Clinical Rehabilitation 2005; **19:** 87–96

A qualitative study investigating patients' beliefs about cardiac rehabilitation

AF Cooper Cardiothoracic Centre, St Thomas' Hospital, London and Post Graduate Medical School, Faculty of Health, University of Brighton, **G Jackson** Cardiothoracic Centre, St Thomas' Hospital, London, **J Weinman** Department of Psychology, Kings College London and **R Horne** Post Graduate Medical School, Faculty of Health, University of Brighton, UK

Received 28th May 2003; returned for revisions 24th July 2003; revised manuscript accepted 15th January 2004.

Background: The opportunity to attend a cardiac rehabilitation course is usually offered to patients who have suffered a myocardial infarction. However, despite referral, many patients fail to attend.
Objective: To elicit patients' beliefs about the role of the cardiac rehabilitation course following myocardial infarction.
Design: Qualitative study using in-depth semi-structured interviews.
Setting: London Teaching Hospital.
Subjects: Thirteen patients were interviewed after discharge from hospital following myocardial infarction, but prior to attendance at cardiac rehabilitation.
Main outcome measures: Patients' beliefs about cardiac rehabilitation that may act as barriers to attendance.
Results: Themes identified included: the content of cardiac rehabilitation, perceptions of exercise, benefits of cardiac rehabilitation, explicit barriers to attendance and cardiac knowledge. Whilst some patients viewed cardiac rehabilitation as an important and necessary part of recovery others expressed doubt that it was appropriate for them. Some patients were uncertain of the course content and misunderstood the role of exercise and its perceived effects. Misconceptions with regard to cardiac knowledge were also apparent. The combination of erroneous beliefs about cardiac rehabilitation and cardiac misconceptions seemed to result in doubts regarding attendance.
Conclusions: Prior to course attendance some patients hold erroneous beliefs about the course content, especially the exercise component. Co-existent cardiac misconceptions are also apparent. Further research is needed to clarify the extent to which these beliefs may contribute to the decision not to attend cardiac rehabilitation.

Introduction

Participation in a cardiac rehabilitation course is usually offered to patients who have suffered a coronary event such as acute myocardial infarction in order to promote psychological and physical recovery and facilitate secondary prevention. Cardiac rehabilitation involves educational talks, instruction in physical activity and relaxation/stress management sessions. Overviews of randomized controlled trials have demonstrated proven clinical benefit following acute myocardial infarction,[1,2] however, many patients (typically 30–60%) decline to attend a single session.[3–5] Nonattendance may be a result of referral failure

Address for correspondence: Alethea Cooper, Cardiothoracic Centre, 6th Floor, East Wing, St Thomas' Hospital, Lambeth Palace Road, London SE1 7EH, UK. e-mail: alethea.cooper@gstt.sthames.nhs.uk

10.1191/0269215505cr818oa

or attendance failure – nonadherence to recommended advice.

Leventhal's self-regulatory model[6,7] of illness behaviour attempts to provide a rationale for nonadherence and proposes that patients hold key illness beliefs which direct the way in which they cope with or manage their illness (i.e., by taking medication or attending cardiac rehabilitation). In two studies involving patients who suffered myocardial infarction, beliefs about the heart condition elicited during hospitalization were independently predictive of attendance at cardiac rehabilitation.[3,4] Patients who felt they had a degree of control over the course of their heart condition and who acknowledged the role of lifestyle factors in causing their heart attack were more likely to attend.

An extension of this model[8] outlines the role of patients' beliefs about the necessity and possible adverse effects of their treatment or medication with regard to their adherence (the necessity–concerns framework). Treatment perceptions of patients with a range of chronic illnesses have been shown to explain more variance in treatment adherence than illness perceptions alone.[9] Although we know that patients' illness beliefs influence attendance at cardiac rehabilitation, the nature of the beliefs held by patients with coronary heart disease about cardiac rehabilitation and the extent to which these may influence attendance behaviour is less clear. Previous studies have addressed this question but to date such studies have been distinguished either by community setting (e.g., rural Australia,[10] a South Yorkshire Coalfield Community[11]) or gender (focus group interviews with 10 women).[12] In general, studies have been conducted at least several months after the cardiac event and following completion of cardiac rehabilitation by some of the study participants.[13]

This qualitative study was conducted in the first few weeks following myocardial infarction in a London Teaching Hospital. Interviews were conducted soon after discharge from hospital but *prior* to course attendance in the hope that we could fully capture the beliefs of the patient regarding the cardiac rehabilitation course that may be salient to their decision to attend or not. By conducting interviews prior to attendance we could be sure our findings were not a reflection of knowledge or experience gained through participation in the course itself.

Methods

The study received local research ethical committee approval.

Semi-structured interviews were conducted because this method affords the interviewee the freedom to provide their own account of a topic. Qualitative analysis (interpretative phenomenological analysis) was subsequently used to capture the fullness of the interviewees' responses. Interpretative phenomenological analysis is concerned with attempting to understand the beliefs or account of the participant about a topic or event[14] and accepts that verbal reports may be mapped onto underlying beliefs or cognitions, hence the term 'phenomenological'. It is 'interpretative' because although it is purported that the patient's verbal dialogue may represent their personal perceptions or beliefs, it is acknowledged that this is determined through interpretation of a transcription of the interview by the researcher.[15]

Participants

Recruitment

Patients from southern England who had been admitted to a regional cardiothoracic centre with an acute myocardial infarction were identified through liaison with the cardiac rehabilitation nursing team.

Patient selection

Interviews were to be conducted within a specific time frame (i.e., after hospital discharge but before attendance at cardiac rehabilitation). Opportunity for purposive sampling was limited to those patients currently waiting to begin their cardiac rehabilitation course during an eight-week period when the interviews were to take place. Seven women and 13 men were selected, representing a broad age range: 37–82 years, with equal numbers of employed (manual and office workers) and retired patients.

Patients were sent a letter by the researcher inviting them to participate in a research project

involving a discussion concerning their heart attack and the cardiac rehabilitation course. It was made clear that this project was unrelated to the medical care they were receiving and the researcher was independent from the cardiac rehabilitation team staff. Fifteen patients agreed to participate. Reasons for nonparticipation included: no response to the initial letter, patient not available due to convalescence out of the area or feeling too unwell to be interviewed.

One female interviewee was not included in the final analysis because she did not have coronary heart disease. One interviewee arrived on the wrong day and was not willing to attend a second appointment. Thus the final sample consisted of 13 patients, with nine men and four women. The age range was 37 years to 79 years (mean age 56 years). Seven patients were retired and six patients were employed.

Prior knowledge of the cardiac rehabilitation course

As part of usual care during hospitalization patients had been visited by a cardiac rehabilitation nurse. Causes of their heart attack, the nature of coronary heart disease, the content and role of the cardiac rehabilitation course were discussed. Patients were invited to attend the course.

Procedure

Face to face in-depth semi-structured interviews were carried out either at the hospital or the participant's home, according to patient preference. Interviews were tape-recorded with permission of the participant. Interviews lasted on average 45 min. All audiotapes were transcribed in full.

Interview schedule

Previous research has shown cardiac rehabilitation attendance to be associated with causal attributions to heart attack and interviews began with general questions such as possible causes for heart attack and whether the patient felt there was anything they could do to help the health of their heart in the future. Where participants did not independently raise the issue of cardiac rehabilitation, they were asked whether they had heard about it and what they thought about the idea in general, before more specific prompts were used if necessary (e.g., What might it involve? Do you think you will go?). The order of topics on the interview schedule was not always adhered to, but it was used as a guide to ensure the same topics were covered in all interviews.

Analysis of interviews

The author read transcripts of all interviews and listed themes that emerged from each. As new themes emerged in some transcripts, these were tested against earlier transcripts. Emerging themes that appeared to be related or associated with each other within each transcript were grouped together. From the initial reading of individual transcripts a list of common key themes and subordinate themes between participants were generated. The patterns of relationship between the themes was then considered.

Two other researchers (JM) and (VC) second-read randomly selected transcripts and identified key themes and associated themes as detailed above. All reading and analysis of transcripts by the researchers took place independently.

Themes and groupings identified by the second readers were compared with those identified by the author. Discussion between all readers took place with regard to clarification of key themes and identification of links between them.

Results

Key themes

Key themes fall under the categories of cardiac rehabilitation course and cardiac knowledge and are shown in Table 1 with associated subordinate themes.

The themes can be summarized in relation to patients' perceived necessity and concerns regarding cardiac rehabilitation and this is shown in Figure 1.

Beliefs regarding the content of cardiac rehabilitation

Despite prior contact with cardiac rehabilitation nursing staff, and receiving an invitation to attend, 11 patients appeared uncertain as to what it would involve, suggesting exercise or 'gym' but little else.

> *I don't know what they do there, well, somebody said they do exercises*. (Patient 5)

Table 1 Themes identified from the interview transcripts

Key themes	Subordinate themes
Cardiac rehabilitation course:	
Content of course	Exercise Type of exercise Self-image Reassurance
Perceived benefits	General – Part of overall treatment Specific – Return to work – Psychological recovery
Explicit barriers to attendance	Practical barriers Social interaction
Cardiac knowledge:	
Causal attributions for heart attack	Unaware of possible causes Stress Over activity/exertion Traditional risk factors
Nature of coronary heart disease	Heart attack as a discrete event

Only one person (with previous knowledge of physical rehabilitation for a knee injury) specifically mentioned the multidisciplinary aspect of cardiac rehabilitation.

Cardiac rehabilitation and exercise

For patients who associated cardiac rehabilitation with exercise, the reassurance provided by supervision, the type of exercise and the image evoked by exercise were prevalent issues.

Positive associations between exercise and cardiac rehabilitation included the opportunity to learn about exercise, the social aspect of group participation and the reassurance of exercising within a safe environment. However, two men who perceived cardiac rehabilitation as mainly 'gym-work' felt they could undertake this independently by joining a local gym or exercising at home. Attending the cardiac rehabilitation course did not appear to be necessary with one man stating:

> *. . .because I have got it at home, I ain't telling lies. I have got the stairs, I have got the weights.* (Patient 14)

This patient's intention to use 'weights' during exercise shows a possible misunderstanding regarding the importance of aerobic exercise in their recovery. This was apparent in other transcripts and is discussed further below. Use of weights may be recommended in tailored exercise regimens to improve muscle strength in the elderly cardiac population but the main emphasis is on aerobic activity.

The image of exercising was a focal point for two female patients. One stated:

> *If you have got to take trainers or plimsols you have got to do some exercises or something, that is not me.* (Patient 5)

Exercise was viewed as a potential source of embarrassment and worry through drawing negative comparisons between themselves and young, fit people who exercised regularly and attended private gyms:

> *I thought I would see how far I could do with the exercise. I thought I would look a bit of a lemon if there are all these fit, healthy people . . .my son-in-law goes to the gym and walks so many times a week and so does my daughter, and I thought, well, all these fit people.* (Patient 4)

Both mentioned 'poor' performance on the exercise tolerance test prior to discharge from hospital and one expressed bewilderment at how quickly she had to stop the test, especially in comparison to people she had seen exercising on television.

Despite a willingness to try cardiac rehabilitation expressed by the patient quoted below, the possibility of getting out of breath was seen as something to be avoided and perhaps a source of apprehension. Her previous experience of breathlessness may have been a result of ischaemia prior to her myocardial infarction. If the patient was to increase previous activity levels some degree of breathlessness may be expected.

> *I would like to try the rehab. I don't know how well I'll do on the exercises, as I said, you*

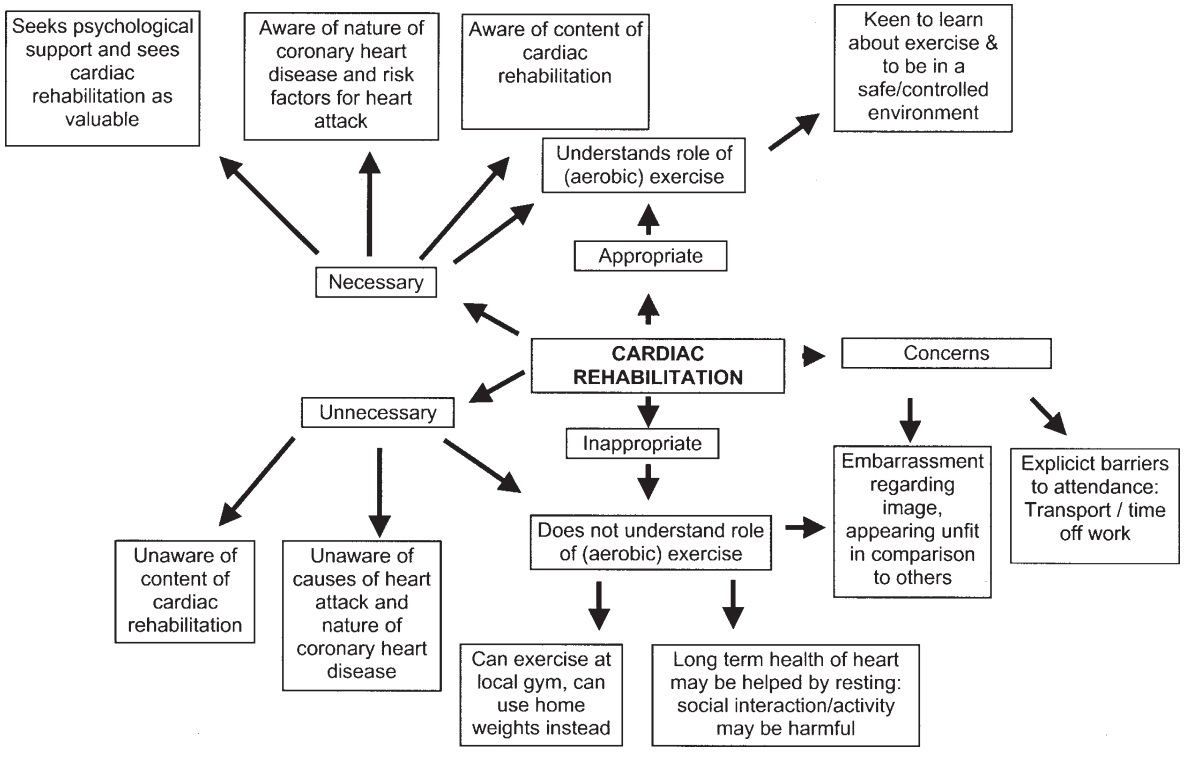

Figure 1 Summary of themes within a necessity–concern framework.

know, I have never been very athletic but I will try. As long as I don't get too out of breath. I do tend to get a bit out of breath sometimes. (Patient 4)

Failure to associate physical activity and aerobic exercise with recovery may have influenced the second female patient who did not consider herself fit enough to attend cardiac rehabilitation despite referral:

Well, I don't know if I want to go and do exercises. I can't walk around the house properly, let alone do exercises, so I might give them a ring and cancel it out. (Patient 5)

Perceived potential benefits of attending cardiac rehabilitation

In contrast to the specific concerns and worries expressed above, some patients perceived general and specific potential benefits of attending cardiac rehabilitation that were unrelated to exercise. Four patients viewed cardiac rehabilitation as a form of treatment in its own right and felt that generally it was a 'good idea' but did not mention specific components.

I can assure you now, I do want to go because I view that as part of the treatment. I have had the medication, fine, now I view the rehab as a continuation of that treatment. I want to do it. (Patient 10)

Yes, I think really from my point of view it is a necessary follow up…it is all part of the get well process. You know. (Patient 11)

Three patients suggested that attendance at cardiac rehabilitation would help them return to work, one could not suggest exactly what it may involve but was keen to attend believing it would be of benefit:

Yes, otherwise they would not do it. You know. It is very important to me. You know, the quicker

I am fit for work the better it is for me because I am self-employed. (Patient 3)

Comments made by two patients suggested they sought not just physical recovery, but also emotional or psychological support following their heart attack.

Well, I would see it as being two-fold, primarily to get the heart back, yeh, that is physical but just as important is getting your head straight so you don't get yourself into that position again, and it does go hand in hand. (Patient 8)

The second patient suggested that cardiac rehabilitation may help him to regain something he had lost through the illness experience, in particular his confidence, so he could replace the fear he currently felt.

It will bring me back into the world again because you feel a little bit different to other people. You don't feel quite the same…it makes you afraid to go out on your own. It does, and I think with this rehab, this will at least almost bring me back into the world again. (Patient 10)

Barriers to attendance

Practical barriers were evident and difficulty with transport was mentioned by two women. One attended other outpatient hospital appointments regularly for which she was willing to pay for a taxi but was not prepared to do this for cardiac rehabilitation. This may reflect a difference in its perceived importance, perhaps because she associated it solely with exercises, relative to other treatment interventions.

Well, the only thing that was putting me off was the transport…well, otherwise I don't think I'd do it. I mean, I would miss the exercises. I never miss, never miss anything with my eyes, and diabetic clinic, things like that, I am usually good for appointments, if I can at all, I will. (Patient 2)

Several patients were concerned about taking more time off work following their hospitalization and recovery period in order to attend the cardiac rehabilitation sessions. One felt this would act as a potential stressor and best avoided at the current time.

Work is a factor you see, because you see if I do have to go to something like that, you see, my company at the moment, they are getting very, very strict. You see. That does not help anybody, all it does is create more stress for the person involved, that is what it does you see. (Patient 12)

Another clearly felt conflict between returning to, and keeping, a job which provided great satisfaction but also looking after his health. He talked of the consequences of living on social security income should he lose his job through taking time out to attend the cardiac rehabilitation sessions.

Well, hopefully I am going back to work Monday, and because of the hours, at 9.45 am, it is trying to get time back off…unfortunately it is one of those cases where I only get paid for six weeks, so I have got to get back to work… I want to look after my job, because I absolutely love my job, I mean everything has changed in my life since I had this job.

But later the same patient commented

Since I have had the heart attack, I have literally gone in… well… my health comes before anything, money, job, I mean, I don't give a damn about none of that, my health comes first. If they turn round and say you can't go I just say, keep your job. If I have to go on the dole I have, My health comes first, it is not nice to be living on £57.00 a week but …you know. (Patient 6)

Finally, two patients expressed doubt about attending due to the social interaction. One felt he would rather read information than attend sessions where he would interact and talk with other patients, whilst another expressed concerns about meeting people who were ill.

Cardiac knowledge

Causal attributions for heart attack and understanding coronary heart disease

During the interviews all patients referred to or appeared to be seeking possible causal attributions

for the heart attack. None of the patients explicity referred to the underlying nature of coronary heart disease. Risk factors such as smoking and high cholesterol were present in all but two of the patients but seven expressed feelings of mystification or showed misunderstanding when seeking to explain the cause of their heart attack.

One patient did make reference to worry being a factor, it having been mentioned by significant others:

> *Not the faintest idea…they said worry might have brought it on.* (Patient 2)

This was a common theme, with seven patients mentioning stress as a causal factor for their heart attack, sometimes work related or stress caused by personal difficulties, suggesting they perceived that long-term stress may be responsible. However, although endorsing stress as a causal attribution, one study participant mentioned the lack of perceived stress at the time of his heart attack:

> *Work had only just started and I had not done much and I was laughing and talking with my friend next door so I can't really say I was really under stress.* (Patient 12)

Similarly, four patients erroneously associated the occurrence of heart attack with exercise or immediate activity. The uncertainty these patients felt as to the cause of their heart attack was exacerbated by the fact their heart attack occurred when they were at rest or relatively relaxed. When asked whether she had any idea about what caused her heart attack one woman replied:

> *None at all, right, I wasn't doing anything, I was just sitting in the chair, no idea.* (Patient 5)

It appeared that those patients who perceived little causal explanation for their heart attack were less likely to see how they could be helped through cardiac rehabilitation attendance. Asked whether she felt cardiac rehabilitation might help her recovery one woman could not suggest any potential benefit of attending.

> *Yes, but how can it? What can they do now? Not a lot. I am taking tablets. And I am not eating much.* (Patient 5)

Patient follow-up: attendance at cardiac rehabilitation

It is not possible to firmly establish links between participants' beliefs, their expressions of intention to attend and actual attendance behaviour within the context of this study. This is firstly due to the small number of interviewees and secondly the interview could have served as a reminder or prompt to attendance. However, attendance at cardiac rehabilitation was obtained from hospital records at follow-up. Patients 5, 12 and 14 did not attend. Patient 6 completed half the course but left in order to return to work. Although some of the views regarding heart disease and cardiac rehabilitation expressed by the participants fit into the lower half of Figure 1, those of the nonparticipants seemed to be summarized exclusively in the lower half of Figure 1. These patients were unaware of the course content, the causes of heart attack and the nature of coronary heart disease. They did not understand the role of aerobic exercise and expressed concerns about taking time off work to attend.

Discussion

Study participants appeared to hold misconceptions regarding the nature of cardiac rehabilitation as well as coronary heart disease and myocardial infarction. They were mostly unaware of the course content, assuming it was exercise only, but often misunderstanding the role of exercise in their recovery. Combined with erroneous beliefs about causal attributions for myocardial infarction and apparent lack of cardiac knowledge this appeared to lead some to express doubt about the necessity or appropriateness of the course. The themes apparent from the transcript analysis of this study and their suggested association with subsequent attendance are consistent with findings from studies conducted after cardiac rehabilitation attendance with nonparticipants and participants. This commonality of findings will be highlighted and possible implications discussed further.

Lack of awareness of course content is not a centre-based issue but is in accordance with other published studies. Ten women participating in group interviews[12] reported that prior to participation they had no idea what to expect, although our

results and others suggest that this is not a gender-specific issue. In a rural-based population of eight men and eight women who had suffered a myocardial infarction, nonattenders who felt cardiac rehabilitation was inappropriate for them were more likely to have misunderstood the content.[10] Finally, in a study of four women and 17 men who had suffered a myocardial infarction[11] a lack of understanding of the content of cardiac rehabilitation emerged as one of several themes that acted as barriers to attendance.

Participants in this latter study also thought cardiac rehabilitation would consist of exercise only and would be suitable for those who are previously fit but in others could be harmful following a heart attack. Likewise, in our study participants who viewed cardiac rehabilitation as unnecessary and subsequently did not attend had expressed inaccuracies regarding the type of exercise carried out during cardiac rehabilitation or expressed doubts about their fitness. Wyer *et al.*[13] also found that misconceptions regarding rest and not exerting themselves was a commonly expressed theme of nonattenders. Failure to attach importance to aerobic exercise in recovery from heart attack may act as a barrier to attendance but misconceptions regarding exercise/activity as a cause of heart attack could also lead to symptom-limited behaviour, which in severe cases can lead to cardiac invalidism.

Misconceptions regarding the role of physical activity in recovery from heart attack leads to a second major theme from the analysis, namely that of cardiac knowledge and understanding the nature of coronary heart disease.

Thornhill and Stevens found a difference in the level of cardiac knowledge between attenders and nonattenders of cardiac rehabilitation courses.[10] Similarly, Wyer *et al.*[13] found that attenders understood the need for lifestyle changes and addressing risk factors. In these studies attendance at cardiac rehabilitation could have led to the differences. However, our findings were similar, lending support to these findings. Lack of cardiac knowledge on behalf of those who felt cardiac rehabilitation was unnecessary or inappropriate cannot be attributed to the fact that patients had not attended a course as all patients were interviewed prior to course attendance. Several patients appeared mystified as to the cause of their heart attack. Their experience of myocardial infarction, occurring when they were at rest, was not compatible with their personal model of heart attack which they saw as typically striking during heightened physical or emotional states. The key fact here is that these patients seemed to view myocardial infarction as an isolated, discrete event unconnected with an underlying disease process or associated with traditional risk factors such as smoking, or high cholesterol. It is not surprising that those patients who do not know that their heart attack is a manifestation of underlying coronary heart disease do not understand the need to make lifestyle behaviour changes.

Thus, for cardiac rehabilitation to be perceived as a credible treatment option, it needs to be seen as necessary through offering help with the lifestyle changes necessary to enable successful secondary prevention. If patients acknowledge the role that lifestyle behaviours play in maintaining coronary heart disease, which can lead to heart attack, it is feasible they can be helped to understand that they have personal control over these behaviours but that changing them may also require support and expert advice. Importantly, few patients seemed to view cardiac rehabilitation as providing such support and advice. During hospitalization patients who do understand the role of lifestyle factors often show great optimism and confidence in being able to make necessary changes, perhaps spurred on by the emotional impact of finding themselves in the alien technological environment of the coronary care unit. However, they may face difficulties in making or sustaining changes once returned to their usual social and work environment.

Previous reviews of cardiac rehabilitation attendance behaviours suggest that there may be gender-specific barriers to attendance and emphasize the need to explore these issues in greater depth.[18,19] The image related to exercising in a gym led two of the women to draw negative social comparisons between themselves and people who were fit and healthy, pointing to a possible source of embarrassment at performing badly when undertaking exercise. The issue of gender differences in relation to exercise and image could be further explored. The waiting time to begin cardiac rehabilitation may be a deterrent to some women because they resume their domestic role quite

quickly.[11] This was not an issue in this study although the number of women included was small. However, a relevant issue for some patients in our study was that cardiac rehabilitation attendance coincides with the period at which the patient is considered fit to return to work. Employers, as well as patients, find difficulty in understanding why further time away from work is necessary. Patients who wish to protect their jobs may be unwilling to address this issue with their employers and will miss the cardiac rehabilitation sessions causing personal conflict for them at a time when they most need support and emotional stability. Employers should be aware of the role of cardiac rehabilitation in recovery from heart attack and in the secondary prevention of coronary heart disease. Likewise, access to cardiac rehabilitation should be tailored to suit the individual's needs.

Patients who were unsure of how exactly cardiac rehabilitation could help were more likely to cite possible barriers to attendance such as difficulty with transport, even though these difficulties were surmountable in the context of other hospital visits. However access problems related to transport have been reported elsewhere.[10,11]

This study has provided insight to patients' beliefs regarding cardiac rehabilitation, their possible association with some illness beliefs and actual attendance behaviour. This study was conducted in a small number of patients at one site and the results are not generalizable but the consistency with results from other studies mentioned above allows us to draw certain implications.

UK guidelines and audit standards for cardiac rehabilitation[16] stress the need to address misconceptions that patients and their relatives may have regarding coronary heart disease. The results of this study suggest that this is a current real and pressing need. Misconceptions regarding the role of cardiac rehabilitation in the short-term recovery and long-term management of their heart condition should also be addressed.

Despite study participants receiving counselling by staff prior to discharge from hospital many held misconceptions regarding coronary heart disease and the cardiac rehabilitation course. It is unclear how easily information is absorbed following, what is for many, a physically and psychologically devastating experience. The effect of emotions on short-term memory, and subsequent shaping of illness and treatment beliefs in this medical context, are, as far as we are aware, uninvestigated. Thus, the timing of delivery of information remains an issue to be further explored. Accurate information regarding the role of cardiac rehabilitation should be provided at a time and in such a way that it may be incorporated into the patient's implicit model of heart attack.

This is especially relevant in those patients who may choose not to attend because they do not see cardiac rehabilitation as helping their heart condition but as exacerbating it.

It has been stated previously in literature that patients' treatment beliefs are not necessarily isolated from their illness beliefs.[17] With regard to views of cardiac rehabilitation this statement seems to be supported not only from the results of this study but also others – the belief that cardiac rehabilitation could potentially be harmful and as such should be avoided because participation in exercise did not fit in with the patient's model of heart attack and recovery, is a common theme.

Although the interpretation and discussion of the themes generated would appear to support the necessity–concerns framework[8] of treatment beliefs, this will remain speculative unless tested in a larger sample representative of the cardiac population.

Similarly the strength of association between treatment beliefs and illness perceptions and their power in predicting behaviour should be ascertained in larger patient samples. If it is demonstrated that patients do hold beliefs about cardiac

Clinical messages

- Despite information provision following myocardial infarction, some patients hold misconceptions regarding the content and nature of cardiac rehabilitation.
- Interaction between cardiac misconceptions and erroneous beliefs about cardiac rehabilitation may act as barriers to attendance.
- The role of exercise in secondary prevention may be misunderstood and be a source of concern for some patients.

rehabilitation which are shown to influence attendance behaviour and may be linked with their illness beliefs, misconceptions should be addressed through the development and assessment of targeted interventions.

References

1 O'Connor GT, Buring JE, Yusef S *et al*. An overview of randomised trials of rehabilitation with exercise after myocardial infarction. *Circulation* 1989; **80**: 234–44.

2 Oldridge NB, Guyatt G, Fischer ME, Rimm AA. Cardiac rehabilitation after myocardial infarction: combined experience of randomized clinical trials. *JAMA* 1988; **260**: 945–50.

3 Petrie KJ, Weinman J, Sharpe N, Buckley J. Role of patients' view of their illness in predicting return to work and functioning after myocardial infarction: longitudinal study. *BMJ* 1996; **312**: 1191–94.

4 Cooper A, Lloyd G, Weinman J, Jackson G. Why patients do not attend cardiac rehabilitation? The role of intentions and illness beliefs. *Heart* 1999; **82**: 234–36.

5 Ades PA, Waldman ML, McCann WJ, Weaver SO. Predictors of cardiac rehabilitation participation in older coronary patients. *Arch Intern Med* 1996; **152**: 1033–35.

6 Leventhal H, Meyer D, Nerenz D. The common sense representation of illness danger. In: Rachman S ed. *Contributions to medical psychology*. New York: Pergamon Press, 1980: 17–30.

7 Leventhal H, Meyer D, Steele D. Illness representations and coping with health threats. In: Baum A, Singer J eds. *A handbook of psychology and health.* New Jersey: Lawrence Erlbaum Associates, 1984: 219–52.

8 Horne R. Representations of medication and treatment: advances in theory and measurement. In: Petrie K, Weinman J eds. *Perceptions of illness and health: current research and applications.* London: Harwood Academic, 1997: 155–87.

9 Horne R, Weinman J. Self-regulation and self-management in asthma: exploring the role of illness perceptions and treatment beliefs in explaining non-adherence to preventer medication. *Psychol Health* 2002; **17**: 17–32.

10 Thornhill M, Stevens JA. Client perceptions of a rural-based cardiac rehabilitation program: a grounded theory approach. *Aust J Rural Health* 1998; **6**: 105–11.

11 Tod AM, Lacey AA, McNeill F. 'I'm still waiting': barriers to accessing cardiac rehabilitation services. *J Adv Nurs* 2002: **40**: 421–31.

12 Moore SM. Women's views of cardiac rehabilitation. *J Cardiopulm Rehabil* 1996; **16**: 123–29.

13 Wyer SJ, Earll L, Joseph S, Harrison J. Deciding whether to attend a cardiac rehabilitation programme: an interpretative phenomenological analysis. *Coronary Health Care* 2001; **5**: 178–88.

14 Smith JA, Flowers P, Osborn M. Interpretative phenomenological analysis and the psychology of health and illness. In: *Material discourses of health and illness.* London: Routledge, 1997: 68–91.

15 Smith JA, Jarman M, Osborn M. Doing interpretative phenomenological analysis. In: Murray M, Chamberlain K eds. *Qualitative health psychology.* London: Sage, 1999.

16 Thompson DR, Bowman GS, Kitson AL, de Bono DP, Hopkins A. Cardiac rehabilitation in the United Kingdom guidelines and audit standards. *Heart* 1996; **75**: 89–93.

17 Horne R. Patients' beliefs about treatment: the hidden determinant of treatment outcome? *J Psychosom Res* 1999; **47**: 491–95.

18 Evenson KR, Rosamond WD, Luepker RV. Predictors of outpatient cardiac rehabilitation utilization. The Minnesota Heart Survey Registry. *J Cardiopulm Rehabil* 1998; **18**: 192–98.

19 Thomas RJ, Miller NH, Lamendola C *et al.* National survey on gender differences in cardiac rehabilitation programs: Patient characteristics and enrollment patterns. *J Cardiopulm Rehabil* 1996; **16**: 402–12.