"You can't walk with cramp!" A qualitative exploration of individuals' beliefs and experiences of walking as treatment for intermittent claudication

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Abstract

Walking is an effective but underused treatment for intermittent claudication (IC). This qualitative study explored people's experiences of and beliefs about their illness and walking with IC. Using Framework methodology, semi-structured in-depth interviews included 19 individuals with IC, and were couched within the Theory of Planned Behaviour and Common Sense Model of illness representations. Walking was overlooked as a self-management opportunity, regardless of perceptions of IC as severe or benign. Participants desired tailored advice, including purposeful and vigorous exercise, and the potential outcome of walking. Uncertainties about their illness and treatment may explain low walking participation among people with IC.

Keywords: intermittent claudication, peripheral arterial disease, walking, Theory of Planned Behaviour, Common Sense Model, qualitative research

List of abbreviations

CSM, Common Sense Model; IC, intermittent claudication; PAD, peripheral arterial disease; TPB, Theory of Planned Behaviour.

BACKGROUND

Intermittent claudication (IC) is an exertional leg pain caused by peripheral arterial disease (PAD) that reduces walking and quality of life, and increases cardiovascular risk (Regensteiner et al., 2008; Garg et al., 2006).

In people with IC, walking exercise improves pain-free walking distances by endothelial and skeletal muscle adaptations, and the development of collateral blood vessels (Gardner et al., 2001; Yang et al., 2008). International guidelines established by the Trans-Atlantic Inter-Society Consensus Working Group recommend walking on ≥3 days/week for ≥30 minutes, at an intensity that induces IC within 3–5 minutes, and walking through pain until it reaches a moderate intensity (Norgren et al., 2007). Supervised centre-based programmes are optimal, but due to lack of resources patients are frequently advised by healthcare professionals to engage in self-directed walking (Bartelink et al., 2004). However, initial engagement and adherence to walking advice is low, with just over one-half of individuals reporting some walking, but most not achieving walking guidelines (Bartelink et al., 2004), contributing to increased disability, and cardiovascular morbidity and mortality (Garg et al., 2006; Garg et al., 2009).

Barriers to walking in people with IC include graded surfaces, ambiguity about the meaning of pain, the need to take rest breaks, and comorbidities (Galea. et al., 2008). However, these factors do not completely explain low walking participation, and psychosocial factors, in particular treatment and illness beliefs, may contribute to increased self-management, including walking (French et al., 2013). The Theory of Planned Behaviour (TPB) (Ajzen, 1991) defines treatment beliefs as attitudes (i.e., positive or negative evaluations of prescribed walking), subjective norms (i.e., perceptions of the evaluations of important referents for engaging in the prescribed walking), and perceived behavioural control (i.e., perceived ease or difficulty of performing the prescribed walking). TPB variables predict 67% of variance in walking intentions in people with IC managed conservatively; however, the relationship between intentions and behaviour is unclear, suggesting that the model is

insufficient to explain walking (Galea and Bray, 2007; Galea and Bray, 2006). TPB variables are underpinned by individual beliefs, expectations and values which could be elicited from narrative accounts to provide a deeper understanding of the role of treatment beliefs on walking in people with IC.

Patient beliefs about their illness may also determine whether they adhere to walking advice. The Common Sense Model of Illness Representations (CSM) (Leventhal et al., 1984) proposes that individuals try to rationalise their diagnosis and symptoms, and engage in coping behaviours (e.g. pain avoidance, exercise, and emotional responses) that are consistent with their understanding of the illness. Coping behaviours are determined by underlying beliefs, or representations, about the illness timeline (i.e., perceptions of the illness as acute or chronic, and cyclical), consequences (i.e., extent to which the illness is perceived as serious), controllability (i.e., self-efficacy or treatment-efficacy to control or cure the illness), and coherence (i.e., perceived understanding and plausibility of the illness representation).

Qualitative research suggests illness beliefs are salient among people with IC who have undergone revascularisation (Cunningham et al., 2014). However, as ≤5% of individuals with IC are revascularised (Burns et al., 2003), exploration of a wider population of people with IC and a range of disease durations is warranted. This could provide a more comprehensive understanding of walking, and may identify additional variables which might be salient to individuals with IC.

Framework analysis (Gale et al., 2013; Ritchie and Spencer, 1994) is a qualitative method that marries an inductive, generative understanding of a phenomenon (such as walking behaviour) with a deductive approach that acknowledges existing theory. The CSM and TPB provide viable but incomplete models of walking behaviour in people with IC, and a deeper understanding could be gained through individual narrative accounts that are framed within but not confined to these models. Therefore, this qualitative study explores illness and treatment beliefs, and experiences of

walking among people with IC to help understand and explain walking and to inform the development of acceptable interventions to facilitate self-management of IC.

METHODS

Study design and research governance

This qualitative study, using semi-structured, in-depth, individual face-to-face interviews was approved by the National Research Ethics Service Committee London (reference 11/LO/0871) and by the Department of Research and Development, Guy's & St Thomas' NHS Foundation Trust.

Inclusion and exclusion criteria

Participants aged ≥18 years and diagnosed with PAD and IC (based on results of angiography, computed tomography or MRI scans) were included. Exclusion criteria comprised revascularisation scheduled within 3 months, another condition reported as the primary limitation of walking (e.g., knee of back pain), another condition for which it is unadvisable to increase walking (e.g., unstable angina), and inability (e.g., cognitive impairment, lack of proficiency in English) or refusal to provide informed consent.

Sampling and recruitment

Participants were identified from vascular outpatient clinics between 1 September 2011 and 31 May 2014. A semi-purposive sample of participants was recruited to reflect a range of age, gender, and duration of symptoms (i.e., ≤2 years or >2 years). The initial sample size was 12, and the stopping criterion was defined as no new information obtained from three consecutive interviews (Francis et al., 2009). Data saturation was established by consensus agreement among two investigators.

Participant characteristics and walking behaviour

Demographic and clinical characteristics. Demographic characteristics (age, sex, ethnicity, smoking status, comorbidities, duration of symptoms, and other mobility-limiting conditions) were assessed by self-report. Data on previous revascularisation was obtained from medical records.

Self-report walking behaviour. The walking subscale of the Physical Activity Scale for the Elderly (PASE), a valid and reliable measure (Washburn et al., 1993; Dinger et al., 2004), was used to assess walking behaviour. Participants reported their average walking frequency (0 days=never, 1–2 days=seldom, 3–4 days=sometimes, or 5–7 days=often) and duration (less than 1 hour, 1 but less than 2 hours, 2–4 hours, or more than 4 hours) over the past 7 days.

Procedure

A 75 minute appointment was arranged either at the participant's home or at King's College London (London, UK), depending on participant preference.

Following informed consent, participants completed the PASE questionnaire and interviews were conducted by a researcher trained in qualitative methods. Interviews were audio-recorded and followed a topic guide developed *a priori* (Supplementary Table 1), which was refined iteratively following each patient interview. Framework methodology, which permits exploration of *a priori* themes based upon an existing conceptual or theoretical model (Ritchie and Spencer, 1994; Gale et al., 2013), was used to consolidate the salience of constructs defined by the CSM and TPB, while allowing for new explanatory themes to emerge from the data. Probing questions explored key topics and new issues until data saturation was reached.

Analyses

Audio-recorded interviews were transcribed verbatim by one researcher and analysed using NVivo 9 (QSR International Ltd, Southport, UK). Accuracy of transcripts was checked against the original tapes.

Key stages of Framework methodology (Ritchie and Spencer, 1994; Pope et al., 2000; Gale et al., 2013) were applied, including familiarisation, identifying a thematic framework, indexing, charting, mapping and interpretation. Familiarisation took place during transcription, reading and review of transcripts. Recurrent themes, including those that fit within *a priori* topics (i.e., illness and treatment beliefs) and emergent topics raised by participants (i.e. pain beliefs) were recorded and incorporated to the thematic framework, which is a hierarchical index of themes and subthemes used to code data. Results were charted in a case-by-category grid used to summarise, view and analyse the data. Descriptive and explanatory patterns were identified and informed the development of superordinate and subthemes.

Data was member-checked with a sample of participants to support the resonance of data, and reflexive diaries were maintained. Transcripts were read by two researchers for familiarisation, then results of the initial indexing, charting and mapping were reviewed and discussed in order to reach a consensus. A third researcher was available to resolve disagreements. Interpretation was considered until agreement was reached that the final themes accurately and meaningfully reflected the interview data.

RESULTS

Demographic and clinical data

Nineteen participants (*n*=6 women; mean age 66 years, range 44–79) were included. The stopping criterion was not met by the initial target sample of 12, and a further 7 participants were recruited prior to data saturation, which was established by consensus among two investigators. As the initial 12 participants identified themselves as White, ethnic minorities were purposively sampled among the 7 latter participants. Sampling reflected the higher prevalence of IC among men (Diehm et al., 2004), and achieved equal representation of recent (<2 years; *n*=9) and longstanding (≥2 years;

n=10) IC. Five (26%) participants had previous revascularisation, 8 (42%) had attended a supervised-centre-based exercise programme, and 16 (84%) reported walking on ≥3 days/week (Table 1).

Descriptive and explanatory themes

Two superordinate themes were identified: 1. Walking is an overlooked self-management opportunity and 2. Tailored walking guidance is desired. Five subthemes further illustrate these findings: 1.1. IC is benign and leg pain can be overcome; 1.2 IC is severe and there is nothing I can do; 2.1 Varied outcome expectations of walking; 2.2 Barriers to walking to intensity; and 2.3 Limited purposeful walking for exercise (Supplementary Table 2).

1. Walking is an overlooked self-management opportunity

Most participants had discussed the role of walking with a healthcare professional but did not consider it a first-line treatment strategy for IC, or did not regard walking as a treatment for IC at all:

> "*There's no treatment. I'm getting no treatment, not for this. I'm getting advice, and the advice is 'try to walk through it'. That's the only advice I've ever had.*" (007A, male, 69 years)

Other participants believed that walking could slow the progression of their symptoms, or delay or replace higher-risk interventions, such as revascularisation:

> "*I'm hoping that I can stave off this operation because, from what I've heard, I don't really want that. And hopefully I can improve my lifestyle by strengthening these vessels up and feeding my calf muscle more. I mean, I don't know whether that's possible.*" (001A, male, 67 years)

Individuals who had undergone revascularisation, but still experienced IC, anticipated another bypass or angioplasty to alleviate their symptoms, not recognising walking as a treatment option.

One participant, who was prepared to undergo a second revascularisation, was surprised when told instead to try walking:

> "*They told me, 'We're sending you home. We're going to ask you to walk through the pain of claudication in your left calf'. I said, 'You're joking! You can't walk with cramp!' I was quite willing for them to do the operation …and if they had done that straight away, I would have gone along with it.*"
>
> (005A, male, 62 years)

The overlooked role of walking for IC is explained by two subthemes, which illustrate how treatment beliefs were framed around the perceived consequences of IC: 1.1 IC is benign and leg pain can be overcome; and 1.2 IC is severe and there is nothing I can do.

1.1 IC is benign and leg pain can be overcome

Most participants viewed their IC as benign and as having minimal impact on their day- to-day lives, and frequently did not recognise a need for walking or the potential for walking to improve their function.

Among these individuals, pain was not viewed as harmful, and IC was described as "a nuisance" (128B, female, 78 years) and something that "you just get on with" (001A, male, 67 years), or as an "inconvenience" (007A, male, 69 years). Leg pain was considered an isolated minor symptom:

> "*Ninety percent of the time I don't even think of it because I'm not doing something that makes it hurt.*" (010A, male, 64 years)

Despite the belief that IC was benign, some participants linked their condition with systemic comorbidities, and considered walking and other exercise as potentially useful for maintaining their general health. However, these beliefs were not consistently reflected in descriptions of walking behaviour. One individual expressed concern about systemic atherosclerosis, which hampered her walking efforts:

> "*I'm not thinking that my legs are going to cause me to collapse. I'm thinking, 'because I have blockages in my legs, have I got blockages elsewhere, which could cause me to collapse?'*" (002A, female, 79 years).

1.2 IC is severe and there is nothing I can do

Some participants viewed IC as serious and described a considerable impact on their lifestyle and work, and most did not describe regular walking or consider it a self-management strategy. They expressed strong negative emotions, such as anger, frustration, humiliation and embarrassment, stress, fear, apathy, depression and loneliness:

> "*I just get so frustrated, I cancelled plans. I was going to Germany to look at castles… I was going to go down the Rhine. But where's the castle? Oh, it's on top of the hill. And that means walking up hill, and that's a no-no.*"
> (003A, male, 52 years)

Functional limitations influenced participants' sense of identity. For example, some participants felt old because they linked walking impairment with ageing. Participants dissociated from the term "disease" and did not like to be perceived as "old" or "disabled" by their IC:

> "*If I was to say 'something disease', [my family] would think it is something serious, so I just don't say nothing at all. I think they would start treating me as an old person, and I don't want to be treated as an old person.*"
> (012A, female, 68 years)

Participants who felt disabled by IC also described a lack of control over their condition and helplessness. They failed to recognise walking as a self-management opportunity, yet expressed concern about the possibility of a life- or limb-threatening treatment. Participants coped with IC by adapting their activities or planning ahead to minimise symptoms (e.g., choosing sedentary activities or hobbies).

One participant (005A, male, 62 years), with longstanding IC, described extensive coping strategies, including stress-avoidance, relaxation, following familiar walking routes, and goal setting. He was the only participant who reported a high impact of IC on his life, and described engaging in regular walking.

2. Tailored walking guidance is desired

All participants described engaging in walking; however, most were unaware of specific walking guidelines for IC (Norgren et al., 2007), regardless of the duration of their IC. The lack of guidance meant participants were uncertain about the appropriate walking dosage (both duration and intensity), and were worried about doing enough, as well as the possibility of "overdoing it" (005A, male, 62 years).

This conflict was partially alleviated in participants who had completed a supervised centre-based exercise programme, which provided structure and reassurance that they were exercising safely and effectively. In addition, these participants increased their understanding of IC, enabling them to cope with and manage their condition:

> *"I'm not mystified any more, about what can happen and all that, and I've*
>
> *come to accept that and I'm very grateful. The understanding of why I have*
>
> *peripheral [arterial] disease, what causes it – it means that when it comes*
>
> *on, I'm not confused or baffled or muddled."* (025B, male, 73 years)

However, attending a supervised centre-based exercise programme did not facilitate independent walking, and participants described barriers such as comorbidities, leg pain, lack of motivation and time. Overall, participants wanted definitive tailored guidance and support to achieve the walking recommendations.

> *"If there was an exercise programme that could help people like me, I think*
>
> *that would be fantastic. Even if it were only one we had to do on our own at*

home, but knowing we were doing the right things at the right time at the

right pace and frequency, I think would be extremely motivational." (008A,

female, 44 years)

This is further explained by three subthemes, which describe the consequences of a lack of tailored

walking guidance: 2.1 Varied outcome expectations of walking; 2.2 Barriers to walking to intensity;

and 2.3 Limited purposeful walking for exercise.

2.1 Varied outcome expectations of walking

A lack of clear instructions meant participants held mixed beliefs about the possible outcomes of

walking for IC. Those who recognised the potential for walking to improve or stabilise their condition

did not necessarily report engaging in the recommended walking.

Some participants understood that walking was superior to other forms of exercise for IC, believing

that walking would "open vessels", whereas gardening "burns calories" (128B, female, 78 years). In

some instances, there was a sense that walking was helpful, despite confusion about the cause of IC:

> *"I think being on my feet is a help, because I think the more I walk the*
>
> *blood's flowing... I don't understand the pain, but maybe it's not flowing as*
>
> *it should as when I'm walking. I don't know."* (012A, female, 68 years)

Other participants believed walking was good for their general health, and was not harmful but were

sceptical about walking to improve their IC:

> *"I think walking helps generally, actually. Whether it could specifically help*
>
> *my condition now, I don't know. But I think that if you can walk and the*
>
> *more you walk you're better all around*." (002A, female, 79 years).

Some individuals had attempted walking but either found no improvement or were perplexed by the notion that walking would get easier despite the pain, suggesting that advice to walk was counterintuitive:

> "*Well, the more I walk, the more pain I get. It doesn't get any easier by walking. What you're implying is that if I walk more, then my condition will ease. It won't. I've proved this out.*" (007A, male, 69 years)

2.2 Barriers to walking to intensity

A lack of tailored guidance, and specifically instructions on 'walking through pain', led to uncertainty about the appropriate walking intensity. Most individuals believed they ought to 'walk through pain', but were uncertain what this meant. The notion of 'walking through pain' was often inconceivable, and attempts at walking had produced discouraging, or perplexing, results:

> "*Everyone seems to be keen on the medical side of telling you to walk through it, and I thought, 'Why'? And it only ever works very rarely. Occasionally, you go for a fairly long walk, you just keep going through the agony, and then it does ease off… Is that it?*" (007A, male, 69 years).

Few participants conveyed the importance of exercise intensity, or an understanding of how to modify or monitor their walking intensity in order to improve their IC and cardiovascular health. One individual who had longstanding IC had considered but not attempted to increase his walking intensity:

> "*I have got to learn to pace myself, do a bit more pace work, as opposed to just strolling around.*" (001A, male, 67 years)

Others who considered walking to intensity described IC as a key factor hampering their attempts:

"When you exercise, you feel as if your heart rate should go a bit, and you

kind of feel almost that refreshed feeling, that exhilarated. I never get that.

I just meander along with the pain beginning and getting worse and worse

until I have to stop." (008A, female, 44 years)

2.3 Limited purposeful walking for exercise

A lack of tailored walking guidance, including the potential outcomes of walking and appropriate

walking intensity, meant that participants did not embark on purposeful walking for exercise.

Participants instead engaged in incidental walking, often incorporated into daily errands or tasks:

"I wouldn't choose walking as a form of just simple exercise. I would rarely,

maybe occasionally, I would go out for a walk... it's either shopping, going

to see somebody, in a form of transport getting somewhere." (008A,

female, 44 years)

Some participants held a "more is better" attitude toward walking, encompassing the notion that

the body was a "machine" that needed movement to "avoid seizing up" (128B, female, 78 years).

Consequently, individuals who engaged in purposeful walking were uncertain of how much was

enough:

"I'm doing an hour's walk. I used to do 2 hours, but I'm doing that and I feel

that, like, I'm pushing it each day... If a doctor says to me, you know, 'look,

you should do 2 hours, 3 hours a day,' I would do it. But I don't know you

see." (005A, male, 62 years)

Most individuals preferred incorporating walking to their daily lives. Five participants (001A, 093B,

005A, 010A and 011A) who described purposeful walking understood that walking could improve

circulation, and viewed walking as a means of symptom management. Some individuals were

inclined to try purposeful walking, and recognised barriers to doing so. One individual drew on planning and social support as potential strategies when attempting purposeful walking:

> *"I've got to try and get myself organised so that I go out on my own or with the wife, and so we say, 'Alright, we're going to have an hour's walk.'"*
>
> *(001A, male, 67 years)*

DISCUSSION

This study identified two superordinate themes that explain walking beliefs and behaviour among people with IC. First, walking is overlooked as a self-management opportunity. Two subthemes suggest that self-management strategies are framed around perceived consequences of IC as relatively benign or severe, but not resolved through walking. Second, people with IC express a desire for tailored walking guidance. Three subthemes demonstrated guidance including purposeful and vigorous exercise, and the potential outcome of walking could facilitate walking. Themes supported or elaborated key constructs of the CSM (e.g., consequences, coherence, personal control) and TPB (e.g., attitudes, perceived behavioural control), and identified novel explanations (e.g., walking is not perceived as treatment, preference or tendency for incidental walking, impact of IC on self-identity), which provide a broader understanding of walking among individuals with IC.

Walking is a first-line strategy for treating stable IC (Norgren et al., 2007). However, our participants did not consider walking as a treatment, focussing on the perceived consequences of IC and the likelihood and risk of revascularisation, and adhering to a medical model of treatment. A sense of personal control and the belief that treatment will be effective are key illness cognitions proposed by the CSM, and important factors determining effective coping and health outcomes (Leventhal et al., 1980; Leventhal et al., 1984). Healthcare professionals could support an understanding among individuals with IC of the realistic outcomes of their condition and the wider treatment options available, including walking.

Participants held generally positive beliefs about walking despite uncertainties that it would be beneficial, contrary to post-operative patients with IC (Cunningham et al., 2014). Our sample, which better represents the wider PAD population than previous studies, reported varied levels of walking that were incongruous with beliefs. This is consistent with the TPB and behaviour-change literature which describes an 'intention-behaviour gap' (Orbell and Sheeran, 1998), where individuals fail to enact motivational plans to perform a behaviour. Findings suggest that motivational beliefs, including attitudes about walking and outcome expectations (i.e., beliefs about the consequences of engaging in walking exercise) are salient. In particular, the potential for walking to improve symptoms is predominantly underestimated by people with IC, even those with long-standing disease. Individually tailored interventions that engender positive and accurate beliefs, for example, by providing information on the link between walking and IC (Michie et al., 2011), could increase patient understanding.

Participants described incidental walking prompted by daily activities or errands. While daily activity is associated with better function among people with IC (McDermott et al., 2002), improvement in the pain-free walking distance requires consistent, progressive challenges to the vascular system (Yang et al., 2008). However, participants reported barriers to exercise intensity, and were uncertain about advice to 'walk through pain'. Participants might prefer incorporating walking to their daily lives, and current guidelines, which are based on supervised centre-based programmes, might not translate easily or realistically to home-based walking. Few interventions targeting walking for people with IC incorporate psychological behaviour-change techniques (Galea et al., 2013), which could be easily implemented and tailored to individual lifestyle when prescribing walking. For example, assisting individuals to identify potential barriers to walking and strategies to overcome these barriers, facilitating self-monitoring and providing feedback on progress toward goals are simple strategies that have been effective in improving walking in patients with IC (Galea et al., 2013).

This study has several strengths. It is the first study to explore illness and treatment beliefs and the experience of walking in people with a range of disease durations. Participant experiences of walking as a treatment were explicitly elicited to broaden our understanding of the links between illness and treatment. Framework methodology (Ritchie and Spencer, 1994; Pope et al., 2000) provided a robust qualitative approach, which permitted an *a priori* theoretical underpinning and exploration of cognitions defined within the CSM and TPB, supporting the interpretation of data by acknowledging existing theory (Chamberlain, 2000). Resonance of the data was checked by researcher validation and member-checks with participants, and reflexive diaries following interviews were maintained.

Whilst we recruited participants reflecting a range of disease durations, it is possible that people newly diagnosed with IC, and those not yet referred to a vascular specialist may express different beliefs about their illness and treatment, which we did not capture, and therefore findings may not be transferrable to the wider population of community dwelling individual with IC. Similar to other studies, the majority of our participants identified themselves as White, despite our explicit attempts to recruit people from ethnic minorities. Recruiting people from diverse ethnic backgrounds is challenging (Hoel et al.), and is important given that Black ethnicity is a strong and independent risk factor for PAD (Criqui et al., 2005). Exploring the beliefs of individuals from different cultural backgrounds could enrich our understanding of the experience of IC in these populations and help tailor treatment appropriately. The PASE was used to describe participants' walking behaviour; however, a self-report or objective measure that is validated among middle-aged adults and those with IC may have provided more accurate data.

CONCLUSIONS

Individuals with IC report cognitive and experiential challenges to adopting walking as a self-management strategy and, as a result, guidelines shown to improve walking ability are often not achieved. Addressing incoherent illness and treatment beliefs, outcome expectations and providing

clearer instruction, alongside support throughout the behaviour-change process, could enable individuals with IC to adopt a regimen of walking.

Acknowledgements

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Table 1. Demographic and clinical characteristics

Variable	n (%), unless otherwise indicated
Total number of participants	19
Mean age, years	66 ±8.9*
Male sex	13 (68)
Married	11 (58)
Ethnicity	
White	17 (90)
Mixed/other	2 (10)
Smoking status	
Current smoker	7 (37)
Previous smoker	8 (42)
Non-smoker	4 (21)
Comorbidities	
Type II diabetes mellitus	6 (32)
Cardiovascular disease	12 (63)
Renal disease	2 (11)
Heart attack	3 (16)
Stroke	2 (11)
Duration of symptoms >2 years	10 (53)
Past revascularisation	5 (26)
Past supervised centre-based exercise therapy	8 (42)
Walking frequency†‡	
Never	0 (0)
Seldom (1-2 days)	1 (5)
Sometimes (3-4 days)	7 (37)
Often (5-7 days)	9 (47)
Walking duration†	
<1 h	10 (53)
1-2 h	5 (26)
2-4 h	2 (11)
>4 h	2 (11)

*mean ±SD. †Based on the walking subscale of the Physical Activity Scale for the Elderly [18]. ‡Data

missing for 2 participants.

Supplementary Table 1. Topic guide exploring illness and treatment experiences and beliefs among people with intermittent claudication

Introduction	Nature of project, confidentiality, duration of interview, any questions.
Opening question	How did you realise you had PAD? What has your experience been since your diagnosis?
Illness beliefs	Can you tell me about PAD?
	Can you describe your condition? • Complications? Symptoms?
	What is it like having PAD? • How do you feel having PAD
	Is there anything you do to cope?
	Is there anything that you can do about your PAD?
	Does your condition change over time?
	What caused your PAD?
Treatment beliefs	What can be done for your condition?
	Do you know very much about walking exercise?
	Could walking affect your PAD? How? Have you tried walking or currently walk? What is it like?
	What do you think about walking as a way of treating PAD?
	Do other people feel you should be walking? Are their opinions important to you? Do you know anyone else with PAD?
	How do you feel about starting/continuing walking? • Barriers? Facilitators?
Pain beliefs	Tell me about your symptoms. How do your symptoms affect you? How do you address the pain? What do you think it means?
Closing remarks	Any additional comments?

PAD, peripheral arterial disease.

Supplementary Table 2. Explanatory themes and subthemes emerging from qualitative interviews exploring illness and treatment experiences and beliefs among 19 participants with intermittent claudication

Theme/subtheme	Summary
1. Walking is an overlooked self-management opportunity	Walking is not understood as treatment, or as a first-line management option. A medical model is the predominant approach to illness.
1.1 IC is benign and leg pain can be overcome	IC is an isolated, harmless symptom, not warranting surgery, and leading to varied beliefs about the necessity of walking treatment.
1.2 IC is severe and there is nothing I can do	A high impact of IC on lifestyle and work, leading to hopelessness, lack of control, and attempted coping strategies, although walking is overlooked.
2. Tailored walking guidance is desired	Lack of awareness of international walking guidelines, leading to concern regarding necessary and appropriate self-management.
2.1 Varied outcome expectations of walking	Uncertainty of realistic consequences of regular walking exercise, or mechanisms of benefits
2.2 Barriers to walking to intensity	Uncertainty about walking through pain, inability to feel exhilarated by symptom-limited walking exercise.
2.3 Limited purposeful walking for exercise	Descriptions of incidental bouts of walking incorporated into daily life and activities, and not deliberately for achieving exercise.

IC, intermittent claudication.