

# B Psoriatic Arthritis

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## 1 Introduction

Psoriatic arthritis (PsA) is an inflammatory arthritis that may affect some 30% of patients with psoriasis. While almost all patients suffer from arthritis in the peripheral joints, some 40–50% may also have a spondylitis, and about 4% have isolated inflammatory back disease. Until the mid 1980s PsA was considered less severe than rheumatoid arthritis (RA), the prototype of inflammatory arthritis. Wright's original description of PsA included a majority of patients who presented with an oligoarthritis (four or less peripheral joints affected) [1]. Compared to polyarticular RA this group appeared milder. However, a follow-up study from Wright's group in Leeds identified a larger proportion of patients with polyarticular disease (five or more peripheral joints involved), and demonstrated that there was disability and even mortality among these patients [2]. Although a study from Britain suggested that the majority of patients who had been admitted to an inpatient facility were doing well after 10 years of disease [3], more recent studies provide evidence for more severe disease among patients with PsA [4].

## 2 Assessment of Disability

The assessment of disability and quality of life in Rheumatology has included a number of tools, some that are completed by the physician, and others that are patient-derived questionnaires. A review of the use of these instruments in PsA as well as the level of disability in patients with PsA is provided in this chapter.

### ACR Functional Class

The American College of Rheumatology (ACR, formerly American Rheumatism Association) developed a method to assess functional ability in the late 1940s. Similar to the functional classification for heart disease, patients are graded according to their ability to perform activities of daily living, based on limitations imposed by their disease (Table B1) [5]. While this classification is crude, as the levels of function as defined do not distinguish between patients who carry on despite marked disability and those who do not function well with mild disease, the ACR functional class does reflect the level of daily activity a patient reports at a given time. An analysis of 220 patients who were registered in the Psoriatic Arthritis Clinic revealed that about a fifth of the patients had severe disease, defined by the presence of 5 or more deformed joints, and that 11% of the patients had significant disability, as determined by the ACR functional class III and IV [6]. This study introduced the concept that PsA was more severe than previously thought. Over the past 20 years several studies have supported this view [7–9].

**Table B1.** ACR functional class

Class I	– able to carry on normally without pain or discomfort
Class II	– able to carry on with usual activities despite pain or discomfort
Class III	– activities of daily living limited to self care because of pain or disability
Class IV	– bedridden

## The Health Assessment Questionnaire (HAQ)

Over the past 30 years a number of instruments have been developed to assess functional ability and quality of life in a more detailed way. Fries et al. described the Health Assessment Questionnaire (HAQ) [10], which was initially developed as a tool to assess patient function in rheumatoid arthritis, and has since been used generally in rheumatology. It is considered an instrument specific for arthritis. The HAQ evaluates patient's function in 8 different domains (Table B2). It is scored on a 0–3 scale where higher numbers represent more disability.

The HAQ was administered to 114 patients with PsA followed in a PsA Clinic [11]. Higher HAQ scores were associated with more actively inflamed joints as well as with measures of function (ACR functional class and grip strength) and with fibromyalgia tender points. The HAQ did not correlate with disease severity as measured by clinically and radiologically damaged joints.

One study reported that HAQ scores of 47 patients with PsA were not statistically different from those of 47 patients with RA matched on disease duration [12]. However, another study, which compared 107 patients with PsA and 43 patients with RA followed in an outpatient clinic, found that HAQ scores in PsA were lower than those reported in patients with RA [13]. The latter study did not control for disease duration, and the patients with PsA had a lower number of actively inflamed joints than the RA patients. Thus, it may be that patients with PsA

with polyarticular disease have similar HAQ scores to patients with RA, confirming that PsA causes disability. Indeed, mean HAQ score of PsA patients included in the IMPACT trial of infliximab was 1.1, which is similar to that reported for RA patients [14]. Significant reductions in HAQ score were recently documented in randomized controlled trials of anti-TNF agents in PsA [15].

A modification of the HAQ for the spondyloarthropathies has been developed and validated [16]. This version includes two questions regarding disability due to back involvement. Since some 40–50% of patients with PsA have an associated spondyloarthritis, the modified HAQ was tested in PsA [11]. The summary scores of the modified HAQ (HAQ-S) were similar to the original HAQ (0.50 and 0.53 respectively). Like the original HAQ, the HAQ-S correlated with disease activity and function, but not with disease severity. There was no statistical difference between the HAQ and HAQ-S scores of patients with and without spondyloarthritis.

The HAQ was further modified by including questions related to psoriasis [17]. Patients with PsA were asked to identify the difficulties they encountered in activities of daily living related to their psoriasis. From the list generated by the patients several questions were identified and included in the HAQ to generate HAQ-SK. The HAQ-SK was then administered to 118 patients and provided almost identical scores to the original HAQ (0.56 and 0.55 respectively). While the HAQ-SK did not correlate with the Psoriasis Activity Severity Index (PASI) score, patient and physician rating of psoriasis did correlate. This study concluded that the HAQ-SK did not add important information to the original HAQ.

**Table B2.** HAQ tasks

- Dressing and grooming
- Arising
- Eating
- Walking
- Hygiene
- Reach
- Grip
- Activities

## Other Measurements of Function

Meenan et al. described another instrument that was useful in patients with arthritis, called the Arthritis Impact Measurement Scales (AIMS) [18]. This instrument is longer than the HAQ and provides both functional assessment and a quality of life measurement. It was subsequently modified and described as AIMS2 [19].

The AIMS has been shown to be reliable and sensitive to change in patients with a variety of forms of arthritis.

Both the original AIMS and the AIMS2 were validated in PsA [20, 21]. The AIMS was administered to 145 patients with PsA. The physical function scales were correlated moderately to highly with measures of disease activity, function, and disease severity, and the pain scale was highly correlated with disease activity and function. The AIMS2 was administered to 124 patients with PsA and like the original AIMS was found to correlate with disease activity and function [21]. The finding that the AIMS was sensitive to articular changes that occurred in patients over a 4-year period provides further support for the utility of the AIMS as an outcome measure in clinical studies of PsA [22]. However, while the AIMS and AIMS2 appear to be valid instruments in the assessment of patients with PsA, it takes patients a relatively long time to complete these instruments. Thus, AIMS and AIMS2 are less feasible to use in both clinical trials and clinic setting.

The Disabilities of Arm, Shoulder, and Hand (DASH) Questionnaire was developed as an outcome measure for patients with upper extremity musculoskeletal conditions [23]. It measures symptoms and functional status with a focus on physical functioning. The DASH was administered to 50 consecutive patients in the PsA clinic to assess its construct validity with respect to clinical measures of function, inflammatory joint disease activity, and joint deformity in the upper extremity [24]. The DASH correlated with clinical measures of upper extremity function such as grip strength and actively inflamed joint count in the upper extremity. However, there was no correlation between upper extremity damaged joints and the DASH in the group of patients tested.

The Bath Ankylosing Spondylitis Functional Index (BASFI) was developed for the assessment of patients with inflammatory back disease and functions well in patients with ankylosing spondylitis, the prototypical form of spondylitis [25]. It has not functioned very well in PsA in that it did not distinguish patients with spinal disease from those who had peripheral arthritis only [26].

### 3 Quality of Life Measures

The Medical Outcome Study short form 36 (SF-36) is a generic quality of life instrument which has been used extensively to describe quality of life and function in a number of medical conditions [27]. SF-36 has an advantage over disease specific instruments in that it allows for comparison between patients with different diseases. The SF-36 includes eight domains and can be evaluated in each individual domain or as a composite index. The SF-36 has been validated in PsA. It demonstrated that patients with PsA have lower function and quality of life than the general population [28]. Moreover, the SF-36 was at least as good as if not superior to the HAQ and the AIMS2 in reflecting changes in disease status over time [29]. Thus the SF-36 is a useful instrument in the assessment of quality of life in patients with PsA.

The European Quality of Life (EQ-5D) questionnaire is a generic measure of health status developed by the EuroQoL Group, an international research network established in 1987 by researchers from Finland, the Netherlands, Sweden, and the United Kingdom [30]. The EQ-5D questionnaire defines health in terms of five dimensions: mobility, self-care, usual activities (work, study, housework, family, or leisure), pain or discomfort, and anxiety or depression. Each dimension is subdivided into three categories, which indicate whether the respondent has no problem, a moderate problem, or an extreme problem. The EQ-5D was administered to patients with PsA and found to be similar to scores of patients with RA matched for disease duration [12]. The EQ-5D scores were similar even though patients with PsA had less severe joint disease than the patients with RA. The authors suggest that this may be due to the skin disease, as a gradient in scores for both HAQ and EuroQoL-5D was found across the skin severity groupings.

Recently, the Psoriatic Arthritis Quality of Life questionnaire was developed as an instrument specifically for the assessment of quality of life in patients with PsA. Through interviews with 48 patients with PsA followed in hospital outpatient clinic, a questionnaire of 51 items

was derived and tested. The questionnaire was administered by mail to 120 individuals, of whom 94 responded. Rash analysis allowed a reduction to 35 items. A subsequent mailing to 450 members of the Psoriatic Arthropathy alliance generated a response from 286, of whom 237 participated in a validation study. Further analysis reduced the items from 35 to 20. The final questionnaire was tested again with excellent reliability and internal consistency. It was further tested for external construct validity by correlating the scores with scores of generic instruments such as the EuroQoL and the National Health Survey. However, it was not compared to the currently used instruments such as the SF-36 and the HAQ [31].

The Dermatology Life Quality Index (DLQI) was developed to measure quality of life in patients with skin diseases. It has been used extensively in evaluating dermatological conditions, including the assessment of patients with psoriasis, and has been shown to have construct validity and sensitivity to change in clinical status [32]. Although it has not been tested specifically in PsA, it has been used in a number of studies to assess quality of life in patients. It is not clear whether the DLQI is different from the SF-36 in assessing quality of life in patients with psoriasis and PsA, as the two were not measured against each other. The DLQI correlated with a recently developed measure of quality of life in psoriasis, the PSORQoL instrument, but there was enough difference to prompt the authors to suggest that the latter may be measuring some additional aspects of the disease [33].

Patients with PsA suffer from fatigue more frequently than the general population. This was demonstrated by the administration of a modification of the Krupp Fatigue Severity Score (FSS) [34, 35]. This nine-item scale assesses the impact of fatigue on activities of daily living and is scored from 0 to 10, with higher scores indicating more severe fatigue. The FSS for 75 patients with PsA was higher than for the 100 healthy controls ( $5.2 \pm 3.0$  vs.  $3.9 \pm 2.1$ ,  $p=0.001$ ). Forty-five percent of the PsA patients reported the presence of fatigue on clinical assessment. The mean FSS score in this group was 6.9 compared to 3.8 in patients who did not report fa-

tigue. Fatigue was associated with fibromyalgia tender point count, morning stiffness, clinically damaged joint count, active joint count, and hemoglobin [34]. Change in FSS over time analyzed for 90 patients with PsA was found to be related to changes in actively inflamed joints [36].

## 4 Conclusion

Following the recognition that PsA may be more severe than previously thought, a number of assessment instruments have been used to evaluate function and quality of life among patients who suffer from this disease. Although only one quality of life instrument was developed specifically for PsA, it has not been compared to more generic instruments. All instruments document a reduced function and quality of life compared with the general population. In at least one study, skin disease was found to contribute to the diminished quality of life associated with the joint disease. These aspects of the disease need to be included in the assessment of current and future drug therapies for PsA.

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