

Article

## The Connection Between Dermatology and Joint Medicine: Exploring Skin and Joint Disorders

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**Abstract:** Psoriatic arthritis (PsA) is a chronic, systemic disease marked by joint and skin inflammation, significantly impacting patients' quality of life. This study aims to assess outcomes related to skin and joint disorders in PsA patients. Data were collected from 75 patients in various hospitals across Iraq between February 2023 and August 2024. Clinical outcomes, the EuroQol questionnaire (EQ-5D), Psoriatic Arthritis Impact of Disease (PsAID12), and the Work Productivity and Impairment Index (WPAI) were used to evaluate health status. Results showed that PsA primarily affects patients aged 56-65, with males (41) slightly outnumbering females (34). Obesity was prevalent in 30.67% of cases. Pain, fatigue, and skin issues were the most common symptoms. Pain scores averaged  $17.64 \pm 16.86$  for skin and  $25.36 \pm 22.10$  for joints. EQ-5D utility scores were  $0.80 \pm 0.16$ , and PsAID12 scores were  $2.96 \pm 1.97$ . The study concludes that PsA patients experience poor health outcomes, low quality of life, and reduced work productivity.

**Keywords:** Psoriatic arthritis, Skin and Joint Disorders, Symptoms, Health quality-life questionnaire.

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### 1. Introduction

Psoriatic arthritis (PsA) is a systemic inflammatory disease that occurs in up to 30% of patients with psoriasis. It also has joints that are swollen, tender, and rigid; for this reason, it is different from other kinds of inflammatory arthritis, such as enthesitis, dactylitis, axial disease, and psoriatic skin and nail lesions. [1 – 4] Psoriatic arthritis (PsA) is a chronic and progressive disease that can cause damage and deformities to the joints if not treated early [5,6]. Though incomplete, a number of studies have demonstrated that the impact of this disorder is due to both skin and joint manifestations, which indicate a need for further investigation into how these two components affect individual PsA patients. [7 – 10]

Several studies located worldwide have found out that people in the general population have a better quality of life (QoL) than patients with PsA. PsA patients tend to share equivalent levels of QoL impairment with those suffering from rheumatoid arthritis despite the fact that the total degree of peripheral joint disease's severity in the former is much lower. [11 – 14] Presence of concomitant skin manifestations may also account for this additional QoL impact. Greater skin severity in observational studies of PsA patients

has been shown to be associated with higher disease activity characterized by more joint involvement, for instance [15,16]. Another study found out that patients who had worse Pro skin scores also exhibited more symptoms like increase fatigue, more pain, and lower physical function scores than their counterparts whose skin wasn't affected as much by the condition. [17]

According to one recent systematic literature review, it appears that certain patients with PsA may suffer significant psychological effects like nervousness and sadness. Data on the subject diminishes. It is on record that proportions of patients with PsA suffer from more anxiety or gloominess compared to the population in general, confirms one systematic literature survey. [18] Prevalence of PsA in the range of 10-25%, whereas rates of anxiety among the PsA sufferers vary ranging from 16% to 35%. Research has not adequately examined whether skin or joint symptoms have a more significant impact on these outcomes or whether they contribute equally to them. In addition to this, there are times when PsA patients may experience acute disease exacerbations with different components flaring up at different times or all at once in an unquantified way. [19]

## 2. Materials and Methods

### 2.1. Study Design and Population

During a data-collecting period from February 2023 through August 2024, current and historical data pertaining to the patients consulting a doctor about PsA were captured for a total of 75 patients who participated in this cross-sectional study. This information was collected at hospitals located in different hospitals in Iraq. Such data consisted of demographic characteristics like age, sex, comorbidities, history of diseases, and body-mass index, among others.

### 2.2. Data Collection

This study utilized data from Physician Reported Patient Record Forms and Patient Self-Completed Forms that were voluntary. Details about the patient are included in the physician-reported data, which encompass things such as age and sex. Furthermore, other facets of the clinical nature of the patient, including symptoms of PsA, durations over which parts flare-up due to reactivation or increased activity by the culprit agent, clinical outcome measures like joint disease activity indices were considered apart from overall clinical assessments like evaluation of skin involvement extent in terms of erythema and induration or peeling were evaluated based on the degree of a combined subjective system asking the patient about these details.

The patient-reported data consisted of general health status, history of illness as well as symptoms experienced, medication details and EuroQoL 5D, Work Productivity and Activity Impairment (WPAI) Questionnaires, Health Assessment Questionnaire Disability Index (HAQ-DI) and Psoriatic Arthritis Impact of Disease 12 (PsAID12) questionnaire. EQ-5D utility score is obtained by combining five questions about different areas, including mobility, self-care, usual activities, pain/discomfort, and anxiety/depression, and a score is generated ranging from 0, which stands for death, to 1, that stands for full health. The visual analogue scale (VAS) enables people to rate their perceived health on a scale from 0 representing the worst possible health status to 100 representing the best possible health status.

The HAQ-DI, which measures health-related quality of life, was originally created to evaluate patients with rheumatoid arthritis. It ranges from 0-3, where 0-1 is mild difficulty to moderate disability, 1-2 is moderate to severe disability, and 2-3 is severe to very severe disability. The PsAID is specific for PsA. It is a Rheumatism that measures how much the disease affects the patient's life. This survey uses weighted points, with scores ranging between 0 and 10, where four is believed to represent an acceptable status by patients.

The study used SPSS (version 20.0) in carrying out statistical analysis. Data on patient demographics, along with clinical characteristics, were captured. In general, each was used to show numeric values, while for Mooring or Anchoring, percentages were given out along with their corresponding whole number counts. Clinical burden was also described in terms of mild, moderate, and severe skin severity as reported by the physicians (n, mean, SD, %).

### 2.3. Statistical analysis

The study used SPSS (version 20.0) in carrying out statistical analysis. Data on patient demographics, along with clinical characteristics, were captured. In general, each was used to show numeric values, while for Mooring or Anchoring, percentages were given out along with their corresponding whole number counts. Clinical burden was also described in terms of mild, moderate, and severe skin severity as reported by the physicians (n, mean, SD, %).

## 3. Results

Table 1. Demographic data of participants (n = 75)

Variables	N = 75	Percentage (%)
Age		
35 – 55	24	32%
56 – 65	30	40%
> 65	21	28%
Sex		
Male	41	54.67%
Female	34	45.33%
BMI		
Underweight	12	16.0%
Normal weight	21	28.0%
Overweight	19	25.33%
Obese	23	30.67%
Charlson Comorbidity Index	1.83 ± 0.21	
Comorbidities		
Hypertension	50	66.67%
Diabetes	38	50.67%
Anemia	29	38.67%
Asthma	8	10.67%
Kidney diseases	15	20.0%

Heart diseases	10	13.33%
Osteoporosis	40	53.33%
Others	14	18.67%
ASA status		
I	11	14.67%
II	17	22.67%
III	33	44.0%
IV	14	18.67%
Education status		
Primary	15	20.0%
Secondary	24	32.0%
Diploma	10	13.33%
Master's degree	14	18.67%
PH. D	12	16.0%
Employment status		
Working	28	37.33%
Not – working	47	62.67%
Monthly income status: \$		
400 – 600	35	46.67%
601 – 800	24	32.0%
> 800	16	21.33%

Table 2. Assessment of symptom scores related to skin and joints at patients BY PsAID12 scale.

Variables	Details
Pain	3.8 ± 0.2
Fatigue	4.2 ± 0.1
Skin problems	3.3 ± 0.4
Work activities	2.9 ± 0.2
Functional capacity	3.1 ± 0.1
Discomfort	4.3 ± 0.1
Sleep disturbance	2.8 ± 0.3
Coping	3.0 ± 0.2
Anxiety	3.3 ± 0.1

Embarrassment	2.7 ± 0.4
Social participation	2.9 ± 0.1
Depression	3.1 ± 0.2

Table 3. Identify the main features of joints and skin at patients.

Items	N = 75	%
Psoriatic arthritis (PSA) was diagnosed.		
0	0	0.0%
0 – 2	30	40.0%
3 – 9	21	28.0%
> 9	24	32.0%
Severity of illness		
Mild	3	4.0%
Moderate	20	26.67%
Severe	52	69.33%
Severity of Joint		
Mild	18	24.0%
Moderate	54	72.0%
Severe	3	4.0%

Table 4. A medical assessment of pain by VAS scale in terms of skin and joints.

Items	VAS score (mean ± SD)
Skin	17.64 ± 16.86
Joint	25.36 ± 22.10
Global score	27.89 ± 21.73

Table 5. Clinical outcomes at patients 'joint and skin' PsA

Items	Scores
- EQ-5D utility score	0.80 ± 0.16
- EQ-5D VAS	69.74 ± 18.28
- HAQ Disability Index	0.62 ± 0.31
- WPAI	
Percent work time missed due to problem	14.93 ± 3.65

Percent overall work impairment due to problem	24.77 ± 15.42
Percent activity impairment due to problem	26.78 ± 29.51
- PsAID12 score	2.96 ± 1.97

#### 4. Discussion

This data is in accordance with results from US registry analysis that indicated that patients who suffered severe skin disease (> 3% BSA) were twice more likely to experience an advanced joint disease measured by CDAI compared to patients without any affected area of their skin (BSA = 0%). An independent post-hoc analysis of the same registry also established that TJC, SJC, DAS28-CRP, and CDAI scores increased significantly in PsA patients with more severe skin involvement (> 3% BSA) than those whose PSA involved less than or equal to 3% of their bodies. [20]

Patients who suffered from both joint and skin conditions were noted to display sizable disparities in PROs. These patients had markedly higher levels of disability as measured by the HAQ-DI test; their productivity at work was significantly more impaired according to WPAI scores; their health status on EQ-5D and PsAID scales was also found wanting, especially when compared to individuals with either one of these problems. [21,22]

Each of the 12 PsAID items was individually evaluated, and it was found that the 'joint and skin' category had significantly higher (worse) scores across all individual items. Tiredness, discomfort, pain, and skin problems were the most affected aspects among those suffering from joint and skin conditions. This is consistent with observations made by researchers from the US who revealed that those affected by PsA, among whom BSA is over 3%, displayed increased HAQ-DI, pain, and fatigue scores as well as worse work productivity (WPAI) in comparison to their counterparts who had BSA less than 3%. [23]

According to several research studies [24,25], some people with PsA believe that skin symptoms are very important. Researchers carried out an internet survey on 200 individuals who had been diagnosed with PsA in Germany to find out how irritated patients felt by symptoms on joints or skin. According to the findings [26] made with the best-worst scaling method, the most irritating symptom reported by these participants was itchy, swollen, or cracked skin, whereas the second position went to joint ache, irritation, or tenderness. Furthermore, an inquiry on patients during the creation process of PsAID showed that skin problems were among the top three issues ranked significantly after pain and fatigue.

Previously, it has been shown that the psoriatic component of PsA makes added detraction to poor HR-QoL elicited by its impact on psychological health. An estimated seventy percent of participants reported that their PsA elicited stress or depression, and there was no significant statistical variation between them on "joint and skin." A larger fraction (approximately eighty-two percent) of the participants stated that the symptoms from skin and joint conditions contributed to their anxiety/depression. [27 – 29]

High levels of skin severity with an increasing number of swollen joints each are strongly associate with poor prognosis conditions in these groups of patients. The same patient-reported outcomes were observed among those suffering from this condition. Approximately 62% of these individuals achieved a HAQ-DI score ranging from 0.62 + 0.31, whereas 80% had an EQ-5D utility score ranging from 0.80 + 0.16; PsAID symptom severity index values had 2.96 ± 1.97

## 5. Conclusion

The state of health among patients who had both joint and skin disorders was bad, shown by more flaring, high emotional burden, and poor quality of life related to health. The outcome was not just a decline in productivity at work quality but also an increase of disability, showing that it's important for future therapies targeting both skin and joint symptoms when it comes to PsA management, thus maximizing on the patient's quality of life (QoL) and not affecting their productivity much. As the skin involvement severity increases in patients having a mixture of skin and joint symptoms, their productivity, health status, and disability status are affected more, hence showing the need for further effort alongside more advanced future treatment options also targeting on the improvement of disease severity among such group of patients in everyday settings.

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