“it might hurt, but still it’s good”: people who have rheumatoid arthritis beliefs and expectations about physical activity interventions

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**Abstract:**

Many people who have Rheumatoid Arthritis (RA) report low levels of physical activity. We conducted 17 interviews with people who have RA to gain insight into how they view physical activity and to explore how their levels of activity may be increased. Interviews were transcribed verbatim and analysed using thematic analysis. Four main themes were generated: being active, barriers and facilitators, information and advice, and supporting physical activity. A lack of information about being active fostered negative emotions limiting physical activity participation. Improved provision of physical activity advice is warranted to promote physical activity in people who have RA.
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Abstract

Many people who have Rheumatoid Arthritis (RA) report low levels of physical activity. We conducted 17 interviews with people who have RA to gain insight into how they view physical activity and to explore how their levels of activity may be increased. Interviews were transcribed verbatim and analysed using thematic analysis. Four main themes were generated: being active, barriers and facilitators, information and advice, and supporting physical activity. A lack of information about being active fostered negative emotions limiting physical activity participation. Improved provision of physical activity advice is warranted to promote physical activity in people who have RA.

Keywords: Physical activity, exercise, arthritis, information, beliefs
Introduction

Participation in physical activity has many benefits for people who have Rheumatoid Arthritis (RA). This includes improved cardiovascular health, strength, joint health and functional ability and also improves symptoms associated with RA such as pain, fatigue and stiffness and improved quality of life (Cooney et al. 2011). However research suggests that the majority of people with RA do not participate in enough physical activity to achieve these health benefits (Tierney et al. 2012; Manning et al. 2012; Sokka et al. 2008). Thus the promotion of physical activity behaviour for people who have RA is important in the management of this chronic condition and should be a primary concern for healthcare professionals.

Interventions to change behaviour, such as to increase physical activity participation can consist of numerous interacting components and are referred to as complex interventions (Medical Research Council 2008; MRC). The MRC’s framework (2008) for developing and evaluating complex interventions advocates consultation with key stakeholders when developing a complex intervention. Similarly, the National Institute for Health and Clinical Excellence's (NICE) guidance on behaviour change recommends consideration of particular issues such as any relevant contextual changes that may need to be made to allow for the delivery of a behaviour change intervention, and the level at which the intervention will be delivered, i.e. individual, community or population (NICE 2007). Patients have a personal experience of disease that is not
available to most researchers, but this unique experience complements researchers’ analytical skills and scientific perspective (Hewlett et al 2006). In addition to providing a different perspective patients’ involvement in research may improve the quality of research by making sure that the proposed research is appropriate and acceptable for the patient population and can also ensure that research is relevant by helping to reshape or clarify the research (INVOLVE 2012). Thus it is vital that the views of both people who have RA are gathered to inform the intervention design. To date research in this area has explored the barriers and facilitators to being physically active in people who have RA (Wang et al 2014; Law et al 2011). However limited research has been conducted to identify the requirements and wishes of people who have RA with regard to an intervention to promote physical activity, informed by their personal experience of having this chronic condition which are essential for developing complex interventions (Michie et al 2011).

Thus the aim of this qualitative study was to explore the views of people who have RA on (i) being physically active and (ii) the design of a future physical activity intervention.

**Patients and methods**

*Study design*
This was a qualitative study which used a constructivist approach to facilitate the exploration of the views and comprehension of the different participants within the subject context and recognizes that each may have experienced a different understanding of the same situation (Charmaz 2006). One-to-one semi-structured interviews were selected as the method of data collection as they provide data which can contribute to a body of knowledge that is conceptual and theoretical and is based on the meanings that life experiences hold for the individual interviewee (DiCicco-Bloom and Crabtree 2006). Telephone was the medium preferred by patients for conducting the semi-structured interviews; this methodology has also been used successfully in similar studies (Patel et al 2014; Swan et al 2010; Walsh et al 2009).

Sample and recruitment

Recruitment for people who have RA was conducted at outpatient rheumatology clinics in an urban hospital in the XXX region of XXX. Seventeen participants with a confirmed medical of diagnosis of RA, according to either the 1987 American College of Rheumatology (ACR) criteria (Arnett et al 1988) or the ACR/European League Against Rheumatism (EULAR) 2010 criteria (Aletaha et al 2010) were identified from medical records and were approached by the primary author (LL). Potential participants, aged 18 years or older and who attended the clinic for a routine appointment between August and November 2014, were invited to participate in the study. Potential participants were provided with verbal and written information about the study.
Twenty-three people who have RA expressed an interest in participating in the study. LL obtained a contact telephone number for each interested person. The potential participants were then contacted at a later date to arrange a suitable time for conducting the semi-structured interviews. Each participant provided informed consent and the study was approved by our local hospital Ethics Committee.

Question development and reflexivity

Interview questions were developed from an extensive literature review on behaviour change interventions to promote physical activity behaviour in people who have RA (XXX et al 2015; XXX et al In Press) and from previous qualitative research in this area (Loeppenthin et al 2014; Law et al 2011). The questions were subject to discussion within the research team, which comprised of two physiotherapists and a health psychologist, and amended and revised based on these discussions, for example where the language of a question was considered to be leading LL amended the language.

All interviews were conducted by LL. The interview questions covered the following areas: physical activity and exercise recommendations for people who have RA, an introductory piece on the proposed intervention and what it may entail, delivery of a physical activity component, delivery of a behaviour change component, the setting of an intervention to promote physical activity and support resources for the intervention participants. In addition participants were asked about their understanding
of physical activity and experiences about exercising with RA as part of the introductory, warm-up questions.

Prior to the interview the interviewer explained the purpose of the interview and the process of developing the intervention, and emphasised that the interviewee should feel free to express their opinions and views freely.

The interviews were conducted in two rounds. In the first round several interviews were conducted, and transcripts were reviewed by the research team (LL, SG, AF, NK). The team suggested the use of more probing and elaboration of patient’s experiences to add greater clarity to the data corpus. Thus, new probes and elaborating questions were added to the subsequent interviews.

Data collection and analysis

All those who had expressed interest in participating were interviewed. Audio recordings from the semi-structured interviews were then transcribed. Each participant was offered a copy of their transcript to review. The participants were advised to amend the transcript if they saw fit. Once participants were satisfied that the transcript reflected their views and opinions accurately the finalised transcript was included in data analysis. Preliminary data analysis was conducted concurrently with data collection, which enhanced understanding about the questions being asked and facilitated minor revisions of the questions (DiCicco-Bloom and Crabtree 2006). LL also begun to
identify that no new ideas were emerging from the data as the latter interviews were being conducted, indicating that data saturation had been attained. The analytical approach for this data was inductive thematic analysis, which was guided by published guidelines (Braun and Clarke 2006). All data was entered in the NVIVO software and analysed using built-in functionality. The interview transcripts were read and re-read to familiarise the research team with the data. Notes were made and ideas formulated to facilitate coding. Coding was performed using the NVIVO software features. The research team searched for patterns, analysed and coded the data and generated sub-themes and themes. This was an inductive open and relational coding process where the codes were drawn from the raw information itself and the themes were predominantly data driven (Maxwell 2008). The themes were reviewed and discussed by all members of the research team at two meetings to check if the themes worked in relation to the coded extracts and the entire data set, thus generating a thematic ‘map’ of the analysis (Braun and Clarke 2006).

Results

Twelve females and five males participated in the study. Their mean age was 59.8 years (range 35-83, SD 12.5) and mean disease duration was 13.7 years (range 1-47, SD 15.3). Four main themes were identified from the data and are described below. These along with supporting quotations are presented in the text as well as in Table 1.
Theme 1: Being active

Participants described their experiences of being active in daily life which resulted in the main theme ‘Being Active’. This main theme and sub-theme ‘Limits and pacing’ encapsulated the participants’ understanding of physical activity, their perceptions’ that they could be active, their physical activity limits and being inactive. Most participants made a clear distinction between being physically active and exercising. This difference was described by one participant as:

“physical activity is everyday life really, getting up, getting dressed, showering...... Cooking they are all physical activity aren’t they?....... No they are different I suppose, exercise is going out and purposely doing something” (PwRA08)

Some participants discussed how they felt that being active was safe for them despite their diagnosis of RA. There were strong feelings that being active was important and the participants acknowledged the physical activities that they can do.

“I always thought it wasn’t that I hurt myself more when I exercise, but seemingly that’s not too bad for me that once I know what I’m doing you know2 (PwRA07)

Being inactive and sedentary behaviour were seen as negative by many of the participants. They described the physical impact of sedentary behaviour, which often
increased their symptoms of pain and stiffness, and also the negative impact being sedentary can have from a mental health perspective. One participant highlighted how being physically active promoted positive mental health, as it provided a daily focus and reason for being active.

“You know what I mean because if you’re not moving your mind kind of it slows down........the longer you sit ... the sitting is not an option for me” (PwRA13)

*Limits and pacing.* Despite commenting on how being active was important,, participants also described how important it was to recognise their own limits. This sub-theme was quite evident across all of the interviews, highlighting the participants’ need to pace their physical activities.

“Maybe I push myself too much sometimes, you know, which I can be sorry for afterwards.” (PwRA04)

**Theme 2: Barriers and facilitators**

In this theme and subtheme, *Beliefs and emotions*, participants discussed the factors which facilitated their participation in physical activity, as well as identifying reasons why there were not physically active. There were several generic barriers to physical activity such as time and financial barriers, weather conditions and travel barriers were mentioned by participants. While, generic facilitators to being active included having
sufficient time and having adequate pain control. A key barrier to being physically active was ‘having RA’. Participants described how having the diagnosis and living with the symptoms such as pain, stiffness and fatigue limited their physical activity.

“because you know some days the pain is so bad you just don’t know you know and I’m thinking how the hell am I going to get upstairs today.” (PwRA08)

Beliefs and emotions. This subtheme straddled both the barrier and facilitator aspect of this theme. Positive beliefs and emotions about being physically active were cited as facilitating the participants to be physically active, whereas those who discussed negative emotions and beliefs commented on how these limited their physical activity. Fear was a common emotion expressed by participants, who stated that they limited their physical activity as they were afraid that ‘overdoing it’ would result in aggravation of symptoms or an increase joint damage.

“maybe if I did it more but I do be just frightened afterwards I’m going to be crippled up for the night do you know.” (PwRA03)

In contrast participants who expressed positive emotions mentioned both physical and mental benefits of being physically active.
“It is important to exercise I think because you do feel better after it and to walk and that even though it might hurt, but still it’s good, do you know, the exercise is good.” (PwRA17)

Location. This sub-theme also straddled both aspects of the main theme. Here, participants talked about the benefits of being active outdoors, while locating such a programme in a hospital setting was perceived to be very negative and gave the impression that they were still patients rather than people with RA. Most participants felt that a community or gym setting was a far more practical and accessible setting for an exercise programme. Of note was a comment from one participant who felt that exercising in a gym was intimidating.

“I wouldn’t be so sure about a gym because unless it was a separate area in the gym, because do you know you’ve got all the fit bods in there. (PwRA08)

“I think a hospital would put people off a bit I think........you go to the hospital and kind of people ... you know if you did say to someone, ‘Why are you going to the hospital? So what’s wrong?’” (PwRA02)

Theme 3: Advice and information

This theme encapsulated the participants need and desire for accurate and appropriate information on physical activity. Just under half of participants gave specific
recommendations for how active people who have RA should be, ranging between 15-60 minutes most days of the week. There was a lot of variation on people’s levels of knowledge, including health professionals which could be a cause for concern regarding prescribing physical activity as a key treatment. Moreover, they were consistent in their belief that experts should be the only ones who should be giving this information. The extracts below support this theme. “I said it to the doc and he didn’t really seem to know, he said it’s kind of everybody for themselves like, do you know it’s individual cases.” (PwRA14)

“Well someone that’s professionally trained I presume, for safety…….They’d have to know about both [RA and physical activity]”.

Participants also discussed how information should be provided or made available about their condition and being physically active. Some participants felt a paper-based information leaflet would be preferable, whereas others felt that internet-based information and the use of smart technology was the best option.

“I’d say that would be good as well because a lot of people do go onto the internet before they ask questions, do you know, the internet is the first thing they go to so.(PwRA02)

“Probably in paper based form because you can tick it off and sort of try and memorise it” (PwRA12)
Theme 4: Supporting physical activity

The fourth key theme generated from the data describes resources would encourage or help with adherence to physical activity. Participants identified three key factors which aid people who have RA to be physically active.

Participants discussed the importance of having a goal or plan to be active. Participants who had set physical activity goals and achieved these goals also described their achievements.

“I have been doing walking and I done my first 5K.....It was great and I ran the whole 5K” (PwRA02)

Monitoring, commented on by many of the participants, could occur in many forms, by either a trusted source such as a healthcare professional or family member asking about being physically active, through the use of a diary or by having a reminder phone call or text message being sent to their phone. One participant described how she had attended physiotherapy and wished that the physiotherapist had checked to see how her home exercise programme had went.

“And that’s something I think that the physiotherapist should be aware of and I think that a question like ... but she never asked the question when I went back the following week” (PwRA15)
Being active in a group was described as being motivational and productive, and that by being part of a group there was a motivation or obligation to commit to participating. Some participants commented on how being part of a group was a personal preference and that this option may not be palatable to everyone. Socialising was also cited as a factor which encouraged people to keep active.

“I’d say a group would be better for me like you know….It’s very hard to do something on your own….A group, you can chat to people, you’re just doing things and you don’t realise it you know.” (PwRA11)

Participants also spoke about the sources of support and the importance of identifying the need for and asking for help. While at the same time being active for family reasons was also a keen motivator as illustrated below. Sources of support mentioned were primarily family or care assistants. This support assisted physical activities in different ways, such as being able to complete activities of daily living or being able to attend medical appointments.

“Now I do have to rely of course on my family for taking me to the doctors and to the supermarket” (PwRA15)

“my kids are young so when they get a bit older like I’d like to be able to run around with them and play hurling and stuff like that with them………I suppose I don’t want to be crippled … and I’m not able to do it with them.” (PwRA14)
Discussion

This study sought to explore the views of people who have RA on being physically active and the design of future physical activity interventions. Four major themes were generated from the data, spanning the participants’ views and experiences of being physically active, factors which impeded or enabled their physical activity, their views on physical activity information and advice and others ways that physical activity can be supported for people with this chronic condition. Experiences of being physically active varied between participants, however there was a clear message that at present there is insufficient information and advice regarding physical activity being provided to people who have RA within this particular health service; which may or may not be specific to this health service. Thus it appears that there is an opportunity to provide healthcare professionals with up-to-date knowledge on recommendations for physical activity for their patients who have RA. This, in turn, may translate to encouraging and act as a support mechanism to people who have RA to be physically active (Veldhuijzen van Zanten et al 2015; Iversen et al 2004).

A unique point about our study is that people who have RA do not receive adequate information and advice about being physically active. This lack of knowledge, in view of their chronic diagnosis, can lead to uncertainty and fear about how active
they should be. A strong sub-theme which was found in the data was how influential beliefs and emotions about being physically active were. This finding corresponds with previous research (Wang et al 2014; Baxter et al 2015). Fear was the most commonly referred to negative emotion within our study. Participants voiced their fears in relation to increasing symptoms such as pain, fear of causing further damage to their joints by being too active and a fear of falling due to balance issues. This, they reported, limited their physical activity behaviour. Baxter and colleagues (2015) cited similar results supporting our findings that insufficient information regarding physical activity behaviour in activities of daily living and exercise can act as a major barrier to participation in physical activity for people who have RA. Lack of information and advice has also been cited as a barrier to being physically active in the wider arthritis population (Der Ananian et al 2006) and in other chronic diseases, such as Multiple Sclerosis (Sweet et al 2013). This suggests a number of implications for future practice within the management of people who have RA. Firstly it should be established if healthcare professionals working both within and outside of rheumatology services are familiar with the recent evidence demonstrating that being physically active and exercising at high intensity is not harmful for people who have RA (Law et al 2015; Hurkmans et al 2009).

Given that research has demonstrated that people who have RA are less likely to engage in exercise if their rheumatologists do not discuss exercise regularly during the
clinical visit (Iversen et al 2004) it should then be established if healthcare professionals encountering people who have RA are providing advice and information regarding physical activity and exercise on a consistent basis. Limited research has been conducted in this area however a survey exploring Irish physiotherapists’ practice in relation to physical activity promotion for people who have RA indicated that only one-third of those surveyed recommended high intensity exercise and two-thirds reported that physical activity is safe for people who have RA (McKenna et al 2014). Similar findings were reported by Munneke et al (2004), who found that rheumatologists and physiotherapists in the United Kingdom were less positive toward high-intensity exercise. Iversen et al (2015) also found that rheumatologists reported a certain level of discomfort about discussing exercise which resulted from a lack of knowledge and confidence in prescribing exercise and uncertainty about the safety of high-intensity exercise for people who have RA. As advice and support from medical/healthcare professionals is a key facilitator to physical activity in people who have RA this is concerning (Veldhuijzen van Zanten et al 2015). It appears to suggest that there is scope for increasing the knowledge of both rheumatologists and healthcare professionals about the safety and benefits of physical activity in people who have RA and for the provision of resources which may support this practice. Moreover, given that the participants in our study emphasized the importance of receiving advice from a trusted source, such as healthcare professionals, it is not only logical but appropriate that
physical activity advice should be provided in healthcare encounters. Interestingly receiving physical activity from a credible source has also been highlighted as important for people who have MS (Sweet et al 2013). In addition to healthcare professionals participants in our study mentioned family members as trusted sources of information, suggesting that involving family members or significant others in such healthcare encounters may be beneficial in supporting people who have RA to be active. As social support has been identified previously as something which can encourage and facilitate physical activity behaviour (Baxter et al 2015; Loeppenthin et al 2014; Der Ananian et al 2006), involvement of significant others when promoting physical activity behaviour is important. This was highlighted in the Swedish Physical Activity in Rheumatoid Arthritis (PARA) study, where lack of social support from family and friends was related to non-participation in that physical activity intervention (Nordgren et al 2013).

Although some participants cited negative emotions regarding physical activity others described their positive views on being active and the benefits this has for them, both physically and mentally. These positive emotions have been echoed in previous research (Loeppenthin et al 2014; Der Ananian et al 2006), suggesting that being physically active for people who have RA is highly feasible. As beliefs and emotions were stated to influence physical activity participation it is important to acknowledge that beliefs about being physically active can be altered, reformed or strengthened. This represents an important opportunity for healthcare professionals when seeking to
promote a particular behaviour, such as physical activity, through the means of motivational interviewing, education and other behaviour change techniques (Michie et al 2013; McGrane et al 2015). It is essential that such beliefs are addressed prior to and/or as part of an intervention to promote behaviour change. This also highlights the importance of involving key stakeholders in the design and development of complex interventions, as proposed by the MRC framework (MRC 2008), as it identifies potential challenges which a primary research may not consider.

Participants in our study described the physical activities they participated in but acknowledged the importance recognizing their physical activity limits and the pacing of their activities. Once again this suggests that there is scope for increasing knowledge and awareness of the recommended physical activity levels within people who have RA, whilst being cognizant of the practicalities of achieving these optimal physical activity levels in a population that experience symptoms such as pain and fatigue. Given that a recent systematic review has provided further evidence that being physically active is an important contributor to symptom management (Veldhuijzen van Zanten et al 2015) it is essential that challenging negative beliefs about physical activity are targeted by healthcare professionals working with people who have RA when seeking to promote their physical activity behaviour.

In terms of a specific intervention targeting physical activity participation the participants in our study mentioned a number of important points, some of which have
already been discussed. These include the provision of information regarding physical activity and RA, relating to the safety and benefits, ensuring that the leader of such an intervention has adequate training in terms of understanding of being physically active with a diagnosis of RA, and involvement of significant other to support physical activity behaviour. Other important points discussed by our participants included the location of such an intervention and other methods of supporting physical activity. Goal setting and monitoring physical activity were also important factors for our participants. The importance of monitoring physical activity behaviour has been highlighted recently as a key feature in supporting physical activity (Michie et al 2011). Interestingly to date this finding has not been reported in interventions targeting physical activity behaviour in people who have RA. Some participants suggested that a group setting may be the most appropriate environment, giving the many benefits of participating in a group such as the enjoyment of exercising with others and the positive social interaction of being around others who exercise (Wilcox et al 2006). When asked about the location of such an intervention there was a strong feeling that it should not be in a hospital setting and all preferred a community-based setting. This was an interesting finding, as many participants viewed the hospital setting as a negative location. It is plausible to consider that the hospital may not be accessible and could act as a deterrent to people who have RA in attending a physical activity intervention.
The limitations of this study should be acknowledged. Initially focus groups were selected as the method of data collection but due to a lack of interest and barriers such as time and lack of access to a focus group location the authors decided that telephone semi-structured interviews was the feasible method of data collection and also the method preferred by potential participants. The authors have strong physical therapy and health psychology backgrounds and this influence should be noted as it may have played a part in the analysis. Generalization of these findings to the general RA population may not be appropriate but should provide an insight into the views and preferences of people who have RA with regard to physical activity participation.

Conclusion

Reflecting on this study it is evident that people who have RA have varied views on being physically active. There is a lack of information and knowledge about being physically active when having RA, which contributes to uncertainty and negative beliefs about being active. Thus there is a need for increased provision of advice regarding physical activity to both people who have RA and healthcare professionals, and scope to further support physical activity in clinical practice. The study findings highlight the importance of involving key stakeholders when designing future physical activity interventions as such contributions can help to ensure that such interventions are successful.
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Declaration of Conflicting Interests

The Authors declare that there is no conflict of interest.

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References


### Table 1: Generated themes and sub-themes with supporting quotations

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<th>Themes</th>
<th>Sub-themes</th>
<th>Sample quotes (participant number in parentheses)</th>
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<tr>
<td>Being active</td>
<td>Understanding of physical activity</td>
<td>‘Walking. Doing something with my hands to keep them supple and doing as much ordinary things around the house. But walking I suppose and my gardening would be the ultra physical ... the gardening would be ultra physical for me.’ (PwRA05)</td>
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<td>I can be active</td>
<td></td>
<td>‘I think us with rheumatoid arthritis, we do need exercise. I think it is important ‘(PwRA04)</td>
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<tr>
<td>Limits and pacing</td>
<td></td>
<td>‘but not to overdo it, I think you know when to stop yourself and not to push yourself too hard.’ (PwRA02)</td>
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<tr>
<td>Inactivity</td>
<td></td>
<td>‘You look at a job and I might have so much timber to cut and I’d say ‘I’ll cut that now, I’ll cut the whole lot’ but you’d be better off to just only do a quarter maybe and leave it and the following day do something else you know what I mean.’ (PwRA16)</td>
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<tr>
<td>Barriers and facilitators</td>
<td>Having RA*</td>
<td>‘...if you sort of give in and say well I’ve arthritis and I can’t do anything which I do a lot of the times I’d be quite honest as well with you, there’s no point in telling lies about it like you know.’(PwRA07)</td>
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<tr>
<td>Beliefs and emotions</td>
<td>Negative</td>
<td>‘Honestly, the slightest ... even the slightest little pain or little ... you know if you feel, in the joints, just starting to kind of slow down and not to push yourself too hard because you don’t want to cause flare ups later on, more damage to be done.’ (PwRA02)</td>
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<td></td>
<td></td>
<td>‘It’s a question of getting the medication and the pain</td>
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right and under control, so that you know you can be more active.’ (PwRA08)

Positive
‘I found since I started doing exercise, she even said it herself, that I’m not complaining. I don’t seem to feel as sore as what I used to…’ (PwRA02)
‘it just gives you a feel good factor and, when you’re out, just being out in the surrounds, it clears your head, it just makes you feel happier. Feel better in yourself…………So it keeps your mind in gear because if your mind goes into neutral you’re in trouble………So walking was my … that’s what I tapped into and that’s what keeps me going and it keeps me from seizing up and it takes my mind off of things……and your mind seems to kind of sweeten. It just sweetens with sounds…….’ (PwRA13)

Location
‘And I’ll feel better because once I get out and get the air into my head and get my head cleared and you know that’s what it’s all about……It’s absolutely brilliant to get out there and feel the air and listen to the birds’ (PwRA13)
‘I don’t know I suppose just something in the mindset that if you get out in a bit of fresh air it will always help you…..Get out in the fresh air and go for a walk and with the kids like……I just I really think the activities the fresh air, once you get out in the fresh air it helps an awful lot.’ (PwRA14)
Yeah but I don’t know that I’d really want to keep going in to the hospital, I see enough of that place as it is. (PwRA08)

Motivation
‘But my son keeps at me and at me so…I don’t go walking because I say that I get out and walk because I stop him nagging at me.’ (PwRA07)

Knowledge of physical activity guidelines
‘No I did ask them [rheumatologist/healthcare professionals] once was it okay to do a run and they just said not to overdo it, you’ll know yourself, so I did mention it.’(PwRA02)
‘I really don’t know much about it, to be honest…..but we were never … I was never given any indications you know to do that.’(PwRA04)
Trusted source
‘You know I mean I’d have no problems with somebody that understood exercise, but somebody probably like a fitness instructor or whatever mightn’t understand the side effects I suppose of the arthritis.’ (PwRA12)

Providing physical activity information
‘Well that’s a hard question to answer now really because you see you look up to the professional people like yourself to give you advice as to what’s the best thing to do and so on and it’s not always what helps you. In theory a, b, c is bound to help you but it doesn’t, everybody is different I’m sure,………Yes, I think it’s an individual thing. It’s not something that you can say, text book, like this is what you do if you have rheumatoid arthritis. It has to be taken individually………I suppose, like I said, everybody is an individual and has to be treated as such………It is, most definitely, because I mean in your line of work you have a, b, c to do but you have to see how did a, b, c react on the patient.’ (PwRA15)

Supporting physical activity
‘…you see you have to have a reason to get up in the morning…….You have to have a goal.’ (PwRA13)
‘Yeah you know it’s like that when you do go away from any of these sessions that someone cares like and it’s grand to write in [a diary] what you are doing and if you don’t do it to be truthful and say I’m not doing it or whatever’ (PwAR07)

Planning and monitoring
‘just a little group of us that do the exercises and that………Better because you’d have an old laugh. You’d have an old laugh as well because some of us weren’t able to manage it……. It helps the other people in the group I think too you know, it helps them along as well because some can’t manage it you know and still we kind of help them along and I think by helping others along we’re helping ourselves as well, do you know.’ (PwRA17)

Social activity
‘Now I do have to rely of course on my family for taking me to the doctors and to the supermarket – not that my daughter does all the shopping’ (PwRA15)
‘I try to make light of it you know, but I should use some kind of an aid walking when I’m like this you
know.’ (PwRA03)

*RA: Rheumatoid Arthritis
APPENDICES

Appendix 1: Interview guide

1. What do you understand 'physical activity' to mean?
   What do you understand 'exercise' to mean?

2. Tell me about your levels of physical activity every week? – probes – what makes it difficult/easy – (Family support, location, money, ability, types of activity - prior history, psychological stuff like confidence, fears etc)
   What would help you to be more physically active?

3. Can you tell me about the physical activity recommendations for people with rheumatoid arthritis? Any specified times, types – what do you think they might be?

4. Tell me about your experiences of being physically active. Do you find that fear of increased pain, joint damage and increased symptoms such as swelling, stop you from being physically active?
   Do you believe that physical activity/exercise make your arthritis worse?)
   Do you believe that it is safe to exercise when you have rheumatoid arthritis?)

5. What do you think of a programme to promote physical activity in people who have rheumatoid arthritis? Tell me what would work/not work and why for the physical activity component - probes- (group-based or 1:1 basis; how many classes per week; duration of classes; length of intervention)
   Tell me what would work/not work and why for the psychological behaviour change component-probes- (group-based or 1:1 basis; how many sessions per week; duration of session; length of intervention)

5. Where should the intervention be delivered? –probes- local university, acute hospital setting, primary care setting, gym setting, community hall
   Who should deliver the intervention?

6. Make-up of group – gender, all abilities, Why – everyone make comfortable – ground rules – at own pace

7. Can you suggest anything that could support you during (and after) the intervention? e.g. exercise diary/app, physical activity information leaflet, follow-up telephone calls, web-based resources
Appendix 2: Flow chart representing the six steps of thematic data analysis implemented in this study

Phase 1: Researcher familiarised with data through reading and re-reading transcripts

Phase 2: Generation of initial codes through line-by-line open coding

Phase 3: Sorted open codes into sub-themes

Phase 4: Revised, reviewed and refined themes

Phase 5: Defined and named four key themes and associated sub-themes

Phase 6: Organised themes in present research report in to portray participants’ perspectives grounded within their own words within the themes that were defined

Appendix 3: Participants characteristics

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