesions in the visible area. Gupta et al. (1998) found that patients with psoriasis who felt stigmatized did not have more severe psoriasis disease but had higher depression scores. Likewise, in our study, no relation was found between stigma and psoriasis severity, and there was a moderate relationship between stigma and depression and anxiety. According to our study, the strongest relationship between anxiety and depressive symptoms was experiential avoidance, followed by cognitive fusion and stigma. According to the results of our study, those with low psychological flexibility and those who felt stigmatized showed more symptoms of depression and anxiety, which was independent of the severity of psoriasis.

There are different findings on the relationship between psoriasis severity and quality of life in the literature. According to some studies, as the severity of psoriasis increases, the quality of life deteriorates more (Gelfand et al., 2004). Some other studies show that there was no significant relationship between quality of life and PASI score (Koryürek et al., 2015). Koryürek et al. (2015) stated that the factor affecting the quality of life the most was the patients' perceptions and feelings about themselves rather than the severity of the disease. According to a report from another study, quality of life was not associated with the size of the affected body or the severity of psoriasis, the fact that the individual felt stigmatized was evaluated as a factor affecting the quality of life (Alpsoy et

Bakar Kahraman et al. Psychological Flexibility in Psoriasis Patients

J Cogn Behav Psychother Res 2024;13(1):1–10

al., 2015). Although the perception of psoriasis severity is not proportional to the severity of psoriasis, the location and size of physical symptoms has been identified as the second most important factor in explaining the perception of psoriasis severity, and it has been determined that this situation is mediated by the cognitive fusion of body image (Almeida et al., 2020). In our study, it was determined that there was a moderate relationship between quality of life and stigma and a weak relationship with the severity of psoriasis. According to the logistic regression analysis results, stigma and depression have been identified as independent risk factors effective in impairing quality of life. The strongest correlation to stigma was found to be between experiential avoidance, which is followed by depression, cognitive fusion, and quality of life score. We found that stigma was not associated with the severity of psoriasis, patients with low psychological flexibility felt more stigmatized and had a lower quality of life.

In our study, difficulty in focusing on the present moment, experiential avoidance, and cognitive fusion in patients with psoriasis being significantly higher indicates the decreased psychological flexibility of patients with psoriasis. It was observed that patients with psoriasis with lower psychological flexibility have higher depression, anxiety, and internalized stigma scores and have lower quality of life. In light of these findings, it is expected that psychological interventions for increasing psychological flexibility (especially mindfulness, acceptance, and cognitive defusion interventions) of patients with psoriasis can increase quality of life by decreasing internalized stigma and decrease depression and anxiety symptoms. Aliakbaridehkordi et al. (2021) showed that ACT improved the physical symptoms, psychological flexibility, and social life of patients with psoriasis. In another study, it was found that 64% of the patients who showed 75% improvement in psoriasis symptoms were patients who received CBT and standard psoriasis treatment together, and only 23% of the group who received standard treatment could reach this level of improvement (Qureshi et al., 2019). Data in the current study increase our expectancy of improvement in the quality of life and decrease the perception of stigma, depression, and anxiety symptoms with interventions toward increasing psychological flexibility.

CONCLUSION

In patients with psoriasis, quality of life is significantly impaired, and this can sometimes be disproportionate to the severity of the disease. The current study contributes to the literature by demonstrating the necessity of psychological assessment in patients with psoriasis. We think that our study can be a source for studies on increasing the quality of life of patients with psoriasis. It is worth pursuing a further prospective controlled study on mindfulness, acceptance, and cognitive defusion interventions on psoriasis and other chronic diseases. It may be useful to compare the parameters of the psychological flexibility of patients with psoriasis before and after interventions and investigate the effects of psychological flexibility on other chronic diseases and see whether it is specific to psoriasis or applies to all chronic diseases.

The results should be interpreted considering the limitations of the study. First, patients' and control groups' non-uniform distribution of age, education level, and marital status can be considered a limitation; however, considering the variables, psychological flexibility was re-compared, and no difference was found between the patient and control groups. Another limitation of the study is the cross-sectional design. Prospective studies are needed to examine the etiological role of decreases in psychological flexibility on depression, anxiety, and internalized stigma.

REFERENCES

Ahmad Fuat, M. S., Mat Yudin, Z., Muhammad, J., & Mohd Zin, F. (2022). Quality of life and its associated factors among patiens with psoriasis in a semi-urban northeast Malaysia. *Int J Environ Res Public Health*, 19(18), 11578. doi:10.3390/ijerph191811578

Akdemir, A., Örsel, S. D., Dağ, İ., Türkçapar, M. H., İşcan, N., & Özbay, H. (1996). Hamilton depresyon derecelendirme ölçeği (HDDÖ)'nin geçerliliği-güvenirliliği ve klinikte kullanımı. *Psikiyatri Psikoloji Psikofarmakoloji Derg*, 4(4), 251–59.

Aliakbaridehkordi, M., Ghafoori, S., Jaffary, F., & Mohtashami, T. (2021). The effect of acceptance and commitment therapy (ACT) on physical symptoms, psychosocial flexibility and social health of patients with psoriasis. *Knowl Res Appl Psychol*, 21(4), 118–132.

J Cogn Behav Psychother Res 2024;13(1):1–10

Bakar Kahraman et al. Psychological Flexibility in Psoriasis Patients

Almeida, V., Leite, Â., Constante, D., Correia, R., Almeida, I. F., Teixeira, M., Vidal, D. G., Sousa, H. F. P., Dinis, M. A. P., & Teixeira A. (2020). The mediator role of body ımage-related cognitive fusion in the relationship between disease severity perception, acceptance and psoriasis disability. *Behav Sci*, 10(9), 142.

Alpsoy, E., Şenol, Y., Temel, A. B., Baysal, G. Ö., & Karakaş, A. A. (2015). Reliability and validity of internalized stigmatization scale in psoriasis. *Turk Arch Dermatol Venereol*, 49(1), 45–49. doi:10.4274/turkderm.54521.

Alper, S., Akyol, M., Atakan, N., Başkan, E. B., Gürer, M. A., Koç, E, Onsun, N., Özarmağan, G., Şentürk, N., & Yaylı, S. (2012). Türkiye Psoriasis Tedavi Kılavuzu-2012. *Turk Arch Dermatol Venereol*, 46, 1–36.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., Waltz, T., & Zettle, R. D. (2011). preliminary psychometric properties of the acceptance and action questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behav Ther*, 42(4), 676–688. doi:10.1016/j.beth.2011.03.007

Damiani, G., Bragazzi, N. L., Karimkhani Aksut, C., Wu, D., Alicandro, G., McGonagle, D., Guo, C., Dellavalle, R., Grada, A., Wong, P., La Vecchia, C., Tam, L. S., Cooper, K. D., & Naghavi, M. (2021). The global, regional, and national burden of psoriasis: Results and insights from the global burden of disease 2019 study. *Front Med*, 8, 743180. doi:10.3389/fmed.2021.743180

Esen, F. B. (2017). *Depresyonda tedaviye yanıtı yordamada ruminasyon, yaşantısal kaçınma, bilişsel birleşme ve kendine-şefkat'in etkisi*. [Yayımlanmamış Tıpta Uzmanlık Tezi]. Sağlık Bilimleri Üniversitesi.

Esmalian Khamseh, L., Asadi Mofarah, M., & Toorani, S. (2020). The efectiveness of cognitive behavioral therapy basen on Cash's eight-step model in body image of women with psoriasis. *Iran J of Dermatol*, 23(1), 1–8. doi:https://doi.org/10.22034/ijd.2020.108061

Evans, J. D. (1996). *Straightforward statistics for the behavioral sciences*. Thomson Brooks/Cole Publishing.

Fabrazzo, M., Romano, F., Arrigo, M., Puca, R. V., Fuschillo, A., De Santis. V., Sampogna, G., Giordano, G. M., Catapano, F., & Lo Schiavo, A. (2022). A multivariate analysis of depression prevalence in psoriasis patients: A cohort study. *Int J Environ Res Public Health*, 19(4), 2060. doi: 10.3390/ijerph19042060

Ferreira, B. I., Abreu, J. L., Reis, J. P., & Figueiredo, A. M. (2016). Psoriasis and associated psychiatric disorders: A systematic review on etiopathogenesis and clinical correlation. *J Clin Aesthet Dermatol*, 9(6), 36–43.

Finlay, A. Y., Khan, G. K., Luscombe, D. K., & Salek, M. S. (1990). Validation of sickness impact profile and psoriasis disability index in psoriasis. *Br J Dermatol*, 123(6), 751–756. doi: https://doi.org/10.1111/j.1365-2133.1990.tb04192.x

Finlay, A. Y., & Khan, G., K. (1994). Dermatology life quality index (DLQI)—A simple practical measure for routine clinical use. *Clin Exp Dermatol*, 19(3), 210–216. doi: https://doi.org/10.1111/j.1365-2230.1994.tb01167.x

Flynn, M. K., Hernandez, J. O., Hebert, E. R., James, K. K., & Kusick, M. K. (2018). Cognitive fusion among hispanic college students: further validation of the cognitive fusion questionnaire. *J Contextual Behav Sci*, 7, 29–34. doi: https://doi.org/10.1016/j.jcbs.2017.11.003

Fredriksson, T., & Pettersson, U. (1978). Severe psoriasis–oral therapy with a new retinoid. *Dermatol*, 157(4), 238–244. doi: https://doi.org/10.1159/000250839

Gelfand, J. M., Feldman, S. R., Stern, R. S., Thomas, J., Rolstad, T., & Margolis, D. J. (2004). Determinants of quality of life in patients with psoriasis: A study from the us population. *J Am Acad Dermatol*, 51(5), 704–708. doi: https:/doi.org/10.1016/j.jaad.2004.04.014

Gillanders, D. T., Bolderston, H., Bond, F. W., Dempster, M., Flaxman, P. E, Campbell, L., Kerr, S., Tansey, L., Noel, P., Ferenbach, C., Masley, S., Roach, L., Lloyd, J., May, L., Clarke S., & Remington, B. (2014). The development and ınitial validation of the cognitive fusion questionnaire. *Behav Ther*, 45(1), 83–101. doi: https://doi.org/10.1016/j.beth.2013.09.001

Gupta, M. A., Gupta, A. K., & Watteel, G. N. (1998). Perceived deprivation of social touch in psoriasis is associated with greater psychologic morbidity: An index of the stigma experience in dermatologic disorders. *Cutis*, 61(6), 339–342.

Gupta, M. A., Gupta, A. K., Kirkby, S., Weiner, H. K., Mace, T. M., Schork, N. J., Schork, N. J., Ellis, C. N., & Voorhees, J. J. (1988). Pruritus in psoriasis: A prospective study of some psychiatric and dermatologic correlates. *Arch Dermatol*, 124(7), 1052–1057. doi: 10.1001/archderm.1988.01670070040016

Hamilton, M. (1959). The assessment of anxiety states by rating. *Br J Med Psychol*, 32(1), 50–55. doi: https://doi.org/10.1111/j.2044-8341.1959.tb00467.x

Hamilton, M. (1960). A rating scale for depression. *J Neurol Neurosurg Psychiatry*, 23(1), 56. doi: 10.1136/jnnp.23.1.56

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behav Res Ther*, 44(1), 1–25. doi: https://doi.org/10.1016/j.brat.2005.06.006

Hoffmann, J. H. O., Enk, A. H. (2022). Evaluation of psorisis area and severity index thresholds as proxies for systemic inflammation on an individual patient level. *Dermatol*, 238(4), 609–614. doi: 10.1159/000520163

Bakar Kahraman et al. Psychological Flexibility in Psoriasis Patients

J Cogn Behav Psychother Res 2024;13(1):1–10

Karatepe, H. T., & Yavuz, K. F. (2019). Reliability, validity, and factorial structure of the Turkish version of the freiburg mindfulness inventory (Turkish FMI). *Psychiatry Clin Psychopharmacol*, 29(4), 472–478. doi: 10.1080/24750573.2019.1663582

Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clin Psychol Rev*, 30(7), 865–878. doi: https://doi.org/10.1016/j.cpr.2010.03.001

Koryürek, Ö. M., Togral, A. K., Koryürek, M. K., & Eksioglu, H. M. (2015). Türk psoriasis hastalarinda yasam kalitesini etkileyen faktörler. *Turk Dermatol Derg*, 9(3), 123–127. doi: 10.4274/tdd.2461

Kouris, A., Platsidaki, E., Kouskoukis, C., & Christodoulou, C. (2017). Psychological parameters of psoriasis. *Psychiatriki*, 28(1), 54–59. doi: 10.22365/jpsych.2017.281.54

Liu, L., Lin, N. X., Yu, Y. T., Wang, S. H., Wang, J., Cai, X. C., Wang, C. X., Zhang, M., Li, X., & Li, B. (2023). Epidemiology of mental health comorbidity in patients with psoriasis: An analysis of trends from 1986 to 2019. *Psychiatry Res*, 321, 115078. doi: 10.1016/j.psychres.2023.115078

Matza, L. S., Morlock, R., Sexton, C., Malley, K., & Feltner, D. (2010). "Identifying HAM-A Cutoffs for Mild, Moderate, and Severe Generalized Anxiety Disorder." *Int J Methods Psychiatr Res*, 19(4), 223–232. doi: https://doi.org/10.1002/mpr.323

Nabieva, K., & Vender, R. (2023). Quality of life and body region affected by psoriasis: A systematic review. *Actas Dermosifiliogr*, 114(1), 33–38. doi: 10.1016/j.ad.2022.07.021

Öztürkcan, S., Ermertcan, A. T., Eser, E., & Şahin, M. T. (2006). Cross validation of the Turkish version of dermatology life quality index. *Int J Dermatol*, 45(11), 1300–1307. doi: https://doi.org/10.1111/j.1365-4632.2006.02881.x

Qureshi, A. A., Awosika, O., Baruffi, F., Rengifo-Pardo, M., & Ehrlich, A. (2019). Psychological therapies in management of psoriatic skin disease: A systematic review. *Am J Clin Dermatol*, 20(5), 607–624. doi: 10.1007/s40257-019-00437-7

Ritsher, J. B., Otilingam, P. G., & Grajales, M. (2003). Internalized stigma of mental illness: Psychometric properties of a new measure. *Psychiatry Res*, 121(1), 31–49. doi: https://doi.org/10.1016/j.psychres.2003.08.008

Ruiz, F. J. (2010). A review of acceptance and commitment therapy (ACT) empirical evidence: Correlational, experimental psychopathology, component and outcome studies. *Int J Psychol Psycho Ther*, 10(1), 125–162.

Tribó, M. J., Turroja, M., Castaño-Vinyals, G., Bulbena, A., Ros Cucurull, E., & García-Martínez, P. (2019). Patients with moderate to severe psoriasis associate with higher risk of depression and anxiety symptoms: Results of a multivariate study of 300 Spanish ındividuals with psoriasis. *Acta Derm Venerol*, 99(4), 417–422.

Vasiliou, V. S., Russell, H., Cockayne, S., Coelho, G. L. D. H. & Thompson, A. R. (2023). A network analysis of psychological flexibility, coping, and stigma in dermatology patients. *Front Med*, 10, 1075672. doi: 10.3389/fmed.2023.1075672

Walach, H., Buchheld, N., Buttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring Mindfulness—The Freiburg Mindfulness Inventory (FMI). *Pers Individ Differ*, 40(8), 1543–1555. doi: https://doi.org/10.1016/j.paid.2005.11.025

Williams, J. B. (1988). A structured interview guide for the Hamilton Depression Rating Scale. *Arch Gen Psychiatry*, 45(8), 742–747. doi: 10.1001/archpsyc.1988.01800320058007

Yavuz, F., Ulusoy, S., Iskin, M., Esen, F. B., Burhan, H. S., Karadere, M. E., & Yavuz, N. (2016). Turkish version of Acceptance and Action Questionnaire-II (AAQ-II): A reliability and validity analysis in clinical and non-clinical samples. *Bull Clin Psychopharmacol*, 26(4), 397–408. doi: 10.5455/bcp.20160223124107

Yavuz, K. F. (2015). Kabul ve kararlılık terapisi (ACT): Genel bir bakış. *Turkiye Klinikleri J Psychiatry- Special Topics*, 8(2), 21–27.

Yazıcı, M. K., Demir, B., Tanrıverdi, N., Karaağaoğlu, E., & Yolaç, P. (1998). Hamilton anksiyete değerlendirme öiçeği, değerlendiriciler arası güvenirlik ve geçerlik çalışması. *Türk Psikiyatri Derg*, 9(2), 114–117.