TRANSLATIONAL SCIENCE

Assessing acceptability and identifying barriers and facilitators to implementation of the EULAR recommendations for patient education in inflammatory arthritis: a mixed-methods study with rheumatology professionals in 23 European and Asian countries

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ABSTRACT

Objectives To disseminate and assess the level of acceptability and applicability of the European Alliance of Associations for Rheumatology (EULAR) recommendations for patient education among professionals in rheumatology across Europe and three Asian countries and identify potential barriers and facilitators to their application.

Methods A parallel convergent mixed-methods design with an inductive approach was used. A web-based survey, available in 20 different languages, was distributed to healthcare professionals by non-probability sampling. The level of agreement and applicability of each recommendation was assessed by (0–10) rating scales. Barriers and facilitators to implementation were assessed using free-text responses. Quantitative data were analysed descriptively and qualitative data by content analysis and presented in 16 categories supported by quotes.

Results A total of 1159 completed the survey; 852 (73.5%) were women. Most of the professionals were nurses (n=487), rheumatologists (n=320), physiotherapists (n=158). For all recommendations, the level of agreement was high but applicability was lower. The most common barriers to application were lack of time, lack of training in how to perform patient education, not having enough staff to perform this task. The top three barriers to application were identified and some are amenable to change, namely training patient education providers and developing evaluation tools.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Patient education is an integral part of the management of inflammatory arthritis. An international task force of health professionals, researchers and patients, developed evidence-based European Alliance of Associations for Rheumatology recommendations for patient education in inflammatory arthritis in 2015.

WHAT THIS STUDY ADDS

⇒ This study disseminated the recommendations for patient education to healthcare professionals in rheumatology across Europe, India, Hong Kong and Japan.

⇒ The levels of agreement with the recommendations among healthcare professionals were very high, the level of applicability was lower for each corresponding recommendation.

⇒ The top three barriers to application were lack of time, lack of training in how to provide patient education and not having enough staff to perform this task.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE AND/OR POLICY

⇒ Patient education delivered according to the recommendations can support patients to make informed choices about how to manage their inflammatory arthritis and optimise their health.

BACKGROUND

Patient education (PE) is recommended as an integral part of standard care for patients with inflammatory arthritis (IA).1–3 PE has been defined as ‘a...
Box 1  Recommendations for patient education for people with inflammatory arthritis.

Overarching principles

⇒ Patient education is a planned interactive learning process designed to support and enable people to manage their life with inflammatory arthritis and optimise their health and well-being.
⇒ Communication and shared decision-making between people with inflammatory arthritis and their health professionals are essential for effective patient education.

Recommendations

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.
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.
3. The content and delivery of patient education should be individually tailored and needs based for people with inflammatory arthritis.
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.
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.
6. The effectiveness of patient education in inflammatory arthritis should be evaluated and outcomes used must reflect the objectives of the patient education programme.
7. Patient education in inflammatory arthritis should be delivered by competent health professionals and/or by trained patients, if appropriate, in a multidisciplinary team.
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 planning, analysis of the context, assessing barriers and facilitators, designing strategies and evaluation. It occurs at three levels, the micro level (individual clinicians, clinical teams and patients or carers), the meso level (institution, organisation or local government) and the macro level (national or regional/continental). Dissemination of the recommendations to all stakeholders and assessing acceptability, feasibility and identifying barriers and facilitators to implementation is the first crucial step in the implementation process.

To facilitate implementation, it is essential to assess acceptability to various stakeholders, feasibility in different health systems, the cost and sustainability if applied in practice. PE is usually organised by rheumatology nurses, although all professionals in the care of people with IA (rheumatologists, physiotherapists, occupational therapists, psychologists and social workers) deliver PE as part of their role in a multidisciplinary team.

Patients with IA have also been successfully involved in the design and delivery of PE to other patients.

Therefore, all these groups are the target of the dissemination and implementation. We have disseminated these recommendations to patients with IA in Europe and overall, their agreement levels were very high, suggesting that they reflect patients’ preferences for engaging in collaborative care.

The objectives of this study were to: (1) disseminate the recommendations to professionals in the care of people with IA across Europe and three countries in Asia, (2) assess the level of acceptability and applicability and (3) identify potential barriers and facilitators to implementation of the recommendations.

METHODS

Design

We applied a parallel convergent mixed methods research design with an inductive approach. Quantitative and qualitative data were collected concurrently and then merged and integrated during analysis and interpretation. Since both quantitative and qualitative methods can provide complementary data on the same research problem, a mixed methods design was used to provide a more comprehensive understanding of the dissemination including awareness, barriers and facilitators to the implementation of the recommendations across Europe.

The study was conducted in 20 European countries, Hong Kong, India and Japan. The research team comprised 31 multidisciplinary members, including a methodologist, patient research partners, researchers and/or health professionals within each collaborating country.

Quantitative data collection

The survey developed by authors comprised two sections: (1) personal characteristics (age, sex, country) and professional background (profession, qualification, work setting and experience in rheumatology) and (2) items regarding eight recommendations. For each of the recommendations, numerical (0 to 10) rating scales were used to assess participants’ level of agreement and application of the recommendations. Example:

Recommendation 1. PE should be provided for people with IA as an integral part of standard care in order to increase patient involvement in disease management and health promotion

► Do you agree with this recommendation? (Please indicate the level of your agreement: 0 ’I do not agree at all’ and 10 ’I agree completely’)

► Do you provide patient education as it is advocated in this recommendation? 0 ’No, not at all’ and 10 ’Yes, entirely’.

All the items are presented in online supplemental material.
Qualitative data collection

The two overarching principles were stated using bullet points, and for each of the eight recommendations, respondents were invited to add free text comments on reasons for not agreeing entirely and/or barriers to application of the recommendation.

Translation of the survey

Investigators in each country translated the survey into their national language using a dual panel approach.24–26 This approach involves a consensus translation produced by a primary (professional) panel of bilingual people familiar with the target language, followed by review by a second panel who speak the target language, in order to ensure acceptability and understanding of the wording for prospective participants. Any discrepancies in translation were resolved using a group consensus approach. This approach has been shown to produce translations that are easier to understand, compared with the forward–backward translation approach.24–26 In total, 20 different language options were available for the survey respondents to select from a drop-down menu.

After data collection was complete, investigators in each collaborating country were sent the free-text responses from their corresponding languages. These were translated back into English and sent to the study coordinator for analysis.

Participants

The target participants for this survey were all professionals involved in the care of people with IA. From July to September 2019, collaborators from the 23 countries disseminated the web-based survey to their colleagues and national rheumatology organisations using a snowball sampling technique.27

DATA ANALYSIS

Quantitative analysis

Descriptive statistics were used to summarise the levels of agreement and application of each of the recommendations. IBM SPSS Statistics V.20 (IBM, New York) software was used.

Qualitative analysis

Translated free text responses were imported into NVivo V.12 (QSR International, Melbourne, Australia) and analysed with a manifest qualitative content analysis with an inductive approach. This qualitative method involved coding, creating categories and data abstraction.28 Each translated data set was read through repeatedly by the first author (SB) to gain a greater understanding of the whole data.29

The text was first divided into barriers and facilitators for each of the eight EULAR recommendations, and into positive and negative opinions, relating to the overarching principles.29 Although the survey items asked about barriers to implementation of the recommendations, many participants gave examples of instances where they had successfully implemented recommendations in their practice, and exemplars of how they had achieved this. These were coded as facilitators for each recommendation. Phrases and words containing information relevant to the aims of the study were identified, extracted and labelled with a code.29 For each barrier and facilitator, codes with similar underlying meanings were grouped into subcategories. Each subcategory was organised and named using words and phrases characteristic of the data, such as ‘not enough time’. Subcategories with similar content and incidences were grouped together into broader main categories, giving a two-level hierarchy.26 Data analysis was conducted by the first author (SB), with a critical discussion of codes, subcategories and main categories with the principal investigator (MN) and input of a qualitative methodologist (IL).

Mixed-method analysis

After independent analyses of the quantitative and qualitative data, the results were paired side by side for comparison and identification of similar and different categories between and within the eight recommendations in order to validate the results.23 The categories were correlated and thereafter ranked within each recommendation (figure 1).

Ethical considerations

Participating in this study was voluntary. Survey respondents were advised that completing and submitting the survey implied that they had read the information sheet and consented to taking part. The study was approved by the Faculty of Health and Applied Sciences Research Ethics Committee at the University of the West of England, Bristol, UK (UWE REC REF No: HAS.18.11.066).

RESULTS

Participants

A total of 1510 responses were received, 1159 of which were complete responses. This may be due to the in-built feature of Qualtrics survey, where incomplete responses were saved automatically after 2 weeks. The respondents comprised 487 nurses, 320 rheumatologists, 158 physiotherapists, 75 occupational therapists, 22 pharmacists, 8 nutritionists, 8 medical assistants, 3 psychologists and 78 ‘other’ professionals. Most were women (852; 73.5%) and median duration of clinical experience was 13 (IQR: 6–23) years of which 5 (IQR: 1–7) years were in rheumatology. Table 1 presents the number of respondents by country.

Cross-cultural adaptation

The adaptation of the questionnaire into target languages was largely seamless except for professional characteristics, training and educational background, which differs across countries. In Hong Kong, the term ‘theory’ in the context used in recommendation 5 was difficult to understand, therefore this was modified to ‘scientific-based approved information as a component in PE’. In Spain, the word ‘designed’ in recommendation 3 was substituted for ‘tailored’ as this was considered more personal. In addition, examples of ‘personal needs’ in recommendation 2 were expanded to give examples of the nature of those needs (such as work or pregnancy). As the recommendations were often described in long sentences, it was necessary in some languages to break into two sentences in order to retain the intended meaning. In the Norwegian translation, the adaptation included shortening the number of words in the information section.

QUANTITATIVE RESULTS

Level of agreement and application of the recommendations

Table 2 presents the level of agreement and application of the recommendations. Overall, there was high agreement (median=10, IQR: 8–10) across all recommendations. However, the level of applicability was generally lower compared with each corresponding agreement level, especially for recommendation 6, which states that the effectiveness of PE should be evaluated (median=6, IQR: 4–8). Lack of an effective evaluation tool was the most often mentioned barrier to implementation for recommendation 6. For recommendation 4, the most cited barrier was limited access to phone or internet-based PE.
For recommendation 5, a lack of training in theoretical frameworks, self-management or cognitive–behavioural therapy was a common barrier.

### QUALITATIVE FINDINGS

#### Barriers to implementation

Table 3 presents the 10 categories and selected quotes that illustrate perceived barriers to implementation of the recommendations.

#### Lack of time

The most cited barrier to the implementation of PE as part of standard care was a lack of time. Patient consultations were subjected to competing demands (Q1) and health professionals found it difficult to tailor information (Q2). While it was good to meet the needs of patients, this created additional work (Q3). Activities such as evaluation of PE were not always prioritised due to lack of time (Q4).

#### Lack of training

Many described a lack of knowledge and training (Q5–Q7), which prevented participants from offering self-management training or cognitive behavioural therapy (Q8 and Q10). Whether patients received PE varied, depending on the experience of the provider (Q9). Similarly, identifying and training patients to deliver PE could be challenging (Q11).

#### Lack of staff

Often, there were not enough staff with specialised expertise, such as trained nurses, to provide PE to patients. Many indicated that there was a lack of psychological support such as cognitive behavioural therapy (CBT) or stress management interventions to support self-management in patients with IA (Q12).
Lack of assessment tools
The lack of a reliable evaluation tool was cited as a significant barrier. Some had evaluation activities in place for the effect of PE, but no tool to evaluate whether PE had been successfully achieved (Q13). Staff had difficulties remembering to evaluate PE, and a lack of structure made it difficult to check-up with patients (Q14–Q15).

Limited resources
Respondents cited a lack of resources to provide patients with PE during the course of their disease. Examples of resources mentioned were both patient-facing (lack on internet access) and staff-facing (online support, telephone and institutional internet restrictions (Q16–Q18)).

Concerns about online PE
Some respondents raised their reservations about delivering PE online as written information could be misunderstood. They preferred face-to-face interactions for PE delivery (Q19–Q21).

Concerns about patient-delivered PE
Others felt that health professionals should be the only providers of PE. Some had concerns that non-healthcare providers (such as patients) could risk providing misinformation (Q22–23).

Lack of systematic PE
Health professionals described some PE as lacking in organisation. Monitoring of PE was unusual, and patients were not always referred sufficiently (Q24–Q27). The need for participants to attend training was not always recognised or seen as a priority. Many had to rely on ‘self-study’ instead (Q28). As a result, their practice may not be as informed as it could be (Q29).

Lack of funding
A lack of funding was cited as a barrier in terms of employing enough staff (to evaluate PE) as well as for supporting training (Q30–32).

Lack of patient participation in disease management
Lack of patient involvement was cited as a barrier as patients had to be open and willing to engage with PE. Some responded described patients as ‘uninterested’ when PE was offered (Q32–Q34).

Facilitators for implementation
Table 4 presents the six categories and selected quotes that illustrate facilitators of implementation of the recommendations.

Tailoring PE
Respondents cited tailoring PE to individual patients’ needs as important (Q35, table 4). Providing one-to-one PE enables patients to ask questions and gain information (Q36).

The need for flexibility in patient access to PE was emphasised (Q37). Offering PE when required supported patient independence (Q38). Others described adapting PE with brochures and education materials tailored to patients’ needs (Q39). The need to support each patient to manage their mental and physical health was recognised (Q40). Others suggested providing standardised PE as a baseline and offer extra elements that could be personalised and tailored to individual patients according to the need (Q41 and Q42).

Using group education
Some respondents described how they used a combination of group education alongside one-to-one (Q43) as patients could learn from, and support each other in a group setting.

Linking PE with diagnosis, treatment and multidisciplinary care
Many agreed that PE should be scheduled regularly (Q44). PE was often offered at the start of drug interventions, with annual review clinics cited as an excellent opportunity for education. The need for flexibility in patient access to PE was emphasised (Q45). Successful PE included regularly organised programmes (Q46). PE was cited as fundamental to increasing patient knowledge and understanding (Q47).
### Table 3 Quotes for respective category supporting barriers to implementation

<table>
<thead>
<tr>
<th>Quote number (Q)</th>
<th>Category / illustrative quotes</th>
<th>Quoted by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>'Medical file, medical history, clinical assessment, lab tests, imaging, medication … there is often a lack of time, consequently, patient education is provided but in a less optimal way'.</td>
<td>Rheumatologist, Belgium</td>
</tr>
<tr>
<td>2</td>
<td>'Not all the needs of patients can be extracted within the set time of current PE'.</td>
<td>Nurse, Japan</td>
</tr>
<tr>
<td>3</td>
<td>'It is ideal to meet various needs, but on the other hand, increasing the burden on the provider side is an issue'.</td>
<td>Rheumatologist, Japan</td>
</tr>
<tr>
<td>4</td>
<td>'Evaluation is never performed, no time is allocated to it’.</td>
<td>Registered Nurse, Belgium</td>
</tr>
<tr>
<td>5</td>
<td>'Lack of training'.</td>
<td>Registered Nurse, Portugal</td>
</tr>
<tr>
<td>6</td>
<td>'Inflammatory chronic disease nursing and nurse specialist in this field have not been established. Therefore, as information, and knowledge and skills of nurses are insufficient, nurses may not be able to take care of patients based on the personal situation'.</td>
<td>Nurse Educator, Japan</td>
</tr>
<tr>
<td>7</td>
<td>'Ignorance of the [EULAR] recommendations’ (Recommendation 1)'.</td>
<td>Registered Nurse, Portugal</td>
</tr>
<tr>
<td>8</td>
<td>'I think we don’t do it because we don’t know how to do it. Especially [CBT] and stress management’ (Recommendation 3)'.</td>
<td>Rheumatologist, France</td>
</tr>
<tr>
<td>9</td>
<td>PE [may] varies depending on the years of experience of the nurse. (Recommendation 1)</td>
<td>Nurse, Japan</td>
</tr>
<tr>
<td>10</td>
<td>'Not enough training providers in our country’ (Recommendation 6).</td>
<td>Rheumatologist, Bulgaria</td>
</tr>
<tr>
<td>11</td>
<td>'Finding appropriate patients and training them to be trainers are all challenges’ (Recommendation 7).</td>
<td>Registered Nurse, Hong Kong</td>
</tr>
<tr>
<td>12</td>
<td>'We do not currently have the resources to incorporate CBT or stress management strategies into patient self management. We do refer some patients to the pain team service …however waiting lists are very lengthy’ (Recommendation 5)</td>
<td>Registered Nurse, UK</td>
</tr>
<tr>
<td>13</td>
<td>'At follow up with the patient it will emerge what the patient needs to be re-informed about and what is missing, but we don’t use any tool for this evaluating…’ (Recommendation 6)</td>
<td>Registered Nurse, Sweden</td>
</tr>
<tr>
<td>14</td>
<td>'No framework for follow-up’ (Recommendation 6)</td>
<td>Rheumatologist, Sweden</td>
</tr>
<tr>
<td>15</td>
<td>'Lack of time to organize follow-up and evaluation consultations’ (Recommendation 6).</td>
<td>Family Doctor, Portugal</td>
</tr>
<tr>
<td>16</td>
<td>'Not all patients have access to the Internet’ (Recommendation 4).</td>
<td>Nurse, Finland</td>
</tr>
<tr>
<td>17</td>
<td>'face-to-face online support and telephone support at a general hospital like ours are not possible’ (Recommendation 4)</td>
<td>Nurse, Japan</td>
</tr>
<tr>
<td>18</td>
<td>'Group sessions and online cannot be used due to institutional restrictions’. (Recommendation 4)</td>
<td>Occupational Therapist, Japan</td>
</tr>
<tr>
<td>19</td>
<td>'My preferred method to answer patients’ questions is absolutely individually and face-to-face, online contact and written material can be misunderstood; however, this (online/written) is possible for most patients in case of sharing more general information’ (Recommendation 3)</td>
<td>Rheumatologist, Belgium</td>
</tr>
<tr>
<td>20</td>
<td>'Online interaction seems not an ideal approach in my opinion. For example, information shared via email could be misinterpreted wrongly’. (Recommendation 4)</td>
<td>Rheumatologist, Belgium</td>
</tr>
<tr>
<td>21</td>
<td>'Online self-learning can be misleading’ (Recommendation 3)</td>
<td>Rheumatologist, Japan</td>
</tr>
<tr>
<td>22</td>
<td>'It is mandatory that the physician should control over the information provided to the patient’. (Recommendation 7)</td>
<td>Rheumatologist, France</td>
</tr>
<tr>
<td>23</td>
<td>'The presence of non-healthcare personnel would open the door to dubious situations’. (Recommendation 7)</td>
<td>Rheumatologist, Italy</td>
</tr>
<tr>
<td>24</td>
<td>'Not systematic' (Recommendation 2)</td>
<td>Occupational Therapist, Norway</td>
</tr>
<tr>
<td>25</td>
<td>'Very rare monitoring of patients with [IA]’ (Recommendation 2)</td>
<td>Registered Nurse, Portugal</td>
</tr>
<tr>
<td>26</td>
<td>'The focus is on newly diagnosed patients, there is no organised PE aside from ordinary doctor- and nurse visits’ (Recommendation 2)</td>
<td>Rheumatologist, Sweden</td>
</tr>
<tr>
<td>27</td>
<td>'Patients come often spontaneously to PE after reading a poster, receiving a flyer etc… Not enough on doctor’s initiative…(not according to a defined agenda’. (Recommendation 2)</td>
<td>Pharmacist, France</td>
</tr>
<tr>
<td>28</td>
<td>'It's up to me to keep me updated about appropriate pedagogics’ (Recommendation 8)</td>
<td>Nurse, Sweden</td>
</tr>
<tr>
<td>29</td>
<td>'I do not think we do [PE] according to the most up-to-date research findings’ (Recommendation 8).</td>
<td>Physiotherapist, Hungary</td>
</tr>
<tr>
<td>30</td>
<td>'The money for training costs is reduced year by year’. (Recommendation 8).</td>
<td>Nurse, Finland</td>
</tr>
<tr>
<td>31</td>
<td>'Do not have the money’ (Recommendation 8).</td>
<td>Physiotherapist, Hungary</td>
</tr>
<tr>
<td>32</td>
<td>'Patient with incorrect beliefs, patient thinking that only treatment is important, patient not wanting or unable to change their everyday life activities’ (Recommendation 1).</td>
<td>Occupational Therapist, France</td>
</tr>
<tr>
<td>33</td>
<td>'The patient is not willing to come to the nurse’s office. All patients do not understand that there is something to be done by the caregiver in treating the patient’. (Recommendation 1).</td>
<td>Nurse, Finland</td>
</tr>
<tr>
<td>34</td>
<td>'I always offer it, and the rheumatologist always offers this, however, when the patient indicates that he or she does not want to be ready for this, it will not happen. We do not see all patients with inflammatory arthritis, so [PE] is not standard care[Recommendation 1].</td>
<td>Specialist Nurse, The Netherlands</td>
</tr>
</tbody>
</table>
Table 4  Quotes to illustrate the respective category supporting facilitators to implementation

<table>
<thead>
<tr>
<th>Quote number (Q)</th>
<th>Category/illustrative quotes</th>
<th>Quoted by</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>‘Some [are] more in need of information than others and are more “dependent” on information to move forward’ (Recommendation 1).</td>
<td>Occupational Therapist, Norway</td>
</tr>
<tr>
<td>36</td>
<td>‘Informed…on their disease(s) and treatment(s) and options’ (Recommendation 1).</td>
<td>Rheumatologist, Belgium</td>
</tr>
<tr>
<td>37</td>
<td>‘Life’s situations are changeable, which the teaching should be targeted for’ (Recommendation 1).</td>
<td>Authorised Nurse, Denmark</td>
</tr>
<tr>
<td>38</td>
<td>‘Therapy compliance, self-management and treatment objectives’ (Recommendation 1).</td>
<td>Nurse, The Netherlands</td>
</tr>
<tr>
<td>39</td>
<td>‘PE must…always be customized to the patients’ needs and resources and limitations. The feasibility for the different platforms for the patient education must always be considered’. (Recommendation 4)</td>
<td>Occupational Therapist, Sweden</td>
</tr>
<tr>
<td>40</td>
<td>‘We have psychologist, group therapy… nurses and physiotherapists trained in pain and trained in drug education’. (Recommendation 5).</td>
<td>Rheumatologist, France</td>
</tr>
<tr>
<td>41</td>
<td>‘Common basis for all patients and a personalized part, 50/50’ (Recommendation 3)</td>
<td>Rheumatologist, Belgium</td>
</tr>
<tr>
<td>42</td>
<td>‘General instructions … After that, individual instructions will be given’ (Recommendation 3)</td>
<td>Physiotherapist, Finland</td>
</tr>
<tr>
<td>43</td>
<td>‘Group interaction and experience sharing can be very enriching’ (Recommendation 3)</td>
<td>Nurse, France</td>
</tr>
<tr>
<td>44</td>
<td>‘We provide education at diagnosis, at the start of pharmacological and non pharmacological interventions and periodically depending on individual patient needs. Sometimes limited clinic time can act as a barrier, however, I believe, as a department, we do strive to give good quality education via a multi-disciplinary approach’. (Recommendation 2)</td>
<td>Registered Nurse, UK</td>
</tr>
<tr>
<td>45</td>
<td>‘Life’s situations are changeable, which the teaching should be targeted for’ (Recommendation 2).</td>
<td>Authorised Nurse, Denmark</td>
</tr>
<tr>
<td>46</td>
<td>‘Regularly organised education programs (by and for patients)’ (Recommendation 1).</td>
<td>Rheumatologist, The Netherlands</td>
</tr>
<tr>
<td>47</td>
<td>‘Patient education is … the basis for standard treatment”…I want to think of patient education like “soil ploughing” for standard treatment to “grow” or develop’. (Recommendation 1).</td>
<td>Physiotherapist, Japan</td>
</tr>
<tr>
<td>48</td>
<td>‘Asking the patient verbally … not by means of questionnaires’ (Recommendation 6).</td>
<td>Rheumatologist, Belgium</td>
</tr>
<tr>
<td>49</td>
<td>‘[This method] makes it possible to check whether the information is understood, the other forms do not’</td>
<td>Nurse, The Netherlands</td>
</tr>
<tr>
<td>50</td>
<td>‘Patients are being asked to take care of [PE] especially if we are moving towards general health education that does not require very specialized knowledge’ (Recommendation 7).</td>
<td>Rheumatologist, France</td>
</tr>
<tr>
<td>51</td>
<td>‘More awareness about avenues for patients to get trained in PE should be created’ (Recommendation 7)</td>
<td>Educationist, India</td>
</tr>
<tr>
<td>52</td>
<td>‘The patient organizations are important players and should have a more eminent role, both for the patients but also for education of the professionals’ (Recommendation 7).</td>
<td>Rheumatologist, Sweden</td>
</tr>
<tr>
<td>53</td>
<td>‘For me, it is the same as for the patients: competencies need to be maintained over time’ (Recommendation 8)</td>
<td>Rheumatologist, France</td>
</tr>
<tr>
<td>54</td>
<td>‘I had a training course with the support of private funding (pharma companies)’ (Recommendation 8)</td>
<td>Nurse, France</td>
</tr>
<tr>
<td>55</td>
<td>‘Specific training is …provided by the physiotherapy association’ (Recommendation 8)</td>
<td>Physiotherapist, Belgium</td>
</tr>
</tbody>
</table>

**Mixed methods results**

The mixed-methods analysis revealed similarities in barriers and facilitators for implementation across the recommendations. For example, lack of time, lack of training was seen in 6/8 recommendations. In the suggested facilitators, tailoring PE was suggested in 5/8 recommendations (table 5).

**DISCUSSION**

This study disseminated the recommendations for PE in IA and assessed their acceptability and barrier and facilitators for implementation across 23 countries. This substantial project achieved good dissemination of the recommendations, providing a total of 20 translations of the recommendations. The responses (including textual data) suggest an expansive awareness and engagement with the recommendations and identify issues of implementation across the countries.

The findings suggested a very high level of agreement with all recommendations (median 10), but the self-reported application in clinical practice was rated consistently lower (median scores between 6 and 8). This difference illustrates the commonly known gap between knowledge or agreeing with the evidence.
and application in practice, the latter requiring efforts to address individual, organisational and societal barriers to change.7–10

The common barriers to implementation were lack of time, lack of training and inadequate staff. This agrees with the literature, which suggests that work pressure, lack of time and perceived lack of training are the common reasons why clinicians find it hard to apply recommendations into clinical practice.30 31 While those three factors interact with each other, efforts directed towards (cross-disciplinary) training of professionals and patients to deliver PE may help improve the perceived lack of time and staff. However, it is important to highlight that training also needs funding, time and effort, thus needing a change at all (individual professional, institution and policy) levels. Training of PE providers was also identified as an education agenda of the current recommendations.4

The mixed-methods approach has made it possible for the qualitative findings to explain the quantitative results. For example, recommendation 6 (the requirement for outcomes of PE to be evaluated) was rated the lowest in applicability to clinical practice.30 31 While those three factors interact with each other, efforts directed towards (cross-disciplinary) training of professionals and patients to deliver PE may help improve the perceived lack of time and staff. However, it is important to highlight that training also needs funding, time and effort, thus needing a change at all (individual professional, institution and policy) levels. Training of PE providers was also identified as an education agenda of the current recommendations.4

The mixed-methods approach has made it possible for the qualitative findings to explain the quantitative results. For example, recommendation 6 (the requirement for outcomes of PE to be evaluated) was rated the lowest in applicability to practice and the corresponding qualitative findings explain the possible reasons for this such as perceived lack of time, lack of structure and oversight about the effectiveness of PE, including a lack of a reliable assessment tool. This meant that evaluation of PE was often overlooked.

There were notable differences in responses across countries, in terms of applicability of the recommendations. For example, participants from Ireland, Denmark, Hong Kong, Japan and Portugal indicated that the technology and internet access provided by hospitals might not be sufficient to offer supplementary online PE support. A previous UK study found while internet-based video consultations in outpatient care were found to be safe, time-efficient and convenient, there was strong resistance from hospital information/technology departments, as videoconferencing was anticipated to require costly updates and increased technical support.32 In light of changes to service delivery as a result of COVID-19, hospitals across the world have quickly adopted virtual (video or phone-based) appointments in response to restrictions in face-to-face interactions, therefore showing potential for faster development in the delivery of PE in virtual environment. Evaluation of how departments adopt these changes will inevitably inform future training and developments in the delivery of PE.

Interestingly, some responses on recommendation 7 from France, Italy, Portugal and Japan expressed concerns that there would not be enough trained patients to deliver PE, or patients might give inaccurate information and who would be responsible for this information. A study with general practitioners in the UK33 highlighted similar tensions between supporting increased patient self-management and multidisciplinary team care or focus on PE. Collaborating with leaders of professional organisations in these countries facilitated the dissemination. Second, the response from such a number of diverse health professionals suggests multidisciplinary engagement with the recommendations. Third, efforts were made to gain textual responses, which ensured rich data on specific

<table>
<thead>
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<th>Table 5 Similarities in the barriers and facilitators to implementation by recommendation</th>
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<td>Barriers</td>
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The dots indicate how the barriers and facilitators relate to the recommendations. 

PE, patient education.
barriers or facilitators for implementing each recommendation. The mixed-methods design has provided a unique opportunity to obtain a deeper understanding of the issues needed to address for a successful implementation of these recommendations. Last, our data can be used to develop practitioner-informed quantitative scales to measure the level of applicability of future recommendations.

This study has four key limitations. First, there is limitation of external validity, as the voluntary nature of the study meant that the responses were not uniform across countries, with some countries having higher response rates than others. Therefore, the results can only represent the views of respondents to our survey and may not be representative of all professionals in rheumatology across all 23 countries. Further work will be required to assess country-specific barriers and facilitators, especially in the regions that were under-represented in this study. Second, data were collected between July and September 2019, a typical summer vacation time in some countries, which could have affected the response rates. Third, some participants started the online survey but did not complete. Our analysis focused on completed data only as our survey platform (Qualtrics) captures all the data and it is impossible to tell if participants with incomplete data went ahead to complete the survey using a different device. All these suggest that a degree of selection bias cannot be excluded. Last, this study identified the barriers and facilitators to implementation at the individual practitioners and institutional (micro and meso) levels. Further study of the wider policy context (macro) level in each country will be required to ensure sustainable implementation and improvements in the quality PE.6–9

In conclusion, the EULAR recommendations for PE in IA have been disseminated across 23 countries and a range of barriers and facilitators to their implementation has been identified. A high level of agreement with all the recommendations is encouraging although addressing the barriers at the individual, organisation and societal level will be important to ensure successful application to practice. Some barriers to application are amenable to change, such as addressing training needs of providers and developing evaluation tools for PE. Further targeted implementation activities may be required in different countries, taking account of their healthcare systems to promote integration of the recommendations in practice and, thus, improve the outcome of patients with IA.

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Contributors
SB, coordinated the study, collected the data, undertook the analysis, drafted the manuscript and revised it for intellectual content. MN is the Principal Investigator; designed the study, led the grant application, oversaw the project and interpretation of the results and revised the study report for intellectual content. HAZ codesigned the study, contributed to the grant application, interpretation of the results and revised it for intellectual content. AVT is the Methodologist for this project, co-designed the study, contributed to the grant application, interpretation of the results and revised it for intellectual content. IL, provided methodological advice, contributed to adaptation of the questionnaire in Sweden, interpreting the data and reviewing the manuscript for intellectual content. The following co-investigators were involved in the dual-panel adaptation of the questionnaire from English into their respective countries, disseminating the survey, interpreting the results, and revising the manuscript for intellectual content: CB, Sweden; AD, Hungary; JP, Denmark; PM, Ireland; TN, Italy; RJOF, Portugal; MF, Japan; KvE, Belgium; McCHM, Spain; RR, India; CBE, France; MG-P, Bulgaria; KH, Germany; VYE-H, Netherlands; MLK, Finland; MSI, Poland; MS-M, Austria; GK, Hong Kong; HZ, Norway. MN and SB had access to the data. MN is responsible for the overall content as guarantor, controlled the decision to publish and accepts full responsibility for the finished work and the conduct of the study.

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Competing interests
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Education
Patient and public involvement
Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication
Not applicable.

Ethics approval
This study involves human participants and was conducted in accordance with the Declaration of Helsinki. Participants were informed that their participation was voluntary and that by submitting a completed survey this implied their consent to participate. The ethics approval was obtained from Faculty of Health and Applied Sciences Research Ethics Committee, University of the West of England, Bristol, UK (UWE REC REF No: HAS.18.11.066). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review
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Data availability statement
No data are available. This was a mixed methods study involving analysis of qualitative and quantitative data therefore the data generated are not suitable for sharing beyond that contained within the report. Further information can be obtained from the corresponding author.

Supplemental material
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