


**LITERATURE REVIEW**

# The value, impact and role of nurses in rheumatology outpatient care: Critical review of the literature

Heidi Lempp<sup>1</sup>  | Rhiannon Baggott<sup>1</sup> | David L. Scott<sup>1</sup> | Louise Parker<sup>2</sup> |  
Ailsa Bosworth<sup>3</sup> | Sofia Georgopoulou<sup>1,4</sup> | Jill Firth<sup>5</sup>

<sup>1</sup>Centre for Rheumatic Diseases, Department of Inflammation Biology, King's College London, London, UK

<sup>2</sup>Rheumatology Department, Royal Free London NHSFT, London, UK

<sup>3</sup>National Patient Champion, National Rheumatoid Arthritis Society, Maidenhead, UK

<sup>4</sup>Applied Health Services Research Group, The Royal Marsden Hospital, London, UK

<sup>5</sup>Pennine MSK Partnership, Oldham, UK

**Correspondence**

Heidi Lempp, Centre for Rheumatic Diseases, Department of Inflammation Biology, King's College London, London, UK.  
Email: heidi.lempp@kcl.ac.uk

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**Abstract**

**Background:** As rheumatology nurses make substantial contributions to intensive management programmes following 'treat to target' principles of people with rheumatoid arthritis (RA), there is a need to understand the impacts of their involvement. A structured literature review was undertaken of qualitative studies, clinical trials and observational studies to assess the impacts of rheumatology nurses on clinical outcomes and the experiences of patients with RA and to examine the skills and training of the nurses involved.

**Method:** A structured literature review was conducted to examine the value, impact and professional role of nurses in RA management.

**Results:** The literature search identified 657 publications, and 20 of them were included comprising: seven qualitative studies (242 patients), nine trials (a total of 2,440 patients) and four observational studies (1,234 patients). In clinical trials, nurses achieved similar patient clinical outcomes to doctors, and nurses also enhanced patients' satisfaction of received care and self-efficacy. In the qualitative studies reviewed, the nurses increased patients' knowledge and promoted their self-management. The observational studies studied examined found that nursing care led to improved patients' global functioning. The nurses in the various studies had a wide range of titles, experiences and training.

**Discussion:** Our structured literature review provides strong evidence that rheumatology nurses are effective in delivering care for RA patients. However, their titles, experience and training were highly variable.

**Conclusion:** There is a convincing case to maintain and extend the role of nurses in managing RA, but further work is needed on standardisation of their titles and training.

**KEYWORDS**

nurses, professional titles, rheumatoid arthritis, specialist training

## 1 | INTRODUCTION

The current care of people with rheumatoid arthritis (RA) focuses on providing intensive management programmes, which follow the general principles of 'treat to target' strategies. Following these strategies means seeing and assessing patients frequently following diagnosis and after starting treatment, with ongoing discussions about care between clinicians and patients. Treat to target approaches are recommended in English and European specialist guidance (Goswami et al., 2016; National Institute for Health and Clinical Excellence, 2018; Schoels et al., 2010; Smolen et al., 2010; Smolen et al., 2016; Stoffer et al., 2016).

The increasing use of treat to target strategies impacts on the role of rheumatology nurses, who are often involved in assessing patients and supporting them whilst they receive intensive treatment. Nurses often have key roles in treat to target, the basis of which has been summarised by Burmester and Pope (2017) as 'rapid treatment, reassessment, and adjustment of medications to a target of remission wherever possible.' The TITRATE trial (Martin et al., 2017) has evaluated intensive treatment combined with monthly assessment and management sessions by rheumatology nurses.

One challenge when involving rheumatology nurses in intensive management strategies in both research settings and in routine clinical practice is determining exactly what constitutes a specialist nurse. Unlike rheumatologists, who have well-defined training requirements and recognition of their specialist expertise, there are relatively few specialty training requirements for rheumatology nurses. However, most rheumatology nurses are involved in assessing patients and monitoring the effects of treatment and providing advice and support for patients; a small minority of nurses have extended roles and can prescribe some treatments. A second challenge is interpreting the strength of evidence that specialist nurses provide effective care. Against this background, the authors have undertaken a structured literature review (Gaertner et al., 2015) to assess the evidence from qualitative studies, clinical trials and observational studies on the impacts of rheumatology nurses on clinical outcomes and the experiences of patients with RA and also to examine, as far as possible, the skills and training of the specialist nurses involved in these research studies.

## 2 | METHOD

Medline was systematically searched using the key word search terms 'arthritis, rheumatoid' (MeSH) and 'nursing,' published between January 2000 and August 2018, including hand-searched relevant systematic reviews on the topic, for papers published in English.

### 2.1 | Inclusion/exclusion criteria

The inclusion criteria comprised: (i) patients with a diagnosis of RA, (ii) studies investigating the role of (specialist) nurses in their

management, (iii) studies with any research design and (iv) the papers were in English.

### 2.2 | Screening

One reviewer (DS) screened titles/abstracts identified in the search. A second reviewer (RB) independently screened the full text of 10% of all publications, identified against the agreed inclusion criteria.

### 2.3 | Data extraction

Two reviewers (DS and RB) extracted data including study design, year, setting, patients, the questions addressed and main conclusions of the study.

### 2.4 | Quality assessment

As these studies used multiple methods, their quality was assessed comparatively using CASP-UK Checklists for randomised controlled trials, qualitative studies, cohort and case-control studies (<https://casp-uk.net/casp-tools-checklists/> accessed 21.12.19).

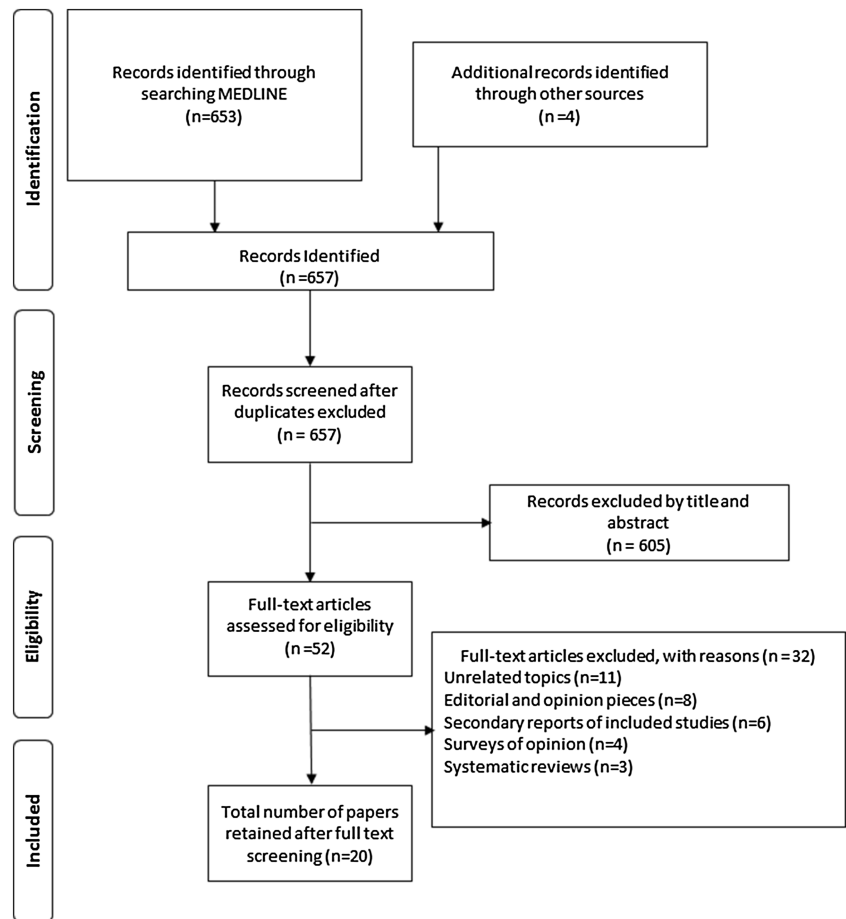
## 3 | RESULTS

### 3.1 | Structured literature review

#### 3.1.1 | Studies included

The authors identified 657 publications: 52 were selected for detailed review (Figure 1). Twenty papers were included: seven qualitative studies (242 patients) (Arvidsson et al., 2006; Bala et al., 2012; Larsson, Bergman, Fridlund, & Arvidsson, 2012; Long, Kneafsey, Ryan, & Berry, 2002; Primdahl, Wagner, & Horslev-Petersen, 2011; Temmink, Hutten, Francke, Abu-Saad, & van der Zee, 2000; van Eijk-Hustings et al., 2013), nine clinical trials (2,440 patients) (Dougados et al., 2015; Hill, Thorpe, & Bird, 2003; Koksvik et al., 2013; Larsson, Fridlund, Arvidsson, Telemann, & Bergman, 2014; Ndosi et al., 2014; Primdahl, Sorensen, Horn, Petersen, & Horslev-Petersen, 2014; Ryan, Hassell, Lewis, & Farrell, 2006; Symmons et al., 2005; Tjihuis et al., 2002) and four observational studies (1,234 patients) (Esselens, Westhovens, & Verschuere, 2009; Munoz-Fernandez et al., 2016; Solomon et al., 2015; Watts et al., 2015), two with cohort and two with case-control designs. Details of these studies are given in Table 1. CASP-UK checklist assessments (<https://casp-uk.net/casp-tools-checklists/>, accessed 21.12.19) of the studies (Tables S1–S4) showed they were of moderate to good quality. There were design challenges in all the trials as full blinding was impossible, and assessing unintended effects in the trials was also difficult.

**FIGURE 1** PRISMA flow diagram structured literature review: nurse provided care in rheumatoid arthritis



### 3.1.2 | Qualitative studies

The seven qualitative studies (Arvidsson et al., 2006; Bala et al., 2012; Larsson et al., 2012; Long et al., 2002; Primdahl et al., 2011; Temmink et al., 2000; van Eijk-Hustings et al., 2013) showed that nurses made a positive impact in the way they were able to increase patients' knowledge of RA and promote their self-management abilities. These studies highlighted the holistic care provided by nurses, the benefits of education and emotional support and the ability of nurses to facilitate patient centred care and shared decision making compared with doctors.

Although all the studies provided support for the involvement of nurses in rheumatology care, they included limited information about the training and the clinical experiences of nurses. One exception was the report by Larsson et al. (2014), which evaluated five nurses with extensive rheumatology experience who had undergone special training in how to assess swollen and tender joints to make evidence-based assessments of disease activity.

### 3.1.3 | Clinical trials

The nine clinical trials published between 2012 and 2015 enrolled 2,440 patients. The trials varied in size and duration: the smallest trial involved 68 patients (Koksvik et al., 2013) and the largest 970 patients

(Dougados et al., 2015); one trial lasted 6 months, five trials lasted 12 months and three trials were longer than 12 months with the longest lasting 35 months (Symmons et al., 2005). Seven trials had two patient groups, and two trials had three patient groups (Primdahl et al., 2014; Tjihuis et al., 2002). Eight of the trials had superiority designs, and one was a noninferiority trial (Ndosi et al., 2014). A synopsis of these nine trials, including their primary question, the intervention and control groups, their duration, their primary outcomes and their end-point comparisons, is shown in Table 2.

Six trials (Hill et al., 2003; Koksvik et al., 2013; Larsson et al., 2014; Ndosi et al., 2014; Primdahl et al., 2014; Ryan et al., 2006) compared care provided by specialist nurses with care provided conventionally by doctors or routine clinic nurses. The specialist nurses involved in these trials had a range of titles, including rheumatology nurse practitioners, clinical nurse specialists and nurse practitioners. In four trials, the primary outcome was the Disease Activity Score for 28 joints (DAS28) or DAS28 with C-reactive protein (DAS28-CRP) (van Riel & Renskers, 2016). In these trials, specialist nurses achieved similar outcomes to doctors. The other two trials also assessed changes in DAS28 as a secondary outcome and also found no significant difference between groups in changes in DAS28. In one trial, the coprimary outcome was changes in scores in the Rheumatology Attitude Index (Ryan et al., 2006), which suggested some benefits from specialist nurse care, though the differences did not reach statistical significance. In one trial, the primary outcome was changes in the

**TABLE 1** Structured literature review: Main findings in qualitative studies, trials and observational studies of specialist nurses

Study	Year	Number	Nurses/comparison	Main findings
Qualitative studies				
Temmink et al.	2000	128	Transmural nurse clinics	Patients positive about quality and continuity of care. Some limitations in continuity of care
Long et al.	2002	16	Nurses in multidisciplinary rehabilitation team	Nurses make contribute to assessment, integrating therapy and emotional support
Arvidsson et al.	2006	16	Nurse-led rheumatology clinics	Nurses provide holistic assessments, coordinated care and providing insight
Primdahl et al.	2011	33	Rheumatology outpatient nurses (experienced)	Nursing consultations less factual and less authoritarian than medical consultations
Bala et al.	2012	18	Clinical nurse specialists and nurses with basic training	Nurses give familial atmosphere, empathy, knowledge, accessibility and continuity
Larsson et al.	2012	13	Nurses (experienced in Rheumatology)	Nurses enhanced security, familiarity and participation
van Eijk-Hustings et al.	2013	18	Rheumatology nurses	Nurses provided education, self-management and emotional support and help organise care
Clinical trials				
Tijhuis et al.	2002	210	Rheumatology nurse specialists versus inpatient and day care teams (including nurses)	Clinical nurse specialists achieve similar outcome in comparison with other approaches
Hill et al.	2003	80	Rheumatology nurse practitioners versus junior doctor	Rheumatology nurse practitioners achieved similar clinical outcomes but patient satisfaction greater than with junior doctors
Symmons et al.	2005	466	Symptomatic care at home by specialist nurse four monthly versus intensive hospital care at least four monthly	No additional benefit of intensive hospital care over symptomatic care at home by specialist nurse
Ryan et al.	2006	71	Clinical nurse specialist versus outpatient nurse	Clinical nurse specialists improve patients' perceived ability to cope with arthritis
Koksvik et al.	2013	68	Follow-up consultations by clinical nurse specialist versus medical doctor	Clinical nurse specialists increase satisfaction with care without loss of efficacy compared with doctors
Larsson et al.	2014	107	Nurse-led clinic versus rheumatologist-led clinics	Stable patients on biologics monitored in nurse-led clinics have similar outcomes to those in rheumatologist-led clinics
Primdahl et al.	2014	287	Planned nursing consultations versus planned rheumatologist consultations versus shared care without planned consultations	Stable patients receiving biologics in nurse-led clinics have comparable clinical outcomes and enhanced self-efficacy and satisfaction compared with rheumatologist-led clinics
Ndosi et al.	2014	181	Nurse-led care versus rheumatologist-led care	Clinical nurse specialist led care gave similar clinical outcomes and higher general satisfaction scores to rheumatologist-led care
Dougados et al.	2015	970	Trained nurses leading programme on RA comorbidity management versus standard care	Nurse-led programme gave short-term benefits on comorbidity management compared with standard care
Observational studies				
Esselens et al.	2009	191	Programmed multidisciplinary outpatient care involving nurses versus standard rheumatologist-centred care	Programmed care achieved better clinical outcomes and general health
Watts et al.	2015	349	Community-based nurse-led care versus rheumatologist-led outpatient care	Minimal differences in clinical outcomes between community and hospital follow-up

**TABLE 1** (Continued)

Study	Year	Number	Nurses/comparison	Main findings
Solomon et al.	2015	301	Rheumatology practices with nurse practitioners or physician assistants versus practices without	Fewer patients seeing nurses/physician assistants had high disease activities
Muñoz-Fernández et al.	2016	393	Rheumatology services with nursing clinics in rheumatology versus rheumatology services without nursing clinics in rheumatology	Nurse-led clinics achieved better global assessments and less disability

Leeds Satisfaction Questionnaire (Koksvik et al., 2013), which showed significantly greater changes in patients receiving care from specialist nurses.

Three trials evaluated somewhat different questions. Tijhuis et al. (2002) examined the effectiveness of clinical nurse specialists compared with care by multidisciplinary teams or as inpatients and found no difference in changes in Health Assessment Questionnaire (HAQ) scores (Bruce & Fries, 2016) between groups. Symmons et al. (2005) compared nurses visiting patients in the community who supported general practitioners with conventional specialist clinics. In this trial, HAQ was the primary outcome, and over 3 years, it showed similar increases in patients receiving symptomatic care at home supported by specialist nurses and patients receiving intensive hospital management by rheumatologists. Finally, Dougados et al. (2015) evaluated the impact of trained nurses on RA comorbidity management; this trial showed they were able to identify more comorbidities.

The trials also provided variable information about the skills, experience and training of the nurses involved. The most experienced nurses that participated in a trial were reported by Ndosí et al. (2014); these were clinical nurse specialists who had a median experience of 10 years in their current post, experience in running nurse-led clinics and usually postgraduate qualification in rheumatology nursing and/or prescribing. Hill et al. (2003) appraised rheumatology nurse practitioners or clinical nurse specialists with extended roles to incorporate key technical and patient management skills. Ryan et al. (2006) assessed clinical nurse specialists trained to offer individual assessment, education, ongoing psychological support and referral to other healthcare professionals to address specific problems. Koksvik et al. (2013) evaluated clinical nurse specialists trained to undertake extended roles, such as assessing disease activity, monitoring patients on disease-modifying antirheumatic drugs and recommending adjustments of drug treatment. Primdahl et al. (2014) evaluated nurses trained to perform joint assessments and evaluate the blood tests and use the HAQ. Tijhuis et al. (2002) evaluated the impact of clinical nurse specialists who had expertise in the care of patients with long-term diseases. Larsson et al. (2014) evaluated the impact of registered nurses with 22- to 39-year professional experience and 9- to 20-year experience of managing rheumatic diseases in both inpatient and outpatient rheumatology care who had received special training from a rheumatologist and RA instructors ('specially trained patients who instruct health care staff how to examine joints of the hands, wrists and ankles and provide information about living with the disease'). Finally, in the trial of comorbidity assessment by Dougados et al. (2015), the nurses received written information about comorbidities, but no other details are given about their experience.

### 3.1.4 | Observational studies

Two observational cohort studies of clinics involved nurses within specialist clinics and one without nurse involvement were identified. Solomon et al. (2015) compared North American specialist rheumatology practices, which included nurse practitioners or physician assistants with specialist rheumatology practices in which there were neither nurse practitioners nor physician assistants. Study compared rheumatology practices with nurse practitioners or physician assistants against practices without either of them. Practices had nurse practitioners or physician assistants for at least 6 months. Fewer patients in practices with nurses or physician assistants had high disease activity levels, indicating better standards of care. Muñoz-Fernández et al. (2016) compared rheumatology services with nursing clinics in rheumatology and services without. The nursing clinics had at least one dedicated nurse with her own appointment schedule. Services with nurse-led clinics achieved better global assessments and less functional disability.

A case-control observational study by Eselens et al. (2009) compared multidisciplinary outpatient care involving nurses with standard rheumatologist-centred care and found that their programme that incorporated structured pharmacological and nonpharmacological care achieved better clinical outcomes and general health. There was no detailed description of the nurses providing multidisciplinary care.

Another case-control observational study by Watts et al. (2015) compared community-based nurse-led care with rheumatologist-led outpatient care and found only minimal differences in clinical outcomes between community and hospital follow-up. There was no detailed description of the nurses providing community-based care.

## 4 | DISCUSSION

Our structured literature review provides strong evidence from qualitative studies, clinical trials and observational studies that specialist nurses deliver effective care. The different studies assessed for this paper found that nurses helped patients in a variety of settings and the clinical outcomes they achieved were similar to those of specialist rheumatologists. In some studies, patients achieved greater satisfaction with care than rheumatologists. The studies evaluated diverse patient groups in a range of clinical settings. For this reason, the findings could not be combined in a meta-analysis. Our findings replicate, support and extend three previous systematic reviews, which evaluated different aspects of care by rheumatology nurses, including trials and qualitative studies (de Thurah, Esbensen, Roelsgaard, Frandsen, &

**TABLE 2** Details of clinical trials of rheumatology nurses

Trial	Question	Intervention	Controls	Duration	Primary outcome	End-point comparisons
Tijhuis et al.	Effectiveness of clinical nurse specialists compared with established care	Nurse specialist care ( <i>n</i> = 71)	(a) Inpatient care ( <i>n</i> = 71) (b) Day patient care ( <i>n</i> = 68)	12 months	Changes in HAQ	(a) Significant falls in HAQ in all groups and no significant differences between groups Nurse specialists: mean fall HAQ 0.17 (95% CI [0.03, 0.30]) Inpatients: mean fall HAQ 0.19 (95% CI [0.06, 0.32]) Day patients: mean fall HAQ 0.36 (95% CI [0.23, 0.50])
Hill et al	Comparison of outcomes from rheumatology nurse practitioner clinics and medical doctor clinics	Rheumatology nurse practitioner ( <i>n</i> = 39)	Medical doctor ( <i>n</i> = 41)	12 months	Changes in DAS28	More improvements with nurses though not significant (a) Rheumatology nurse practitioners: 11/36 (30%) DAS28 scores improved 19/36 (53%) DAS28 scores unchanged 6/36 (17%) DAS28 scores worse (b) Medical doctors: 6/35 (17%) DAS28 scores improved 22/35 (63%) DAS28 scores unchanged 7/35 (20%) DAS28 scores worse
Symmons et al.	Comparison shared care with rheumatology nurses and aggressive hospital care in established stable RA	Shared care involving nurses ( <i>n</i> = 233)	Aggressive hospital care ( <i>n</i> = 233)	36 months	Changes in HAQ	Mean HAQ deteriorated significantly with both treatments and no difference between them (a) Shared care: mean HAQ rose 1.25–1.40 (b) Aggressive hospital care: mean HAQ rose 1.31–1.45 Adjusted mean difference between groups not significant (0.02; 95% CI [–0.07, 0.11])
Ryan et al.	Impact of clinical nurse specialist consultation compared with standard care in drug monitoring clinic	Clinical nurse specialist care ( <i>n</i> = 36)	Outpatient clinic nurse care ( <i>n</i> = 35)	12 months	Changes in RAI	RAI improved with clinical nurse specialist care and deteriorated with outpatient clinic nurse care but difference not significant (a) Clinical nurse specialist care: mean RAI fell 37.6–35.8 (b) Outpatient clinic care: mean RAI rose 35.8–36.2

TABLE 2 (Continued)

Trial	Question	Intervention	Controls	Duration	Primary outcome	End-point comparisons
						Adjusted mean difference between groups was not significant (1.3; 95% CI [-0.9, 3.5])
Koksvik et al.	Comparison of satisfaction after follow-up by clinical nurse specialist with follow-up by medical doctor	Clinical nurse specialist care (n = 35)	Medical doctor care (n = 33)	21 months	Changes in LSQ	Overall satisfaction improved in both groups and was significantly greater with clinical nurse specialist care (a) Clinical nurse specialist: mean satisfaction rose 3.91–4.63 (b) Medical doctor care: mean satisfaction rose 3.95–4.06 Adjusted mean difference between groups was significant (0.57; 95% CI [-0.27, 0.86]; $p < 0.001$ )
Larsson et al.	Compared outcomes of nurse-led and rheumatologist-led care in patients with low disease activity or remission receiving biologics	Nurse-led clinic (n = 53)	Rheumatologist-led clinic (n = 54)	12 months	Change in DAS28	(a) Nurse-led care: mean DAS28 showed no significant change: mean change 0.14 (95% CI [-0.07, 0.34]) (b) Rheumatologist-led care: showed significant mean change 0.20 (95% CI [0.00, 0.39]); $p = 0.05$ No significant difference between groups: mean change -0.06 (95% CI [-0.34, 0.22])
Primdahl et al.	Compared outcomes of nurse-led and other approaches in patients with low disease activity	Nurse-led care (n = 94)	(a) Shared care (n = 96) (b) Rheumatologist care (n = 97)	24 months	Change in DAS28-CRP	
No	significant differences in numbers of patients with DAS28-CRP > 3.2 and increase > 0.62 Nursing care: 11/92 (12%) Shared care: 16/94 (17%) Rheumatologist care: 17/92 (18%)					
Ndosi et al.	Assessed noninferiority of nurse-led care with rheumatologist-led care	Nurse-led care (n = 91)	Rheumatologist-led care (n = 90)	12 months	Change in DAS28	Mean change in adjusted DAS28 rheumatologist-led care minus nurse less care of -0.15 (95% CI [-0.45, 0.14]) on

(Continues)

TABLE 2 (Continued)

Trial	Question	Intervention	Controls	Duration	Primary outcome	End-point comparisons
Dougados et al.	Nurse-led assessments increases number comorbidities assessed	Nurse-led comorbidity assessment (n = 482)	Self-assessment and standard comorbidity care (n = 488)	6 months	Number	intention to treat analysis confirmed noninferiority comorbidities measured
	Significantly more comorbidities measured with nurse-led comorbidity assessments Nurse-led care: mean 4.5 comorbidity assessments Standard care: mean 2.7 comorbidity assessments Adjusted incidence rate ratio 1.72 (95% CI [1.57, 1.88])					

Abbreviations: DAS28: Disease Activity Score for 28 joints; DAS28-CRP: Disease Activity Score for 28 joints using C-reactive protein; HAQ: Health Assessment Questionnaire; LSQ: Leeds Satisfaction Questionnaire; RAI: Rheumatology Attitude Index.

Primdahl, 2017; Garner, Lopatina, Rankin, & Marshall, 2017; Ndosi, Vinnall, Hale, Bird, & Hill, 2011).

There is a complexity considering the absolute effectiveness of the role of nurses because none of the studies that were reviewed had controls who had no clinical intervention. In this context, there is also relatively limited information specialist care gives substantially better outcomes than care given by nonspecialists beyond an observational study from over 20 years ago (Yelin, Such, Criswell, & Epstein, 1998). However, ethical issues make it inappropriate to investigate such questions.

In the 20 studies that the authors assessed, many different nursing titles and roles were described within the papers. Interestingly, a very similar picture emerged in the recently completed trial for patients diagnosed with moderate RA—the TITRATE programme (an intensive treatment programme that is different to the treat to target strategy mentioned above; Martin et al., 2017). Outpatient clinic nurses or other comparable healthcare professionals, provided monthly clinical assessments, tailored 'treatment support' based on motivational interview techniques and psycho-education (Rollnick et al., 2005) for which they were trained over 2 days, and increased medication following an agreed treatment algorithm, based on monthly disease activity assessments (which included the opportunity to prescribe biologics). The rheumatology nurses in TITRATE trial had a broad range of clinical titles, these spanned rheumatology nurses, rheumatology nurse specialists, rheumatology clinical nurse specialists and rheumatology nurse practitioners. Overall, 46 different titles were used by the nurses. There were also considerable variations in their seniority, ranging from Agenda for Change Band 5 nurses to Band

8 modern Matron. This situation makes the nurses' specialist role and relative seniority difficult to assess for both patients and colleagues.

The Royal College of Nursing Forum has now published a Specialist Rheumatology Nurse National Competency Framework that will be launched in March 2020. The new document may contribute to standardising roles and practice. The delivery of intensive treatment for RA is likely to be improved by greater standardisation of practice, roles and training opportunities for rheumatology nurses. If access to study time and funding is not a mandatory requirement for the role of a rheumatology nurse, the situation will not change soon. Nurses will need time away from work or study leave to achieve these qualifications. A lack of funding for the courses, travel and accommodation will be limiting factors.

The strength of the evidence in this paper about the benefits of specialist rheumatology nurses has been accompanied for some years by a relative dearth of relevant training opportunities. Several papers by Lillie and others have highlighted the issues affecting specialist rheumatology nurses in England and the need for improved their training opportunities (Lillie, Ryan, & Adams, 2013; Packham et al., 2017; Robinson, Hassell, Ryan, Adams, & Walker, 2017; Ryan, 2017). The workload and situation appears similar in North America (Riley et al., 2017) and is likely to resonate throughout Europe (Van Eijk-Hustings et al., 2012), even though there are European recommendations about rheumatology nurse workloads and training. As there are ways to improve training in rheumatology, it seems timely to adopt new approaches more widely not only in the NHS in England but also across national boundaries within the United Kingdom.



Health Education England is committed to address the lack of training opportunities and has developed advanced clinical practice programmes that include modules on clinical examination, clinical assessment (e.g., blood tests interpretations) and prescribing of medication that is relevant to specialist content, for example, Health Education England (2017).

The limitations of our critical review of the literature are that the included papers were identified from one only bibliographic database with diverse aims and study designs and examined the contribution of nurses from different perspectives. The numbers of nurses included worked in England and Wales alone and did not consider the international perspective nor did the authors include papers published in languages other than English. Experience from additional studies might provide a somewhat different overall appearance. Despite these limitations, the results place the current shortcomings in training and employment of rheumatology nurses into perspective.

Moreover, a recent publication (British Society for Rheumatology, 2019) highlighted an ageing Specialist Rheumatology Nurse workforce (60% of survey respondents over 50 years old) that approaches retirement. This report also highlighted the variation in training and specifically focused on the need of timely recruitment and retention within the UK Rheumatology Nursing personnel.

## 5 | CONCLUSION

There is convincing evidence from qualitative studies, clinical trials and observational studies that specialist nurses deliver effective care for people with RA managed in a variety of settings. But important issues remain. Firstly, rheumatology nurses have no clearly defined professional identity as specialists in their field. Instead, they have a multiplicity of different titles. Secondly, there is no standardised training scheme for rheumatology nurses, and in all reviewed studies, the nurses had highly variable training and experience. There is a convincing case to adopt a more uniform approach to the role definition for rheumatology nurses and a need for more readily available training opportunities for them.

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## CONFLICT OF INTEREST

None disclosed.

## ORCID

Heidi Lempp  <https://orcid.org/0000-0003-2509-3656>

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#### SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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