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Abstract

Background

The aim of this study is to explore the variation in the provision of care for people with RMDs and foot & ankle problems between European healthcare systems.

Methods

An electronic questionnaire was developed and piloted in seven countries prior to being distributed to the presidents of all 23 national Health Professionals in Rheumatology associations within EULAR. Summary data were obtained using SPSS V22.

Ethical approval

Medical Research Ethics Committee of University of Malaga (CEUMA-91-2015-H)

Results

Sixteen questionnaires (73% response rate) were completed (Austria, Belgium, Czech Republic, Denmark, France, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom). All 16 respondents indicated that foot and ankle healthcare services were provided in their country, but only three countries had services specialising in RMD-related foot and ankle problems (Netherlands, UK, Malta). The professions providing care varied depending on the pathology and the country. Foot and ankle pain was mostly treated by rheumatologists and physiotherapists; foot and ankle deformities, by orthopaedic surgeons and orthotist/prosthetists; whereas foot and ankle ulcers were mainly treated by nurses.

Services were predominantly delivered through the public sector, and in secondary care (hospital) settings.

Discussion and Conclusions

Only three countries reported having specialist foot and ankle services addressing the needs of people with RMDs. Variation was seen in which professions provided care between countries, and also between foot and ankle pathologies cared for. There is a lack of clinical pathways and guidelines for the management of patients with RMD-related foot and ankle problems.

Keywords

Foot and ankle, service variation, Rheumatic and Musculoskeletal diseases, Europe, clinical pathways and guidelines.

1. Introduction

The high increased prevalence of foot and ankle pathologies in Rheumatic and Musculoskeletal diseases (RMDs) is well documented (Cherry et al., 2017; Grondal, Tengstrand, Nordmark, Wretenberg, & Stark, 2008; Otter et al., 2010; Sari-Kouzel et al., 2001; Woodburn J, 1997) with studies suggesting that up to 90% of patients are affected in conditions such as rheumatoid arthritis (Otter et al., 2010). Research is now confirming the profound impact that foot and ankle conditions have on patients across the spectrum of RMDs (Bowen et al., 2010; Helliwell et al., 2005). Despite this, very little is known about the provision of services to address the foot health needs of people with RMDs in Europe. Limited evidence from the UK shows that provision of foot care is inconsistent and the majority of rheumatology departments do not have access to specialist foot health services (Ndosi et al., 2017; Redmond, Waxman, & Helliwell, 2006). Even where services are available they often fail to meet the clinical demand (Backhouse et al., 2011; Williams & Bowden, 2004). One of the potential reasons for variation in the existence of service delivery in countries such as the UK variation could be the absence of widely agreed standards of care for the management of patients with RMD-related foot and ankle problems (Redmond et al., 2006).

It is suspected that similar levels of variation in foot and ankle healthcare services also exist within and between other countries in Europe. There are no published data reporting the current provision of foot and ankle services within Europe, or how these services are delivered.

2. Patients and Methods

The aim of this study is to explore the variation in the provision of care for people with RMDs and foot & ankle problems between European healthcare systems.

The survey was developed, using expert consensus, by a multinational and multiprofessional steering group consisting of 10 members from the EULAR Foot and Ankle Study Group, representing seven countries. To refine the questionnaire, it was circulated to all the members of the EULAR foot and ankle study group for comment and was piloted in seven countries. These seven countries were distributed around north, south and west Europe (i.e. Belgium, Finland, France, Italy, Malta, Portugal and Spain) to capture any potential geographical variation. Efforts were made to pilot the survey in eastern Europe, but we were unable to obtain data at the pilot phase. The questionnaire was sent to clinicians from different health professions who were practicing in the seven countries mentioned above and were identified by members of the steering group. The clinicians were asked to fill in the questionnaire and comment on comprehension and applicability of the questions to their country, they were also asked to suggest any amendments required to improve the questionnaire. Minor amendments were suggested to improve comprehension. **The final survey (Appendix 1) consisted of 11 multiple choice questions. If applicable participants could select more than one answer. The time required to complete the questionnaire was approximately 10 minutes.**

The final survey (Appendix 1) was then distributed, either in person or by mail, to twenty-three presidents representing Health Professionals in Rheumatology (HPR) associations within EULAR from the following European countries Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Finland, France, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Spain, Sweden, Switzerland and United Kingdom. The presidents were selected because as elected heads of national HPR organisations, they were considered to be in a good position to obtain the required information. **They based their answers**

on their knowledge about their service provision in their respective countries, which in some cases might differed from actual provision.

Data were analysed using SPSS version 22. Participants provided implied consent for their participation by completing the questionnaire.

3. Results

Out of the 22 countries, 16 (73%) presidents representing HPR associations within EULAR completed the questionnaire (Austria, Belgium, Czech Republic, Denmark, France, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom).

3.1 Provision of foot and ankle services for people with RMDs in each country.

All 16 respondents indicated that foot and ankle healthcare services are provided in their country, but only three countries had specialist foot and ankle health care services for people with RMDs (Malta, Netherlands and UK). In some countries, such as the UK, this specialist services were reported but were not to be available throughout the whole country. In those countries which lacked RMD-specific foot and ankle specialist health care services, people with RMDs and foot and/or ankle problems received their treatment either in generic foot and ankle health care services, in Belgium, Denmark, Hungary, Ireland and Italy; or as part of general RMD health care services such as in Austria, France, Portugal and Sweden; and in some countries in both as reported for the Czech Republic, Norway, Spain and Switzerland.

3.2 Professions providing care for people with RMDs;

The professions providing care for patients with RMD-related foot and ankle problems varied across countries and specific foot pathologies (Table1).

Rheumatologists were reported in 16 countries as the most common providers of foot care when the problem was related to foot pain. They were followed by physiotherapists who provided care in 15 countries; and GPs and orthotists/prosthetists in 14 countries. In terms of dealing with specific foot pathologies, deformity was primarily treated by orthopedic surgeons, followed by orthotists/prosthetists, rheumatologists and podiatrist. However, when the foot and ankle problems were related to skin ulcers, nurses were reported to be the profession most frequently providing ulcer-care, followed by GP, rheumatologists, dermatologist and vascular surgeons.

	Foot problems		
	Foot and ankle pain	Foot and ankle deformity	Foot and ankle ulcers
Professions	N° Countries(N=16)	N° Countries (N=16)	N° Countries (N=16)
General Practitioner	14	7	10
Rheumatologist	16	12	10
Rehabilitation Medical Doctor	11	11	5
Dermatologist	3	0	10
Orthopaedic surgeon	13	15	7
Vascular surgeon	6	0	10
Nurse	9	5	15
Orthotist/prosthetist	14	14	8
Physiotherapist	15	11	3
Podiatrist	12	12	9

Table 1: The professions involved in providing the health services specialising in RMD-related foot and ankle problems across the responding countries. Only professions that were reported to provide the care in ≥ 10 countries for any of the three pathologies described in the table are presented.

3.3 Health Professionals IN Rheumatology provision of foot and ankle health care services for people with RMDs in the public and private health sectors.

Respondents reported that of the 16 countries that had foot and ankle services, the majority were provided through the public sector but private provision was also common, and professions were frequently accessible through both sectors (table 2). Podiatry was a notable exception as it is more commonly available through the private sector (ten countries) rather than the public sector (seven countries). Five countries (Belgium, Check Republic, Ireland, Malta and UK) were able to access podiatry in both sectors; two countries (Denmark and Netherlands) only had podiatry in the public sector; and five (France, Italy, Portugal, Spain and Switzerland) only in the private sectors. Podiatry as a profession was not present at all in Austria, Hungary, Norway or Sweden. In addition, Switzerland also reported having orthotists/prosthetists only present in the private sector.

Out of the seven HPR professions providing health care services for people with RMD-related foot and ankle problems, physiotherapy was the only profession that was represented in all 16 countries in the public sector. Nursing was the second most represented profession in the public sector as it was represented in all countries with the exception of Spain. The other HPR professions with large representation in the public sector were orthotist/prosthetist and occupational therapist. The latter two professions provided public health care services for RMD-related foot and ankle problems in 14 countries. While these services were only available in the private sector in Portugal and Switzerland, for orthotist/prosthetist, and in Portugal and Spain, in the case of occupational therapy.

Psychologists and social workers were both highly represented in the public sector; with low representation of social workers in the private sector. The presence of psychology services in the public sector, to treat the psychosocial impact related to foot and ankle problems in patients with RMDs, was reported in all countries with the exception of Switzerland, France, Portugal, and Spain. Social Work was neither represented in the public sector nor in the private sector in these last three countries.

Professions	Public Sector		Private Sector		Both Sectors	
	Nº (N=16)	Countries	Nº (N=16)	Countries (N=16)	Nº (N=16)	Countries
Nurses	15		11		11	
Occupational Therapist	14		6		6	
Orthotist/prosthetist	14		12		11	
Physiotherapist	16		14		14	
Podiatrist	7		10		5	
Psychologist	12		10		10	
Social worker	13		4		4	

Table 2: Availability of each Health Professionals in Rheumatology in the public and private health sectors.

Where professions delivered foot and ankle services in the public sector, most professions used secondary care settings, with the exception of Podiatry in Denmark, and Social worker in Switzerland (table 3); where in these countries they were only present in primary care.

Professions	Primary Care	Secondary Care	Both Settings	
	N° Countries(N=16)	N° Countries(N=16)	N° (N=16)	Countries
Nurses	14	15	13	
Occupational Therapist	10	14	9	
Orthotist/prosthetist	7	14	6	
Physiotherapist	15	16	14	
Podiatrist	7	6	6	
Psychologist	8	12	8	
Social worker	9	12	8	

Table 3: Setting where the service was delivered for those countries which service was in the public-sector.

3.4 Existence of agreed referral pathways and guidelines for the management of patients with RMD-related foot and ankle problems

Out of the 16 countries, eight reported having agreed referral pathways for the management of patients with RMD-related foot and ankle problems. The Czech Republic and Belgium reported to have nationally agreed pathways which were mandatory, Portugal reported to have non-mandatory referral pathways; while in Denmark, Hungary, Italy, Netherlands and UK there were no nationally agreed pathways but local arrangements were reported, while the other eight countries had no referral pathways. Eight of the countries also had guidelines in place for the management of patients with RMD-related foot and ankle problems. These guidelines were nationally agreed in the Czech Republic, France, Italy, Portugal and UK; and locally agreed in Ireland, Malta and Sweden. The UK also reported to have additional locally agreed guidelines. All of the countries with national guidelines reported that they were not mandatory

4. Discussion

This is the first survey that has been undertaken to capture the current status of foot and ankle services available for people with RMDs in Europe.

Currently, the presence of RMD-specific foot and ankle specialist health care services in Europe appears rare. Only three countries out of 16 have services specialising in RMD-related foot and ankle problems, and even in these three countries there is within-country variation.

Most of the countries participating in our survey treat people with RMD-related foot and ankle problems in services that do not have integrated knowledge of both RMDs, and foot and ankle pathology. Having services with integrated knowledge is important, as specialist knowledge enables delivery of optimised treatment for patients with RMDs (Brand, Ackerman, & Tropea, 2014; Desmeules et al., 2012; Solomon, Bates, Panush, & Katz, 1997). Future research should focus on identifying features representing good and bad care service provision for patients with RMDs and foot and ankle problems.

In our survey, variation was also observed in the type of professions which provide care for patients with RMDs and foot and ankle problems. Which profession delivers care varies with the pathology being treated and by the country in which the patients live. Rheumatologists are the main treatment providers for foot and ankle pain in many countries, maybe because in RMDs, foot and ankle pain can be caused by active inflammation related to disease activity and rheumatologist are involved in providing systemic treatment. Conversely, foot and ankle deformity being a structural problem, is mainly treated by orthopaedic surgeons and orthotists/prosthetists. Nurses are the main profession in delivering foot and ankle local ulcer-care, with very little ulcer-care provision by other HPRs. Historically, nursing has been one of the main health professions whose scope of practice involves wound care, therefore it is not surprising to see that they are also the main providers of wound care for foot and ankle ulcers.

It is important to highlight that this is not the first time that variation within the multidisciplinary teams (MDT) providing the RMDs health care services has been reported (Ndosi et al., 2017; Redmond et al., 2006).

The between country variation in which professions deal with specific pathologies may stem from a combination of cultural traditions within the health care systems, legal frameworks affecting scope of practice and the subsequent design of treatment pathways, plus professional and patient expectations. More detailed information is required on the variation between and within countries to better understand these interactions. Future work should seek to establish the level of integration and shared decision making within multidisciplinary teams and explore the relationship between patient outcomes, treatment pathways, and access to specialist services.

Treatment inequality between and within countries might be reduced with the presence of agreed referral pathways and guidelines for the management of patients with RMD-related foot and ankle problems. Guidelines and recommendations are tools developed by using the best available evidence and expert advice to make care more efficient and consistent (Woolf, Grol, Hutchinson, Eccles, & Grimshaw, 1999); and they have been demonstrated to improve quality of care (Grimshaw & Russell, 1993). Only half of the European countries in the current study reported to have local or national pathways or guidelines for the management of patients with RMD-related foot and ankle problems. This lack of pathways and guidelines might be conducive to treatment inequality as patients in different regions might be treated differently, to the point of being unable to access the care to which their counterparts are accessing. The presence of treatment and referral pathways and guidelines can aid clinicians in determining the most appropriate treatment pathway through which the patient needs to progress, including facilitation of inter-professional referrals for the optimisation of the treatment. In addition, the presence of guidelines provides guidance and support to clinicians when developing their services, and their presence might unwarranted variation.

To develop and apply these specialist care pathways and guidelines, the different professions involved in the care of patients with RMD-related foot and ankle problems will need to work together. Professional boundaries will need to be broken down and the scope of practice of some of these professions might need to be altered to provide the specialist service required. This might involve the need to provide education to upskill the workforce who will provide the integrated multidisciplinary health-care service in which the patient will receive the intervention from the most specialised professional at each points of care.

The data presented in this paper is limited to information provided by a small number of healthcare professionals. Nonetheless, this body of knowledge gathered provides insight into the status quo of the RMD foot and ankle health care services provided in Europe.

5. Conclusions

This European survey is the first to capture the state of RMD-foot and ankle specialist health care services in Europe. Only three out of 16 European countries have foot and ankle health care services which specialize in the needs of people with RMD-related foot and ankle problems. There was considerable variation in the professions providing care for the specific problems between countries and in most countries foot and ankle healthcare services were predominantly provided by professions that do not specialise in foot and ankle care. In addition, this survey revealed the scarcity of clinical pathways and guidelines for the management of patients with RMD-related foot and ankle problems.

Further research is needed to assess the impact of different service designs on patient outcomes. In addition, there is a need for the development of standardised pathways and guidelines that can be used as a reference by the different foot and ankle health care services provided in Europe.

LIST OF ABBREVIATIONS

EULAR: European League Against Rheumatism

F&A foot & ankle

HPR: Health Professional in Rheumatology

RMDs: Rheumatic and Musculoskeletal diseases

DECLARATIONS:

ETHICAL APPROVAL

This was originally intended as an internal study of the members of a professional organisation, therefore formal external ethical approval was not sought prior to dissemination of the survey, although approval to conduct the survey was provided formally by the EULAR Foot and Ankle study group and the Chair of the overarching Health Professions subcommittee. Subsequently, because of interest in the results, ethical approval (Medical Research Ethics Committee of University of Malaga (CEUMA-91-2015-H)) for secondary analysis and publication was provided by the IRB of the University of Malaga Faculty of Health Sciences (the employer of the convenor of the EULAR study group). Participants provided implied consent for their participation by completing the questionnaire.

CONSENT FOR PUBLICATION

Participants provided implied consent for publication of the data by completing the questionnaire.

COMPETING INTEREST

The authors declare that they have no competing interests.

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AVAILABILITY OF DATA AND MATERIALS

Data supporting the results from this study are available on request. Requests can be made via email to the correspondence author.

AUTHORS CONTRIBUTION

All authors named in this paper meet the criteria for authorship according to the International Committee of Medical Journal Editors guidance. Professor Anthony Redmond is the Principal Investigator. He co-designed the study, oversaw the project, drafted the statistical analysis plan, contributed to the interpretation of the data, revised the study report for intellectual content and approved the version to be published. Dr Begonya Alcacer-Pitarch co-designed the study, coordinated the project, drafted the statistical analysis plan, undertook the statistical analyses, interpreted the results and drafted the study report and revised it for intellectual content. Dr Backhouse co-designed the study, drafted the statistical analysis plan, contributed to the drafting of the manuscripts, revised it for intellectual content and approved the version to be published. Dr Gabriel Gijon-Nogeron co-designed the study, coordinated the project, revised the report for intellectual content and approved the version to be published. Mr Devid Biscontini co-designed the study, revised the report for intellectual content and approved the version to be published. Ms Sofia Bonafede, co-designed the study, revised the report for intellectual content and approved the version to be published. Mr Andre Ferreira co-designed the study, revised the report for intellectual content and approved the version to be published. Dr Alfred Gatt co-designed the study, revised the report for intellectual content and approved the version to be published. Mr Yves Lescure co-designed the study, revised the report for intellectual content and approved the version to be published. Ms Tiziana Nava co-designed the study, revised the report for intellectual content and approved the version to be published.

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