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RESEARCH ARTICLE

Strategies to enhance physical activity in people with Rheumatoid Arthritis: A Delphi survey

Rachel Thomas[1] | Alice Berry[1] | Caroline Swales[2] | Fiona Cramp[1]

[1]School of Health and Social Wellbeing, University of the West of England, Bristol, UK

[2]Patient Research Partner, Bristol, UK

Correspondence
Rachel Thomas, School of Health and Social Wellbeing, Glenside Campus, University of the West of England, Blackberry Hill, Bristol, BS16 1DD, UK.
Email: rachel4.thomas@uwe.ac.uk

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Abstract

Introduction: Managing symptoms, resisting functional decline and maintaining health and independence are key motivators for people with Rheumatoid Arthritis (RA) who successfully engage with physical activity (PA). To inform PA support for people with RA the aim was to determine whether the broader RA population share similar beliefs and strategies regarding PA to those who report successful engagement.

Methods: A modified two-stage Delphi approach. 200 patients from four National Health Service rheumatology departments received a postal questionnaire containing statements relating to engagement with PA derived from prior interview data from physically active individuals with RA. Statements rated as agree or strongly agree by >50% of respondents were retained and the same respondents asked to rate and prioritize potential PA intervention components.

Ethical approval: Oxford C Research Ethics Committee (ref 13/SC/0418).

Results: Questionnaire one received 49 responses (11 males, 37 females, 1 unknown), mean age 65 years (range 29–82). Low levels of PA were reported by 60% of respondents. Questionnaire two responses (n = 36) indicated that a PA intervention should include information about prevention of RA symptoms worsening and benefits of PA for joints; help participants to achieve improved pain management and a feeling of being in control of their RA. For PA maintenance it was important that medication controlled symptoms, and PA instructors understood RA to ensure safety.

Conclusions: A key factor to consider when designing a PA intervention for people with RA is that education from a knowledgeable instructor should underpin programme delivery alongside effective medication. Programmes may need tailoring based on demographics; this should be explored in future studies.

KEYWORDS
engagement, physical activity, Rheumatoid Arthritis

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1 | INTRODUCTION

The benefits of physical activity (PA) for people with rheumatoid arthritis (RA) are well documented (Rausch Osthoff et al., 2018; Sveaas et al., 2017) yet many people with RA are less active than the general population (Hernández-Hernández, 2014). It is recommended that in the general population, individuals undertake at least 150 min of moderate intensity PA per week, or at least 75 min of vigorous intensity PA (or a combination of both), plus strength exercises on two or more days a week (Department of health and social care, 2019). This recommended level of PA is suggested to be safe and beneficial for people with inflammatory arthritis. All health care professionals should therefore actively promote PA as an integral part of standard care for people with RA (Rausch Osthoff et al., 2018). Previous research has shown that PA interventions should be based on individual aims and include behaviour change techniques, yet no evidence to support particular modes of delivery exists, and it is unclear how individuals should be supported to stay physically active (Rausch Osthoff et al., 2018). The benefits of PA may only be apparent if activity is sustained therefore the National RA guidelines also highlight that issues of adherence could be as important as the activity itself (National Collaborating Centre for Chronic Conditions, 2009). Furthermore, studies (Halls et al., 2017; Iversen et al., 2015; Veldhuijzen van Zanten et al., 2015) have identified that symptoms such as fatigue, pain, stiffness and decreased mobility are barriers to PA in RA. In addition, fear of exacerbating symptoms (flare ups), causing damage to joints, and lack of knowledge about the disease or safe levels of exercise can limit participation.

Despite these obstacles, a minority of people with RA do successfully engage with regular, long-term PA. Those that engage with regular PA do so to manage their symptoms, resist functional decline and maintain health and independence (Thomas et al., 2019). Physically active individuals with RA demonstrate high levels of exercise self-efficacy (a belief in one's ability to succeed), strong beliefs that physical function would decline without regular PA, a long history of PA prior to diagnosis and good support networks (Thomas et al., 2019). Further research to explore how a greater number of people with RA can be better supported to incorporate PA into their lives is required. To inform the development of a theoretical model for enhancing patient engagement with PA and to promote self-management it is important to understand the key motivators for PA and PA beliefs in a broader RA population. Supporting people with RA to successfully engage with PA has the potential to minimize longer-term health problems, including co-morbidities, and the associated burden on healthcare resources. This aligns with an aim of the National Health Service (NHS) long term plan which sets out a commitment to enhancing supported self-management for long-term conditions (NHS, 2019). Furthermore, the Core20PLUS5 identifies people with long-term conditions as a target population who may benefit from a tailored healthcare approach as part of their strategy to reduce healthcare inequalities (NHS, 2021).

2 | Aim and objectives

The aim of this study was to determine whether the broader RA population share similar beliefs and strategies regarding PA engagement to those who report successful PA engagement.

Objective 1) to understand what information people with RA want included in a PA programme
Objective 2) To explore the perceived benefits of a PA programme aimed at people with RA
Objective 3) To identify the support needs/requirements for successful engagement with a PA programme for people with RA

3 | METHOD

Ethical approval was granted by the Oxford C Research Ethics Committee (ref 13/SC/0418). Informed consent was assumed if participants chose to respond.

3.1 | Study design

A modified postal Delphi approach incorporating the collection of free text comments and quantitative scoring was used. A Delphi approach is an iterative multistage process designed to combine opinion of many participants into group consensus (Carter & Henderson, 2005). This approach uses 'expert' views to determine agreement through a series of questionnaire rounds, with the results of each round informing the content of the next (Hasson et al., 2000). Strategies that physically active people with RA use to engage with PA identified through semi-structured interviews in a previous study (Thomas et al., 2019) were used to construct the first questionnaire which consisted of 65 statements about engagement with PA.

3.2 | Participants

Inclusion criteria were adults (≥18 years), able to speak and read English, with a confirmed diagnosis of RA at least 6 months before participating in the study. Eligible individuals were identified by clinicians in four NHS rheumatology departments located in England with 200 consecutive patients (in total) sent an invitation to participate along with the initial questionnaire. Demographic information (sex, age, occupation, education, ethnic status, duration of RA, co-morbidities), patient perceived disease activity (via a visual analogue scale), functional ability (self-reported via the Modified Health Assessment Questionnaire and PA levels (self-reported via the International Physical Activity Questionnaire (IPAQ) were requested in addition to completion of the Delphi survey with 65 statements.

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3.2.1 | Round 1

Respondents were asked to indicate to what extent they agreed with the statements (options were strongly agree, agree, neutral, disagree and strongly disagree). Respondents also had the opportunity to identify strategies that they believed were useful through an open response question. Statements rated as 'agree' or 'strongly agree' by a majority of respondents (>50%) were retained to formulate questionnaire two. Responses were anonymized with contact details retained separately for questionnaire two distribution. Questionnaire two was only distributed to those who responded to the first questionnaire and provided contact details.

3.2.2 | Round 2

Statements remaining from the results of questionnaire one were presented in three categories (information, benefits, programme delivery) and respondents were asked to indicate how important each statement was to them (extremely important, very important, important, not very important and not important at all). Respondents were also asked to identify up to 13 statements, three from the first category (information) and five from the other two (benefits and programme delivery) that were most important to them. An optional free text section was provided for respondents to justify their responses. An individual code in the footer allowed the researcher to match the response to the previous questionnaire and demographic data. A follow up phone call was used to prompt non-responders.

3.3 | Data analysis

Response distributions were calculated for each individual statement. Frequencies for the 'agree' and 'strongly agree' categories were totalled for each statement and presented in rank order. Statements rated as agree or strongly agree by >50% of respondents (questionnaire one) were taken forwards and used to formulate questionnaire two (see Table 1). Following questionnaire two, response distributions were calculated for each individual statement and presented graphically (Figures 1–3). Furthermore, differences between PA levels were explored using a Chi squared test. Free text was analysed using content analysis which is a simple and descriptive method for reporting on common topics arising in qualitative data (Vaismoradi et al., 2013).

4 | RESULTS

4.1 | Characteristics of participants

Forty-nine (24.5%) responses to questionnaire one were received (11 males, 37 females, 1 unknown). Respondents were white British with a mean age of 65 years (range 29–82) and mean disease duration of 18 years (range 8 months-60 years). Levels of disease activity (measured using a visual analogue scale) were varied but most participants reported only mild functional loss, or none at all (see Table 2). Occupational status, educational attainment and presence of co-morbidities are also presented in Table 2. Of the 45 respondents who completed the IPAQ, 27 reported low levels of activity (60%), nine reported moderate activity (20%) and nine reported high levels of activity (20%).

4.1.1 | Round 1

See Table 1.

4.1.2 | Round 2

Of the 49 responses to questionnaire 1, one did not provide a postal address so 48 questionnaires were mailed out in the 2nd round. Thirty-six (75%) responses to questionnaire two were received.

Results from round 2 are presented in three categories:

- Information to be included in a PA programme (see Figure 1).
- Perceived benefits of a PA programme (see Figure 2)
- Requirements for successful delivery and engagement with a PA programme (see Figure 3).

4.2 | Information to be included in a physical activity programme

4.2.1 | Free text

Respondents indicated that they would like information on diet, sleep and useful exercises presented in a range of formats. Prescriptions for free membership to dieting clubs and gyms/leisure centres were also suggested. Value was placed on word-of-mouth recommendations.

4.3 | Perceived benefits of a physical activity programme

4.3.1 | Free text

Responses indicated that a PA programme should provide support, friendship, exercise, laughter and fun with an opportunity to be part of society and support in dealing with disability. Participants also placed importance on achieving greater/maintained mobility, fitness, and wellness through PA.

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TABLE 1 65 statements in rank order with those rated as agree or strongly agree by >50% of respondents (and taken forwards to questionnaire two) highlighted.

Statement	Responses: Strongly agree + agree (n = 49)
I would do more physical activity if it was good for my general health	46
I would do more physical activity if it was good for my joints	46
I would do more physical activity if I could work through my pain	45
I would do more physical activity if it helped to prevent heart and circulation problems	44
I would do more physical activity if it prevented my Rheumatoid Arthritis symptoms getting worse	44
I would do more physical activity if it helped my strength	44
I would do more physical activity if it helped me to be in control of my Rheumatoid Arthritis	44
I would do more physical activity if it improved my energy levels	43
I would do more physical activity if it helped to prevent osteoporosis (thinning of the bones)	43
I would do more physical activity if it helped me to manage my pain	42
I would do more physical activity if I could work through my symptoms	42
I would do more physical activity if I enjoyed it	42
I would do more physical activity if it made me feel happy	41
I would do more physical activity if it helped my balance	41
I would do more physical activity if it helped me manage my fatigue	41
I would do more physical activity if it helped me to fight my Rheumatoid Arthritis	41
I would do more physical activity if it helped me feel less disabled	40
I would do more physical activity if I felt good afterwards	40
I would do more physical activity if I felt it was safe for me	40
I would do more physical activity if I could cut down or stop when I had a flare	38
I would do more physical activity if my medication controlled my symptoms	37
I would do more physical activity if it helped me to monitor my Rheumatoid Arthritis	37
I would do more physical activity if it helped me to feel normal	36
I would do more physical activity if it gave me a feeling of achievement	36
I would do more physical activity if it helped me to relax	36
I would do more physical activity if it was part of my daily routine	36
I would do more physical activity if I could find something I could physically do	36
I would do more physical activity if it was a small amount everyday	35
I would do more physical activity if it was the right amount for me	35
I would do more physical activity if it improved my mood	34
I would do more physical activity if it helped me to feel good about the way I look	33
I would do more physical activity if I could exercise with an instructor who understands Rheumatoid Arthritis	32
I would do more physical activity if I had the motivation	32
I would do more physical activity if I had information on the facilities available in my area	31
I would do more physical activity if it helped me to achieve a balanced lifestyle	30
I would do more physical activity if it helped me to feel part of society	29
I would do more physical activity if it helped me to forget my worries	29
I would do more physical activity if I could afford to financially	29
I would do more physical activity if I knew about its benefits	28
I would do more physical activity if I could be out in the fresh air	27
I would do more physical activity if it challenged me	27

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TABLE 1 (Continued)

Statement	Responses: Strongly agree + agree (n = 49)
I would do more physical activity if I had the confidence	27
I would do more physical activity if I could exercise at home	26
I would do more physical activity if it helped me to connect to my body	25
I would do more physical activity if I had support and guidance to set targets or goals	25
I would do more physical activity if I could pace myself	23
I would do more physical activity if I could exercise with people with Rheumatoid Arthritis or similar conditions	22
I would do more physical activity if I prioritized my energy for it	22
I would do more physical activity if there was a social side to the exercise	21
I would do more physical activity if I had a way to monitor myself, for example, the number of steps that I took each day	21
I would do more physical activity if I had support from others, for example, my partner, family or friends	21
I would do more physical activity if I could use aids such as walking sticks, splints or specialist footwear	20
I would do more physical activity if I was in a group/class	19
I would do more physical activity if I could plan it in advance	19
I would do more physical activity if I could exercise to music	19
I would do more physical activity if I could have more rest periods during it	19
I would do more physical activity if I could walk to local amenities rather than drive or take the bus	18
I would do more physical activity/walk more if I had a purpose	18
I would do more physical activity if I could exercise on my own	18
I would do more physical activity if I set myself targets or goals	18
I would do more physical activity if I could exercise with people of a similar age to me	17
I would do more physical activity if I could exercise in a controlled environment, such as a gym	15
I would do more physical activity if I had a dog	15
I would do more physical activity if the health care professionals I am involved with were physically active	14
I would do more physical activity if it fitted in with my job	11

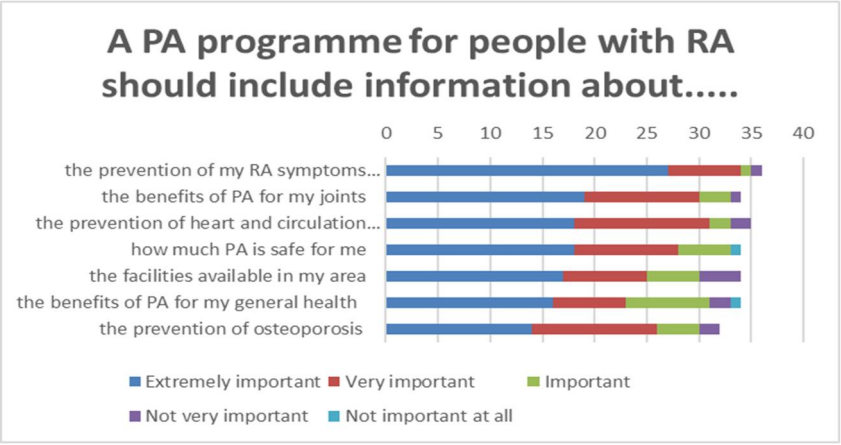

FIGURE 1 Response distributions showing the importance of information components of a physical activity (PA) programme.

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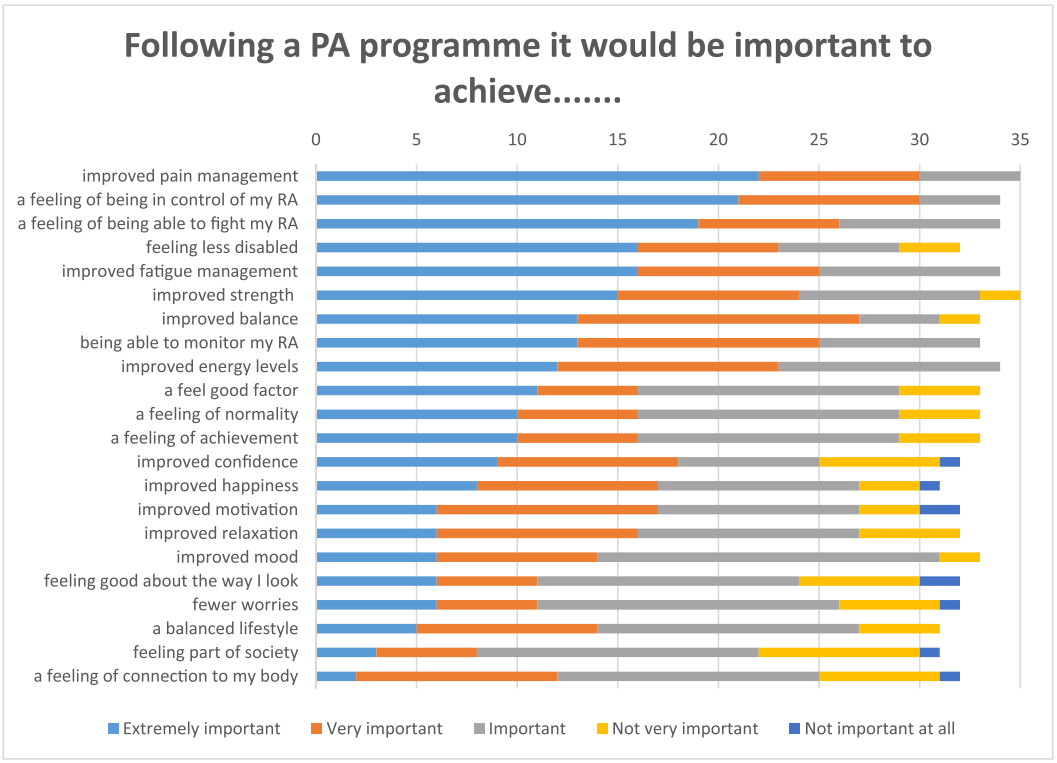

FIGURE 2 Response distributions showing the importance of perceived benefits of a physical activity (PA) programme.

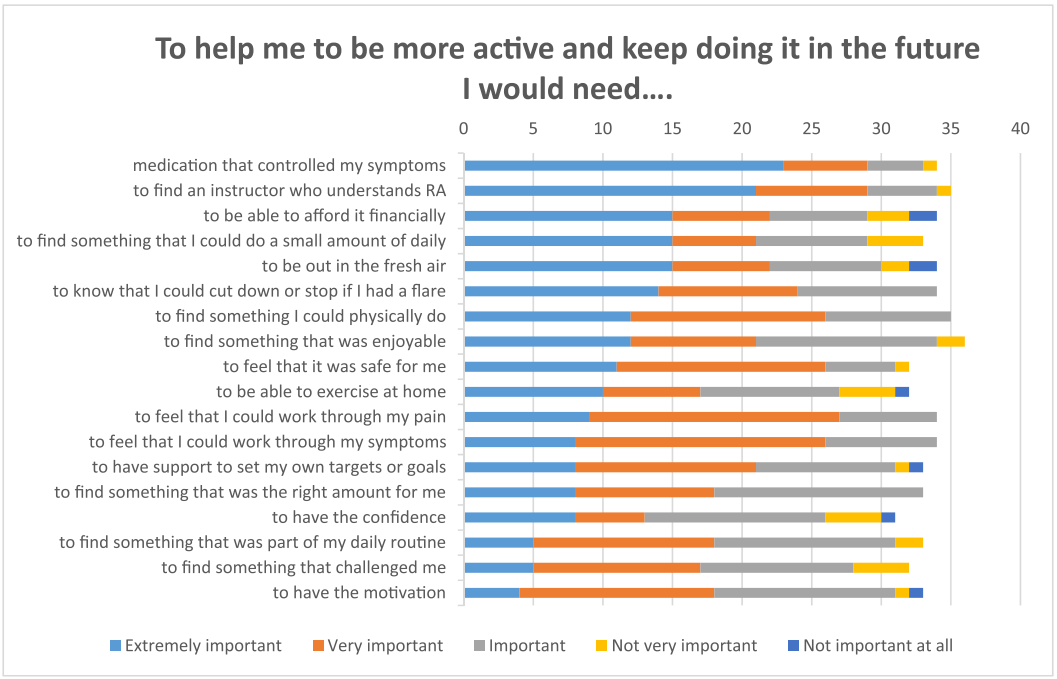

FIGURE 3 Response distributions showing the importance of requirements for successful delivery and engagement of a physical activity (PA) programme.

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TABLE 2 Characteristics of participants ($n = 49$).

Disease activity VAS Scale (0–10)	Frequency
0	0
1–3	5
4–6	17
7–10	21
Missing	6
Functional ability MHAQ (0–3)	**(0-2.25)**
<1.3 (mild functional loss)	36
1.3–1.8 (moderate functional loss)	5
>1.8 (severe functional loss)	2
Missing	6
Educational attainment	
None	6
GCSEs/'O' level	7
'A' level	7
Diploma/First degree	14
Master's degree/PhD	1
Missing	14
Employment	
Unemployed	2
Employed	9
Retired	30
Missing	8
Comorbidities	
None	6
Cardiovascular	25
Other	10
Missing	8
IPAQ	
Low	27
Moderate	9
High	9

Abbreviation: VAS, visual analogue scale.

4.4 | Requirements for successful delivery and engagement with a physical activity programme

4.4.1 | Free text

Responses placed importance on local, group delivery with an instructor who understands RA with consideration given to transport links. Popular activities were hydrotherapy/swimming, walking groups, Yoga, Tai Chi, Pilates and gardening with fresh air being recognized as important. Effective medication, particularly for pain management, was noted as being a key component. Participants felt that it was important to be active daily, but some commented that this required inner strength/fight/pushing themselves and that fatigue and flares were a barrier to this.

4.5 | Differences between physical activity levels identified through a Chi squared test

4.5.1 | Information to be included in a physical activity programme

There were some items which around 10% of participants with low levels of PA identified as 'not very important' or 'not important at all', whereas all moderately and highly active participants rated them as important to extremely important. These items were benefits for health and prevention of osteoporosis and heart problems.

4.5.2 | Perceived benefits of a physical activity programme

Around 10% of participants with low levels of PA identified balance, strength and mood as 'not very important' or 'not important at all' whereas all moderately and highly active participants rated them as important to extremely important. Around 20% of participants with low levels of PA identified achieving a balanced lifestyle, a feeling of normality, and feeling less disabled as 'not very important' or 'not important at all' whereas all moderately and highly active participants rated them as important to extremely important.

4.5.3 | Requirements for successful delivery and engagement with a physical activity programme

There were some items which around 10% of participants with low levels of PA identified as 'not very important' or 'not important at all' whereas all moderately and highly active participants rated them as important to extremely important. These items were a programme that was enjoyable, part of a daily routine and with an understanding instructor. Conversely, about 20% of highly active participants rated finding an activity that was safe for them as not very important. Close to 70% of less active participants rated PA safety as extremely important compared to around 40% of active participants. Table 3 shows the top five items rated as the most important to participants in each category.

5 | DISCUSSION

The aim of this study was to determine whether the broader RA population share similar beliefs and strategies regarding PA engagement to those who report successful PA engagement. As intended, males and females with a range of ages and years of

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TABLE 3 A table showing the items rated as the most important aspects of a physical activity (PA) programme for people with Rheumatoid Arthritis (RA).

Statement	Number of responses
Section 1: Information: It would be important to me that a physical activity programme included information about……	
the prevention of my Rheumatoid Arthritis symptoms worsening	25
how much physical activity is safe for me	16
benefits of physical activity for my joints	15
prevention of heart and circulation problems	15
benefits of physical activity for my general health	15
Section 2: Benefits: Following a physical activity program, it would be important for me to achieve the following ……	
improved pain management	26
a feeling of being in control of my Rheumatoid Arthritis	17
improved fatigue management	17
improved strength	17
improved energy levels	17
Section 3: Program delivery: To help me be more physically active and keep doing it in the future I would need……	
medication that controlled my symptoms	26
to find an instructor who understands Rheumatoid Arthritis	21
to find something I could physically do	14
to be able to afford it financially	14
to be out in the fresh air	14

diagnosis were recruited and the majority of the sample reported low levels of PA which is reflective of the general RA population (Sokka et al., 2008). Most of the participants reported minimal functional loss (low levels of disability).

The results from round one of the Delphi survey suggested that the broader RA population do indeed share similar beliefs and strategies regarding PA engagement to those who report successful PA engagement with over half of respondents agreeing with 47 of the 65 original statements. Overall, results indicated that people with RA wanted a PA programme to include information about the prevention of RA symptoms worsening and benefits of PA for joints, to help participants to achieve improved pain management and a feeling of being in control of their RA. For PA maintenance it was important to participants that medication controlled symptoms and PA instructors understood RA to promote a feeling of safety. Free text responses reinforced these findings and highlighted the value placed on local walking or pool-based group activities. Previous findings have shown that for physically active people with RA, participation in PA was enjoyable and promoted a sense of belonging to and contribution to society (Thomas et al., 2019). Furthermore, for highly active patients, exercise was habitual (Thomas et al., 2019). Free text responses support that for this sample of predominantly less active individuals, an enjoyable and social element would be valued and daily activity along with 'inner strength' were important. Berry et al., in their work with a population of people with Osteoarthritis, similarly highlight the importance of choosing activities which are enjoyable, include social engagement and being active with others (Berry et al., 2020).

Previous research supports the findings that for PA maintenance, medication needs to control symptoms (Whittall, 2015). In addition, previous findings support the need for instructors to understand RA to promote a feeling of safety when being active (Tan et al., 2019; Whittall, 2015) with Metsios and Kitas (2018) recommending that PA interventions are led by rheumatology healthcare practitioners. Interestingly, greater importance was placed on safety by less active participants with close to 70% of less active participants rating PA safety as extremely important compared to around 40% of active participants. Furthermore, about 20% of highly active participants rated finding an activity that was safe for them as not very important. A possible explanation for this could be that highly active participants have high levels of self-efficacy (Thomas et al., 2019) and therefore have confidence in their ability to exercise safely.

Findings from the present study suggest that PA programmes may need to be individually tailored to existing PA level however most differences in the importance placed on items between less active and more active participants (such as benefits for health, prevention of osteoporosis or heart problems, improvement of balance, strength and mood, a programme that was enjoyable, part of a daily routine and with an understanding instructor) were only seen in small numbers of people. There was a slightly bigger difference in views on achieving a balanced lifestyle, a feeling of normality, and

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feeling less disabled with around 20% of participants with low levels of PA identifying them as 'not very important' or 'not important at all' whereas all moderately and highly active participants rated them as important to extremely important.

Although these numbers are small, these views or beliefs regarding PA may be reasons for non-engagement. Health care professionals should therefore take an individualized approach, considering PA beliefs and readiness for change. Specific behaviour change models such as the transtheoretical model (Prochaska & DiClemente, 1983) and the COM-B model (Michie et al., 2011) may be useful and for those individuals that aren't ready or motivated to engage in PA, a starting point might be to reduce sedentary time. PA programmes that can successfully engage those who are sedentary or with low levels of PA at baseline may lead to the greatest outcomes for individuals and support the recommendation made by the World Health Organization that some PA is better than none and will bring benefits to health (Bull et al., 2020).

6 | STRENGTHS AND LIMITATIONS

A key strength of this study was that it was able to gather data from people who reported low levels of PA, this contrasts with the majority of research in this area which often fails to adequately represent those doing lower levels of activity. This was particularly important to the aim of the study which was to determine whether the broader RA population share similar beliefs and strategies regarding PA engagement to those who report successful PA engagement. The four NHS trusts recruited for this study were based in South West/Central England providing a geographically diverse sample of patients. However, the response rate was lower than anticipated and only included participants identifying as white and British, limiting the generalisability of the findings. Whilst the Delphi approach is restricted to quantitative scoring the free text options allowed participants to identify additional information that was important to them. One potential criticism of the Delphi process is the use of a 50% cut off for taking item forwards to round two. There is no universally agreed cut-off point for consensus although previous Delphi studies have applied levels of agreement between 51%and 100% (Carter & Henderson, 2005; Keeney et al., 2006). One key strength of the Delphi approach is the absence of peer/group facilitator influence that may bias the individual's responses.

7 | CONCLUSION

To maintain PA it is important to individuals with RA that their medication effectively controls their symptoms and that PA instructors have an understanding of their condition to promote a feeling of safety when being active. Programmes may need to be individually tailored based on existing activity level and this should be explored further in future studies. The findings of this project will provide useful information for health care providers and researchers wanting to develop PA programmes for people with RA. The results may inform the development of a theoretical model for enhancing engagement with PA and therefore promote self-management. If PA levels in people with RA can be successfully increased, this could improve longer term health status of leading to a reduced need for healthcare. Overall, this may lead to a decreased burden on health services and economic savings which are crucial in the current economic climate. The results could possibly be applied to a wider group of people with long term conditions. With an ageing population and increasing prevalence of long-term conditions it is hoped the findings of this project will prove useful in underpinning further research and clinical practice.

AUTHOR CONTRIBUTION

Rachel Thomas, Caroline Swales and Fiona Cramp devised the study design. Rachel Thomas collected the data and carried out the data analysis and interpretation with discussion and support from Fiona Cramp and Caroline Swales. Rachel Thomas wrote the manuscript and was advised by Alice Berry. All authors reviewed and revised the manuscript. Fiona Cramp supervised the overall project.

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CONFLICTS OF INTEREST

None.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

Ethical approval granted by Oxford C Research Ethics Committee (ref 13/SC/0418). Informed consent was obtained from the participants.

ORCID

Rachel Thomas https://orcid.org/0000-0003-3726-5179
Alice Berry https://orcid.org/0000-0002-3863-6835
Fiona Cramp https://orcid.org/0000-0001-8035-9758

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