Author’s response to reviews

Title: Prevalence, impact and care of foot problems in people with rheumatoid arthritis: results from a cross-sectional survey

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Author’s response to reviews:

Reviewer #1: Major comments

We would like to thank the reviewer for their though and thoughtful comments and questions as they help to improve the manuscript.

This is a well written paper that explores nicely the prevalence and impact of foot problems in RA in a defined population.

Precisely because it is such a well defined population I am less convinced by the aspects focusing on the access to care. My personal recommendation would be to give the care provision aspect much less profile in the paper, but ultimately it is the authors choice. As a minimum however the limited scope of any conclusions to be drawn on access to care (ie only applying directly to Bristol) should be flagged in the introduction and discussed in detail in the discussion. The authors currently have this well defined regionality identified only as a strength of the study.

The generalisability of the findings of this study in relation to access to foot care to the wider RA population is an important consideration. It is possible the provision of foot care within the Bristol Clinical Commission Group (CCG) boundary the provision of NHS and independent sector foot care services may be greater than service provision in other CCGs in the UK.
Amendments to the text considering the findings being attributable to a define geographical population sample have been included in the background, study population in the methods and further discussed in the discussion (see lines 89-90, 95-101, 113-115, 117-119 and 339-341). How these data reflect the situation in other geographical areas has been raised as a potential area for further investigation in the final paragraph of the discussion (see lines 432-435). We consider addressing this comment has improved the quality of the manuscript.

In the methods the authors refer to the use of t-tests and MWU tests although I could not see any such inferential results reported explicitly. The most likely place these arise in the reporting is on Lines 251-254 (although I had to guess). If this is the case the authors need to be more explicit about their intention in using these statistics. As it stands the data presented relate only to describing their own sample (which would not require P values - use SDs or IQRs). If the intention is to make more sweeping inferential generalizations from this sample to the wider population then this should be made more explicit (and the resulting limitations/implications picked up in the discussion).

Thank you for raising the point of the unnecessary use of inferential statistics. The statistical analyses described in the manuscript has been amended justifying the use of descriptive statistics to describe the study sample, the general characteristics of responders and non-responders and the accessed foot care (AFC) and not accessed foot care group (NAFC) (see lines 188-191). Any reference to the statistical significance in the descriptive statistics have been deleted from the text. The revised manuscript only refers to the use and reporting of inferential statistics to compare the general and clinical characteristics between the AFC group and the NAFC group for inclusion as independent variables for the multivariate analyses (see lines 193-200).

On page 11 the authors start to explore predictors of care access, opening with a predictive model that at first includes no distinction between NHS and independent sector but then later on page 12, goes on to address that (NHS/private) issue, but in isolation from other factors. Given that an interaction between SDI and private/public health use is likely and so fundamentally important it would be appropriate to explore this more completely in the LR model.

Of the 204 responders who reported to have accessed podiatry, 107 reported to have accessed independent sector podiatry. Data relating the exclusive use of separate services accessed is not available (text amended lines 313-314). It is therefore possible some patients who accessed independent sector podiatry may have also accessed NHS podiatry care. The large number of
patients who reported to have accessed independent foot care could be an indication these patients considered their foot health needs to be important they were prepared to self-fund foot care.

The interaction of SDI and access to independent/ NHS podiatry has been considered. Table 1 presents the results of any podiatry independent sector podiatry accessed according to social deprivation category. The proportions reporting to have accessed any podiatry care and independent sector care were similar for each deprivation category. These data have not been included in the amended text.

Table 1 Access to podiatry according to social deprivation category

<table>
<thead>
<tr>
<th>Social deprivation (IMD LSOA categories)*</th>
<th>Any podiatry (n=204)</th>
<th>Independent podiatry (n=107)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (least deprived)</td>
<td>70 (34.3)</td>
<td>39 (36.4)</td>
</tr>
<tr>
<td>2</td>
<td>61 (29.9)</td>
<td>35 (32.7)</td>
</tr>
<tr>
<td>3</td>
<td>48 (23.5)</td>
<td>22 (20.6)</td>
</tr>
<tr>
<td>4</td>
<td>18 (8.8)</td>
<td>7 (6.5)</td>
</tr>
<tr>
<td>5 (most deprived)</td>
<td>7 (3.4)</td>
<td>4 (3.7)</td>
</tr>
</tbody>
</table>

This manuscript reports the findings of a second study in a series of three inter-linking studies. The first study was a qualitative study of one-to-one interviews with patients and self-reported foot problems to ensure all the important issues form the patient perspective were included as items in the questionnaire of this current study. However, the results of this current study are based on self-report. A third study was therefore conducted to investigate the accuracy of the report of foot problems. A selected sample of patients who responded to the survey (Study 2) who had accessed and not accessed foot care were invited to attend for a clinical interview and foot examination with an independent podiatrist. The third study also provided the opportunity to
explore patients’ reasons for accessing foot care or not and their experience of foot care received from the patient perspective. The independent podiatrist was not aware of the patients’ responses in the preceding study. A manuscript reporting the findings of the third study is currently being prepared for consideration as a paper for publication.

Minor compulsory recommendations

The title should be amended slightly to ensure that the reader understands immediately that this paper relates to people with RA in the United Kingdom.

Thank you for your suggestion to highlight this study relates to patients with RA in the UK. The title of the paper has been amended lines 1-2.

Abstract

Line 41. It is not clear to the reader where the denominator of 739 comes from. This needs a brief introduction.

An introduction to the 739 denominator has been included in the revised manuscript line 42.

Background

Line 83. The text refers to access to care for patients with RA as a whole. An alternative interpretation could be that these data apply only to people with RA in Bristol (see major comments). I really think the final text needs to reflect this geographical specificity, especially where symptoms and impact are a product of interaction with local health systems.

Thank you again for raising the important consideration regarding these data and overall findings relate to patients with RA residing in Bristol. We have considered this comment in the text of the revised manuscript (see above response to major comments).
Methods
Line 122. The phrase 'very likely to be sufficient' is rather vague. Please improve the justification, preferably numerically.

Further explanation has been provide in the methods regarding sample size justification provided lines 137-143.

Line 169. See earlier comments re use of t-tests and MWU. If these were used then this line should remark on the use or otherwise of adjustment for multiple tests.

The text has been amended to provide a more comprehensive description of statistical analyse in response to the earlier comments.

Results
Line 213. Please reconcile the number 254 with the numbers in table 2. I was able to work it out but the reader should not have to.

Thank you for highlighting this point. Amendments have been made to the text reconciling the number 254 with the data presented in Table 2 in lines 243-244.

Line 257. Please justify why the HAQ lower limb sections preclude the use in the multivariate analyses. Again, I can infer why but the reader should have it made explicit.

Justification for the exclusion of the HAQ as an independent variable in the multivariate analyses has been included in the revised manuscript lines 283-284.
Line 271. The footnote to the table refers to reduced n because of missing data. In the methods please can you clarify how exactly you handle cases with missing data. You refer to this specifically for the questionnaires but it appears here that missing data actually resulted in the entire dataset for that subject being withdrawn from the analysis. More clarity is needed.

Of the AFC group, 9 (3.1%) of responders did not respond to all items of this section of the questionnaire. It is possible these responders did not recall receiving some foot care treatments. However, we have no information to confirm this assumption. Nevertheless the number of questionnaires with missing data was small. Overall these data provide a broad description of foot care interventions received in the vast majority of the AFC group. Further explanation of the handling of missing data sets has been included in the multivariate statistical analyses of the methods section lines 210-212. However, it transpired the independent variables entered into the logistic regression model (age, gender, disease duration and social deprivation category) had no missing data.

Line 277-279. This section is conflating different aspects of the analysis. Line 277 refers to 'independent sector' while line 288 refers to 'each service' (presumably podiatry/orthotics etc but with NHS and independent sector re-combined). Line 279 then focuses on podiatry care (again presumably NHS and independent sectors combined) but without leading the reader clearly through the arguments. As also noted in the major comments section, the relevance of the effect of SDI on the likely access to NHS vs independent care (as opposed to all care as in the current analysis), really warrants this being addressed explicitly.

As discussed above no information was available regarding exclusivity of podiatry services accessed NHS and/or independent sector care. The only information available is of the 204 patients who reported to have accessed podiatry, 107 reported to have accessed independent sector care. Therefore factors as determinants of accessing independent sector podiatry care cannot be investigated.

As page extent is not a problem for JFAR I would prefer to see the full LR model described in Additional File 2 included in the main text of the paper.

The full regression model is now presented as Table 4 in the revised manuscript.
Discussion

Line 304. Please justify the assertion/assumption that this is likely to be a ‘true representation’.

This assumption has been revised in the text to reflect the impact of foot problems in a large random sample of patients with RA in a defined geographical area in lines 343-345.

Line 325. There are very many possible reasons why access (in Bristol) was better than expected. Repeated interactions is one but only one. This section warrants much greater discussion.

Thank you for raising the complexity of access to and utilisation of foot care services. Further discussions regarding access and utilisation of health care in general and in patients with RA utilising a variety of health services have been considered and discussed further in the discussion (see lines 369-376).

Line 357. Please provide evidence/justification to support the assertion that there is a lack of podiatrists in the region.

This statement has been deleted from the revised manuscript. No information is available regarding the number podiatrists specialising in inflammatory arthritis, particularly in the independent sector in Bristol. The text has been amended lines 416-417.

Line 365- 368. This sentence is not really discussing the current study but is more making quite firm recommendations. Please de-tune the strength of the assertions here or remove this sentence altogether.

The sentence has been removed from the revised manuscript.
Minor optional recommendations

Abstract

Line 30: suggest add 'but' - to read: …review of patients' feet, but the extent to which…

This section has been included in the text line 30.

Line 36. Suggest for readability breaking up the sentence after 'community based podiatry service'. I.e. two parts, who you surveyed and what you collected.

The text has been amended as per this recommendation (see line 36-40).

Line 41. It is not clear to the reader where the denominator of 739 comes from. This needs a brief introduction.

An introduction to the denominator has been included in the revised text line 42.

Line 43. Suggest starting that sentence with 'Of the responders, 92.1%....'

This sentence has been revised lines 44-45.

Line 51. Needs to be clearer what the 91% refers to. Eg 91% of responders with RA

This recommendation has been actioned in the text line 53.
Line 52. The word 'greater' is not a great fit. Suggest 'better' or 'higher levels of access' as an alternative (or some equivalent phrase of the authors' choosing). This applies throughout the m/s.

The word “greater” has been replaced with “higher” throughout the manuscript.

Line 54 typo - missing 'is' after 'care'

Thank you for highlighting the omission. Line 56 includes the missing “is”.

Background

Line 61. Suggest minor amend to read 'Continuing foot involvement…'

The suggestion has been actioned in the text line 63.

Line 69. Suggest editing the sentence to read '… studies report that even in RA patients in clinical remission, up to 40% have continuing disease features in the feet.'

The sentence has been edited as suggested in lines 71-72.

Line 72 suggest edit to read '… service provision has been reported to be poor.'

The text has been amended as per recommendation in lines 74-75.

Line 73. Relative to what, please clarify.
The sentence has been edited to include “compared to foot health care needs” line 82.

Line 89. Again the text refers to accessing foot care with the implication that this means generally, whereas you only have data for Bristol.

An introduction for the need to conduct a cross-sectional survey of a large group of patients, randomly selected from a defined geographical area with equal access to primary care and secondary care based foot services has been considered in the background (see lines 95-97).

Methods

Line 125. Suggest to add for completeness ‘… reached the chosen target of 400 returned response sets.’

Thank you for this suggestion which has been included in the text lines 144-145.

Results

Line 200. Suggest reword slightly to remove vagueness: ‘… regarded as being adequately representative of….

This has been actioned in the text as suggested 230-231.

Conclusion

Line 388. Missing word ‘…whereas men *were* more likely…'
Thank you for highlighting this error. The conclusion has been revised in response to previous comments (454-460).

The authors might also want to consider making some recommendations for future research and definitely to make explicit the implications for practice.

These are important considerations and thank you for highlighting the omissions. Recommendations for clinical practice and future research have been highlighted in the discussion of the revised manuscript, lines 435-436 and 458-459 respectively.

Reviewer #2: This is a well written paper, and my comments are quite minimal. However, before it is acceptable for publication the following points need addressed and clarified.

Again we would like to thank this reviewer for their thoughtful and thorough review, which will help improve the manuscript.

1. I am, perhaps missing something, but in the background the authors say that hospital based studies cannot be extrapolated to the general RA population, and yet, the present study used a sample of RA patients from a hospital. Is the difference between this and previous studies that the present study participants are in receipt of podiatry in primary care? I think this is important, and needs clarification.

Thank you for raising this comment which requires further clarification. The study target sample was all adult patients with a consultant diagnosis of RA residing in a defined geographical area (Bristol CCG). Universally patients are diagnosed with their RA in secondary care and the vast majority remain under secondary care medical follow up. The hospital databases were only access to identify the target sample of patients (see lines 117-123).

2. Please check the second sentence in background section of the abstract (Guidelines recommend…..) - it reads like there is a word missing.
Thank you for highlighting this error. The text has been amended to include the word “but” line 30.

3. Page 4, line 80: “….their findings cannot be extrapolated to the general RA population.” An explanation as to why this is the case would be good here.

This sentence is preceded by an explanation of limitations of previous studies to the general RA population - “as it rests on observational hospital-based studies using convenience sampling strategies or surveys of self-selecting groups using restricted outcome measures”. See lines 85-88.

4. Page 4, line 87: "….based on previous qualitative work". This sentence needs a reference.

This statement has now been referenced in line 100.

Reviewer #3: This is a well written and presented paper that provides significantly important results in respect of determining the prevalence/nature of foot problems and the types of interventions most commonly received by people within an RA population. I wonder if the authors would kindly consider the following points?

Again we would like to thank this reviewer for their thoughtful and thorough review, which will help improve the quality of the manuscript.

Page 3, line 61 - typo - difference in font size within the sentence.

Thank you for highlighting this error which has been corrected in the revised manuscript lines 62-63.
Is it possible to provide a copy of the survey questions as an additional file to which readers can directly refer? Page 6, line 130.

Thank you for raising the question. The questionnaire includes the Foot Impact Scale (FIS). Permissions from the authors who developed the FIS are required prior to use. Therefore we are not able to provide open access for the FIS. A statement referring to a copy of the questionnaire being available from the authors has therefore been deleted from the text.

Can clarification be provided as to what "foot care" (as in Accessed Foot Care - AFC) means at the point at which it is first mentioned - to clarify from the outset that "foot care" covers podiatry management, use of foot orthoses as provided by any AHP and Orthopaedic interventions. Page 7, Line 172

Further clarification defining foot care accessed has been included in the abstract and methods of the revised manuscript (see lines 39, 151-154).

Page 4 - Barriers to the access of foot health services have recently been highlighted and discussed within Graham et 2017 : Journal of Foot and Ankle Research (2017) 10:12, in the context of barriers to foot health education for people with RA. This was a UK wide survey of 543 patients that found that out of the total sample surveyed only 40% (n=217) received podiatry care out of which only 162 received NHS podiatry. Issues that may relate to this poor access were also discussed such as the fact that 62% of participants had never been asked about their foot health during consultations with AHP's (other than podiatrists) although it is appreciated that this was a self-selecting sample that completed an online not postal survey.

The above paper provides useful information regarding the portions of patients in their study reporting to have accessed independent sector podiatry care. These data have been referred to in the background (line 88), methods (line 138) and discussion (400-402).

Thank you to the authors for the submission of this article.

The following references have been included in the revised manuscript.


42. Andersen R. Revisiting the behavioural model and access to medical care: does it matter? J Health Social Behav. 1995;1-10.