

Active Wait: Feasibility of health coaching targeting patients with low activation waiting for total hip or total knee replacement

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Title:

Active Wait: Feasibility of health coaching targeting patients with low activation waiting for total hip or total knee replacement

ABSTRACT**Objectives**

To explore the feasibility and acceptability of health coaching compared to an online self-management programme (Active Wait) for patients with low activation awaiting total hip or knee replacement.

Design

Mixed-methods feasibility study using an exploratory randomised controlled trial with a nested qualitative component.

Setting

Single-centre study conducted in (sites anonymised).

Participants

Fifty adults (mean 65 (SD 2) years old) awaiting a total hip or knee replacement with low activation (patient activation measure 1 or 2) were randomly assigned to health coaching ($n=25$) or Active Wait ($n=25$).

Interventions

The health coaching group received up to 8 sessions over 12-weeks, delivered in-person or remotely and tailored to individual needs. The Active Wait group had access to a 12-week self-management programme with prehabilitation guidance.

Main outcome measures

Primary outcomes were feasibility (recruitment, retention and adherence) and acceptability (participant satisfaction and perceived benefit). Secondary outcomes included patient activation and quality of life.

Results

Recruitment (50/89, 56%) and adherence to health coaching (78/88, 89%) were successful, but follow-up retention for both groups was below target (33/55, 66%). Health coaching reported higher benefit (6%), enjoyment (14%), and satisfaction (7%) compared to Active Wait. Health coaching improved patient activation (19%) and perceived overall health (15%) compared to baseline, whereas Active Wait saw negligible effects (5% and -2% respectively). Semi-structured interviews highlighted the personalised and supportive nature of health coaching, reducing anxiety and enhancing self-management.

Conclusion

Health coaching is feasible and acceptable for patients with low activation. The findings from this preliminary study are important to inform the design of a larger trial.

Contribution of paper:

- Reports on the feasibility and acceptability of a health coaching intervention for people waiting for lower limb joint arthroplasty.
- Examines the impact of health coaching compared with a digital prehabilitation resource on self-reported quality of life, mobility, pain and activation amongst a sample of people waiting for lower limb joint arthroplasty.
- Explores the experience of arthroplasty prehabilitation amongst a team of health coaches and research participants.

Keywords:

Prehabilitation, arthroplasty, health coaching, low activation

Funder: South Yorkshire Integrated Care Board

Ethical approval: Ethical approval was granted by the NHS National Research Ethics Service (23/PR/0638) and the study was conducted in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki). The study was prospectively registered (NCT06101875).

Conflict of interest: There are no conflicts of interest associated with this project

Clinical trial registration number: NCT06101875

INTRODUCTION

The COVID-19 pandemic has led to a significant backlog in elective surgeries within the NHS, particularly for total hip replacement (THR) and total knee replacement (TKR), resulting in unprecedented wait times for patients ¹. Delays to surgery worsens pain, physical function and anxiety, leading to a decline in patients' quality of life, especially those with low social support or comorbidities ²⁻⁴. Additionally, declining health during the wait period may complicate surgical procedures and recovery, increasing the likelihood of longer hospital stays and higher healthcare costs ^{5,6}. Pre-operative expectations of pain and limited coping strategies are also predictors of poor outcome from arthroplasty surgery ⁷.

Active Wait, an online self-management programme, aims to address these challenges by promoting education, prehabilitation exercises and lifestyle changes to improve readiness for surgery. However, while online resources offer valuable support, patients with lower activation (i.e. limited skills, knowledge and confidence to manage their health) may require more tailored, personalised approaches such as health coaching to independently gain benefit from website support ⁸. Health coaching incorporates individualised goal setting and decision analysis to motivate patients towards readiness to change ⁹. A health coaching intervention was co-developed through engagement between the research team and people with lived experience of osteoarthritis.

The primary objective of this study was to evaluate the feasibility and acceptability of health coaching for patients with low activation awaiting THR or TKR. Specifically, the study aimed to: (1) assess whether feasibility success criteria were met, (2) explore the impact of health coaching on patient activation and quality of life, and (3) analyse experiences associated with health coaching. This preliminary study is important to inform the design of a larger trial evaluating the clinical and cost-effectiveness of health coaching interventions ¹⁰.

METHODS

Study design

This mixed-methods feasibility study included an exploratory parallel-group randomised controlled trial with a nested qualitative component. The study was conducted at the Advanced Wellbeing Research Centre (Sheffield Hallam University) in collaboration with the Musculoskeletal Care Group of Sheffield Teaching Hospitals NHS Foundation Trust. Ethical approval was granted by the NHS National Research Ethics Service (23/PR/0638) and the study was conducted in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki). The study was prospectively registered (NCT06101875).

Participants

Patients from the waitlist for THR and TKR with low activation were recruited. Eligibility criteria are given in Table 1. As this was a feasibility study, no formal sample size calculation was required. The aim was to recruit 50 patients, which is suitable for a

feasibility study to test for processes required for a fully powered randomised controlled trial and account for patient drop-out ¹¹.

Patients were pre-screened via telephone for eligibility. Eligibility screening was conducted by two members of the research team via telephone and email. Screening confirmed waitlist status, surgery scheduling, engagement in prehabilitation or pharmacological interventions, and ability to communicate in English. PAM scoring was used to identify low activation (levels 1 or 2). All participants confirmed email access. Telephone support and paper questionnaires were available if required. Those eligible and willing to participate provided electronic informed consent and completed an online baseline questionnaire. Baseline questionnaire captured demographic and clinical characteristics, IPAQ-SF, numerical rating scales (NRS) for pain, sleep and fatigue, EQ-5D-5L, Oxford hip/knee score, and Patient Activation Measure (PAM) using Microsoft Forms. Participants were then randomly allocated 1:1 to health coaching or the Active Wait website group using variable block randomisation generated in Microsoft Excel. Blocks of varying sizes (4 and 6) were used. Allocation was performed by a researcher (TP) after baseline data collection. Blinding was not implemented in this feasibility study but will be considered in a future trial.

Interventions

Health coaching

Patients in the health coaching group were invited to choose between in-person (based at the (anonymised)), video or telephone session delivery. The intervention was delivered through one-to-one sessions between health coach and participant. The number, format and length of sessions were tailored to individual needs and preferences, with a maximum of 8 sessions over 12-weeks, each lasting up to 60 minutes. Patients were assigned a health coach that supported them for the duration of the intervention.

The aim of the health coaching intervention was to support self-management, build activation and self-worth. The intervention was underpinned by Social Cognitive Theory, emphasising key concepts such as learning, self-efficacy, reciprocal determinism, behavioural capability, outcome expectations and self-regulation ¹². Health coaches had free remit to focus on what mattered most to the patient and tailor sessions to the patients' behavioural capability. To facilitate learning, coaches referred patients to online resources (including the Active Wait website), leaflets and support services or used their professional expertise. Coaches utilised coaching models, behaviour change models and motivational interviewing in promoting self-efficacy. Such as reflecting on reasons for change, discussing opportunities and facilitating ideas for change that considers anticipated barriers, recognising the bidirectional influence between behaviour, personal factors, and environmental conditions.

The intervention was delivered by a team consisting of a specialist physiotherapist, two technical instructors and an exercise physiology researcher. This health coaching team had no prior health coaching experience and attended a Personalised Care Institute

accredited 4-day tailored health coaching development programme (Peak Health Coaching LTD, Sheffield, UK, www.peakhealthcoaching.com). Following training and during the intervention, health coaches were given supervision by the course provider to support with continued learning and reflections and provide counsel through a combination of 1:1 and group sessions, for continued development of the health coaches and as a quality assurance measure.

Active Wait website

The Active Wait website (<https://www.sheffielddachesandpains.com/active-wait/home/>) is a 12-week self-management programme providing weekly education and guidance on prehabilitation, including physical activity, weight management, diet and smoking cessation. Content was delivered via modules and included prehabilitation exercises with downloadable planners and logbooks (Table 2). The website is an open access resource, but at the time of the study, there was no consistent or standardised signposting for pre-arthroplasty patients.

Outcomes

Primary outcomes

Recruitment rates were measured as the proportion of invited participants who were eligible and consented. Retention was assessed by attrition rate, defined as discontinuation of the intervention and loss to follow-up. Adherence was calculated as the percentage of scheduled health coaching sessions attended. Acceptability was

evaluated using NRS (0 – 100) for perceived benefit, enjoyment, overall satisfaction, information quality, information quantity, and overall ease of use were administered via Microsoft Forms. Anchors were set at 0 (e.g. not at all satisfied) and 100 (e.g. extremely satisfied). Higher scores indicate greater acceptability. These single-item NRS have been used previously in similar feasibility work ¹³. Safety was evaluated by adverse event reporting.

Secondary outcomes

Patient activation was measured using PAM (patient activation measure) ¹⁴. Quality of life was assessed using the EQ-5D-5L ¹⁵. Physical activity levels were evaluated with the IPAQ-SF (International Physical Activity Questionnaire – short form) ¹⁶. Disability was assessed using the Oxford hip/knee score ^{7, 17}. Pain, sleep, and fatigue was measured using NRS (0-100) ¹⁸.

Qualitative evaluation

Semi-structured, one-to-one interviews were conducted with a nested convenience sample of n=4 patients (1M/3F) in the health coaching group and with the health coaches to explore experiences, and barriers and facilitators of engagement. Interviews of up to 30 minutes were conducted by a researcher with experience in qualitative data collection via video conferencing at the end of the intervention. Transcripts were coded and analysed using qualitative content analysis by an experienced mixed methods researcher (RY) ¹⁹.

Data analysis

Results from this study are reported in accordance with the CONSORT statements for pilot and feasibility studies ²⁰.

The success criteria of this study provided the basis of interpretation to determine whether a definitive trial is feasible. Success criteria included: (1) recruitment rates of >50%, (2) attendance of $\geq 75\%$ of scheduled health coaching sessions, (3) loss to follow up <30%, (4) no serious adverse events resulting from study procedures, (5) an appropriate primary outcome variable defined, (6) no significant difficulties for the researcher in administering the procedures or the intervention.

Participant baseline characteristics were reported as mean (SD) and frequency counts and percentages as appropriate. Differences in participant baseline characteristics between the two groups were recorded descriptively to enable a narrative comparison.

Secondary outcomes were analysed using an intention-to-treat approach. To account for missing data, the study implemented multiple imputation, generating five datasets with pooled estimates reported. These data were described as mean (SD), and mean differences with 95% confidence intervals were presented descriptively to aid interpretation in line with feasibility trial reporting standards ²⁰. Normality testing was not undertaken as no hypothesis testing or inferential analysis was performed. All analyses were conducted by the researcher (TP) using IBM SPSS, Version 26 (Armonk, NY, USA).

RESULTS

Patient flow and baseline characteristics

Figure 1 shows the flow of participants through the study. Recruitment occurred between July 2023 and September 2023, with all follow up data collected by December 2023. Of 132 screened patients, 89/132 (67%) were eligible, and 50/89 (56%) of those eligible were recruited. Randomisation yielded well-matched groups across demographic variables (Table 3). Retention was 33/50 (66%) overall, with a higher loss to follow-up in the health coaching group (11/25, 44%) compared to the Active Wait group (6/25, 24%).

Feasibility and acceptability

The study met all feasibility criteria except for retention rates (Table 4). Adherence to health coaching was high with patients attending 78/88 (89%) scheduled sessions. Health coaching sessions were rarely rescheduled (8/88, 10%) and only 2/25 (8%) of patients formally withdrew from the health coaching group due to a rescheduled hip replacement and a lack of time. Most sessions were delivered via telephone (54/78, 69%) with fewer delivered in-person (22/78, 28%) and via video call (2/78, 3%).

Engagement with the Active Wait website group was variable: 4/25 (16%) did not access the site at all, whereas 5/25 (20%) engaged with it more than 12 times.

No adverse events were reported in either group. Patients rated health coaching higher for benefit, enjoyment and overall satisfaction, while the Active Wait website was rated higher for the amount and quality of information (Table 5).

Secondary outcomes

Patients in the Health coaching group had a lower PAM score at baseline than the Active Wait group. After 12 weeks, PAM score increased for the health coaching group and Active Wait group saw negligible changes (Table 6).

Quality of life measure indicated improvements in overall perceived health following health coaching, whereas the Active Wait group remained relatively unchanged. Both groups had a worsening trend for mobility, self-care, usual activities, pain/discomfort and anxiety/depression (Table 6).

Patients in the health coaching group had low physical activity levels at baseline, which increased following the intervention to match the Active Wait group. NRS scores for pain, sleep quality, and fatigue, and Oxford score showed negligible changes following both groups' interventions (Table 6).

Qualitative analysis

Four participants (HCP) (3F/1M, age; mean 64 (SD 2)) consented to the nested qualitative study and the four health coaches (HC) participated in one-to-one interviews following intervention delivery. Three themes were developed through qualitative content analysis of the interview transcripts; 1) expectations of health coaching, 2) impact of intervention, 3) intervention delivery.

1) Expectations of health coaching

Health coach participants reported feeling uncertain about what to expect from health coaching prior to their initial sessions.

'The only thing I didn't understand at first was that it was led by me. I didn't understand that at first. And I was waiting for him (health coach) to say something the first couple of sessions but he didn't. He asked a question and then let me speak. But I didn't realise that it was initially to be led by me.' (HCP01)

Participant HCP03 reflected that,

'I didn't feel like I needed any advice really on exercise or any of that. I thought it'd just be given advice, but she (health coach) was lovely, she was very good, she listened really well and she was very empathetic. And non-judgemental.'

One of the health coaches who was an experienced clinical physiotherapist compared physiotherapy with health coaching,

'My natural kind of reaction is to help somebody and find solutions for somebody and using my knowledge and experience to help somebody and get better at whatever their problem is. And as a health coach I had to take a step back and not empower my knowledge on patients and to find out from the patients themselves and get them more empowered into their own health and thinking of their own ideas as opposed to my ideas.'
(HC02)

In summary, participants expected direct advice and instruction which was also reflected as a more typical clinical approach by members of the health coach team. Instead, health coaching enabled space for patient empowerment in a non-judgemental forum.

2) Impact of intervention

Participants described reduced fear and anxiety regarding the prospect of surgery associated with the health coach intervention,

'You know when you are a kid, and you watch a horror film with all the scary music which builds the fear. It was like that, prior to speaking to my health coach, whenever I thought about that operation I got that same sort of feeling. Pre-emption, frightened, nervous. But now I feel like 'bring it on, let's just get it done'. I'm happy to have it done now.' (HCP02)

Adjusted perspectives on osteoarthritis and why it may have developed were also reported,

'It was putting it into perspective, where your predisposition, it's not necessarily hereditary, it's not your weight, it's not your diet I just thought I'd done something wrong, that it was my fault that I'd developed this and that the way I was living my life was causing more problems than it was curing. And he (health coach) made me understand that you can't blame yourself.' (HCP01)

The health coaches reflected that the intervention enabled space for connection and listening, which was perceived as important in the context of surgical wait times,

'Just having somebody to talk to, somebody to listen. That's all people need sometimes, and I think they need it when they're uncertain or they've been waiting a long time.'

(HC04)

Health coaches reported that patients often talked about improvements in their mood and activity levels. One health coach (HC01) described patients as "uplifted," while another (HC04) noted that health coaching helped patients feel empowered to manage

their conditions better. However, one of the participants (HCP03) did report increased pain associated with the exercises recommended during the intervention.

The development of positive, supportive relationships with health coaches was a critical factor in the success of the intervention. Patients described their coaches as “empathetic”, “kind”, “helpful”, “reliable”, and “accommodating”. One patient appreciated the consistent support and timely communication from their health coach, and all patients felt eased by the health coaches and the sessions were seen as useful and empowering.

3) Intervention delivery

Although most sessions were delivered remotely, health coaches and patients expressed a preference for face-to-face interactions over remote sessions. Face-to-face sessions allowed for better communication, including non-verbal cues such as facial expressions and body language, which are often lost in phone or video calls. This personal interaction facilitated the development of trust and rapport,

‘I know people struggle with transport and getting in but I found the odd few that I did have face to face more beneficial than over the phone when you're face to face, I feel like you can make a better connection with people.’ (HC03)

Flexibility in session delivery was valued by participants, and for those who lived close to the research centre, face to face sessions felt convenient,

‘He was very good at accommodating my funny schedule because of me working Monday, Tuesday, Wednesdays. I had face to face sessions at the Olympic

stadium. It's quite a nice place that. It's dead simple to get to for me from the way I come from.' (HCP02)

Despite the preference for in-person sessions, the flexibility of remote options was acknowledged as beneficial for patients with mobility issues or those living far from the clinic.

DISCUSSION

This study demonstrates the feasibility and acceptability of a health coaching intervention for patients with low activation awaiting THR or TKR surgery. In line with guidance for feasibility studies, progression to a definitive trial was assessed against pre-specified feasibility criteria ¹⁰. Most criteria were met, including recruitment rate, adherence, safety, and successful delivery of study procedures. Although retention was below the predefined threshold, the overall pattern of findings supports progression to a definitive trial with targeted protocol refinements.

Retention below the pre-specified feasibility threshold highlights the importance of refining follow-up procedures in future research. Specifically, changes to refine outcomes, offer flexible data collection methods, and clearer communication about study commitments are warranted. These modifications will be incorporated into the design of a future trial to reduce participant burden and improve data completeness.

Activation was central to the study's conceptual framework, and the PAM demonstrated the greatest sensitivity to change and close alignment with the interventions theoretical

basis which sought to enhance self-efficacy, confidence, and behavioural capability ²¹. Similarly, the EQ-5D-5L captured changes that were consistent with participants' qualitative accounts of improved wellbeing and imposed a low response burden. Together, these findings support the selection of PAM and EQ-5D-5L as candidate primary outcomes in a definitive trial. Patient activation and quality of life are important outcomes during extended surgical wait periods ^{21,22}, especially in the context of post-pandemic elective surgery backlogs that have left many patients vulnerable to functional decline, distress and uncertainty ^{2,3}.

The qualitative findings highlighted opportunities to refine the intervention prior to a definitive trial. Participants initially held misaligned expectations, anticipating directive advice rather than a participant-led coaching approach. This suggests that clearer pre-intervention information, including examples of what health coaching involves and how it differs from traditional clinical consultations, may improve early engagement and reduce initial uncertainty, consistent with qualitative findings from previous health coaching research ⁹. A brief orientation session or written overview may therefore enhance acceptability and retention in a future trial.

From an implementation perspective, the study offers pragmatic insight into delivering health coaching within a real-world NHS context. The intervention was delivered by a multidisciplinary team with no prior health coaching experience who completed a brief accredited training programme yet achieved high adherence and favourable participant feedback. Qualitative data suggested a preference for face-to-face sessions were feasible, due to enhanced communication and rapport. While flexible delivery modes

remain essential to ensure accessibility, future trials may benefit from encouraging at least one initial in-person session to support relationship development.

The focus on patients with low activation represents a key strength and novel contribution of this study. Patients with low activation are at an increased risk of physical and psychological deterioration during the waiting period in part due to limited engagement with self-management resources ⁸. Characteristics associated with poor outcome following TKR surgery include long-term widespread pain symptoms and severe disability, and targeted pre-operative interventions have been recommended for such individuals ⁷. To the authors knowledge, this is the first study to focus specifically on patients with low activation who are least equipped to benefit from generic interventions independently ²¹. By targeting this population, the study addresses a critical gap in service provision and demonstrates that patients with low activation were willing and able to engage with a personalised, relationship-based intervention. Observed changes in activation and perceived health suggest signal of a potential benefit, supporting progression to a definitive trial in which these effects can be more clearly delineated. Given established associations between patient activation and improved health outcomes, such gains may also translate into improved postoperative recovery and reduced healthcare burden ^{23–25}. A future trial may benefit from evaluating the long-term effects of health coaching on surgical outcomes, recovery and healthcare costs.

Engagement with the health coaching intervention may be attributed to its flexible, personalised approach. Grounded in Social Cognitive Theory and motivational interviewing, the health coaching sessions were tailored to individual capabilities and goals, fostering self-efficacy and behaviour change ¹². This contrasts with more

prescriptive or standardised approaches found in prior studies and reflects a shift toward more patient-centred, adaptive models of prehabilitation ²⁶. While digital self-management tools offer scalable and cost-effective support ⁸, these findings suggest added value in tailoring interventions for individuals with low activation.

The study also highlights the emotional burden patients face while waiting for surgery, including fear, anxiety and low mood. Participants described how their concerns were alleviated through the supportive, relationship-based approach of health coaching that enabled patients to feel heard, empowered, and better prepared for surgery. The reduction in anxiety highlights how health coaching can effectively address the unique needs of patients with low activation, providing them with the support necessary to engage in preoperative health practices ^{9,27}. Psychological support appears to be a crucial component through which health coaching enhances readiness and resilience ²⁷.

The study has limitations. The sample skewed younger and lacked ethnic diversity, limiting the generalisability of findings to the broader waitlist population. Consideration of participant characteristics at baseline indicated potential advantages in educational attainment and residential area associated with the Health Coach group which may have skewed the reported impact of the intervention.

The priority for future research is to progress to a larger, multi-centre trial to confirm these findings and explore the cost-effectiveness of health coaching interventions, with greater efforts to increase participation of older adults and patients from ethnic groups to ensure a sample that is representative of the waitlist population. Engaging stakeholders, namely patients and NHS collaborators, from the outset will enhance the interventions real-world applicability and integration into clinical pathways. Addressing health inequalities

may require targeted recruitment strategies, community engagement, and training of research staff to ensure cultural competence and accessibility ²⁸.

In conclusion, health coaching for patients with low activation is a promising, patient-centred intervention that can improve activation, wellbeing and emotional preparedness during the surgical wait period. Its personalised, adaptable, and supportive approach addresses important gaps in current care and warrants further exploration in a definitive trial.

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Table 1: Patient eligibility criteria.

Inclusion criteria	Exclusion criteria
• At least 18 years old. • Have low patient activation as indicated by level 1 or 2 on the PAM.	• Surgery scheduled within intervention period. • Undertaking regular lower limb strengthening exercises. • Participating in other non-drug management for condition. • Non-English speaking.

PAM, patient activation measure.

Table 2: Summary of the Active Wait website.

Weekly topics	Contents
Introduction to Active Wait	• How to get the best out of the programme.
Managing your pain	• Understanding pain. • How to cope with long-term pain.
The importance of strength	• Reasons to build and maintain strength. • Impact of muscle weakness on post-operative recovery.
Getting active	• Encouraging an active lifestyle. • Recommendations of ways to be active.
Eating well and managing weight	• Balanced diet information. • Importance of weight management. • Diet advice.
Keeping your independence	• Stay active to maintain independence. • Aids and adaptations.
Keeping your spirits up	• Mental health support.
Avoiding slips and trips	• Falls prevention advice.
Making positive lifestyle changes	• Impact of smoking, alcohol consumption, and obesity.
Additional support while you wait	• Community support.
Preparing for surgery	• Pre-operative, peri-operative and post-operative information.
Keeping going while you wait	• Continuing the journey independently.

Table 3: Patient baseline characteristics.

	Health coaching (n=25)	Active Wait website (n=25)
Sex, <i>n</i> (%)		
Female	15 (60)	14 (56)
Male	10 (40)	11 (44)
Age (years) mean (SD)	65 (2)	65 (2)
Ethnicity, <i>n</i> (%)		
White, white British	21 (84)	22 (88)
Not stated	3 (12)	3 (12)
Black, black British, Caribbean, or African	1 (4)	0 (0)
Resident area, <i>n</i> (%)		
Not stated	12 (48)	3 (13)
North	6 (24)	11 (48)
Hallam and south central	6 (24)	8 (35)
West	1 (4)	1 (4)
Education, <i>n</i> (%)		
Degree, degree equivalent, or higher	8 (32)	3 (12)
GCSE or GCSE equivalent	4 (16)	3 (12)
Prefer not to say	3 (12)	0 (0)
Not stated	3 (12)	7 (28)
No qualifications	3 (12)	8 (32)
A-level or A-level equivalent	2 (8)	0 (0)
Other	0 (0)	4 (16)
Employment, <i>n</i> (%)		
Retired	13 (52)	13 (52)
Unemployed	4 (16)	5 (20)
Not stated	4 (16)	1 (4)
Part-time	3 (12)	3 (12)
Full-time	1 (4)	3 (12)

Table 4: Summary of study feasibility and acceptability data.

Methodological issues	Findings	Evidence
What factors influenced eligibility and what proportion of those screened were eligible?	The THR and TKR waitlist provided a long list of patients waiting for surgery.	89/132 (67%) screened were eligible. Most ineligible patients already had their operation or was scheduled to have it performed within the intervention period.
Were eligible patients recruited?	Conversion to recruitment was sufficient to achieve target sample size.	39/89 (43%) eligible patients were not recruited. Most of these patients did not respond to the invitation.
Was recruitment successful?	Yes.	The target sample was achieved within a 3-month period.
Were patients successfully randomised and did randomisation yield equality in groups?	The randomisation process worked well.	There were equal sized groups that were well balanced for most variables.
Did participants adhere to the health coaching intervention?	Adherence was high.	Participants attended 78/88 (89%) of health coaching sessions.
Was the health coaching intervention acceptable to participants?	Quantitative and qualitative data suggest the health coaching intervention was acceptable.	There was no participant dropout due to allocation preference. NRS for benefit enjoyment and satisfaction were all rated positively. Participant interviews suggest benefit and satisfaction.
Was the health coaching intervention safe?	Yes.	No adverse events were recorded during the study period.
Was retention to the study good?	Completion rates were below target.	11/25 (56%) participants were lost to follow up in the health coaching group.
Did all the components of the protocol work together?	Mostly.	No issues were faced with the researcher's ability to get participants started with the interventions. However, follow-up data capture for the health coaching group was below target.
Was an appropriate outcome defined for a definitive trial?	Yes.	The PAM and EQ-5D-5L are chosen for a future definitive trial because they demonstrated the greatest sensitivity to change, capture temporal aspects of wellbeing, and align with the intervention's theoretical framework. Both

measures are validated and impose low participant burden.

Table 5: Acceptability.

<i>Numerical rating scale (0 – 100)</i>	Health Coaching	Active Wait website	Mean difference (95% CI)
Benefit (0-100) mean (SD)	65.4 (23.0)	61.4 (18.3)	4.0 (-8.4 to 15.7)
Enjoyment (0-100) mean (SD)	68.3 (23.0)	59.3 (18.3)	8.7 (-4.2 to 19.9)
Overall satisfaction (0-100) mean (SD)	72.4 (21.5)	67.7 (17.2)	4.6 (-7.7 to 14.9)
Information quality (0-100) mean (SD)	73.0 (22.3)	74.8 (12.8)	-1.8 (-13.5 to 7.4)
Information quantity (0-100) mean (SD)	68.0 (24.2)	74.5 (12.9)	-6.5 (-19.1 to 2.9)
Ease of use (0-100) mean (SD)	66.6 (29.2)	74.5 (11.8)	-7.9 (-21.8 to 3.5)

Table 6: Change in patient reported outcome measures.

		Baseline	Follow-up	Mean difference (95% CI)
PAM				
PAM score (0-100)	Health Coaching	47.2 (7.0)	57.1 (9.4)	9.9 (5.4 to 14.9)
	Active Wait website	51.0 (2.4)	53.7 (6.4)	2.7 (-0.1 to 6.6)
EQ-5D-5L				
Mobility (1 – 5)	Health Coaching	2.4 (0.9)	3.2 (1.1)	0.8 (0.6 to 1.5)
	Active Wait website	2.8 (0.6)	3.4 (0.9)	0.6 (0.1 to 0.8)
Self-care (1 – 5)	Health Coaching	1.4 (1.0)	2.2 (0.8)	0.8 (0.3 to 1.2)
	Active Wait website	1.6 (0.8)	2.3 (0.9)	0.7 (0.2 to 1.1)
Usual activities (1 – 5)	Health Coaching	2.6 (1.1)	3.1 (0.9)	0.5 (0.2 to 1.1)
	Active Wait website	2.6 (0.7)	3.6 (1.0)	1 (-0.6 to 1.4)
Pain/discomfort (1 – 5)	Health Coaching	2.6 (0.9)	3.4 (1.2)	0.8 (0.2 to 1.3)
	Active Wait website	2.9 (0.6)	3.7 (0.9)	0.8 (0.4 to 1.1)
Anxiety/depression (1 - 5)	Health Coaching	2.0 (1.2)	2.3 (1.1)	0.3 (-0.3 to 0.7)
	Active Wait website	1.8 (1.1)	2.5 (1.1)	0.7 (0.2 to 1.1)

Overall health (0 – 100)	Health Coaching	46.5 (22.2)	53.8 (11.8)	7.3 (-3.6 to 17.8)
	Active Wait website	49.2 (23.5)	48.2 (17.4)	-1 (-14.9 to 12.1)

IPAQ-SF

Activity level (MET·min ⁻¹)	Health Coaching	668 (1087)	1717 (1345)	1049 (346 to 1665)
	Active Wait website	1440 (2518)	1476 (1978)	36 (-786 to 1265)
Sitting (hr)	Health Coaching	7.3 (4.5)	6.5 (2.4)	-0.8 (-3.2 to 1)
	Active Wait website	8.0 (3.0)	7.0 (2.8)	-1 (-2.7 to 0.7)

Numerical Rating Scales (0 – 100)

Overall hip/knee pain	Health Coaching	66.9 (25.6)	64.9 (26.2)	-2 (-9.5 to 13.8)
	Active Wait website	78.2 (14.5)	76.3 (20.1)	-1.9 (-8.4 to 3.6)
Worst hip/knee pain	Health Coaching	78.1 (20.3)	77.8 (22.1)	-0.3 (-0.9 to 1.3)
	Active Wait website	82.5 (15.6)	82.7 (13.9)	0.2 (-4.4 to 4.6)
Sleep quality	Health Coaching	57.7 (27.9)	63.5 (19.6)	5.8 (-3.9 to 16.4)
	Active Wait website	69.8 (25.3)	72.2 (17.3)	2.4 (-7.7 to 14.4)
Fatigue	Health Coaching	67.3 (25.2)	63.7 (17.9)	-3.6 (-9.8 to 7.7)
	Active Wait website	74.1 (22.1)	73.0 (14.6)	-1.1 (-11.9 to 8.5)

Oxford score

Score (0 – 48)	Health Coaching	17.6 (8.7)	18.6 (8.2)	1 (-1.8 to 4.3)
	Active Wait website	13.4 (6.9)	15.2 (6.3)	1.8 (-0.9 to 3.9)
Pain (0 – 100)	Health Coaching	32.2 (16.7)	37.0 (19.2)	4.8 (-6.9 to 12.0)
	Active Wait website	23.8 (16.7)	28.7 (14.5)	4.9 (-1.4 to 10.5)
Function (0 – 100)	Health Coaching	41.4 (21.0)	41.2 (18.2)	-0.2 (-0.4 to 1.6)
	Active Wait website	32.6 (14.1)	34.9 (12.7)	2.3 (-4.6 to 7.6)

Figure 1: CONSORT diagram.