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# Impact of training on concordance among rheumatologists and dermatologists in the assessment of patients with psoriasis and psoriatic arthritis☆

Carlo Salvarani, MD[a,b,*], Giampiero Girolomoni, MD[c], Vito Di Lernia, MD[d], Paolo Gisondi, MD[c], Giovanni Tripepi, MSc, PhD[e], Colin Gerard Egan, BSc, PhD[f], Antonio Marchesoni, MD[g], DREAM study group

[a] *Rheumatology Unit, Department of Internal Medicine, Azienda Ospedaliera ASMN, Istituto di Ricovero e Cura a Carattere Scientifico, Reggio Emilia, Italy*
[b] *University of Modena and Reggio Emilia, Italy*
[c] *Department of Medicine, Section of Dermatology and Venereology, University of Verona, Verona, Italy*
[d] *Dermatology Unit, Arcispedale Santa Maria Nuova IRCCS, Reggio Emilia, Italy*
[e] *CNR-IFC, Clinical Epidemiology and Pathophysiology of Hypertension and Renal Diseases, Ospedali Riuniti, Reggio Calabria, Italy*
[f] *Primula Multimedia SRL, Ospedaletto, Pisa, Italy*
[g] *Department of Rheumatology, ASST Centro Specialistico Ortopedico Traumatologico Gaetano Pini-CTO, Milan, Italy*

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ABSTRACT

*Objective:* To evaluate the impact of training on the reliability among dermatologists and rheumatologists in the assessment of psoriatic arthritis (PsA) patients.
*Methods:* Overall, 9 hospital-based rheumatologists and 8 hospital-based dermatologists met in Reggio Emilia, Italy on October 2015 to assess 17 PsA patients. After 1 month, physicians underwent a 3-h training session by 4 recognized experts and then assessed 19 different PsA patients according to a modified Latin square design. Measures included tender (TJC) and swollen joint count (SJC), dactylitis, enthesitis, Schober test, psoriasis body surface area (BSA), Psoriasis Area and Severity Index (PASI), Nail Psoriasis Severity Index (NAPSI), and static physician's global assessment of PsA disease activity (sPGA). Variance components analyses were performed to estimate the intraclass correlation coefficient (ICC).
*Results:* TJC and enthesitis-measured pre-training by dermatologists or rheumatologists revealed moderate–substantial agreement (ICC: 0.4–0.8). In contrast, SJC and Schober test showed fair (ICC: 0.2–0.4) and moderate agreement, respectively (ICC: 0.4–0.6), while poor agreement (ICC: 0–0.2) was represented by dactylitis. Moderate–substantial (ICC: 0.4–0.8) agreement was observed for most skin measures by dermatologists and rheumatologists, apart from BSA, where fair agreement (ICC: 0.2–0.4) was observed. Agreement levels were similar before and after training for arthritis measures. In contrast, levels of agreement after training for 3 of the 4 skin measures were increased for dermatologists and all 4 skin measures were increased for rheumatologists.
*Conclusions:* Substantial to excellent agreement was observed for TJC, enthesitis, PASI, and sPGA. Rheumatologists benefited from training to a greater extent.



## Introduction

Psoriasis is chronic inflammatory skin disease affecting 2–3% of Caucasians of which up to one-third have psoriatic arthritis (PsA) [1,2]. However, evidence suggests that the rate of PsA detection is low, with as many as half of psoriasis patients with PsA going undiagnosed [3,4]. Comprehensive assessment of patients with psoriasis and PsA involves assessment of the skin, nails, joints,

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*Corresponding author at: Unità di Reumatologia, Azienda Ospedaliera-IRCCS di Reggio Emilia, V.le Risorgimento N80, 42100, Reggio Emilia, Italy
*E-mail address:* salvarani.carlo@asmn.re.it (C. Salvarani).

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entheses, and dactylitis [5–9]. The most commonly used measures for assessing the severity of skin psoriasis include the Psoriasis Area and Severity Index (PASI) and the physician's global assessment (PGA) [7,10], which is considered subjective but more closely reflects assessment in clinical practice [11], and the body surface area (BSA) [7], which may show some interrater reliability [12–14]. Nail lesions occurs in as many as 50% [15] of patients with psoriasis and in about 65% of patients with PsA [16], and is most commonly measured by using the Nail Psoriasis Severity Index (NAPSI) [17]. The assessment of joints involves counting the number of tender and swollen joints [5,6]. The assessment of tender joints has been found to be reliable in previous studies performed by expert rheumatologists [18–20]. However, the assessment of swollen joints was found to be less reliable [18–20]. Dactylitis is an important feature of PsA [21] and a simple count of all dactylitic fingers and/or toes [22] has been previously found to be moderately reliable [18], but with marked differences in interrater variability, particularly between dermatologists and rheumatologists [20]. Enthesitis is a distinctive feature of PsA [23]. Excellent agreement among observers with regard to the number of active enthesitis sites for individual patients has been observed from the INSPIRE study [19]. The original Schober test is used to assess mobility and has been shown to present substantial levels of agreement compared to other mobility measures [24–26].

Although the reliability of the above described measurements has already been described among dermatologists and rheumatologists for the evaluation of PsA patients [20], the impact of training on reliability has yet to be determined. Therefore, the aim of the present study was to determine whether the assessment of psoriasis and nail severity, as well as peripheral and axial joint involvement, enthesitis, and dactylitis, by rheumatologists and dermatologists is reproducible and if it can be improved following training.

## Materials and methods

### *Patients*

A total of 36 patients with varying degrees of psoriasis and PsA typically seen in the Dermatology and Rheumatology outpatient clinic, Department of Internal Medicine, Arcispedale S. Maria Nuova, Reggio Emilia, Italy, participated in the Dermatology and Rheumatology Experts in psoriatic Arthritis Management (DREAM) study. Consecutively unselected male and female adult patients with psoriatic arthritis were invited to join the study. Participation in the study was voluntary. Diagnosis of psoriasis was clinical. All patients met the ClASsification criteria for Psoriatic ARthritis (CASPAR) criteria for the classification of PsA [27].

### *Experimental design*

Overall, 17 hospital-based physicians (9 rheumatologists and 8 dermatologists) from different Italian regions met in Reggio Emilia, Italy on October 2015 to assess 17 PsA patients. Patient assessment was performed in 2 rounds. During the first round, 17 patients and 17 assessors were divided into 2 groups. One group included 4 dermatologists and 5 rheumatologists who assessed 9 patients, and the other included 4 dermatologists and 4 rheumatologists who assessed 8 patients. In each group, all patients were assessed by the same assessors according to a Latin square design [28]. The second round took place exactly 1 month after the first assessment, when all 17 assessors received a 3-h intensive training course in the assessment of PsA patients. The course was undertaken by 2 expert rheumatologists (C.S. and A.M.) and 2 expert dermatologists (V.D. and G.G.) and included a theoretical component (2 h), with detailed explanation of skin (visual aids) and arthritis measures used for the assessment of psoriatic arthritis measures followed by practical session (model patient) for arthritis measures (1 h). Dermatologists and rheumatologists attended the course together at the same time and in the same room. Immediately following this training session, 19 different PsA patients were assessed by the same dermatologists and rheumatologists in 2 groups, one group including 3 dermatologists and 5 rheumatologists who assessed 10 patients and the other group including 4 dermatologists and 4 rheumatologists who assessed 9 patients. During and between patient visits, assessors were not permitted to speak to each other until all assessment forms were completed and archived. Duration of assessments ranged from 10 to 15 min per patient. In the period between pre-training visits and post-training visits, assessors were requested to adopt their normal work routine without attempting any preparation themselves for instruments used in the post-training visits. After 1 month of training, each assessor was requested to complete a 3-question questionnaire relating to ease or difficulty of different measures and their overall impression of benefit gained from undertaking the course. Each answer consisting of a numerical scale (from 0 to 10).

### *Assessors*

Although 20 physicians (10 dermatologists and 10 rheumatologists) were initially invited, only 17 were able to participate to both rounds of patient assessments. All assessors were hospital-based physicians, with the majority ($>75\%$) having extensive experience in the assessment of PsA and psoriasis. However, there were differences among the assessors in their respective experience with individual measures. Rheumatologists had a substantial experience in the assessment of PsA (8.1 $\pm$ 3.8 years) with lesser experience treating patients with psoriasis (4.9 $\pm$ 5.6 years). While all rheumatologists had extensive experience in assessing joint counts, enthesitis, or dactylitis (mean 8.3 $\pm$ 3.8 years), they had less experience in using PASI (2.7 $\pm$ 4.3 years) and virtually no experience in performing NAPSI assessment (only 1 rheumatologist had experience). As expected among dermatologists, substantial experience was noted for the assessment of psoriasis (7.8 $\pm$ 3.4 years) with less experience of patients with PsA (4.9 $\pm$ 3.5 years). While all dermatologists had extensive experience using PASI (7.5 $\pm$ 3.6 years), only 57% of them had experience using NAPSI (2.6 $\pm$ 4 years) with similar levels of experience with arthritis measures such as joint counts, enthesitis, or dactylitis.

### *Clinical assessments*

The BSA was visually determined using the rule that the palm of the patient represents 1% of his/her total body surface and the rule of nines [13]. The assessors scored erythema, infiltration, scaling, and area involved for the head, trunk, upper extremity, and lower extremity, and the total PASI score was calculated [10]. The activity of psoriasis was scored on an 11-point (0–10) numerical rating scale, with 0 representing inactive disease and 10 representing the most active disease. The static PGA (sPGA) is the physician's global assessment of the subject's psoriasis based on severity of induration, scaling, and erythema [7]. The sPGA is a scale from 0 to 5 where 0 indicates clear and 5 indicates severe disease. Assessors used a simplified version of the NAPSI score to assess nail psoriasis. Instead of considering all nails from fingers and toes, assessors were instructed to select the worst nail from each hand and foot only (comprising a total of 4) and subsequent assessment of nail involvement was performed according to Rich and Scher [17]. For peripheral joint assessment, 68 joints were assessed for tenderness and 66 joints were assessed for swelling. The total number of fingers and/or toes with dactylitis was also recorded. For enthesitis assessment, an expanded Leeds index (LEI) was performed. The following entheses were bilaterally evaluated: lateral epicondyle, medial femoral condyle, Achilles tendon