



## Recommendations and metaanalyses

## A 12-point recommendation framework to support advancement of the multidisciplinary care of psoriatic arthritis: A call to action



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## INFO ARTICLE

## ABSTRACT

Historique de l'article :

Accepté le 22 février 2021

Disponible sur Internet le 23 mars 2021

Keywords :

Psoriatic arthritis

Multidisciplinary

Comorbidity

Integrated care

**Objective.** – Making a differential diagnosis of psoriatic arthritis (PsA) is not straightforward. This is partly because of its heterogeneous presentation and partly because many patients with PsA are initially diagnosed with psoriasis and treated in primary care or by dermatologists, with referral to rheumatologists being delayed. Once diagnosed, optimal disease control requires frequent specialist monitoring, adjustment or switching of therapies, and management of comorbidities and concomitant diseases, as well as attention to patients' overall well-being. Given the breadth of expertise that diagnosis and management of PsA requires, we sought to define a collaborative, structured framework that supports the optimisation of multidisciplinary care for patients with PsA in Europe.

**Methods.** – An expert panel comprising four rheumatologists, three dermatologists, two specialist nurses and one psychologist—from Spain, the United Kingdom, The Netherlands, Germany, France and Italy—met face-to-face to take part in a modified Delphi exercise.

**Results.** – The result of this exercise is a set of recommendations that are based on combining published evidence with the panel's extensive clinical experience. Recommendations can be implemented in a number of ways, but the central call-to-action of this framework is the need for improved collaboration between dermatologists (or primary care physicians) and rheumatologists. This could occur in a variety of different formats: standard referral pathways, multidisciplinary physician meetings to discuss patient cases, or 'one stop', combined clinics.

**Conclusion.** – We anticipate that when the majority of patients with PsA receive regular multidisciplinary care, improved patient outcomes will follow, although robust research is needed to explore this assumption.

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<https://doi.org/10.1016/j.jbspin.2021.105175>

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## 1. Introduction

Psoriatic arthritis (PsA) and psoriasis (PsO) share some pathogenic mechanisms, with PsA occurring in up to 30% of people with PsO [1,2]. However, PsA often goes undetected: in one study of 100 patients with PsO in a routine care setting, 29% were found to have undiagnosed PsA when examined by a rheumatologist [3].

The majority of patients with PsA present with PsO before PsA is diagnosed, although up to 20% of patients present with PsA first, and <10% experience concurrent skin and joint symptoms [2,4]. Importantly, although the skin symptoms associated with PsO are generally reversible, the joint damage associated with PsA is often irreversible, making early diagnosis and effective treatment crucial [5].

Challenges associated with the clinical management of PsA have been summarised recently.[6] Among these is the heterogeneous presentation of PsA, which can include arthritis, spondylitis, enthesitis, dactylitis, skin and nail involvement.[7] Making a differential diagnosis of PsA is not straightforward. Once diagnosed, disease control requires frequent specialist monitoring, individual adjustment or switching of therapies, and careful management of extra-musculoskeletal manifestations and comorbidities [8,9]. In addition, consideration of other risk factors, such as weight, smoking and physical activity, [10,11] and of the patient's overall well-being, is warranted.

In the US, a multidisciplinary approach to the diagnosis and management of PsA and PsO has recently been facilitated through the introduction of the Psoriasis & Psoriatic Arthritis Clinics Multicenter Advancement Network (PPACMAN) – a global network of combined dermatology and rheumatology clinics, currently including more than 20 clinics in the USA that provide combined care [12]. Several different models for combined care exist globally. For example, in North America both at the Center for Skin and Related Musculoskeletal Diseases (SARM) at Brigham and Women's Hospital in Boston, MA, [13] and at the Dermatology and Rheumatology Treatment (DART) Clinic in Canada, dermatologists and rheumatologists provide concomitant care at the point of service [14]. In Spain, there is the Psoriasis Rheumatology and Dermatology (PSORD) unit in the Hospital Universitario Parc Tauli in Barcelona, where rheumatologists and dermatologists receive training sessions on the signs and symptoms of PsA and PsO from the perspectives of each group, and patients are then provided with concomitant care [15]. In the Hospital Can Misses in Ibiza, patients with psoriatic disease are referred for diagnostic problems, therapy-related issues, comorbidity management, or safety concerns to a multidisciplinary care unit [16]. In both Spanish clinics, patients return to their specialist for management after diagnosis and treatment are established [Baum 2018].

Given the challenges faced with the clinical management of PsA, there is an emerging recognition in the field that a collaborative, structured management of PsA by rheumatologists and dermatologists is needed. However, the involvement of other specialists, including psychologists, gastroenterologists, primary care physicians and specialist nurses should be considered given the multifaceted nature of PsA. Only in this way can we facilitate effective, patient-centred care in PsA, starting from the diagnosis of PsO or PsA – whichever comes first – and involving the patient as much as possible throughout [17].

An expert panel was convened with the objective of developing a collaborative framework for the multidisciplinary care of PsA in order to address some of the challenges currently facing healthcare professionals treating patients with PsA. A unique aspect of this expert panel was that it comprised experts from six European countries, in order to provide regional guidance that could then be adapted as needed and applied at a local level. The panel sought to develop minimum standards for effective collaboration in the management of PsA, to support the following aims:

- raise awareness of PsA among a range of specialists involved in patient care;
- improve early diagnosis of PsA;

- provide a framework that allows for multidisciplinary care, with patients themselves actively involved in the management of their disease.

## 2. Methods

An expert panel were selected on the basis of their clinical role and extensive experience in managing patients with PsA. The panel comprised four rheumatologists, three dermatologists, two specialist nurses and one psychologist, from six European countries (Spain, the United Kingdom, The Netherlands, Germany, France and Italy), who met face-to-face to take part in a modified Delphi exercise [18]. During this process, the panel identified the key area of clinical focus – multidisciplinary care in PsA – and topics therein where a gap in current clinical management had been identified.

A literature review was carried out for relevant studies and articles published in English between 1 January 2009 and 31 January 2019, based on topics and search terms agreed by the expert panel. Databases included PubMed/Medline, EMBASE and The Cochrane Library. Supplementary manual searches were performed as needed to ensure that recent publications and relevant articles from reference lists were included. Papers were screened for relevance and drawn into narrative text, which was then used to support the drafting of the initial Delphi statements. Of 1675 articles screened, 84 were analysed and 32 were referenced during the initial draft of evidence-based statements.

A face-to-face meeting was held on 9 April 2019 to review the statements and supporting evidence. The draft recommendations were discussed in relation to the clinical experience of the expert panel, who each scored their level of agreement with each statement on a scale of 1 (lowest, totally disagree) to 9 (highest, fully agree). We adopted a minimum requirement of  $\geq 75\%$  of the experts scoring their agreement as 7–9. If this requirement was not met, the statement wording was refined and scored again, in line with a modified Delphi process. Statements were prioritised and sorted according to three categories – diagnosis, management and education. External validation of the revised statements was then obtained via an anonymous survey, sent by email, of another group of clinicians who were selected because of their relevant expertise, comprising seven rheumatologists, four dermatologists, one general practitioner and three nurses, representing the same countries as the expert panel. The final 12 recommendations (Table 1), along with supporting evidence and key points of discussion, are presented in this paper.

## 3. Results

### 3.1. Agreed statements

#### 3.1.1. A delay in the diagnosis of PsA is a significant contributor to poor patient outcomes

The ACR/National Psoriasis Foundation guidelines state that early identification of PsA and early initiation of therapy are important for improving long-term outcomes [19]. Despite this, in a survey of patients with PsO in North America and Europe, the average time from onset of joint symptoms to diagnosis of PsA was reported to be 5 years ( $n = 712$ ) [4]. In a smaller retrospective study based on medical records, median time from symptom onset to patients' first rheumatological assessment was 1 year (interquartile range: 0.5–2.0;  $n = 283$ ). In the same study, a 6-month delay in diagnosis and treatment was associated with an increased risk of peripheral joint erosion and worse patient-reported outcomes [20]. In another retrospective study of 267 patients who had PsA for  $\geq 10$  years, a delay of  $\geq 1$  year between symptom onset and diagnosis

**Table 1**  
Summary of recommendations.

Recommendation	Level of agreement (median [interquartile range])	External validation (median [interquartile range])
<b>Diagnosis</b>		
1. A delay in the diagnosis of PsA is a significant contributor to poor patient outcomes	9.0 (8.0–9.0)	8.0 (8.0–9.0)
2. Limited awareness, lack of screening and delayed referrals all impact early PsA diagnosis and treatment access	9.0 (8.75–9.0)	8.0 (7.0–9.0)
<b>Management</b>		
3. All patients with PsA should be screened for psychological distress and provided with appropriate intervention as needed	8.0 (8.0–9.0)	7.0 (5.0–8.0)
4. Management of PsA should address all aspects of the disease: skin; nail; musculoskeletal disease symptoms (peripheral and axial); associated diseases; well-being; and QoL	9.0 (8.0–9.0)	8.0 (8.0–9.0)
5. Management of PsA should be tailored to the severity and phenotype of disease (both skin and musculoskeletal aspects) in each individual patient	9.0 (8.75–9.0)	8.0 (8.0–9.0)
6. Regular objective clinical assessment of disease activity conducted by a physician or a specialist nurse is the gold standard of care	8.0 (7.75–8.25)	8.0 (8.0–9.0)
7. The primary treatment goal should be remission or minimal disease activity with regular monitoring, because it is associated with better outcomes	8.5 (8.0–9.0)	8.0 (8.0–9.0)
8. Patient–clinician consultations must address comorbidities to ensure optimal care and outcomes	9.0 (8.0–9.0)	8.0 (8.0–9.0)
9. Multidisciplinary management could be more effective and satisfactory for patients than a consultation with a single specialist	8.0 (7.75–9.0)	8.0 (7.0–9.0)
10. Multidisciplinary care for patients with PsA should involve rheumatologists and dermatologists at a minimum, and those specialists necessary for appropriate management of the patient	9.0 (7.75–9.0)	8.0 (7.0–9.0)
<b>Education</b>		
11. Dermatologists should be able to identify possible signs and symptoms of PsA among their patients with PsO, with diagnosis to be confirmed by a rheumatologist	8.0 (7.75–9.0)	8.0 (8.0–9.0)
12. High-quality patient–clinician education and patient understanding is key to ensuring adherence	8.5 (8.0–9.0)	8.0 (8.0–9.0)

PsA, psoriatic arthritis; QoL, quality of life.

was a significant predictor of worse physical functioning later in the course of the disease [21].

Once diagnosed, the time required for patients to receive effective treatment, and how this is achieved in clinical practice, is also a key consideration. The TICOPA study in 206 patients with early, DMARD-naïve PsA showed that treating to target based on a tight control strategy significantly improved joint and skin outcomes compared with standard care. Patients' chance of reaching ACR20 at 48 weeks (primary endpoint) was higher with tight control versus standard care (odds ratio: 1.91; 95% confidence interval: 1.03–3.55;  $P=0.0392$ ). Patient-reported outcomes (the Bath Ankylosing Spondylitis Disease Activity Index and the corresponding Functional Index; a PsA-specific quality of life instrument, PsAQoL; and the Health Assessment Questionnaire) also improved [22].

### 3.1.2. Limited awareness, lack of screening and delayed referrals all impact early PsA diagnosis and treatment access

In the Multinational Assessment of Psoriasis and Psoriatic Arthritis survey of 391 dermatologists and 390 rheumatologists based in North America and Europe, > 75% stated that PsA is probably underdiagnosed due to a failure to connect skin and joint symptoms [23]. This problem is compounded by screening tools that are not sensitive or specific enough, nor used consistently enough to merit regular use during time-limited consultations [6].

Improved collaboration between dermatologists, primary care physicians and rheumatologists may hold the key to reducing time to PsA diagnosis, whether this takes the form of standard referral pathways, multidisciplinary team meetings, or 'one stop', rapid-access combined clinics in which the patient is seen by multiple specialists at the same time. In addition, there is a need for further education and training on PsA and its symptoms in specialist dermatology clinics and in primary care, where physicians lack specific musculoskeletal expertise and patients with PsO are not regularly screened for PsA. An alternative to screening tools is to systematically ask patients with PsO about joint and back symptoms [24]. The value of sensitive screening methods such as high-field magnetic resonance imaging or ultrasound to detect subclinical joint inflammation in patients with skin disease has yet to be fully validated.

However, studies suggest that this approach would help identify patients at high risk of developing PsA when considered in tandem with other clinical symptoms such as arthralgia [25,26].

In countries such as the UK, in which many patients with mild PsO are treated in primary care [27] but without regular scheduled follow-ups in primary care or with a dermatologist, education of patients themselves on the risk of PsA, its symptoms and the need for screening is also important [28]. In particular, patients should be made aware of the fact that symptoms associated with their joints may be linked to their PsO, and should be reported so that treatment can be adjusted if needed.

### 3.1.3. All patients with PsA should be screened for psychological distress and provided with appropriate intervention as needed

Patients with PsA have worse QoL, not only compared with the general population, but also compared with patients with PsO [29,30]. The numerous and varied symptoms associated with PsA are likely to contribute to this effect on QoL [31]. However, this does not account for the entire psychological burden experienced by patients: in one study, anxiety was independently associated with QoL in patients with PsA, highlighting the need to specifically address the psychological aspect of the disease as part of routine patient care [32]. Another study showed that the relationship between pain and depressive symptoms in PsA is bi-directional [33]. A recently published meta-analysis ( $n=31,227$ ) highlighted that anxiety and depression are common among patients with PsA, with one in three people experiencing at least mild levels of anxiety and one in five reporting at least mild symptoms of depression [34]. Another study based on medical records has linked major depressive disorder with a significantly higher risk of developing PsA in patients with PsO [35]. Finally, the effect of PsO or PsA treatment itself on depression and anxiety should be considered, even if it has not yet been studied comprehensively.

Given the above considerations, screening for and treatment of the psychological and physical aspects of PsA should ideally be managed using a co-ordinated, multidisciplinary approach. This should include a psychologist who can assess the patient regularly and, if needed, support them in dealing with the challenges

associated with self-managing a long-term disease that has a significant pain component [31]. High-quality studies of the effect of treatment on patients' psychological well-being should also be conducted, as a lack of agreement in published research is preventing guideline development. For example, one study, indicated that biologic treatment was associated with a lower incidence of depression than conventional treatment in a subgroup of 7490 patients from the Psoriasis Longitudinal Assessment and Registry [36]. However, some clinical data for apremilast and brodalumab suggest that these treatments may be associated with a potential worsening of patients' psychological well-being; overall, data on these agents remain inconclusive in this regard [37,38].

It should be noted that this third statement, 'all patients with PsA should be screened for psychological distress and provided with appropriate intervention as needed', was agreed on during the face-to-face meeting but was not validated externally. It is included for readers to consider, given that caveat. Although the expert group recognised the need for specialist assessment and intervention, the group also recognised that resources available in different healthcare services may limit the implementation of this statement.

### 3.1.4. Comprehensive management of PsA should address all aspects of the disease: skin; nail; musculoskeletal disease symptoms (peripheral and axial); associated diseases; well-being; and QoL

A major challenge of treatment is the degree to which treatment strategies need to be individualised to reflect the main areas of disease activity for each patient. Consideration of the most prominent symptoms (e.g. skin or joint), and identification of other associated diseases (e.g. inflammatory bowel disease, uveitis) is the key to selecting the most appropriate medication. Some treatments are approved and available for multiple linked diseases.

Currently, management of PsA often begins with the isolated treatment of either joint or skin symptoms. For skin symptoms, a stepwise treatment approach is common, starting with topical therapies or phototherapy. Treatment of joint symptoms typically begins with use of non-steroidal anti-inflammatory drugs or intra-articular steroid injections. Subsequently, patients are moved onto systemic treatment, commonly starting with conventional synthetic DMARDs, such as methotrexate, sulfasalazine and leflunomide, followed by biologics and targeted synthetic DMARDs [7,39]. TNF inhibitors, the first biologics to be approved in PsA, are now widely used, as are biologic drugs targeting IL-17, IL-12/23, and CD80/CD86 and targeted synthetic DMARDs targeting phosphodiesterase type 4 inhibitor and janus kinase 1,3 [7,19,39].

Non-pharmacological interventions may also be required to improve patients' QoL. This may include psychological support, advice on nutrition and weight loss – if appropriate – and exercise, plus evidence-based approaches to lifestyle behaviour change.

### 3.1.5. Management of PsA should be tailored to the severity and phenotype of disease (both skin and musculoskeletal aspects) in each individual patient

Data from real-world clinical practice ( $n=138$ ) suggest that a 'treat-to-target' approach is also feasible outside of a trial setting. This intensive treatment strategy was more likely to be implemented in patients with high disease activity, severe skin involvement or accompanying comorbidities at baseline [40]. A flexible approach such as this one may be required in practice, with strategies being adapted according to assessment of disease activity in each individual patient.

### 3.1.6. Regular objective clinical assessment of disease activity conducted by a physician or a specialist nurse is the gold standard of care

Patient self-reporting of joint disease activity in PsA has been shown to correlate poorly with joint examination by a physician [41]. For this reason, monitoring of disease activity in PsA should include patients' reporting of how symptoms are affecting their everyday lives, and also regular physical examination by an expert healthcare practitioner. This is highlighted in the GRAPPA and EULAR treatment recommendations [7,39].

### 3.1.7. The primary treatment goal should be remission or minimal disease activity with regular monitoring, because it is associated with better outcomes

Minimal disease activity has been well defined and used in clinical trials [42]. GRAPPA and EULAR treatment recommendations specify that the aim of treatment in patients with PsA should be remission, or, if this is not achievable, low/minimal disease activity [39]. A recent paper goes further, recommending the stringent adoption of 'very low disease activity' as the goal for treating-to-target in PsA. This measure does not permit residual disease activity to be 'hidden' within some domains of composite scores, and ensures that significant active arthritis, enthesitis, nail or plaque PsO is not present [43].

However, although it is widely acknowledged that a 'treat-to-target' strategy is effective and should cover both skin and joint manifestations, this is rarely implemented in everyday clinical practice, and few data from this setting are available to support the value of this approach. Achieving 'treat-to-target' goals requires regular monitoring of disease activity, adjusting therapy and dosing on an individual basis as needed [39].

A consideration for clinical management highlighted by the TICOPA study is that patients who received a treat-to-target approach (4-weekly review with escalation of therapy if criteria not met) in the tight control arm experienced a higher incidence of serious AEs (14% vs 6% in the standard care arm). The rate of AEs was also higher in the tight control arm (97%) than in the standard care arm (77%), although the proportion of AEs suspected to be related to study drug was similar in both arms [22]. According to interpretation, these findings reinforce the need to adjust treatment plans to the disease phenotype and to the overall health of the patient in the everyday management of PsA.

### 3.1.8. Patient–clinician consultations must address comorbidities to ensure optimal care and outcomes

Major comorbidities in PsA include obesity, metabolic syndrome, cardiovascular disease, diabetes, liver disease, gout, depression and anxiety [7,39]. PsA is also significantly associated with subclinical atherosclerosis and endothelial dysfunction, and consequently patients have an increased risk of cardiovascular events [44]. One study in a routine care setting ( $n=2254$ ) showed that cardiovascular risk factors such as hypertension and dyslipidaemia remain undetected or undertreated in many patients with PsA [45]. Similarly, a high proportion of patients with PsA have metabolic syndrome (44% in one study of 283 patients). Along with insulin resistance, this is associated with the severity of underlying PsA, highlighting the need for regular monitoring of metabolic markers as well [46].

As outlined in the GRAPPA and EULAR treatment recommendations for PsA, comorbidities of PsA should be assessed and are part of disease management, as well as skin and joint manifestations of the disease. This can be done by physicians or specialist nurses: the EULAR recommendations for the role of the nurse in the management of chronic inflammatory arthritis recognise the extended role of rheumatology nurses in many countries, and that this may include helping to assess and manage comorbidities [47].



In a meta-analysis including 19,372 patients with immune-mediated inflammatory diseases, patients with obesity and PsO and/or PsA ( $n=11,873$ ) had 57% higher odds of failing anti-TNF therapy than those with a body mass index not indicative of obesity [48]. Weight loss is therefore an important part of disease management for some patients. Weight loss has been reported to significantly improve disease activity in PsA within 6 months in one prospective cohort study ( $n=46$ ) [49]. In another cohort study, gastric bypass surgery was shown to significantly reduce the risk of PsA in patients with PsO ( $n=12,364$ ) [50].

Management of PsA alongside comorbidities can be complex: potential side effects of polypharmacy need to be balanced against the clinical benefits, especially when considering addition of treatments, switching or dose alterations [51,52].

### 3.1.9. Multidisciplinary management could be more effective and satisfactory for patients than a consultation with a single specialist

The central tenet of this recommendation is clinical collaboration between dermatologists and rheumatologists to diagnose and manage patients with PsA. This could be achieved by means of a preferred referral system, in which each dermatologist has a referral 'partner' in rheumatology and vice versa; by multidisciplinary outpatient clinics; or by multidisciplinary board meetings. More specific, practical points to consider when establishing specialised units have been considered and published elsewhere [53].

Although scarce, available evidence presented in a recent meta-analysis indicates that management of PsO and PsA in a joint dermatology/rheumatology consultation is effective and associated with a greater level of patient satisfaction [54].

Another option to consider is that follow-up of patients with PsA (and other chronic inflammatory arthritides) can be achieved using a combination of clinics led either by rheumatologists or by specialist nurses. One study in patients undergoing biological treatment showed that replacing one of two annual rheumatologist visits with a nurse-led consultation provided the same level of clinical outcome compared with two rheumatologist visits [55,56].

### 3.1.10. Multidisciplinary care for patients with PsA should involve rheumatologists and dermatologists at a minimum, and those specialists necessary for appropriate management of the patient

Although dermatologists and rheumatologists should lead the collaborative care process in PsA, assistance of both general practitioners and other specialists will be essential for some patients given the impact that PsA has on all aspects of a patient's life.

### 3.1.11. Dermatologists should be able to identify possible signs and symptoms of PsA among their patients with PsO, with diagnosis to be confirmed by a rheumatologist

Given that the majority of patients with PsA have already been diagnosed with PsO, [2,4] dermatologists have been described as 'sentinels' for the early detection of PsA [24]. In countries such as the UK, in which the majority of patients with mild PsO are managed in primary care, annual assessment for PsA by primary care physicians is recommended in national guidance [27,57]. Both dermatologists and, as required, primary care physicians, should systematically screen for wide-ranging clinical manifestations of PsA and refer to a rheumatologist for imaging tests and a diagnosis [24]. Key clinical signs and symptoms of PsA are broad, often beginning with osteomuscular pain and tender joints. Further symptoms include peripheral inflammatory pain; axial inflammatory pain; dactylitis; and buttock and sciatic pain [58]. This makes a differential diagnosis of PsA (as opposed to another musculoskeletal disease) difficult. Use of validated PsA screening questionnaires, [59–63] with educational support for dermatologists and primary care physicians as needed, is therefore recommended.

### 3.1.12. High-quality patient–clinician education and patient understanding is key to ensuring adherence

The rate of adherence in patients taking biologics for PsA has been reported to be > 70% in studies of golimumab, adalimumab and etanercept [64,65]. However, one study reported that treatment switches occurred in 42% of patients with adalimumab and 47% of patients with etanercept prescriptions [65]. Patients who have previously used biologics generally have better adherence and persistence. Younger age, female gender, higher out-of-pocket costs, greater disease severity and more comorbidities have all been associated with lower rates of treatment adherence and persistence in a study of patients with rheumatoid arthritis, PsO or PsA [64].

Although it is widely acknowledged that adherence is multifactorial, patient–clinician interactions play an important role and the consultation provides a helpful means of engaging patients in their own care. Shared decision-making between the patient and the clinician has been identified as one of the keys to optimising treatment adherence [66].

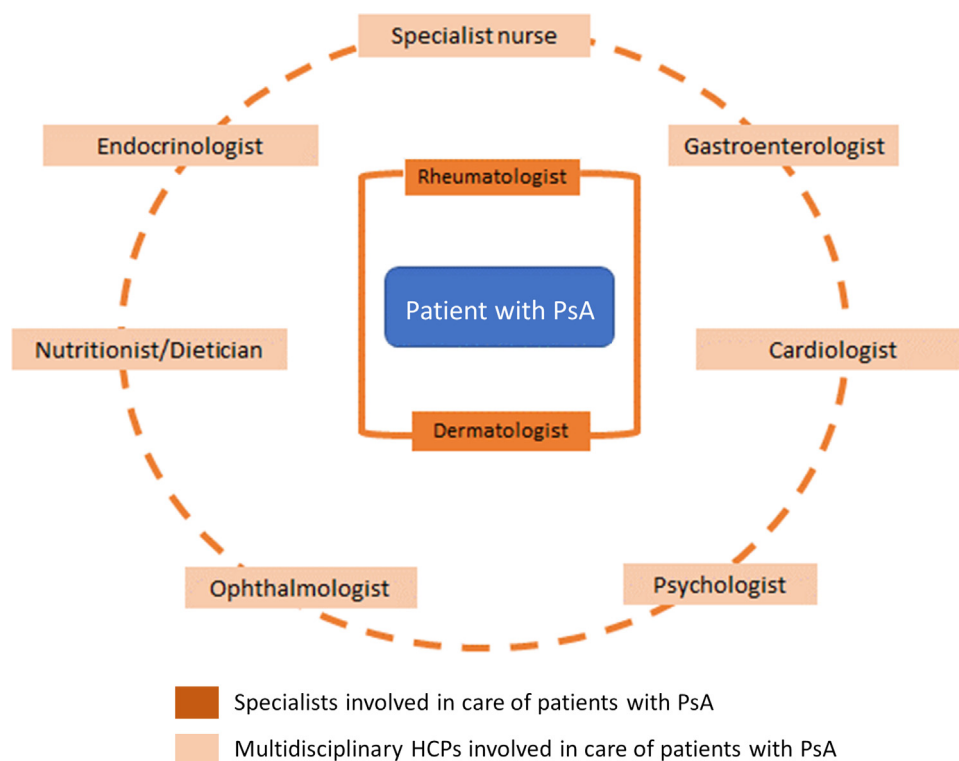
However, data show a relatively high rate of discordance (29%) between patient and physician global assessment of disease impact in 460 patients with PsA. In cases of discordance, most patients (85.8%) rated their global assessment higher than did their physician [67]. These data may indicate that physicians are missing some signs of disease activity or some aspects of the disease that are especially relevant to the patient. For example, physicians may be evaluating pathological severity but not fully considering the impact of the disease on a patient's overall well-being. The latter hypothesis is supported by the observation that key drivers of the discordance were fatigue, lower self-perceived coping and impaired social participation [67]. Another study in 565 patients with PsA found that fatigue, pain and tender joint count accounted for much of the difference between physician and patient assessment of disease activity [68]. Discordance between physicians and patients can be an obstacle to shared decision-making, with neither party fully understanding the perspective of the other. Every effort should be made to minimise discordance, with the first step being awareness of key drivers, such as fatigue.

## 4. Discussion

Using a robust modified Delphi consensus process, we propose 12 recommendations on the diagnosis, management, and education of PsA that could be used as a practical framework to guide and refine multidisciplinary care.

The process of developing these statements brought to light the complexity and challenges of accurate and consistent assessment, as well as providing multidisciplinary care in PsA across a range of European settings. We acknowledge that defining a rigid template or imposing practices would be counterproductive. Our aim was to set out principles rather than to impose organisational or administrative structures. The result of this exercise is a set of flexible principles within a practical framework that serve as a call-to-action to implement, refine and optimise multidisciplinary care practices in PsA. In addition, some areas have been identified in which evidence is absent or insufficient, with a need for concerted data collection. We acknowledge that the implementation of these principles may differ according to the variation and limitations of different healthcare models. Our recommendations can be interpreted and applied within local healthcare systems, as outlined in the suggested implementation strategies relating to Recommendation 9.

PsA is a disease that has multisystemic effects that require a holistic treatment approach (Fig. 1) [54,69]. Ideally, patient care should be regularly reviewed by the necessary range of specialists throughout the patient journey, making collaborative care



**Fig. 1.** PsA is a multi-domain disease that requires multidisciplinary specialist care. PsA, psoriatic arthritis.

the usual format of care rather than the exception. Attendance at a multidisciplinary clinic at pre-specified milestones is one way of achieving this and multidisciplinary clinics are increasingly common: in the United States, for example, more than 20 dermatology/rheumatology clinics were reported in 2018 [5,12]. In these integrated clinics, dermatologists and rheumatologists carry out patient consultations either together or sequentially, and disease management is typically underpinned by an agreed referral process and clinical protocol [70,71]. Although integrated clinics have been associated with high levels of patient satisfaction, [16] shared best practice could further refine the quality of care provided [71,72]. In particular, staff resourcing may need to be adapted to improve scheduling, given that dermatologists typically see an average of 15–20 patients in a half-day, whereas a rheumatologist would see 6–8 patients in the same time period [73]. A possible solution proposed by the experts involves specialist rheumatology nurses supporting the patient in managing their PsA and any treatment-related side effects. This nurse-led approach can ease pressure on resources and consultation time, permitting the rheumatologist to focus their consultations on patients with complex needs. There are, no doubt, improvements in efficiency that can be made; in one study of 320 patients, a large proportion of dermatological diagnoses were unrelated to patients' rheumatological diagnoses, and these patients, once identified, do not need to be seen during integrated clinic hours [14]. The panel noted that, owing to the limitations of healthcare resources, many patients are returned to the care of a single specialism once a particular clinical problem has been addressed (for example, a new treatment regimen has been initiated and is found to be effective). This model is particularly useful in reviewing the management of problematic patients: in one study, the majority of patients either received a revised diagnosis or a change in treatment [15]. However, as shown in primary care, [74] continuity of care is linked to patient satisfaction.

The experts recommended the local development of evidence-based clinical protocols that cover all aspects of PsA care, such as

criteria for referral, monitoring of disease activity, evaluation and management of treatment-associated side effects, and treatment switching. These could form the basis of training of healthcare professionals who are involved in local PsA care, and be used to share knowledge between dermatologists, rheumatologists, psychologists, physiotherapists, gastroenterologists, specialist nurses and primary care professionals, ensuring that each role is defined in line with local needs and with input from each relevant specialist.

The consensus process highlighted that a vital part of any multidisciplinary set-up should be data collection, to evaluate patients' short- and long-term clinical outcomes and QoL. Assessment of cost-effectiveness and healthcare resource use will also be important. Eventually, it is hoped that data collection will provide insights about the impact of early treatment on disease progression. Better understanding of the pathophysiological basis of PsA, and of the transition from PsO to PsA, may help to identify patients with PsO who have the highest risk of developing PsA. Having a system in place that supports early treatment of PsA may therefore help us to identify preventive strategies [75].

The process outlined in this paper had a number of strengths and limitations. An obvious strength is the extensive clinical experience and practical insights provided by our expert panel. However, a broader expert panel may be considered in future updates to the statements. Literature searches were limited to papers published in English. Statements were developed without input from patients, although the literature search did include studies that addressed the patient perspective. We acknowledge that this is not an adequate substitute for real patient input at the consensus-seeking stage.

These statements are based on a narrative review of the literature, as well as sharing of extensive clinical experience among experts in the management of patients with PsA. Once the majority of patients with PsA are receiving regular multidisciplinary care, we anticipate that improved patient outcomes will follow, along

with new directions for research into the very early stages of this debilitating disease.

### Role of the funding source

Pfizer supported the face-to-face meeting and associated preparatory work, but authors received no payment for development of the manuscript.

### Author contributions

All authors contributed to the panel discussions and voting process, reviewed all drafts of the manuscript and approved the final draft of the manuscript.

### Disclosure of interest

CB has received grants and personal fees from Amgen, Novartis, Pfizer, Janssen, and UCB.

FB has received grants and personal fees from AbbVie, Amgen, Boehringer Ingelheim, Celgene, Galapagos, Gilead, GlaxoSmithKline, Janssen, Lilly, MSD, Novartis, Pfizer, Sanofi, Samsung, Sandoz, Hexal, and UCB.

LC has received non-financial support from Pfizer, and has received grants and personal fees from AbbVie, Celgene, Novartis and Pfizer, personal fees from Amgen, Bristol-Myers Squibb, Galapagos, Janssen, Lilly, MSD, Prothena, Sun Pharma, UCB and Gilead.

JG has received personal fees or honoraria for consulting and lectures from AbbVie, Lilly, MSD, Janssen, UCB, Pfizer, Amgen (formerly Celgene) and Bristol-Myers Squibb.

DT has received personal fees and non-financial support from Janssen and personal fees from AbbVie, Amgen, Boehringer Ingelheim, Celgene, DS Pharma, Galapagos, GSK, Janssen, Leo, Lilly, Morphosis, MSD, Lilly, Novartis, Pfizer, Regeneron/Sanofi, Samsung, Sandoz-Hexal, and UCB.

PR has received personal fees from Pfizer, AbbVie, Novartis, Lilly, UCB and Janssen.

The other authors declare that they have no competing interest.

### Acknowledgements

Medical writing support was provided by Rabiah Mirza at Synergy Medical Communications, London, UK and was funded by Pfizer.

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