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Comparison of quality of life, depression and fatigue in patients with psoriasis and psoriatic arthritis

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Abstract

Psoriatic arthritis (PsA) is a chronic inflammatory multisystemic disease. Limitations due to skin and joint involvement of the patients; can lead to negativie suffix in emotional state, social and physical activities. The aim of this study is to investigate the effects of parameters such as skin joint involvement and disease severity on factors such as fatigue, quality of life, depression, etc. in psoriasis and PsA patients. Thirty-four psoriasis and 48 PsA patients matched with each other in terms of age, sex, and other factors were included in the study. Disease severity was measured by Psoriasis Area Severity Index (PASI), Nail Psoriasis Severity Index (NAPSI), Disease Activity in Psoriatic Arthritis (DAPSA) and Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) scores. In order to determine the depression status, quality of life and fatigue levels of the patients, respectively; Beck Depression Inventory (BDI), Health Assessment Questionnaire (HAQ) and Functional Assessment of Chronic Illness Therapy - fatigue scale (FACIT) scores were used. SPSS 17 for statistical evaluation (SPSS Inc. Released 2007. SPSS for Windows, Version 17.0. Chicago, SPSS Inc.) software package was used for analyses. Written informed consent was obtained from all patients who were enrolled to the study. PsA patients were found to have worse quality of life scores than psoriasis patients who were similar in terms of age, gender and other demographic characteristics. (0.22±0.36-0-0.48±0.52 $p=0.017$ respectively). There was a strong correlation between DAPSA scores and HAQ scores of the cases in the PsA group (r:0 ,615 $p<0.05$). Likewise, disease activity measured by DAPSA was found to have moderate correlation with FACIT score, and weak but statistically significant correlation with BDI score. (r: -0.578 $p<0.05$ and r:0.346 $p<0.001$, respectively). No correlation was found between NAPSI-PASI scores and HAQ, BDI - FACIT scores in both the psoriasis and PsA groups. Both psoriasis and PsA affect the quality of life, and our findings suggest that this effect is more pronounced in PsA patients. Our study supports that; the disease severity in PsA patients is related to depression, bad quality of life and fatigue level.

Keywords: psoriasis, arthritis, disease activity, inflammation

1. Introduction

Psoriasis is a common, chronic, inflammatory skin disease with remission and relapses, where genetic, immunological, and environmental factors are suggested to play a role in its etiology (1). During the course of the disease, psoriatic arthritis (PsA), a chronic inflammatory rheumatic disease that can be seen in both sexes, may develop. PsA was defined as an inflammatory arthritis associated with psoriasis, in which rheumatoid factor (RF) was generally negative (2, 3). Some attributes of PsA include distal interphalangeal (DIP) joint involvement, asymmetric distribution, dactylitis (diffuse inflammation of the finger), enthesitis, spinal involvement, and association with HLA-B27 (4, 5). Based on the above characteristic features, PsA was classified within the family of HLA-B27 associated spondyloarthropathy (3, 5). The prevalence of arthritis varies between 7-42% in patients with psoriasis, while its prevalence is 2-3% in the general population (4, 5). The prevalence of psoriasis varies between 0.1 and 2.8% in the general population, while it is between 2.6% and 7.2% in patients with arthritis (2, 6). The onset of psoriatic skin disease is usually observed in the 2nd and 3rd decades, whereas PsA appears after an average of 1 or 2 decades. Prevalence increases from the 3rd to the 6th decade. Average onset is seen between 30-55 years of age. Unlike rheumatoid arthritis (RA), men and women are equally affected (2-6). This rate is different in subgroups of the disease: In the group with spine and DIP involvement, male dominance is observed, and in the group with symmetrical polyarthritis involvement, female predominance is observed. Although the prevalence of skin disease is not correlated with the severity of joint damage, synchronized exacerbations of joint and skin complaints are seen in PsA at a rate of 30-40% (6-9).

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The severity of psoriatic nail involvement is closely related to the severity of both skin and joint disease, and DIF joint involvement is more common in such patients (5, 10, 11).

A patient survey published in 1998 by the United States National Psoriasis Foundation showed that patients with psoriasis believed this disease had profound emotional, social, and physical effects on their quality of life (12). In the said survey, most patients felt that the ineffectiveness of their treatment affected their quality of life. PsA was found to be strongly associated with reduced quality of life consistent with previous studies. Patients with PsA frequently reported emotional problems and body pain in their assessments of quality of life. Although it was shown that both psoriasis and PsA had major effects on individual's perception of quality of life, a very limited number of studies compared only cases with skin involvement with PsA patients (12).

Although Rosen et al. reported lower quality of life levels in PSA cases based on such criteria as the Health Assessment Questionnaire (HAQ) and Short Form 36 in their study in the Canadian population, statistically worse results in psoriasis cases were reported in the Dermatological Life Quality Index (DLQI), which is a dermatological and cosmetic evaluation (13). The results of the aforementioned limited number of studies comparing the two diseases are still controversial. In this study, it was aimed to compare quality of life, fatigue, depression and other parameters in psoriasis and PsA patient groups with similar characteristics in terms of age, gender, socio-demographic characteristics, and disease activity.

2. Materials and Methods

This cross-sectional study was conducted at Ondokuz Mayıs University Faculty of Medicine, Rheumatology Clinic. Prior to the study, relevant approval was obtained from the 19 Mayıs University Faculty of Medicine Ethics Committee (Approval no:2011/480) and the principles of the Declaration of Helsinki were followed. Written informed consent was obtained from all patients enrolled in the study.

Thirty-four consecutive patients, who were diagnosed with psoriasis and met the study criteria and 48 cases with PsA, matched with the psoriasis group in terms of age and gender, were included in the study. Study inclusion criterias were; being diagnosed with psoriasis as a result of dermatologist examination or diagnosed with PsA according to CASPAR Criteria and regularly using the recommended medical treatment for these diseases, being older than 18 years of age and younger than 60 years of age, and volunteering to participate in the study. Exclusion criterias for the study were; having an additional disease (such as uncontrolled hypertension, diabetes, lung and heart diseases) that may affect quality of life, having another rheumatological disease requiring different medical treatment, presence of pregnancy, presence of neurological or orthopedic insufficiency that may cause disability, and being employed in heavy work. Joint involvement was excluded by detailed rheumatological examination in patients in the psoriasis group.

2.1. Study parameters

In order to determine disease activity, PsA activity index Disease Activity in Psoriatic Arthritis (DAPSA) and Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) scores were used in PsA cases, whereas Psoriasis Area Severity Index (PASI) and Nail Psoriasis Severity Index (NAPSI) were used in psoriasis cases. Pain level during the last week was determined by Visual Analog Scale (VAS) for both groups.

The DAPSA score is a scoring system developed from the Disease Activity in Reactive Arthritis (DAREA) score previously defined for reactive arthritis patients, and it was shown to be effective in indicating the severity of PsA disease (14). Swelling in 66 joints and tenderness in 68 joints is checked in this scoring system. The patient's pain score and the patient's global self-assessment of the disease are calculated in the Visual Analog Scale (VAS) 10-point system. Finally, the patients' C-reactive protein (CRP) value at the time of calculation is recorded as mg/dl. The DAPSA score is obtained by adding the number of tender joints, the number of swollen joints, the patient pain score, the patient global assessment, and the CRP value. High scores represent active and severe disease (14).

The PASI score is a scoring system in which the severity and extent of psoriasis disease are evaluated together, by which the size of the lesions in the head, upper extremities, lower extremities and trunk regions, and the severity of erythema induration and dandruff are evaluated (15). The sum of the scores in all 4 regions is expressed as a maximum of 72 points, with the increased scores representing the severe psoriasis case (15).

NAPSI is a scoring method developed to determine the severity of nail involvement in psoriasis patients (16). For all nails, the nail matrix and nail bed are divided into four quadrants and each quadrant is checked for involvement. A nail gets a minimum of 0 and a maximum of 8 points (16).

Patients are asked to mark the severity of pain by explaining that no pain is 0 on a 0-10 cm chart and 10 is the most severe pain that can be felt in life, when calculating the severity of pain with the Visual Analog Scale (VAS). Afterwards, the pain intensity is evaluated by measuring the point marked on the chart with a millimetric ruler (17).

The quality of life of the patients in both groups was evaluated by means of the Health Assessment Questionnaire (HAQ). HAQ is a questionnaire that consists of 20 questions to evaluate the quality of life of patients. Daily tasks such as dressing, eating, walking ability and maintaining personal hygiene are questioned (18). In the questionnaire, where each

answer is evaluated between 0-3 points, the total score is divided by 20 and the result is obtained The HAQ score, which is a good indicator of functional status, is widely used in PsA publications and its validity and reliability was shown for Turkish Language (18, 19).

Depression levels of the patients in both groups were evaluated by means of the Beck Depression Inventory (BDI). Having been a questionnaire consisting of 21 items in total, each item is composed of 4 sentences and patients are asked to choose the sentence that best fits their situation in that scale (20). These sentences are scored between 0-3, with the most severe case being rated as 3 points. Relevant validity and reliability studies were conducted for patients in Turkey (20). The fatigue levels of the patients in both groups were evaluated by means of the FACIT Fatigue Scale. FACIT is questionnaire that has been used in many studies to evaluate fatigue and consists of 13 items each question is given points between 0 and 4, and questions 7 and 8 are scored inversely and a total value of 0-52 is obtained. Lower scores indicate that the patient's fatigue is more severe (21).

2.2. Statistics analysis

SPSS 17 for statistical evaluation (SPSS Inc. Released 2007. SPSS for Windows, Version 17.0. Chicago, SPSS Inc.) software package was used. Kolmogorov-Smirnov test was used to test the conformity of the obtained data to the normal distribution. The Mann-Whitney U test was used to compare the mean of the two groups, when the data did not fit the normal distribution. Chi-square test was used to compare the data obtained by counting method. As regards the correlations within the groups, the Pearson correlation test was applied for the data conforming to the normal distribution and the Spearman correlation test was used for the data not conforming to the normal distribution.

3. Results

The descriptive features of the cases in both groups are provided in Table 1. There was no significant difference in demographic data of psoriasis and PsA patients, such as age, gender, education status, and duration of disease. When comparing psoriasis and PsA groups with similar characteristics, a statistically significant difference was observed in the HAQ scale (0.22±0.36-0 - 0.48±0.52 p=0.017 respectively). While PsA patients showed more disability than psoriasis patients, there was no difference between the two diseases in terms of the depression and fatigue parameters measured by BDI and FACIT scales between the groups (BDI score 10.58 ± 8 -10.91± 9.04 FACIT score 36.91 ± 12.26 – 36.89±11.23 for both p>0.05, respectively) (Table 2).

Table 1. Comparision of Psoriasis and PsA group

	Psoriasis (n:34)	PsA (n:48)	*p*
Gender Female (%)	24 (70%)	29 (60%)	0.325
Age (years) (Mean±SD)	38,35 ± 12,01	46,50 ± 10,93	0.122
Disease duration (years) (Mean±SD)	13,54 ± 9,93	13,66 ± 10,70	0.475
Marital status: Married (%)	30 (90%)	44 (92)	0.319
Educational status n (%)			0.141
Elementary school	18 (53%)	32(67%)	
High schools	8 (23%)	3(7%)	
University	6 (17%)	10 (20%)	
DAPSA (Mean±SD)	-----	13,90± 2,84	--
BASDAI (Mean±SD)	-----	2,06± 1,11	--
PASI	10,71 ± 10,56	5,92 ± 8,22	0.110
NAPSI	10,67 ± 25,10	6,54 ± 11,56	0.135
VAS	4,12± 3,01	5,36± 3,19	0.097
Subtypes of Psoriasis		-----	--
Plaque	85,3%	91.7%	--
Pustuler	2,9%	2.1%	--
Erythrodermic	2,9%	-	--
Palmoplantar	8,8%	6.3%	--
Pure Axial Disease %	-----	4.2%	--
Oligoarthritis		45.8%	--
Polyarthritis		39.6%	--
Dif+Polyarthritis		6.3%	--
Axial+ Polyarthritis		2,1%	--
Axial+ Oligoarthritis		2,1%	--
Treatment Regimen n (%)			0.245
DMARD	10	23	0.011
Biologic Therapy	2	18	0.009

DAPSA: Disease Activity in Psoriatic Arthritis, BASDAI: The Bath Ankylosing Spondylitis Disease Activity Index, PASI: The Psoriasis Area Severity Index, NAPSI: The Nail Psoriasis Severity Index, VAS: The Visual Analog Scale, DMARD: 'Disease Modifying Anti-Rheumatic Drugs

Table 2. Comparision of HAQ, BDI and FACIT scores

	Psoriasis	PsA	*p*
HAQ	0,22 ± 0,36	0,48 ± 0,52	0,017
BDI	10,58 ± 8	10,91 ± 9,04	0,966
FACIT	36,91 ± 12,26	36,89 ± 11,23	0,817

HAQ: Health Assessment Questionnaire, BDI: Beck Depression Inventory, FACIT: Functional Assessment of Chronic Illness Therapy-Fatigue Scale, PsA: Psoriasis Arthritis

There was a strong correlation between DAPSA scores and HAQ scores in the PsA group (r:0 ,615 p<0.05). Likewise, disease activity measured by DAPSA was found to have moderate correlations with FACIT score, and weak but statistically significant correlations with BDI score. (r: -0.578 p<0.05 and r:0.346 p<0.001, respectively). In the subgroup of patients with spondylitis, there was a correlation between BASDAI scores with HAQ and FACIT scores (r:0.498 and r:-0.513 p<0.05). There was no significant correlation between BDI scores (Table 3).

Table 3. Assesment of the Relation Between Disease Severity with HAQ, BDI and FACIT scores

	DAPSA correlation "r"	*p*	BASDAI correlation "r"	P
HAQ	.615	<0.05	.498	<0.05
BDI	.346	<0.05	.147	>0.05
FACIT	-.578	<0.01	-.513	<0.05

HAQ: Health Assessment Questionnaire, BDI: Beck Depression Inventory, FACIT: Functional Assessment of Chronic Illness Therapy-Fatigue Scale, DAPSA: Disease Activity in Psoriatic Arthritis, BASDAI: The Bath Ankylosing Spondylitis Disease Activity Index

More severe deterioration in depression symptoms, disability and disease activity parameters were found in the group with severe fatigue, when the FACIT score cut-off value was taken as 30 in the PsA group. Similarly; more fatigue, more severe disease severity and worse disability scores were found in the severely depressed group, when patients with mild depression and severe depression were compared (Table 4).

Table 4. Effects of Severe Depression and Fatique on PsA study group

Psoriasis Arthritis	FACIT≤30	FACIT>30	P
HAQ	0,91±0,47	0,30±0,43	<0.001
BDI	19,85±9,50	7,23±5,74	<0.001
DAPSA	23,25±14,87	10,94±8,26	<0.001
Psoriasis Arthritis	BDI>17	BDI≤17	p
HAQ	0,82±0,44	0,37±0,50	<0.002
FACIT	24,50±9,39	41,02±8,46	<0.001
DAPSA	20,18±11,19	12,65±11,63	<0.02

HAQ: Health Assessment Questionnaire, BDI: Beck Depression Inventory, FACIT: Functional Assessment of Chronic Illness Therapy-Fatigue Scale, DAPSA: Disease Activity in Psoriatic Arthritis

As regards the psoriasis group, it was observed that HAQ, FACIT and BDI scores did not show a significant correlation with clinical disease activity that evaluated by PASI and NAPSI scores, and this was also true for PsA patients (Table 5).

Table 5. The relation between PASI/NAPSI with HAQ, BDI and FACIT scores

Psoriasis	PASI correlation "r"	p	NAPSI correlation "r"	p
HAQ	,078	>0.05	-,054	>0.05
BDI	-,209	>0.05	,028	>0.05
FACIT	-,040	>0.05	-,108	>0.05
Psoriasis Arthritis	PASI correlation "r"	p	NAPSI "correlation r"	p
HAQ	-,061	>0.05	,041	>0.05
BDI	-,008	>0.05	,002	>0.05
FACIT	-,020	>0.05	-,013	>0.05

HAQ: Health Assessment Questionnaire, BDI: Beck Depression Inventory, FACIT: Functional Assessment of Chronic Illness Therapy-Fatigue Scale, PASI: The Psoriasis Area Severity Index, NAPSI: The Nail Psoriasis Severity Index

4. Discussion

Studies in psoriasis and PsA cases revealed that both diseases reduced the quality of life. Again, studies in which these two diseases were evaluated separately showed that the two negatively affected depression and fatigue levels (22, 23). However, there is only a limited number of studies comparing these two disease groups, taking into account similar age, gender, and disease duration criteria(13). In this study, both disease groups in Turkish society were evaluated on quality of life, fatigue, and depression parameters. According to the results of the study, only HAQ scores were significantly lower in the PsA patient group in terms of quality of life compared to the psoriasis patient group.

Skin diseases such as psoriasis are considered among the important causes of disability because they cause negative feelings such as anxiety and worry due to the presence of a skin disease rather than the itching-like discomfort they actually cause (22, 23). Similarly, some studies showed that the level of disability in skin diseases such as psoriasis did not always correlate with the severity of the disease (22, 24). Krueger et al. suggested in their study conducted in the USA on a national basis that the patients with psoriasis reported that the disease affected their quality of life at a moderate or advanced level at a rate of 75% (12). It was shown in a study conducted with generic quality of life indices based on physical, social, and psychological health assessment, that psoriasis patients and patient groups with atopic dermatitis had similar negative outcomes (25). Decreased quality of life and social comfort in patients with psoriasis were reported in studies conducted with criteria such as Dermatology Specific Quality of Life (DSYK) and Psoriasis Functional Loss Index (PDI), which allow a more sensitive assessment in terms of skin involvement (24-26). Generic scales offer the opportunity to compare two different disease groups, although these original scales were prepared by taking the concerns of psoriasis patients to the forefront. In our study, quality of life and disease activity were determined by means of the Health Assessment Questionnaire (HAQ). Lower scores were obtained especially in the physical health and psychological well-being domains compared to the healthy controls in the psoriasis cases as evaluated by WHOQOL-B in a study by Skevington et al., while it was reported similar results with the control group in the social relations and environment domains. In the same study, statistically significantly lower scores on physical health, psychological well-being, and environment domains were reported in patients with joint involvement compared to patients without joint involvement. In particular, it was emphasized that the items about body image and negative feelings negatively affected psychological well-being domain scores, and items about physical safety and bodily mobility negatively affected environmental domain scores (27). Similar results were reported in the social environment domain in groups with and without joint involvement. In the present study, quality of life was also evaluated by means of HAQ, and while significantly lower results were obtained in the PsA patient group compared to the psoriasis patient group, similar scores were found in the other domains of the quality of life. In a similar study conducted by Tezel et al. within the Turkish society, Psoriatic Arthritis Quality of Life (PSAQoL) scale and HAQ, which were prepared specifically for these patient groups, were used

to compare the quality of life in psoriasis and PsA cases (23). The authors reported that there was no significant difference between the groups in terms of PSAQoL scores, but the increase in HAQ scores in the PsA group was statistically significant. In addition, the authors suggested, the fact that especially psychological mood and social relations values were predominantly included in the calculation of this scale, affected the result in obtaining similar results with regard to PSAQoL scores between the groups (23). Rosen et al. compared the same two disease groups in their study, in which quality of life was evaluated both with the Short Form 36 (SF-36) scale, a generic scale, and with the DSYK, a scale specific to skin diseases (13). According to the results of this study, worse scores were obtained for SF-36 and HAQ results in the PsA patient group, while worse results were found in the psoriasis patient group for DSYK scores (13). Although the presence of arthritis was found to be a negative risk factor for quality of life and functional capacity in that study, the fact that there was an age difference between the groups included in the study (mean age was 46.8 in the psoriasis group, while the mean age was 51.7 in the PsA group) required a statistical correction by logistic regression during the computation of the results (13). In our study, however, the groups were chosen methodologically similar to each other in terms of age and gender in order not to encounter a similar problem; our results showed that high DAPSA scores significantly affected HAQ, FACIT, and BECK scores in PsA patients. These findings are consistent with the studies of Rosen et al. and support the fact that the severity of arthritis affects quality of life and function.

Studies showed that the mental health and activities of daily living of patients with high anxiety levels due to skin lesions were adversely affected. Rüschenschmidt et al. emphasized that although there was no difference in terms of psychological effects, functional disability might be more pronounced in cases with joint involvement (28). In our study, although HAQ scores were higher in the PsA patient group, there was no significant difference between the two groups in terms of BDI scores. Lee et al. suggested in their study that a significant improvement in quality of life, anxiety and depression scores could be recorded in patients with psoriasis, whose disease control could be achieved with treatment, although it was considered that the relationship between psoriasis and psychological well-being was negatively affected by low quality of life, fatigue, sleep disorders, presence of inflammatory cytokines, low vitamin D levels, anxiety, and similar reasons (29). According to a study by Lewinson et al., which offered another point of view, the presence of depression in patients with psoriasis was defined as a risk factor for the manifestation of joint involvement (30). However, although BDI scores were higher in the PsA patient group in our study, it did not lead to a statistically significant difference between these groups. Relevant studies considered fatigue a common symptom in both PsA and psoriasis patient groups (4-11). In their study, McDonough et al. compared the cases with PsA and psoriasis in terms of anxiety, depression, fatigue, quality of life, and functional capacity(31). In that study, more negative results were obtained in the PsA group in measures of anxiety, depression, fatigue, and functional capacity(31). However, there was no difference between the groups in the mental component of quality of life as assessed by SF-36(31). However, the fact that 60% of the cases in the PsA group were men and most of these men were unemployed due to functional disability disrupted the similarity of the study groups (31). Again, inconsistent with this study, female sex was shown as a risk factor for both depression and fatigue for both disease groups in the literature(32, 34). In our study, however, there was no difference between the groups in fatigue and depression scores.

The strengths of our study are ; the diagnosis of psoriasis and PsA was confirmed by both a rheumatologist and a dermatologist, that the PsA group was matched with the psoriasis group in terms of age and gender variables, when forming the groups, and the use of generic scales for comparison between groups. However, the fact that the sample size was not calculated before the study, because it was a cross-sectional study, and that variables such as changes in attack periods and response to treatment did not yield results are included in the important limitations of our study.

As a result, both psoriasis and PsA are diseases that negatively affect such parameters as quality of life, functional capacity, density and depression, as in many chronic diseases. Nevertheless, the results of studies investigating these two diseases or the clinical effect of joint involvement in psoriatic cases are inconsistent. In addition, factors such as different age group, sex, disease activity, disease duration, and treatment regimens make it difficult to compare these two disease groups methodologically. In future prospective comparative studies that start with the diagnosis period, more meaningful results can be obtained by revealing the process, in which both diseases become chronic, and the response to treatment.

Conflict of interest

None to declare.

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None to declare.

References

1. Ali Tahsin Güneş. Psoriyazisin Tarihçesi ve Epidemiyolojisi. Turkiye Klinikleri J Int Med Sci, 2005. 1(13): 1-4.
2. Kundakci N, Türsen U, Babiker M,Gürgey E. The evaluation of the sociodemographic and clinical features of Turkish psoriasis patients. Int J Dermatol, 2002. 41(4): 220-4.
3. Ritchlin CT.Pathogenesis of psoriatic arthritis. Curr Opin Rheumatol, 2005. 17(4): 406-12.
4. Gelfand JM,Gladman D, Mease P, Smith N,Margolis D, Nijsten T et al. Epidemiology of psoriatic arthritis in the population of the United States. J Am Acad Dermatol, 2005. 53(4): 573.

5. Kart-Köseoğlu H, Psöriyatik Artrit. Turkiye Klinikleri J Immunol Rheumatol; 2004. 4(1): 44-53.

6. Erdem HR., Psöriatik artritin klinik özellikleri. Turkish J Rheum 2000; 15: 31-38.

7. Akkaya VB. Psoriyazisde Tanı ve Ayırıcı Tanı. Turkiye Klinikleri J Int Med Sci. 2005; 1(13): 62-67.

8. Özel S, Ünal B, Koca I. Psöriazis Vulgariste Psöriatik Artrit görülme sıklığı. Ege Fiziksel Tıp ve Rehabilitasyon Dergisi 1997. 3(4): 259- 261.

9. Karaoğlan B, Gül O, Koca İ, Karabay Y. Psoriazis Vulgariste Psoriatik Artrit insidansı, hastalarda klinik ve laboratuvar bulgular. Romatol Tıb Rehab 1992; 3(10): 10-4.

10. Saraç G, Kapıcıoglu Y. Psoriasisin Etyopatogenezi. Dermatoz; 2015. 6(1).

11. Çayakar A. Sedimantasyon & CRP- Geçmişten Geleceğe. Ege Tıp Bilimleri Dergisi; 2019. 2(2): 85-96.

12. Krueger, G.Koo J, Lebwohl M, Menter A, Stern RS, Rolstad T. The impact of psoriasis on quality of life: results of a 1998 National Psoriasis Foundation patient-membership survey. Arch Dermatol 2001; 137(3): 280-4.

13. Rosen CF,Mussani F, Chandran V, Eder L, Thavaneswaran A, Gladman D. Patients with psoriatic arthritis have worse quality of life than those with psoriasis alone. Rheumatology (Oxford) 2012;51(3): 571-6.

14. Aletaha D, Alasti F, Smolen J S. Disease activity states of the DAPSA, a psoriatic arthritis specific instrument, are valid against functional status and structural progression. Ann Rheum Dis 2017;76(2): 418-421.

15. Bilaç C, Şahin MT, Öztürkcan S. Disease severity scoring systems in dermatology. Turkderm 2016; 50(2):42-53.

16. Cassell SE, Bieber J, Rich P, Tutuncu Z,Lee SJ,Kalunian KC et al., The modified Nail Psoriasis Severity Index: validation of an instrument to assess psoriatic nail involvement in patients with psoriatic arthritis. The Journal of Rheumatology 2007 ;34(1): 123-129.

17. Wong PC, Leung Y-Y, Li EK, Tam L-S. Measuring disease activity in psoriatic arthritis. Int J Rheumatol, 2012; 2012: 839425.

18. Kucukdeveci A.A., Sahin H, Ataman S, Griffiths B, Tennant A. Issues in cross-cultural validity: example from the adaptation, reliability, and validity testing of a Turkish version of the Stanford Health Assessment Questionnaire. Arthritis Rheum 2004; 51(1): 14-9.

19. Ozcan E, Yılmaz Ö, Tutoğlu A, Bodur H., Validity and reliability of the Turkish version of the Health Assessment Questionnaire for the Spondyloarthropathies. Rheumatol Int 2012; 32(6): 1563-8.

20. Hisli N. Beck Depresyon Envanterinin üniversite öğrencileri için geçerliği, güvenirliği. Psikoloji dergisi 1989; 7(23): 3-13.

21. Webster K., Cella D, Yost K. The Functional Assessment of Chronic Illness Therapy (FACIT) Measurement System: properties, applications, and interpretation. Health Qual Life Outcomes 2003; (1): 79.

22. Bhosle MJ,Kulkarni A, Feldman S,Balkrishnan R. Quality of life in patients with psoriasis. Health Qual Life Outcomes 2006;4: 35.

23. Tezel N,Tasdelen O, Bodur H, Gül U, Çakmaj S, Oguz I et al., Is the health-related quality of life and functional status of patients with psoriatic arthritis worse than that of patients with psoriasis alone? Int J Rheum Dis 2015; 18(1): 63-9.

24. Brodszky V, Pentek M,Balint PV, Geher P, Hadju O, Hodinka L et al. Comparison of the Psoriatic Arthritis Quality of Life (PsAQoL) questionnaire, the functional status (HAQ) and utility (EQ-5D) measures in psoriatic arthritis: results from a cross-sectional survey. Scand J Rheumatol 2010; 39(4): 303-9.

25. Lundberg L.,Johannesson M, Silverdahl M,Hermasson C, Lindberg M , Health-related quality of life in patients with psoriasis and atopic dermatitis measured with SF-36, DLQI and a subjective measure of disease activity. Acta Derm Venereol 2000; 80(6): 430-4.

26. Fortune DG, Main CJ, O'Sullivan TM, Griffiths C E. Quality of life in patients with psoriasis: the contribution of clinical variables and psoriasis-specific stress. Br J Dermatol 1997; 137(5): 755-60.

27. Skevington SM,Bradshaw J,Hepplewhite A, Dawkes K, Lovell CR. How does psoriasis affect quality of life? Assessing an Ingram-regimen outpatient programme and validating the WHOQOL-100. Br J Dermatol 2006; 154(4). 680-91.

28. Ruschenschmidt C,Somberg B, Haussler G, Lohmann J. Comparison of patients with psoriasis vulgaris vs. psoriatic arthritis with regard to the reported quality of life. Rehabilitation 2008; 47(6): 343-9.

29. Lee YW, Park EJ, Kwon IH, Kwang HK, Kwang JK. Impact of Psoriasis on Quality of Life: Relationship between Clinical Response to Therapy and Change in Health-related Quality of Life. Ann Dermatol 2010; 22(4): 389-96.

30. Lewinson RT, Vallerand I, Lowerison M, Parsons L, Frolkis A,Kaplan G et al., Depression Is Associated with an Increased Risk of Psoriatic Arthritis among Patients with Psoriasis: A Population-Based Study. J Invest Dermatol 2017; 137(4): 828-835.

31. McDonough E, Ayearst R, Eder L, Chandran V, Rosen C, Thavaneswaran A et al. Depression and anxiety in psoriatic disease: prevalence and associated factors. J Rheumatol 2014; 41(5): 887-96.

32. Çayakar A. Halsizlik ve Yorgunluğa Klinik Yaklaşım. Ege Tıp Bilimleri Dergisi 2019; 2(3): 168-78.

33. Karshikoff B, Sundelin T, Lasselin J, Role of Inflammation in Human Fatigue: Relevance of Multidimensional Assessments and Potential Neuronal Mechanisms. Front Immunol 2017; 8: 21.

34. Sahi FM, Masood A, Danawar NA, Mekaiel A, Malik BH. Association Between Psoriasis and Depression: A Traditional Review. Cureus 2020;12(8):e9708.