Pre-exercise screening and health coaching in CHD secondary prevention: a qualitative study of the patient experience

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Abstract

Secondary prevention programmes can be effective in reducing morbidity and mortality from coronary heart disease (CHD). In particular, UK guidelines, including those from the Department of Health, emphasize physical activity. However, the effects of secondary prevention programmes with an exercise component are moderate and uptake is highly variable. In order to explore patients’ experiences of a pre-exercise screening and health coaching programme (involving one-to-one consultations to support exercise behaviour change), semi-structured telephone interviews were undertaken with 84 CHD patients recruited from primary care. The interviews focused on patients’ experiences of the intervention including referral and any recommendations for improvement. A thematic analysis of transcribed interviews showed that the majority of patients were positive about referral. However, patients also identified a number of barriers to attending and completing the programme, including a belief they were sufficiently active already, the existence of other health problems, feeling unsupported in community-based exercise classes and competing demands. Our findings highlight important issues around the choice of an appropriate point of intervention for programmes of this kind as well as the importance of appropriate patient selection, suggesting that the effectiveness of health coaching may be under-reported as a result of including patients who are not yet ready to change their behaviours.

Introduction

Coronary heart disease (CHD) is one of the most commonly reported longstanding conditions in developed countries and a common cause of premature death [1, 2]. In the United Kingdom, as in many industrialized countries, health care providers (such as the National Health Service [NHS]) are tackling the burden of CHD through a mixture of primary and secondary prevention programmes.

For those with CHD, these programmes typically combine a number of elements, including pharmaceutical interventions, education and counselling around coronary risk factors and provision of advice on behavioural factors (such as nutrition, weight management, smoking cessation and levels of physical activity [3]). In particular, national guidelines emphasize the importance of physical activity. For example, the Department of Health’s National Service Framework for Coronary Heart Disease [4] states that people with diagnosed...
CHD should receive advice around increasing present levels of physical activity, and current guidelines from the National Institute for Health and Clinical Excellence (NICE) and the Scottish Intercollegiate Guidelines Network (SIGN) state that patients with CHD should undertake regular moderate physical activity [5, 6].

A number of studies suggest that overall, secondary prevention programmes are effective in reducing morbidity and mortality from CHD [2, 3, 7–9] and potentially cost-effective in terms of the cost per life years saved in patients with established CHD [10]. However, the effects of programmes with an exercise component are moderate [11] and the uptake of programmes by individual patients is highly variable. For example, a review of exercise referral schemes notes that a third of patients do not attend the first appointment [12]. In addition, few patients achieve the long-term behaviour change necessary to realize the cardio-protective benefits [13, 14], with completion rates for exercise referral schemes ranging between 12 and 42% [12], p. 983. In general, the factors that determine sustained lifestyle change are not well understood [9, 15] and there is a lack of research exploring patients’ perceptions of lifestyle interventions. Although how individuals appraise their health risk, their beliefs about the risks associated with health behaviours and their confidence in their ability to effect behaviour change have all been identified as potentially important factors [16–18].

This paper presents patients’ attitudes towards, and experiences of, a lifestyle intervention (specifically around exercise behaviour) in patients with chronic stable CHD managed within the primary care setting (e.g. receiving treatment from a General Practitioner [GP]). Few studies have focused on this group of patients, who may be less receptive to lifestyle change than those recently hospitalized following an acute cardiac event. The aim of this study was to determine which elements of the programme work for these patients in terms of encouraging participation and adherence and which elements require adjustment. To achieve this aim, we undertook qualitative research in the form of semi-structured telephone interviews. Importantly, this study sought the views of all patients, irrespective of whether or not they attended or completed the programme. This enabled us to explore with these patients the main areas of concern identified both by the recent review of exercise referral schemes cited above [12] and within the wider literature [19, 20]; namely, uptake, adherence, refusal and drop out.

In the next section, we provide a description of the secondary prevention programme, along-with a description of the methods and participants of the qualitative study reported here. This is followed by a presentation, and subsequent discussion, of the results of our qualitative study, which is part of a wider national demonstration project, Have a Heart Paisley [21].

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**Materials and methods**

**Intervention**

The Have a Heart Paisley (HaHP) demonstration project aimed to improve the cardiovascular health of the population through an integrated programme of primary and secondary prevention [21] (see [22, 23], for details). HaHP was located in the town of Paisley in the West of Scotland (population 85,000). Paisley is a predominantly urban community, experiencing relatively high levels of deprivation with 8 of the town’s postcode areas having deprivation levels higher than the Scottish average and the most deprived postcode being the 10th most deprived postcode in the whole of Scotland [23].

The secondary prevention arm of HaHP targeted patients with CHD whose condition was stable enough to be managed in the primary care setting and who had expressed a readiness to become more physically active. The programme was informed by current clinical guidelines from NICE, which suggest that increased physical activity may be enhanced by ‘tailored advice from a suitably qualified professional’ [6], p. 9 and by the Department of Health’s recommendations that both ‘some form of pre-exercise assessment is essential’ [24], p. 20 and that evidence-based communication strategies are incorporated into exercise-based rehabilitation [24].
As such, the programme comprised a pre-exercise screening service (PESS), health coaching and either exercise referral or cardiac rehabilitation as appropriate (see below for more details). Within the literature, health coaching has been defined as ‘the practice of health education and health promotion within a coaching context, to enhance the well-being of individuals and to facilitate the achievement of their health-related goals’ [25], p. 92. A number of published interventions report the impact of incorporating a counselling/coaching component within an exercise programme, referred to variously as motivational intervening [26], self-determination theory-informed interviews [27] and goal-setting [28]. Within this programme, a client-centred counselling style approach was employed to provide one-to-one support and individualized guidance with the aim of generating long-term lifestyle change [29].

Identifying eligible patients

Patients of any age were deemed potentially eligible if, despite having one or more of the following diagnoses, their condition was stable enough to be managed in a primary care setting: angina, myocardial infarction (MI), CHD, a history of coronary artery bypass graft or percutaneous coronary intervention (PCI) [21]. Patients that were unable to walk unaided on a treadmill or who had unstable angina, uncontrolled hypertension (defined as blood pressure exceeding 200/110 mmHg), valvular heart disease (excluding patients that had undergone valvular replacement surgery) or chronic heart failure were not eligible for the programme. From the pool of potentially eligible patients, individuals were identified for the programme if they expressed an interest in becoming more physically active when prompted by their GP during their annual CHD review in primary care (carried out as part of the Quality and Outcomes Framework [30]). The GP assessed readiness to change exercise behaviour through a number of close-ended questions [22] to identify individuals who fell within the contemplation and preparation categories of the transtheoretical (stages of change) model of behavioural change [31].

Pre-exercise screening service

Following identification and establishment of eligibility on health grounds by the GP, patients were referred to the cardiology outpatient department at the local hospital for a PESS, which comprised an exercise tolerance test (ETT). The ETT recorded a continuous electrocardiogram of the heart as the patient performed increasing levels of exercise on a treadmill. The ETT followed the Bruce protocol [32] and produced a report including the heart rate and blood pressure record as well as the number of METS (metabolic equivalents) and the risk level achieved. METS are measures of the energy required when undertaking activity and are commonly used in the context of aerobic exercise to gauge the intensity of the workout. The risk level is based on the total time achieved versus the age-predicted time or signs and symptoms exhibited during the test.

Following the ETT, the results were reviewed by a consultant cardiologist with patients stratified according to risk. High-risk patients (those achieving less than the predicted exercise time and less than five METS or with ST segment depression greater than 2 mm, angina, significant arrhythmia or symptomatic hypotension) were referred to hospital-based cardiac rehabilitation or for further investigation by the local cardiology team. Moderate- and low-risk patients were referred for a series of one-to-one exercise consultations with a health coach. Health coaches were provided with clinical information on each patient (e.g. cardiac history, PESS results and cardiologist recommendations), but consultations took place at a location outside the health service setting, typically in a leisure or community centre.

Health coaching

As noted above, health coaching is an established form of motivational interviewing, incorporating a client-centred approach to providing one-to-one support and individualized guidance for lifestyle change [29]. In this context, the programme involved three face-to-face consultations with a health coach (baseline, 3 and 12 months), each lasting
between 45 min and 1 hour. Completion of the programme was defined as attendance at two or more of these consultations. Where a need for additional support was expressed by the individual or identified by the health coach, additional contacts were arranged at the discretion of the health coach. The nature (face-to-face and/or telephone), timing and duration of these additional contacts varied on a case-to-case basis.

The health coaching consultations were based upon the trans-theoretical (stages of change) model as applied to exercise behaviour change [33]. The trans-theoretical model is a framework for attempting to understand behavioural change that has been commonly applied to physical activity [34]. In the framework, individuals progress in a cyclical manner between stages from pre-contemplation (in which they have not considered changing behaviour), through contemplation (where the individual considers changing behaviour), preparation (where the individual intends to change behaviour) and action (where the behaviour change starts to appear) to maintenance (where behaviour change is consistent) [33]. The aim of the framework is to understand the process of behaviour change and thus improve service. This model was chosen in preference to other models (such as the Health Belief Model) because it is the most comprehensive and because it is the only one designed specifically to facilitate behaviour change, although it should be noted that evidence on the effectiveness of all models is mixed [35], p. 12. Our sample comprised individuals within the contemplation and preparation categories. Each consultation with individuals was structured to enhance motivation and to help patients develop strategies to increase their physical activity and to overcome barriers. The format was similar to those previously identified [24] and was consistent with guidelines for conducting exercise consultations published in the literature [36].

The specific content of each consultation was determined by each patient’s individual needs and current motivational status but followed the same template. Each consultation started with an introduction and objectives, discussion of PESS results, assessment of readiness to change and moved onto goal-setting, relapse prevention and follow-up and support. At the close of each consultation, patients were given written goals to help them achieve their targets, based on American College of Sports Medicine guidelines for this population [37] and adapted according to the needs of the individual.

**Exercise programme**

For those identified by the PESS as at moderate risk, the exercise programme itself was community based (e.g. at a private or public gym or sports club) rather than hospital based and supervised by a British Association of Cardiac Rehabilitations (BACR) trained instructor. Those identified as at low risk were referred to community-based non-BACR supervised exercise or signposted to community-based unsupervised exercise (again, at private or public gyms or sports clubs). See Fig. 1.

**Research participants**

Between 1 June 2006 and 1 June 2007, 174 individuals were referred directly from primary care to the PESS following an annual CHD review. A minimum of 1 year after referral, we attempted to contact all those referred to invite them to participate in an evaluation of the combined PESS and health coaching programme. We successfully contacted 102 (59%) patients; 84 (82%) of whom recalled being referred to the programme and consented to being interviewed as part of the present study. Figure 2 outlines the flow of patients through this qualitative study. Of the 84 patients interviewed, 70 (83%) had attended the PESS. Following risk stratification, 25 (36%) of these patients had been referred on to cardiac rehabilitation and 45 (64%) to the health coaching programme. Of the 45 individuals that entered the health coaching programme, 34 (76%) completed (21 attending all three of the specified consultations and 13 attending two), with the remaining 11 (referred to throughout the manuscript as those that did not complete the programme) attending only the baseline health coaching consultation. There is no data available on any additional contacts with the health coach as these were arranged separately, were highly individualized and
Primary Care
- Patient with existing CHD managed in the primary care setting
- Attends annual CVD secondary prevention clinic
- Expresses desire to increase physical activity levels
- Stage of change assessed by staff in primary care
- Eligibility confirmed
- Referred to Pre-Exercise Screening Service (PESS)
- Completion of consent and lifestyle questionnaires

Pre-Exercise Screening (PESS)
- Patient attends out-patient cardiology department at local hospital
- Eligibility assessed and written informed consent provided
- Socio-demographic and disease-related information collected
- Patient undergoes Exercise Tolerance Test (ETT)
- Risk stratified for safety & eligibility by a consultant cardiologist

HIGH RISK
- Referred to cardiac rehabilitation
- Local cardiology services for further investigation

MODERATE TO LOW RISK
- Referred to one year health coaching programme including a minimum of 3 face-to-face appointments with a health coach and additional support as required

Fig. 1. Secondary prevention health coaching pathway.

not systematically recorded. All patients were interviewed \((n = 84)\), whether or not they attended PESS, and were referred to health coaching or completed the programme.

The majority of the patients referred to PESS and interviewed for this study had multiple cardiac diagnoses coded in primary care medical records; 46 had a diagnosis of angina, 39 MI, 46 other CHD and 22 had undergone PCI. The mean age of the patients interviewed was 69.9 (SD 10.4) years, and almost half \((n = 41\) or 48.8\%) were men. An unpaired two-sided \(t\)-test was used to compare the mean age of participants who did and did not participate in telephone interviews and chi-squared tests were used to examine for differences in sex, socio-economic deprivation, CHD diagnoses and completion of the intervention between the two groups. A conventional level of significance of \(P < 0.05\) was used throughout. The results indicated that there were no significant differences between those who participated in the telephone interviews and those who did not with respect to age \((P = 0.230)\), sex \((P = 0.163)\), socio-economic deprivation \((P = 0.401)\), CHD diagnoses (angina \(P = 1.000\); MI \(P = 1.000\); other CHD \(P = 1.000\); PCI \(P = 0.842\)) or whether they completed the intervention \((P = 0.093)\).

Data collection
To develop an understanding of patients’ experiences of the programme, semi-structured telephone interviews were undertaken. Although relatively
uncommon within qualitative research, a recent comparison of mode of qualitative interview [38] found no significant difference in data collected and concluded that telephone interviews can be used successfully, especially when potential participants may be difficult to access. In this context, it was felt that this more convenient and unobtrusive mode of interviewing might also alleviate some of the potential embarrassment around answering questions about non-attendance or non-completion. The interviews were undertaken using a checklist of topics to ensure that all issues of interest to the researchers were covered, while not restricting participants from raising any other issues of interest or concern. Questions included perceived risk of a cardiac event, factors participants believed might reduce risk, recollection of referral and their experiences of referral, PESS, health coaching and the exercise programme and perceived effects of the intervention and any recommendations for improvement. The interviews were carried out by three trained researchers not involved in HaHP (M.G., K.cC.,

*(denominator) = number of participants at each stage of the intervention

Fig. 2. The flow of patients through the evaluation.
A.G.). Each interview averaged 30 min and a minimum of three attempts were made to contact all eligible patients by telephone.

Analysis

The transcribed interviews were analysed by coding the participants’ talk into categories that summarized and systemized the content of the data [39]. In this instance, categories were derived from the data (rather than the prior theoretical framework of the analysts). Initially, two analysts, again not part of the research team (M.G. and R.S.), independently coded four transcripts. These analysts met to discuss and agree on the initial codes. These initial codes were then applied to the remaining transcripts; refined and sorted into potential themes. Identified themes were compared across the data and interpretations checked within the research team. A qualitative data indexing package (Atlas.ti) was used to facilitate coding and retrieval of the data. In the results section, quotations were chosen to illustrate particular points and are identified by an anonymous participant code.

Ethical approval

The study received ethical approval from NHS Argyll and Clyde Ethics Committee. At the beginning of the call, interviewers guaranteed participant confidentiality and sought informed consent from participants before proceeding with the interview.

Results

Our study included men and women with a range of CHD diagnoses. There were no differences between the baseline characteristics of the research participants and the population of patients referred to the programme. We interviewed patients with existing stable CHD rather than those recovering from an acute event. This allowed us to explore attitudes around health coaching among patients who are potentially less responsive to health promotion messages regarding increasing physical activity. The literature shows that lifestyle changes are more likely immediately following an acute event [17].

The majority of participants were positive about their experience of the programme, although a minority expressed some uncertainty around their suitability for the programme and a number of barriers to engagement were highlighted and suggestions for improvement made. Traditionally, qualitative data is presented in terms of the themes identified (e.g. motivation, social support, lack of perceived need). However, here the themes cut across each of the stages of the patient’s journey and we have a variety of different patient journeys depending on whether or not patients attended the programme at all and completed the programme or not. We felt it was important to highlight any similarities and differences between these different journeys and as such we have organized the findings in terms of the various components of the programme, from initial referral, through attendance at the PESS and the ETT, to the health coaching and any participation in increased physical activity.

How did patients experience being referred to the programme?

In general, participants were positive about being referred to the programme, both in terms of increasing motivation around physical activity and facilitating an assessment of their physical condition prior to increasing activity levels. For instance, a number of participants spoke about already being aware of a need to increase their physical activity and so welcoming the referral as a way of motivating this, ‘I think it was a good idea. I thought it might get me back into it, a bit of a push’ (P15).

Participants considered the programme to be a good opportunity to seek professional advice on the type and intensity of physical activity they should be engaging in, saying ‘it gave me a chance to get things sorted out, know where I stand, what I should be doing’ (P80). A majority of participants reported this sense of ‘getting looked after’ (P27), in terms of ‘someone taking an interest (in them)’ (P56) and making them aware of ‘how much more you could do.’ (P56).
A minority of participants, however, were less positive about being referred to the programme, commenting that they felt they were already sufficiently physically active, ‘I already do enough’ (P38), or expressing concern about their ability to participate for health reasons, ‘I thought, I’ll never manage with my breathing. What was I thinking?’ (P9). A small number commented that they had felt ‘pressurized’ or ‘pushed’ into referral against their better judgement, ‘I felt I wasn’t really able or well enough to do it. I didn’t want to come along. I felt pushed into it’ (P61).

**What were patient experiences of the PESS (including the ETT)?**

All patients were referred to the PESS for an ETT to assess their level of risk before being directed onto health coaching and exercise referral or cardiac rehabilitation. The ETT is widely used to screen patients in this way, but it is a fairly intrusive procedure and one which patients would previously have experienced as part of their initial diagnosis of CHD. This prior experience of the test leading to diagnosis, meant that for a number of participants the hospital setting was experienced as problematic, ‘the only drawback was being back there, it brought it all back’ (P25). For others, however, the above-mentioned sense of being ‘taken care of’ or ‘getting looked after’, was reasserted in response to questions about the PESS, with the hospital setting being perceived as a positive, ‘anything that keeps the hospital looking at me I appreciate’ (P42).

Similarly, although some participants found the ETT daunting, ‘It was horrible [ …] I thought what will they find next?’ (P14), the majority described it as ‘wise’ or ‘sensible’ to assess patients prior to advising them on physical activity, ‘I’d imagine it’s sensible to see what you are safe to do before advising you’ (P83), and reported that this had been done in a safe and comfortable environment, ‘It was a hard test; my breathing was quick [ …] but I knew that I’d be okay if anything happened’ (P15).

Overall, approximately half of the participants described the PESS and in particular the ETT, as a positive experience, commenting on a sense of achievement at having completed the test despite its difficulties. For example, one participant said, ‘After doing it I felt I’d really pushed myself. I was dead pleased with myself.’ (P47).

Some patients (16.7%) failed to attend the PESS. When asked why, a number mentioned already being active enough, ‘I felt I was doing enough’ (P5), or not being physically able to participate, ‘I just thought I’d never manage, not with the problems I have with breathlessness’ (P27). These participants also expressed concern about the process. For example, a number of patients reported not feeling confident enough to take part, one stating, ‘I’m a wee fat women’ (P11), another expressing concern that she would ‘feel stupid at not being able to do what I’m asked’ (P13).

**What were patient experiences of the health coaching?**

Overall, patients were positive about the one-to-one consultations with a health coach and highlighted the importance of the health coaches’ expertise, saying ‘it’s a good idea; a professional putting you on the right track’ (P27); ‘letting you know what you should and shouldn’t be doing.’ (P51). Although some felt that they already had sufficient information to make an informed decision regarding how active they should be, saying ‘I think it’s good for those who don’t know that much, but me, I know what I should and shouldn’t do’ (P21).

The individualized nature of health coaching was highlighted as a positive by a number of patients, ‘[it was] on a one-to-one basis, for [your] own personal situation’ (P34), especially in terms of a sense of reassurance that the health coaches had access to information regarding each patient’s health status, ‘You have the facility to meet someone who knows about you and your health and can tell you what to do’ (P42).

Patients also emphasized the importance of the interpersonal relationship between health coach and patient, praising the approachability of the staff, ‘Well … she was a lovely person [ … ] I could see why she was saying stuff’ (P47), and the continuity of contact, ‘every so often she’d get back in touch and that was great’ (P47).
Other patients, however, experienced a lack of continuity and raised this as a negative aspect of the programme as well as failure by staff to follow-up on consultations. For example, one patient stated, ‘He gave me this booklet about what to do. I saw him once. He’d said he’d get back in touch and didn’t. I called him three times’ (P14). A number of patients felt that they would have benefited from increased contact with health coaches and more direct supervision:

The health coaching was a little disappointing. I saw someone and they went away. I understand the level of commitment required and the scale of the problem means that it would be expensive, but it would make a difference if they came with you to the exercise classes (P42).

In addition, regular reassessment and feedback was identified as something participants wanted more of, saying ‘There was no feedback. I had no idea how I was doing. I got on the treadmill once and that was it. Did any of it make any difference? I don’t know’ (P30).

What were patient experiences of the exercise programme?

Overall, patients preferred the supervised exercise programmes. They emphasized the importance of social contact with other people in a similar position to themselves, ‘I liked being part of a group, all who had gone through the same things’ (P39) and the beneficial impact of this social support on the level and maintenance of their commitment to the programme, ‘I kept on because I enjoyed the company’ (P58).

With respect to the unsupervised, signposted exercise programme, some commented that the timing of classes were not suitable for those who work ‘… everything available was during the day. I work. It’s like, you can only go if you’re retired or can’t work. If you work, what are you supposed to do?’ (P14) and complained about frequent changes in class locations and times, over-crowded classes and a lack of equipment, ‘the class I went to there was nothing, no machines … maybe if there were better facilities. The facilities were better in the hospital. Everything was just there’ (P27).

This comparative lack of facilities led to some patients feeling less supported and less safe in community-based classes as opposed to hospital-based ones, ‘the staff just didn’t have time to see you. Someone coming over and saying try this or that, a wee word of encouragement would have made a difference’ (P46). In addition, some mentioned the financial cost of attending the community-based exercise classes. Some, however, appreciated the less directive nature of the signposting of activities by health coaches, ‘they said about an exercise class but I was doing enough so I didn’t go and that was fine too. It wasn’t like giving you trouble, it was like okay its there if you want to go’ (P56).

Some patients questioned the range of activities that were available or signposted for them, ‘I thought I’d get more out of it but it was all much of the same, do this, do that, I was already doing that’ (P43). While others felt they were pressurized into activities that they did not feel comfortable undertaking, ‘one was very encouraging, the health coach, but then suggested all sorts of stuff that wasn’t me and I don’t know why I said yes. I felt I ought to but it was never going to work.’ (P25).

What caused participants not to complete the programme?

One quarter (n = 11) of the participants interviewed who had entered the programme failed to complete it (e.g. they only attended one of the health coaching consultations). The most common reasons given by participants for not completing the programme were inter-current illness or injury (‘I’ve a slipped disc’ [P70]), difficulty with public transportation to and from venues (‘there’s no direct bus’ [P43]), a lack of time and financial constraints (the cost of attending the community-based exercise classes was noted to be restrictive, ‘they charge money and its expensive’ [P13]). A number, however, suggested that active follow-up by the health coaching staff may have increased maintenance, ‘If I’d got that extra boost after I’d fallen away. You know, someone saying ‘okay I know you’ve not been well but what can we do now’. But it didn’t
happen. There was nothing. I missed an appoint-
ment and it was like we don’t want to know’ (P15).

**Discussion**

The findings from the study show that overall, participants were positive about referral to the programme (comprising the PESS, health coaching and exercise programme), perceiving it as an opportunity to increase physical activity in a safe and supervised environment. Participants particularly emphasized the importance of being able to access expertise and guidance in the form of the health coach. This supports previous work on cardiac rehabilitation which suggests that CHD patients often need reassurance as ‘faith in the body and its ability to fulfil the physical demands of daily life were greatly undermined by a diagnosis of CHD’ [40], p. 368. It also supports findings from the wider evaluation of the secondary prevention arm of HaHP, which found that the ‘supportive relationship’ with the health coach reduced anxiety around exercising [22], pp. 39–40.

Participants appreciated the need for the PESS (including ETT) and were generally positive about this component of the intervention. This is a finding somewhat in contrast to views expressed by the HaHP employees responsible for planning and implementing the programme, who felt that the ETT would dissuade patients from becoming involved [22]. For some, though, the location did bring back bad memories of initial diagnosis.

Those who did not attend the PESS believed it to be inappropriate for them in terms of their risk (too high to be suitable or too low to be necessary) or their level of activity (too high to be necessary). The expertise and individualized nature of the health coaching was highlighted, with patients emphasizing the importance of the quality of the interpersonal relationship between experienced health coach and patient. This is again in line with findings from previous research [12, 41] and the wider evaluation of HaHP [22]. In addition, the social aspect of the programme (exercising with other CHD patients) was described as important and the social benefits of attending an exercise class may have increased motivation (also see [12] for comparable findings). Consistency, in terms of health coach and, for those doing unsupervised exercise, in terms of class times and availability was important to patients. Patients also suggested that they would appreciate and be motivated by regular assessment and feedback of progress.

Participants also identified a number of barriers to attending and completing the health coaching which were consistent with the published literature on barriers to physical activity [12, 15, 42–44] as well as findings from the wider evaluation of HaHP [22]. These included a belief that they were sufficiently active already, coexisting health problems, the prohibitive cost of transport to venues, the prohibitive cost of exercising facilities, distance to exercising facilities and competing demands on time. In addition, a number of patients expressed feeling unsupported and unsafe in the community-based exercise classes. Recent guidelines on physical activity for CHD patients highlight a limited number of fitness instructors specifically qualified to provide exercise services for people with CHD [5], a lack which is compounded by constrained resources [8]. For some patients, the health coaching programme had made them feel confident enough to embark on unsupervised exercise; but for many, the limited supervision and advice outside of a hospital setting remained problematic.

Overall, health coaching was valuable for some patients but not for others. This could reflect in part inappropriate identification of patients as ready for change. During interviews with participants, it became apparent that a number who had been identified as being ready to change were not in fact ready, either because they felt an increase in physical activity was unnecessary (because they were low risk or were already active) or not possible (because they believed they were at high risk or had co-morbidities which prevented physical activity). A minority of patients reported feeling pressured to take part. This patient group (chronic stable CHD patients) may also be less convinced of the need for and possibility of change than patients who have recently experienced an acute cardiac event or stepwise deterioration in
their clinical condition and thus take longer to move between early stages of the trans-theoretical model to later stages of action and maintenance (with greater oscillation between early stages; pre-contemplation and preparation). This diverse group of patients may also include some who have already made changes as a result of their diagnosis and others who may perceive themselves to be at higher risk than is actually the case, making them reluctant to, and anxious about, undertaking a change in physical activity behaviour.

Other studies have found that better communication of risk and the impact of health behaviours on CHD can improve the appropriateness of both risk perception and anxiety [45], thus providing important information to help patients judge whether they need to, and are ready to, change their behaviour (i.e. facilitate movement from the early to the later stages of the trans-theoretical model). This would allow for better targeting of health coaching and exercise initiatives and maximize the potential gain from such programmes. In addition, a range of studies have identified demographic and psychological issues affecting uptake of exercise programmes, coexisting with social, environmental and wider policy determinants [46]. The ability of those living in areas of socio-economic deprivation (such as the participants of this study) to make positive changes to their lifestyle might be heavily constrained by such factors and this is evidenced in our study in respect of the barriers identified by patients regarding the prohibitive financial and time cost of participation in, and travel to, community-based exercise.

There are a number of strengths and weaknesses associated with the study. For instance, we were unable to speak to all patients referred to the programme; however, we did manage to interview nearly half (48%) of those referred. A number of the patients that we were able to contact by telephone were excluded because they had no recollection of being referred to the programme. It is likely that this group of patients attend numerous primary and secondary care appointments and that they were unable to distinguish the PESS consultation from a routine appointment. This is supported by the wider evaluation of HaHP, which found no clear perception of the ETT as a ‘precursor of involvement in health coaching’ [22], p. 37. One sixth (17%) of those interviewed failed to attend the PESS appointment and nearly a third (30%) were identified as at high risk at their PESS and, therefore, were redirected to cardiac rehabilitation rather than referred for health coaching. An additional 11 patients (13%) did not complete the programme. As such, less than half (40%) of all those interviewed actually completed the health coaching programme. Nevertheless, by collecting data from as many individuals referred to the programme as possible, we have captured important information, views and experiences about the programme from a diverse group of patients including those (often very difficult to reach) patients who failed to attend or did not complete the programme. The health coaching programme itself was effective, in terms of participation, with more than 75% of those referred who were interviewed completing (attending two or more consultations) compared with estimates from the literature of between 12 and 42% [12], p. 983.

Conclusions

Increasingly health coaching interventions are being implemented as part of chronic disease management programmes to effectively promote long-term lifestyle modification. Studies show that people change their behaviour if they believe that change is ‘of value and achievable’ [29], p. 961. Our research has shown that when targeted at patients who were ready to make lifestyle changes, pre-exercise screening and health coaching were valued by the majority of chronic stable CHD patients. However, the programme was not welcomed by everyone. Thus, it is imperative that patients are contacted at the appropriate stage (i.e. contemplation and preparation); when they are ready to make such lifestyle changes. In order to achieve this targeting and thus maximize the potential health gain from health coaching, we may need better methods to identify and access these patients. Finally, our research suggests that when providing health
coaching patients tend to prefer continuity of contacts backed up by supervised sessions and feedback regarding progress.

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**Conflict of interest statement**

None declared.

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