**EXTENDED REPORT**

**EULAR recommendations for patient education for people with inflammatory arthritis**

Heidi A Zangi,1 Mwidimi Ndosi,2 Jo Adams,3 Lena Andersen,4 Christina Bode,5 Carina Boström,6 Yvonne van Eijk-Hustings,7,8 Laure Gossec,9,10 Jana Korandová,11 Gabriel Mendes,12 Karin Niedermann,13 Jette Primdahl,14,15,16 Michaela Stoffer,17 Marieke Voshaar,18 Astrid van Tubergen19

**ABSTRACT**

**Objectives** The task force aimed to: (1) develop evidence-based recommendations for patient education (PE) for people with inflammatory arthritis, (2) identify the need for further research on PE and (3) determine health professionals’ educational needs in order to provide evidence-based PE.

**Methods** A multidisciplinary task force, representing 10 European countries, formulated a definition for PE and 10 research questions that guided a systematic literature review (SLR). The results from the SLR were discussed and used as a basis for developing the recommendations, a research agenda and an educational agenda. The recommendations were categorised according to level and strength of evidence graded from A (highest) to D (lowest). Task force members rated their agreement with each recommendation from 0 (total disagreement) to 10 (total agreement).

**Results** Based on the SLR and expert opinions, eight recommendations were developed, four with strength A evidence. The recommendations addressed when and by whom PE should be offered, modes and methods of delivery, theoretical framework, outcomes and evaluation. A high level of agreement was achieved for all recommendations (mean range 9.4–9.8). The task force proposed a research agenda and an educational agenda.

**Conclusions** The eight evidence-based and expert opinion-based recommendations for PE for people with inflammatory arthritis are intended to provide a core framework for the delivery of PE and training for health professionals in delivering PE across Europe.

**INTRODUCTION**

Patient education (PE) is recommended as an integral part in established recommendations for the management of early arthritis and ankylosing spondylitis (AS).1 2 PE comprises all educational activities provided for patients, including aspects of therapeutic education, health education and health promotion.3 Previous systematic reviews on various PE interventions in patients with rheumatoid arthritis (RA) documented significant short-term improvements in knowledge, coping behaviour, pain, disability and depression, but long-term effects were inconsistent.4 5 6

During the last decades there has been an ongoing development within healthcare, moving away from the view of health professionals (HPs) as the only experts and providers of knowledge and patients as passive recipients towards a more collaborative approach. Patients have been recognised as active agents in managing their illness and own healthcare.8 The principle of 'shared decision making' allowing patients and their providers to make healthcare decisions together, based on the best scientific evidence available, as well as the patient’s values and preferences, is increasingly accepted.9 The primary goal of PE is no longer only knowledge transfer and disease control, but also to enable patients to manage their illness, adjust to their condition and maintain quality of life.10 11

Moreover, PE has been influenced by scientific developments and changes in society. Biomedical advancements, new pharmacological treatment options, and better knowledge about the risk for developing comorbidities require new approaches to communicate with patients in a timely and meaningful way.12 13 In several countries, larger healthcare teams with more specialised HPs have been established to meet the complexity of the healthcare needs of patients with rheumatic diseases.14 15 Furthermore, the development of e-health and the use of mobile telehealth platforms have introduced new possibilities for communication and delivery of information, which are increasingly applied in PE. Finally, the increase in immigration and cultural diversity in many European countries is challenging for planning and facilitating effective PE for all patients.8

Informal discussions among multidisciplinary HPs at the European League Against Rheumatism (EULAR) annual congress in 2012 and succeeding email correspondences revealed that great variety exists in the content and modes of delivery of PE across European countries. In some countries PE is still limited to providing knowledge in order to improve patients’ adherence to treatment. Additionally, there seems to be a large variation in HPs’ involvement in PE.15 To what extent different HPs participate in PE is likely to depend on their competency, availability and education, as well as the organisation of the healthcare system.16 Based on these initial discussions, an EULAR task force was convened with the following objectives: (1) to develop a set of recommendations for PE for people with inflammatory arthritis (IA) (2) to identify the need for further research and (3) to define
HPs’ educational needs for providing evidence-based PE. The recommendations would allow standardisation and improvement of PE for people with IA across Europe. The target groups for the recommendations are rheumatology HPs including rheumatologists, patients with IA, policy makers and patient and professional organisations.

METHODS
The EULAR standardised operation procedures for the elaboration, evaluation, dissemination and implementation of recommendations\(^1\) were followed.

The task force
The multidisciplinary task force comprised 15 experts including three patients, five nurses, two occupational therapists (OTs), two physiotherapists (PTs), a psychologist and two rheumatologists/epidemiologists with clinical experience and/or academic knowledge in the field of PE. They represented ten European countries (Austria, Czech Republic, Denmark, France, the Netherlands, Norway, Portugal, Sweden, Switzerland and UK). People who had taken part in the initial discussions, but were not included in the task force, were invited to participate in a ‘consultation group’. This group comprised 20 HPs, such as OTs, PTs, nurses and rheumatologists, but no patients were included.

Before the first task force meeting in 2013 one of the members was tasked with reviewing the literature of existing PE definitions. An overview was presented and thoroughly discussed during the meeting. Common elements in the definitions were identified and the following definition was formulated, based on consensus among the task force members: “PE is a planned interactive learning process designed to support and enable people to manage their life with IA and optimise their health and well-being.” This interactive learning process includes a wide range of educational activities, such as provision of knowledge, written material, e-health, self-management programmes (SMPs), cognitive behavioural therapy (CBT), mindfulness, stress management, individual consultations with HPs, sharing experiences among patients, motivational discussions, exercise counselling, lifestyle change interventions and self-help courses. Moreover, the task force agreed that the recommendations should be based on the principle of shared decision making.\(^8\) Following this consensus process, the task force formulated 10 research questions to guide the systematic literature review (SLR) (see online supplementary file 1).

Systematic literature review
An extensive systematic literature search in Medline, Embase, PsycINFO, Cochrane Library and CINAHL from January 2003 up to September 2013 of publications in English, German, French or Spanish describing any kind of PE activities, was conducted (details provided in online supplementary file 2). No limitations regarding study type or research design was applied. The inclusion criteria were IA, confined to RA, AS and psoriatic arthritis (PsA) and adults (age ≥18 years). All abstracts were independently read by two reviewers, and by a third reviewer in case of disagreement. The papers of the included abstracts were reviewed in full-text. Papers were excluded if they did not include any formal PE intervention (as defined above) or did not address the patient perspective on PE. The task force members were asked to review the final list of included papers and could add studies that were not captured by the SLR.

Developing the recommendations
The results of the SLR were presented and discussed during the second task force meeting in 2014 and eight recommendations were developed. The strength of each recommendation was based on the categories of evidence defined by the EULAR standardised operation procedures, graded from A (highest) to D (lowest)\(^1\) (see online supplementary file 3). The recommendations were emailed to each task force member for final independent voting and approval. The level of agreement was recorded on a 0–10 point scale (0=no agreement at all; 10=full agreement, table 1). In addition to the task force, the consultation group was invited to independently rate their level of agreement with each recommendation to obtain an indication of the agreement among people who are supposed to use the recommendations in clinical practice.

RESULTS
Figure 1 shows the flow chart of the SLR. In total, 115 publications were included, comprising 11 systematic reviews/meta-analyses, 36 randomised controlled trials (RCTs) (reported in 44 papers), 7 controlled clinical trials (CCTs), 9 pre-post-test studies, 23 cross-sectional surveys and 21 qualitative studies. The majority of patients in the included studies was female (58–100%), diagnosed with RA (82%) and had relatively long disease duration (mean 6–16 years). Ten studies included patients with AS and/or PsA and five studies included only patients with early disease duration (<2 years).

Recommendations
Two overarching principles and eight evidence-based and expert-opinion based recommendations were developed, four of which achieved strength A. A high level of agreement was achieved for all recommendations; mean range 9.4–9.8 in the task force and 8.2–9.2 in the consultation group (table 1).

Recommendation 1: PE as an integral part of standard care
The task force agreed that PE should be an integral part of standard care for people with IA. Category I evidence showed that various individual and group educational interventions had beneficial short-term effects in patients with RA.\(^3\) Three RCTs\(^8\)–\(^20\) and one CCT\(^21\) showed that individual or group PE enhanced adherence with pharmacological treatment and knowledge of medication side effects. Moreover, one meta-analysis and four RCTs concluded that group educational programmes significantly improved disease knowledge, coping skills and physical and psychological health status.\(^22\)–\(^25\) Several RCTs\(^26\)–\(^31\) and CCTs\(^12\)–\(^33\) demonstrated that PE supplementary to physical therapy or joint protection exercises had positive influence on physical function and activity, and reduced pain. Furthermore, consistent evidence showed that CBCT and stress management programmes improved psychological health after intervention and at follow-up (4–18 months).\(^34\)–\(^42\)

Finally, there was consensus in the task force that PE would increase patients’ involvement in their disease management, but this was only supported by one cross-sectional study,\(^43\) in which high levels of perceived knowledge of the disease were positively associated with involvement in healthcare.

Recommendation 2: PE throughout the course of the disease
The task force emphasised the importance of offering timely PE. Individual patients’ educational needs may vary, related to their disease stage and to fluctuations in their physical and
psychological health condition. Educational needs may be identified by the patients themselves as well as by HPs and should be regularly monitored. Educational and support needs may be most salient at times when patients are more likely to be experiencing change or pressure, such as in the early stages of their disease, when new pharmacological treatment is initiated and when required by the patient’s physical or psychological condition.44 45 Differing educational needs may also appear when patients experience flares, worsening or comorbidities, and when the disease interferes with daily activities, life events and family roles.46–48

Recommendation 3: tailored and needs-based PE
The task force stated that PE should be tailored to the individual patient’s needs. Several RCTs supported that individual counselling with a competent HP, either in one-by-one consultations or in combination with group sessions had beneficial health effects.19 29 37 49–51 Cross-sectional and qualitative studies exploring patients’ needs and expectations described a wide range of educational needs, such as knowledge and management of the disease, knowledge of side effects and risk factors, non-pharmacological treatment, pain control and self-help methods, as well as activity regulation, physical exercises and behaviour change.44 47 52–60 In general, patients’ levels of knowledge about the disease were low to moderate and patients expressed they had received insufficient information.47 61–62 Patients with IA wanted to be recognised as more than their disease, to be enabled to use their own resources and to re-engage in previously abandoned activities.55 57 63–65 Moreover, PE should include discussion on emotional issues and support from HPs in coping with emotional distress.66

Recommendation 4: modes of delivery of PE
The SLR showed that PE is provided in various modes; individual face-to-face meetings,24 25 28 34–36 38–41 74–79 a combination of the two,27 29 49 50 80 and online.81–83 Category I evidence was found for individual counselling. Interactive individual education by rheumatologists improved adherence to medication regimen.19 20 Individual counselling by OTs and PTs led to increased use of self-management strategies, such as hand exercises, joint protection and activity regulation.26 71 Individual counselling by psychologists reduced depression, anxiety and total use of healthcare.37 42 69 Individual counselling supplementary to physical exercise improved health status, adherence with exercise programmes and physical activity recommendations.29 50 51 80 84 Individual counselling by nurses, supplementary to group education improved disease knowledge, well-being, pain and self-management behaviours.27 49

Various group interventions focusing on active coping with emotional distress and daily life stressors improved functional and emotional health status, patients’ coping strategies38–41 74 76 and perceived social support.85 Finally, two RCTs80 82 and one pre-post-test study83 demonstrated that interactive online programmes contributed to improvement in health status, pain, physical limitations and levels of physical activity.

Recommendation 5: theoretical framework and evidence for PE
The task force agreed that PE should be based on a theoretical framework and be evidence-based. Four categories of PE interventions were described in the included studies: educational programmes (32 studies),18 21 23 33 49 50 70 71 75 76–78 80 83 86–91 SMP (7 studies),74 75 82 92–95 CBT (9 studies),34–39 42 68 96 and stress management programmes (6 studies).34 40 41 69 97 98 The educational programmes mainly aimed to enhance knowledge, adherence to treatment, performance of physical function, joint protection and healthy lifestyle. The methods used were primarily didactic, instructions, counselling and practical exercises. These programmes were typically based on clinical experience and knowledge and were not underpinned by a theoretical framework. In contrast, the SMP and CBT interventions were based on

---

Table 1  Recommendations for patient education for people with inflammatory arthritis

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Category of evidence</th>
<th>Strength of recommendation</th>
<th>Task force</th>
<th>Consultation group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Patient education should be provided for people with inflammatory arthritis as an integral part of standard care in order to increase patient involvement in disease management and health promotion</td>
<td>1A–2B</td>
<td>A–C</td>
<td>9.6 (0.8)</td>
<td>9.2 (1.8)</td>
</tr>
<tr>
<td>2. All people with inflammatory arthritis should have access to and be offered patient education throughout the course of their disease including as a minimum: at diagnosis, at pharmacological treatment change and when required by the patient’s physical or psychological condition</td>
<td>3–4</td>
<td>C–D</td>
<td>9.6 (0.7)</td>
<td>9.1 (1.8)</td>
</tr>
<tr>
<td>3. The content and delivery of patient education should be individually tailored and needs-based for people with inflammatory arthritis</td>
<td>1B</td>
<td>A</td>
<td>9.8 (0.6)</td>
<td>9.1 (2.3)</td>
</tr>
<tr>
<td>4. Patient education in inflammatory arthritis should include individual and/or group sessions, which can be provided through face-to-face or online interactions, and supplemented by phone calls, written or multimedia material</td>
<td>1A–B</td>
<td>A</td>
<td>9.5 (0.7)</td>
<td>8.9 (2.4)</td>
</tr>
<tr>
<td>5. Patient education programmes in inflammatory arthritis should have a theoretical framework and be evidence-based, such as self-management, cognitive behavioural therapy or stress management</td>
<td>1A–B</td>
<td>A</td>
<td>9.5 (0.9)</td>
<td>8.8 (2.2)</td>
</tr>
<tr>
<td>6. The effectiveness of patient education in inflammatory arthritis should be evaluated and outcomes used must reflect the objectives of the patient education programme</td>
<td>4</td>
<td>D</td>
<td>9.6 (0.8)</td>
<td>8.3 (1.8)</td>
</tr>
<tr>
<td>7. Patient education in inflammatory arthritis should be delivered by competent health professionals and/or by trained patients, if appropriate, in a multidisciplinary team</td>
<td>3</td>
<td>C</td>
<td>9.5 (0.8)</td>
<td>8.4 (2.0)</td>
</tr>
<tr>
<td>8. Providers of patient education in inflammatory arthritis should have access to and undertake specific training in order to obtain and maintain knowledge and skills</td>
<td>3–4</td>
<td>C–D</td>
<td>9.4 (0.8)</td>
<td>8.2 (1.6)</td>
</tr>
</tbody>
</table>
frameworks derived from social cognitive theory\textsuperscript{99} and cognitive behavioural theories.\textsuperscript{100} In addition to provision of knowledge, these programmes were targeted at improving coping and psychological health status, facilitating behaviour change and adoption of health promoting behaviours. Participants were actively involved in goal-setting, problem-solving, group discussions and in preparing action plans. Furthermore, CBT interventions focussed on cognitive restructuring of beliefs.\textsuperscript{100, 101} The stress management programmes were mainly adapted from ancient Buddhist practices including yoga and breathing exercises, training of mindfulness meditation and acceptance.\textsuperscript{102} The main aims of these programmes were to enhance well-being by improving stress management skills, alleviate emotional distress,\textsuperscript{102} and promote a constructive relationship with positive and negative emotions.\textsuperscript{102}

Recent systematic reviews have concluded that various group programmes (SMP, CBT and stress management) demonstrated small, but positive impact on self-reported physical activity levels, pain, disability, depressive symptoms, anxiety\textsuperscript{22, 103} and fatigue\textsuperscript{104} at follow-up (4–18 months).

**Recommendation 6: outcomes of PE**

The task force agreed that in order to provide evidence-based PE, the various PE programmes need to be evaluated. To ensure valid evaluation the outcomes must reflect the programme objectives. The SLR revealed a great variation in evaluation criteria and use of outcome measures in the included studies. The specific educational objectives of the programmes were not always clear, making it difficult to judge whether the reported outcomes were matched to the educational objectives. For example, some studies reported the disease activity score with 28 joint counts (DAS-28), which are unlikely to be directly influenced by PE.\textsuperscript{23, 74, 73}

Many of the PE programmes can be characterised as complex interventions, which intend to influence various aspects of the
Recommendation 7: competency in delivery of PE

The task force agreed that PE should be delivered by competent HPs and patients. The majority of the studies included comprised PE interventions delivered by HPs within a healthcare context. However, PE may also be delivered by trained patients and in community settings. Sixteen of the PE programmes were delivered by multidisciplinary HPs, and 10 programmes were delivered by two different professionals, that is, OT and PT (3 studies), nurse and rheumatologist (1 study), OT and rheumatologist (1 study), psychologist and nurse (1 study), pharmacist and nurse (1 study), and nutritionist and OT (1 study). Trained patients were involved in, or delivered two SMPs, two online programmes and one patient-led interactive workshop. The remaining interventions were provided by one HP. The included studies showed a trend towards greater inclusion of patients’ perspectives on PE indicated requirements for knowledge and skills by educators. For example, physical exercise programmes provided by PTs may be combined with group educational sessions by other HPs, as appropriate and some CBT programmes are independent of profession, but require specific training in methods, such as CBT techniques and mindfulness.

Recommendation 8: training competency for delivering PE

The task force agreed that teaching competence is necessary alongside clinical expertise to deliver high quality PE. Only a few studies reported what skills and training providers of PE need. Qualitative studies exploring patients’ perspectives on PE indicated requirements for knowledge and skills by educators. For example, patients wanted to receive clear explanation about test results, medication and self-management techniques. HPs should have the ability to provide emotional support and to focus on acceptance of the patient’s illness and its consequences. Moreover, patients experienced that the use of creative learning methods, such as guided discovery, metaphors, poetry, music and visual materials in groups facilitated their emotional and behavioural change processes and they wanted to have the possibility to exchange knowledge and experiences with other patients. HPs, on the other hand, perceived that their delivery of knowledge and advice was influenced by their own attitudes and their abilities to interact with the patients.

Research and educational agendas

Box 1 presents the research agenda proposed by the task force, based on areas with only weak or limited evidence for PE. The two overarching principles (see table 1) should be applied when addressing each of these topics.

Box 2 presents the educational agenda, which encourages the development of training programmes to enhance and support HPs’ opportunities to improve their educational competencies.

DISCUSSION

Eight recommendations for PE for people with IA were developed based on a SLR and expert opinions. The recommendations were formulated to be practical and feasible for providing evidence-based PE across all European countries. The strength of evidence supporting the recommendations varies and a research agenda is proposed for areas with lack of evidence. A high level of expert agreement was achieved for all recommendations. An educational agenda was also formulated to support the development of competencies of HPs providing PE.

The included studies showed a trend towards greater inclusion of behavioural, cognitive and emotional aspects in the PE programmes during the last decade. This trend is reflected in the PE definition that the task force formulated as an overarching principle, stating that PE should enable people to manage their life with IA and optimise their health and well-being rather than be limited to the disease. Some previous PE definitions have stated that PE is designed to improve patients’ health behaviours. However, the patient representatives in the task force felt that

Box 1 Research agenda for patient education (PE)

- To evaluate, harmonise and/or further develop existing patient education outcomes, such as educational needs, goal attainment, etc, and if needed develop new outcomes, such as outcomes reflecting health literacy, health promotion, activity pacing, patients’ needs, etc
- To develop guidelines on how to conduct and report studies in patient education
- To investigate which modes of delivery are best suited to meet which objectives of patient education, including the time point (in the disease trajectory) at which patient education is likely to produce maximum effects
- To study PE in other rheumatic conditions than rheumatoid arthritis
- To investigate educational needs in specific subgroups (e.g. men, patients with minority ethnic backgrounds and patients with lower literacy levels)
- To develop and evaluate PE for significant others (partners, spouses, family and carers)
- To conduct economic evaluations of PE interventions (using PE-sensitive outcomes and effects in relation to healthcare resource use).
- To investigate the long-term effects and cost-effectiveness of PE
- To gain insight into the working principles of PE—that is, the mechanism by which PE produces its effects; whether directly, or by modifying or mediating its effects through other outcomes
- To investigate how to best provide online/e-health PE programmes
- To investigate cross-cultural acceptability of PE programmes/modes of delivery across Europe
- To define training requirements for PE provider

Box 2 Educational agenda for providers of patient education (PE)

1. Increase health professionals’ knowledge on the process and practicalities of delivering and evaluating effective PE
2. Regular updating of PE skills/training is necessary to ensure provision of state of the art effective PE
3. Develop training programmes for health professionals within the European League Against Rheumatism (EULAR)
The task force agreed on a research agenda to gain further insight in the qualitative and quantitative aspects of PE, including working mechanisms of PE, developing and harmonising PE outcomes, economic evaluations and cross-cultural acceptability of PE programmes across European countries. The educational agenda states that providers of PE need regular updates of their skills in order to deliver effective PE. The task force proposes that training of educational skills should be integrated in EULAR courses for HPs and rheumatologists.

Effective dissemination, implementation and evaluation of these recommendations across European countries demand a clear implementation strategy. Barriers and facilitators for implementation of PE as an integral part of standard care for all people with IA must be assessed within each country and appropriate support and education must be provided. This strategy will need further support from EULAR.

In conclusion, eight evidence-based and expert-opinion-based recommendations for PE for people with IA were developed. The dissemination and application of the recommendations should allow establishment of core standards for PE across Europe. Further evaluation will be necessary to ensure relevance and effective application.

Author affiliations
1Department of Rheumatology, National Advisory Unit on Rehabilitation in Rheumatology, Diakonhjemmet Hospital, Oslo, Norway
2School of Healthcare, University of Leeds, Leeds, UK and Leeds Institute of Rheumatic and Musculoskeletal Medicine, University of Leeds, Leeds, UK
3Centre for Innovation and Leadership in Health Faculty of Health Sciences University of Southampton Highfield, Southampton, UK
4Nygard, Denmark
5Department of Psychology, University of Twente, Health & Technology, Enschede, The Netherlands
6Division of physiotherapy, Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm, Sweden
7Department of Patient Care/Department of Rheumatology, Maastricht University Medical Center, Maastricht, The Netherlands
8CAPRI, School for Public Health and Primary Care, University of Maastricht, Maastricht, The Netherlands
9Sorbonne Universités, Institut Pierre Louis d’Épidémiologie et de Santé Publique, Paris, France
10Department of rheumatology, AP-HP, Pitié Salpêtre Hospital, Paris, France
11Institute of Rheumatology, Prague, Czech Republic
12Department of National Team, Portuguese Cycling Federation, Lisbon, Portugal
13Institute of Physiotherapy, School of Health Professions, Zurich University of Applied Sciences, Winterthur, Switzerland
14Institute for Regional Health Research, University of Southern Denmark, Odense, Denmark
15Hospital of Southern Jutland, Aabenraa, Denmark
16King Christian X’s Hospital for Rheumatic Diseases, Graasten, Denmark
17Division of Rheumatology, Department of Medicine 3, Medical University of Vienna, Vienna, Austria
18Department of Psychology, Health and Technology, University of Twente, Enschede, The Netherlands
19Department of Medicine, Division of Rheumatology, Maastricht University Medical Center, Maastricht, The Netherlands

Acknowledgements The authors thank Kari Mate (medical librarian, Diakonhjemmet Hospital Library) for her contribution to the systematic literature review. The authors also thank the members of the consultation group for their involvement in the early conception of this project and for rating the recommendations. The consultation group consisted of Adewale Adeboyo, Michael Backhouse, Ulrika Bergsten, Tricia Cornell, Jenny de la Torre-Akobi, Silvia García Díaz, Ricardo Ferreira, Rijieri Groming, Bernadette Hardware, Agnes Kocher, Marja Leena Kuukärinen, Ingrid Larsson, Azucena Pedraz Marcos, Andrea Marques, Jorit Meesters, Sue Oliver, David Pickles, Birgit Pooder, Sarah Ryan and Karen Vinali.

Contributors HAZ was the research fellow for the project, undertaking the SLR. NA and AI were the project conveners, AI being the epidemiologist directing the SLR. All authors have contributed substantially by participating in the development of the recommendations, revising the manuscript critically for important intellectual content and approved the final version for publication.

Recommendation

Funding This study was supported by the European League Against Rheumatism (EULAR), Grant reference: HPR024.

Competing interests None.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES


